TO: "A" Team 0022 Dave 7/18/90

Review of Bear Canyon Five Year Renewal

SUSAN	R614-301-100	(Legal & Financial)
HENRY	R614-301-200	(Soils)
SUSAN/BILL	R614-301-300	(Biology)
	R614-301-400	(Land Use)
JESSE	R614-301-~~400~~ 500	(Air Quality) (Engineering)
DANE DARBY	R614-301-600	(Geology)
TOM	R614-301-700	(Hydrology)
PAM/JESSE	R614-301-800	(Bonding)

Initial Completeness Review due 8/10/90

(Must be determined complete by September 1, 1990)

Thank You.
PAM

MEC Mangum Engineering Consultants

388 East Boynton Road • Kaysville, Utah 84037 • (801) 544-3641

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

13 July 1990

Pamela:

Ref: Five-Year Permit Renewal Application and Federal Lease Tract Addition, Permit Application Package (PAP) updates, Bear Canyon Mine, Co-Op Mining Company, ACT/015/025, Emery County, Utah

The PAP with attached updates is intended to fulfill the requirements for the Five-Year Permit Renewal Application (expires 1 November 1990) as well as for the addition of the Federal Lease Tracts.

Enclosed is an itemized list discussing Co-Op Mining Companies response to the comments made in the Initial Completeness Review (ICR) received from DOGM. Also attached are four copies of Pages and Plates incorporated in the response.

Please review these items and inform me of any additional information that may be required to complete the PAP for approval. Additional copies will be submitted when requested. Thank you for your cooperation in this matter.

Sincerely,

Kimly C. Mangum, P.E.
Permitting & Compliance Consultant.

Enclosure(s)
cc: Co-Op Mining Co.

DOGM ICR

UMC 771.25 Permit Fees The $5.00 application fee is attached.

UMC 771.27 Verification of Application A letter of verification from Co-Op Mining Company is attached.

UMC 782.13 Identification of Interests The legal description of the federal leases is properly stated in the PAP. See p 2-3.

UMC 782.14 Compliance Information (c) The listing of violations has been updated. See Appendix 2-A.

UMC 782.18 Personal Injury and Property Damage Insurance Information The "Certificate of Insurance" has been updated. See Appendix 2-C.

UMC 782.19 Identification of Other Licenses and Permits (b) The address of the issuing authorities is included on Table 2-2, pp 2-12 thru 2-14.

UMC 782.21 Newspaper Advertisement and Proof of Publication A sample of the newspaper advertisement to be published is attached.

UMC 783.22 Land Use Information Emery County Zoning Classifications are correctly identified on pp 4-2 and 4-3. Plate 2-2 identifies different zoning in the area.

UMC 783.24 Maps General Requirements (a) Subsurface ownership on Plate 2-3 has been modified as requested. (c) Plates 3-4 and 3-4a have been updated to show the projected mining sequence.

UMC 783.25 Cross Sections: Maps and Plans No mines are known to exist above or below this mine. No oil or gas wells are known to be in the mine area. See Plate 3-4.

UMC 784.11 Operation Plan: General Requirements The type and method of coal mining for each seam is identified in Section 3.4.1 of the mine plan.

UMC 784.12 Operation Plan: Existing Structures Photographs of existing structures are included, see Appendix 3-A. (To be submitted within the next week.)

UMC 784.13 Reclamation Plan: General Requirements (b)(6) The BLM Resource Recovery and Protection Plan will be included as Appendix 3-L when obtained. (b)(9) A copy of the Bureau of Air Quality

UMC 784.13 Reclamation Plan: General Requirements (b)(6) The BLM Resource Recovery and Protection Plan will be included as Appendix 3-L when obtained. (b)(9) A copy of the Bureau of Air Quality Approval order allowing increased production is presently included in the PAP as pp 11B-4 and 11B-5.

UMC 784.19 Underground Development Waste There are no changes anticipated for treatment, disposal or increase in relative quantities of underground development waste. See Sections 3.3.9 and 3.5.8.

UMC 783.12 General Environmental Resources Information (a) Table 3.4-1 (p 3-27) has been updated. According to the LMU presently submitted to the BLM, total recoverable reserves for the Bear Canyon Mine are 8,843,759 tons, of which 1,655,00 tons in the Hiawatha Seam are questionable. At 400,000 tons per year this would give approx 22 years (2012) of mine life.

UMC 783.14 Geology Description Mining has not reached projected sample site CS-3 as of this time. Once mining reaches the proposed location, roof, floor, and midseam samples will be collected and analyzed as outlined in the Division Guidelines for Management of Overburden and Topsoil, Table 6. Laboratory results will be forwarded to the Division as soon as they are available. It is proposed to collect and analyze an additional roof, floor, and midseam sample at the proposed site CS-4, as shown on Plate 3-4. This sample will be analyzed in the same manner as described for CS-3. Results of sampling will be submitted to the Division with the Annual Report for the year in which the sample is taken.

If the mining operations change and it results in a modification to the quality of the roof, floor, and midseam, additional samples will be taken on an annual basis, and the results reported to the Division with the Annual Report.

UMC 783.19 Vegetation Information Plate 9-1 has been expanded to include the federal lease area and the vegetation type information is included in Chapter 9.

UMC 783.20 Fish and Wildlife Information Please review the latest copy (previously submitted) of Chapter 10. Appendices were renumbered and wildlife mitigation is now included as Appendix 10-B. A new raptor study has been made and will be submitted upon completion of the report for inclusion as Appendix 10-D.

UMC 784.20 Subsidence Control Plan Effects of subsidence in the lease addition areas has been included. See Plate 3-3 and Appendix 3-H. The present subsidence monitoring plan consists of 3 monitoring points (SMS-1, SMS-2, and SMS-3) in the Bear Canyon Permit Area, a fourth point SMS-4 in the Trail Canyon Permit Area, and a Control Point CON-5, located outside the mining area. SMS-1, SMS-3, and SMS-4 are common to both the Trail Canyon and Bear Canyon Permits. As noted in Appendix 3-C, Lease Addition, p 3C-4, a new control point will be established outside the permit expansion area, and CON-5 will become an additional subsidence monitoring point (to be redesignated SMS-5). In addition to the new control point (CON-6), four additional subsidence points (SMS-7, SMS-8, SMS-9, and SMS-10) are proposed to be added in the Federal Lease expansion area. The location of all existing and proposed points are shown on Plate 3-3.

It is proposed to install the new points in an approved manner described in Appendix 3-H, and to monitor the points annually per the approved plan. In addition, a field investigation shall be made yearly of the mining area (including escarpment areas), and any obvious subsidence or mine-related surface effects will be noted and located on the maps. The results of the Annual Survey will be submitted to the Division in the annual report, starting with the 1990 report.

Expected Subsidence. Due to the increased cover in the federal lease area, the width/depth ratio for the typical pillar panel has decreased to 0.35 (based on an average depth of 1750 feet). Using the methodology described in Appendix 3-H (p 3H-8), the maximum potential subsidence over a pillared panel in a nine foot coal seam is 20 pct of t or 1.80 feet. If the lower 5 is mined in addition, an additional 1.0 feet of maximum subsidence is projected, resulting in a maximum potential subsidence of 2.80 feet for both seams. It should be noted, again, that no actual subsidence has been noted from areas pillared as much as 40 years ago, and the subsidence monitoring network initiated in 1987, has shown only minor (0.47 ft max) variations in elevation. Based on this, little, if any, detectable subsidence is expected to become apparent when mining under these depths. Some minor fracturing and an escarpment rock fall have been noted in the adjacent Trail Canyon Mine area, and although these are assumed to be mine-related, they occurred in areas of relatively low cover and unknown outcrop protection. No such occurrences have been noted in relation to the Bear Canyon Mine. (See Plate 3-3).

Potential Subsidence Impacts. The following will discuss potential subsidence impacts on each of the renewable resources:

a. Hydrologic Balance. Potential affects of mining on the hydrologic balance are discussed in Appendix 3C and in the Gentry Mountain C.H.I.A., Appendix 7-L. An additional concern over escarpment failure has been raised by the U.S. Forest Service; therefore, the following discussion will address the potential for such failure.

The steep area of Bear Canyon in the S.W. corner of Section 13 is approx 1400 feet above the coal seam (See Plate 6-2). Based on past mining experience and the subsidence calculations in this response, the potential for escarpment failure under these conditions is very remote. Due to the high cover, it is not conceivable to limit second mining in this area, since a 30 deg Angle-of-Draw protection would effectively prevent second mining on the majority of the Lease U-024316, resulting in a major loss of recoverable reserves. It should also be noted that the mine plans shown on Plate 3-4 do not extend beneath this escarpment area because of a fault.

Although escarpment failures and slides are considered unlikely under this projected mining scenario, such occurrences are always possible in steep canyon areas such as this. If such failures should occur, the Division and U.S. Forest Service, Price District Ranger would be notified and mining in the affected area would be stopped until an evaluation could be made as to the cause and any remedies or protection could be implemented. Such failures would potentially impact the quality of surface water, due to an increase in sediment load; however, sediment controls would be installed down stream, if monitoring showed such increases, to protect the quality of water reaching Huntington Creek.

Outcrop protection has been increased to a minimum of 200 feet in the plan (see pp 3-18, 3H-6). This is consistent with other mines in the Wasatch Plateau, and with the exception of some longwall operations, has been shown to be effective at preventing escarpment failure near outcrops.

b. Timber. The only marketable timber in the area may be on the McCadden Ridge within Lease U-024316, which is under the control of the U.S. Forest Service. Due to the high amount of cover in the area, and the relatively small amount of subsidence expected, it is unlikely that subsidence affects would impact this resource in a manner to render it unusable.

c. Vegetation. The vegetation resource above the lease area consists of some rangeland for grazing of stock and wildlife. Past mining in areas of less cover has indicated no negative impacts on the vegetation resource. If subsidence should occur, effects would likely be minimal, resulting in some fracturing or slight depressions and could result in displacement of vegetation. Mitigation of such a situation could be accomplished by filling of fractures, regrading and replanting such areas.

d. Fish and Wildlife. There are no fish known to exist above the federal lease permit area. The area is heavily utilized by a wide variety of wildlife. Although subsidence is unlikely, should it occur, some loss of riparian area or water resources is possible. Such impacts and mitigation measures would be as described in Appendix 3C and the Gentry Mountain C.H.I.A. (Appendix 7-L).

The stream in McCadden Hollow is of concern; however, the extreme cover in this area makes it very unlikely to be impacted by a room and pillar operation such as that in the Bear Canyon Mine. Mining under such streams is not inconsistent with other mines in the area, often under lighter cover conditions.

e. Paleo-Archeological. There are no known sites within this area. (See Appendix 5-A)

f. Man-Made Structures. There are no man-made structures above the lease area with the exception of two 4x4 roads. Potential subsidence impacts to the roads would be minimal, since the unlikely formation of fractures or depressions would hardly be noticeable on a 4-wheel drive road.

g. Minerals, Oil, and Gas. There are no known oil and/or gas wells within the lease expansion area.

Renewable Resources. As mentioned on p 3C-4, a renewable resource survey was conducted in 1984 on the additional fee property and adjacent federal leases. The U.S. Forest Service has pointed out that two 4x4 roads exist above lease U-024316. No other man-made structures, roads, power lines, etc. are known to exist above the mining area. Renewable resources are so described in Appendix 3-H, pp 3H-2 and 3H-3.

UMC 784.26 Air Pollution Control See response to UMC 784.13(b)(9)

A spring and seep inventory of the Permitted and Federal Lease areas has been made and is to be included as Appendix 7-M.

NEWSPAPER ADVERTISEMENT

Co-Op Mining Company, Box 1245, Huntington, Utah, hereby announces its intent to file application for a coal mining permit for an addition to the permitted area of the Bear Canyon Mine (ACT/015/025) with the Division of Oil Gas and Mining under the laws of the State of Utah. A copy of the complete application is available for public inspection at the Division of Oil Gas and Mining offices, 355 W. North Temple, 3 Triad Center, Salt Lake City, Utah 84080. Written comment on the application should be submitted to the State of Utah, Oil Gas and Mining Division, at the above address. The area to be mined can be found on the USGS Hiawatha quadrangle map. The addition is adjacent to the permitted area and is on land with BLM subsurface ownership (Lease U024316 and U024318) and U.S. Forest Service surface ownership. The coal area is described as follows:

Lease U024316, T16S, R7E SLBM, Sec. 13 W 1/2 W 1/2, Sec. 14 E 1/2 NW 1/4, NE 1/4

Lease U024318, T16S, R7E SLBM, Sec. 26 E 1/2 NW 1/4

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

September 19, 1990

Mr. Kimly C. Mangum, P. E.
Mangum Engineering Consultants
388 East Boynton Road
Kaysville, Utah 84037

Dear Mr. Mangum:

Re: Technical Deficiency Document, Bear Canyon Mine Five-Year Renewal, Bear Canon Mine, Co-Op Mining Company, ACT/015/025 #2, Emery County, Utah

Enclosed please find the technical deficiency review document attendant to the five-year renewal for the Bear Canyon Mine. There are issues requiring a comprehensive approach to re-evaluate the existing conditions.

Several general comments are:

- All references in the Permit Application Package must be made to the rewritten coal rules.
- The Table of Contents must be updated.
- The average annual depletion of surface water in acre-feet must be stated.

The permit expires November 1, 1990 and therefore, all information must be submitted to the Division by October 19, 1990. I recommend that a meeting be arranged to clarify any questions that arise to expedite the review.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

jb
cc: Eldon Kingston
Lowell Braxton
"A" Team
BTACT15025.1

TECHNICAL DEFICIENCY
FIVE-YEAR RENEWAL
BEAR CANYON MINE
ACT/015/025

Co-Op Mining Company
September 17, 1990

EDITORIAL COMMENTS

Page 3-44 is missing. Please submit.

Page 9-8, 8 lines down, change "from" to "form".

Page 9-16, the first sentence should be deleted.

Page 9-16, the last sentence is not complete.

Page 9-21, seed mixture, correct Agropyron spelling, realign Rosa woodsie in column and correct Rhus spelling.

Page 9-22, correct total pounds on seed mixture.

Page 9-23, correct "Punus" to read "Pinus".

Page 2A-3, NOV 89-32-4-1 is not included on the violation list.

Page 9A-5, Astragalus spp. should be listed under forbs.

Pages 2F-9 through 2F-14, This appears to be a duplication of 2F-3 through 2F-8. If so, please remove them.

Plate 3-1 According to cross section D-D, the Bear Canyon Coal Seam will remain exposed after reclamation. This is unacceptable, in accordance with the statutes set forth by the Mine Safety and Health Administration and R614-553.300. Please rectify as needed.

Appendix 2E is missing. Please check the Appendices in Chapter 2 for numbering sequence.

Page 3D-3 The last paragraph is fragmented and contradictory. Please rewrite said paragraph to clearly describe the operator's intent.

The same paragraph regarding ripping spoil material appears on pages 3-64 and 3-65 and on pages 3-78 and 3-79. Please rectify this redundancy.

R614-301-100 General Contents - (SMW)

113.310. - 113.350. Please identify the issuing agency of violations, description of violation, and actions taken to abate violation (page 2A-2).

116.100. Pages 2-9 and 3-28 state an estimate of 22 years (2012) for mining operations. Page 3-85 states that demolition and reclamation will not begin until the year 2033. Please explain why a delay of 21 years is needed between end of mining operations and reclamation.

R614-301-200. Soils (HS)

221. Prime Farmland Investigation. The operator must obtain written verification from the State Soils Scientist (Soil Conservation Service) regarding negative prime farmland determination for the lands within Section T.16S., R7E, SLM. Section 13, W1/2.

222. Soil Survey. On page 8-1 of the PAP, statements are made which indicate that the entire area encompassed by the original soil survey "...had been disturbed from previous mining activities." This statement is only partially true. Therefore, as an aid in determining the present extent of disturbance at the Bear Canyon Mine and fulfilling Division requirements, the operator must submit an Order I Soil Survey (U.S.D.A./Soil Survey Manual, Title 430) of the "bonded area" as depicted on Plate 2-4. All soil surveys shall be conducted or approved by a qualified professional soil scientist.

232. The operator must clearly commit to salvaging all topsoil prior to surface disturbance. This may be accomplished by amending the following sentences on pages 3-62 and 8-19: "Prior to the start of all new construction, topsoil will be analyzed (i.e., constituents found in the Division Guidelines for Management of Topsoil and Overburden, Table 1) in accordance with Division recommendations to determine the extent and depth of suitable plant growth medium and will be separately salvaged and stockpiled".

232.100. On page 3-8 the operator states that "...topsoil removed as <u>needed</u>." This is not acceptable (R614-232.100) and should be deleted.

233. Topsoil Substitutes and Supplements. The proposal to utilize downcast material along the upper access road as a plant growth medium for final reclamation (Appendix 8-D) is unacceptable. The material in question is not stable and consideration as a plant growth medium cannot be considered until the operator can demonstrate its stability.

Additionally, topsoil medium within the Ballpark Storage Area is of marginal quality and has not shown revegetation potential. Furthermore, soil surveys conducted adjacent to the disturbed area indicate pre-disturbance topsoil depth (A horizons) of 10-16 inches. Therefore, the Division determined that the plans for redistribution of 6 inches of topsoil does not closely parallel the premining soil conditions and will not be consistent with the approved postmining land use. The operator must fulfill the requirement of this section and demonstrate that adequate quantities of good quality topsoil material exist.

234. Topsoil Storage. The as-built survey (Plate 8-2) of the topsoil stockpile adjacent to the scale house is incorrect and must be revised (i.e., resurveyed). The survey indicates a concentric pile which has equal slope length on the east and west sides. Through field observation and preliminary surveys, it was determined that the pile has been placed on an incline and the east side of the pile is substantially shorter than the west side of the pile.

Page 3-45 The operator employs the phrase "...relative undisturbed areas"... Please describe this, and how and where this will affect topsoil removal.

Page 3D-3 The last paragraph is fragmented and contradictory. Please rewrite said paragraph to clearly describe the operator's intent.

Page 8-24 The sentence regarding mining impacts on the soil resource should indicate that the coverage of soil by landfills "occurred pre-SMCRA" (P. L. 95-87). Additionally, the sentence regarding fertilizer applications should read as follows: "All necessary fertilizers and/or neutralizing compounds will be applied according to the results of the soil sampling and analysis program approved by the Division."

Page 8D-2 The revegetation test plots are not depicted on Plate 2-4 as indicated. However, subsequent to

NOV 90-32-3-1, test plots on this site will not be forthcoming until downcast material along the upper access road is stabilized. Please delete statement regarding test plot locations and amend Appendix 8-D and other sections describing the test plots.

242.200.

Page 3-37 The operator states "Once operations cease, the disturbed area will be scarified." The sentence should read "Once operations cease, the backfilled and regraded disturbed areas will be scarified."

Page 4-13 The operator states that "operational areas will be scarified to reduce compaction...". The sentence should read "Operational areas will be scarified after backfilling and grading prior to topsoil redistribution."

242.110. Soil Redistribution. Page 3D-3 describes the redistribution of 1 foot of topsoil material upon the "road system". This is not consistent with the mass balance calculations or any other designs or plans. Please update in accordance with the revised topsoil mass balance criteria. (R614-301-233).

The operator states on page 3-65 that redistributed topsoil will be allowed to lie undisturbed for 10 days to attain equilibrium with its natural environment. Equilibrium within redistributed soil depends on the moisture regime and other factors, and may require tens of years.

On page 3D-2, the operator states "...clump planting of adjacent vegetation (placed) on recontoured surface." If live shrub transplants are used, then specific plans to identify such transplants, areas disturbed during said operations, and specific success criteria must be specified (i.e., designs and PAP plans) and approved by the Division.

242.200. The operator alludes (page 3-59) to scarifying regraded spoils "where physically possible". This statement must be deleted and replaced by specific criteria which would warrant a variance from the scarifying requirements. Additionally, the operator states on page 3-46 "...compaction will help the returned soil remain in place." This is incorrect and must be deleted.

243. Soil Nutrients and Amendments. The operator alludes to "operation testing of soil to determine that moisture retention is necessary." Please describe operation testing and how and where it will be employed.

R614-301-300 Biology-(SMW)

321.100. Page 9A-6 lists the shrub Guaiacum sanctum. What is this shrub? The Eriogonum spp. listed, which has the highest shrub density, should be identified to the species level to determine if this should be used in revegetation.

322.100. A current raptor survey must be performed on the new lease tract additions. A recent conversation with Larry Dalton of the Division of Wildlife Resources indicated that no previous survey had been conducted in the area. The applicant must commit to a raptor survey in May, 1991.

322.220. Division of Wildlife Resources has designated the entire site as critical mule deer habitat. This designation must be corrected on Plate 10-1 and in the text.

323.100. Plate 9-1 depicts a reference area in Bear Canyon. The text refers to reference areas in Trail Canyon. Please correct this discrepancy in the text and map. If the reference areas are in Trail Canyon then the location and boundary must be delineated on Plate 9-1.

323.400. Appendix 3G-2 and page 9-6 identifies areas and methods of interim revegetation. Please identify these areas, disturbed and undisturbed areas, on a map of the scale 1" = 80' (contour interval of 10 feet), such as the surface facilities map and specify the year it was seeded.

333.300. Please describe in the PAP how vegetated areas adjacent to the disturbed areas will be protected from coal fines, waste dumping, and other disturbance associated activity (page 3-48). A monitoring program (i.e., photo points) must also be included in this plan.

341.100. Please provide a schedule for completion of each major step in the revegetation process. An example of a schedule is provided in the Division's Vegetation Guidelines.

The applicant must commit to submitting a detailed revegetation plan in the last five year permit renewal prior to

reclamation. This plan must be detailed, on maps of sufficient scale, to show exact areas and methods of revegetation (i.e., drill seeding, terraces, netting...).

341.210. On page 9-22 please indicate that the seed mixture is expressed as pure live seed (PLS) per acre.

The applicant should realize that the forbs alone in the proposed Pinyon-Juniper Grass seed mixture will cost in excess of $1,000.00/acre. The applicant must obtain cost estimates of both seed mixtures and develop a realistic and economical mixture.

The applicant must commit to notifying the Division two (2) weeks prior to all seeding work (interim and permanent). This will allow the Division to be on site when the work is done.

The applicant must commit to obtaining seed which complies with all state and federal seed laws. Copies of certificates for testing and poundage of seed purchased, must be submitted to the Division.

The operator should be aware that cover crops have a competition advantage for water over the perennial grasses and forbs. The operator must commit to evaluating the success of this interim seed mixture and commit to reseeding if the cover success criteria is not met. Additionally, Elymus salina should be replaced by Elymus cinerus, Great Basin Wildrye.

341.220. On page 9-15 the applicant states "The resulting terrace creates a beach effect and are spaced at 12 in. intervals down the slope." Should this read 12 foot intervals?

All hydroseeded or hand seeded areas (during final or interim revegetation), will be lightly raked to insure adequate soil/seed contact. On slopes steeper than 2:1, a two-step hydroseeding method will be used. One half the seed amount will be applied and raked and the remaining seed will be applied.

The applicant must commit to leaving a very roughened seedbed.

341.230. All drill seeded areas will be mulched with two tons per acre alfalfa, straw or grass hay. The mulch must be certified as weed free by the county agricultural agent and copies of this certification, along with weight tickets from a certified scale, submitted to the Division.

353.140. The applicant must demonstrate by test plot or interim revegetation that hydromulching slopes steeper than 2.5:1 will adequately stabilize the soil surface and is capable of re-establishing vegetative cover. Or the applicant can commit to place erosion control matting on these slopes(page 3-83, 9-14, 3D-4).

356.110. The applicant must propose and include in the PAP a vegetative sampling plan which partitions the permanently revegetated areas into 3 to 5 sample areas with similar slope and aspect. A weighted method of averaging and analyzing the data must also be proposed. The areas which will be compared to the riparian reference area must also be indicated.

The applicant must exhibit the means, standard deviations, calculated minimum sample size, and actual sample size for vegetative measurements taken in both reference areas.

Page 3-49, Quantitative Vegetation Monitoring, should occur in years 2, 3, 5, 9 and 10.

356.120. Page 3-87 of the PAP indicates cover success to be 70 percent of the reference area standard. This standard is not acceptable please refer to the new regulations for success standard.

356.230. Please clearly state in Chapter 3, under Reclamation Monitoring the shrub and ground cover success standard (1579 shrub and tree per acre and 57 and 28 percent ground cover).

356.232. Page 9-23 of the PAP the applicant states that after two years tree and shrub planting will be instigated. The applicant should be aware that doing so will restart the period of extended responsibility.

Please incorporate into the monitoring program section R601-301-356.232 of the coal regulations which refers to the 80-80 rule for shrub and tree density.

357.100. The applicant should realize that by applying one-half the fertilizer mixture the fall following seeding will set back the extended responsibility period (page 3-37 and 9-15).

357.220. The operator states on page 3-58 that "All reclaimed areas will be maintained for the entire 10 year responsibility period." This sentence should state "...maintained during the liabilty period for at least 10 years."

358.200. Page 10-25 is not adequate to predict the potential of subsidence and cliff failure impact to nesting raptors. The U.S. Fish and Wildlife Service has requested that the raptor nests be located on a topographic map which is suitable for overlay onto Plate 3-4 and 3-4a.

Page 10-14 and 10A-11 state that no raptor nesting sites occur within the permit area. The most recent raptor survey included in the PAP lists three nesting sites. Please include these in the text and discuss avoidance and possible impacts.

R614-301-400 Land Use-(SMW)

411.200 The applicant must provide the information required in this section for previous mining activity, i.e.: type of mining methods, coal seams mined, extent of coal removed, and dates.

421. The operator must insert into the PAP Section 11.4.2, a statement to the effect that all coal mining and reclamation operations will be conducted in compliance with the requirements of the Clean Air Act (42 U.S.C., Section 7401, et seq.) and any other applicable Utah or federal statutes and regulations containing air quality standards. (JK)

R614-301-500 Engineering-(JK)

512.100. Plate 3-2 indicates that above the Lamphouse a highwall will be retained; however, this highwall is outside the "bonded area" as depicted on Plate 2-4. Please amend discrepancy.

512.110. The operator must have the following maps certified by a qualified, registered professional engineer or land surveyor:

(1) Plate 3-4 Bear Canyon No. 1 Mine
(2) Plate 3-4A Bear Canyon No. 1 Mine

512.150. The operator must have the following maps certified by a qualified, registered professional engineer or land surveyor (NOTE: The maps have all been certified, but the certification stamp is illegible; please rectify to a readable quality.)

(1) Plate 6-1 Geologic Map
(2) Plate 6-2 Overburden Map - Bear Canyon Seam
(3) Plate 6-3 Isopach Map - Bear Canyon Seam
(4) Plate 6-4 Structure Contour Map - Bear Canyon Seam

(5) Plate 6-6 Overburden Map - Hiawatha Seam
(6) Plate 6-7 Isopach Map - Hiawatha Seam

512.200. The operator must have Plate 7-2 "Sedimentation Pond "A"" certified by a qualified, registered professional engineer.

515.100. The operator must commit to notify the Division, by the fastest available means, if a slide occurs which may have a potential adverse effect on public property, health, safety, or the environment. The operator must further commit to comply with any remedial measures required by the Division in the event of such a slide.

515.320. The operator must commit to compliance with the requirements of Section 515.320.-515.322. in the event that mining and reclamation operations are to cease for 30 or more days.

521. General-Operational Plan. On pages 2-9 and 3-10, the operator indicates 12 acres of disturbance. During the Mid-Permit Review (spring of 1989), the operator indicates 10 acres of disturbance. Please explain this discrepancy.

The applicant must depict on a properly scaled surface facilities map the areal extent of the disturbed acreage. Additionally, all pre-law (i.e., Surface Mine Control and Reclamation Act, page 95-87) disturbances must be depicted and a demonstration of the pre-law nature of the disturbance be substantiated. As one option, the applicant may choose to create a buffer zone of undisturbed land surrounding all disturbed areas. Thus, minor adjacent disturbances during operations and reclamation, while required to meet applicable state and federal regulations, would not have to undergo bond revisions (R614-301-800).

521.100. Cross Sections and Maps. The operator must commit to covering all concrete, asphalt, excess spoil, acid- and/or toxic-forming material with four feet of suitable material. At this time, reasonable volume estimates of the above referenced material and cover for said material (confirmed by appropriate cross sections) must be made. Specific designs must be generated by the operator to identify particular sites of disposal of said material and areas where highwalls will be retained or reclaimed. All cut and fill calculations must be specific and include sufficient narratives, maps and plans to confirm feasibility of the backfilling and regrading plans.

The following PAP references are unnecessary and should be deleted when the above technical deficiency is resolved.

Page 3-46
"To the maximum extent practical, surface areas will be backfilled."

"...(according to) local conditions, large scale backfilling will not be possible."

Page 3D-D
"...no alternative other than disturbance."

Page 3-75
"...material used for recontouring will be taken from side or other existing embankments within the disturbed area....taken from side slopes or embankments close enough to allow for pushing into place."

Page 3-75
"Upon abandonment, slopes will only be reduced to the amount physically possible."

Page 3-76
"...highwalls reduced to the extent practical."

"Only those highwalls that can be lessened by reaching with a backhoe will be reduced."

"Highwalls greater than 20 feet in height will be left in place."

Page 4-12
"Side hill cuts will be reduced to the maximum extent physically possible. The cuts, which are already physically stable will not be reduced."

521.141. Map 2-4, Surface Facilities, and Map 3-2, Post-Mining Topography, must be revised. Both maps must be redone using a contour interval of 10 feet rather than the present contour interval of 25 feet which will allow for finer resolution and more detail in the depiction of surface features. In addition, Map 2-4 must show the boundaries of all disturbed and undisturbed areas as

well as those areas where an alternative sediment control measure will be used (Best Technology Currently Available [BTCA's]).

The sediment control status of certain areas, such as the canyon above the coal storage area and the large undisturbed area which lies below the portal area between the upper and lower roads should be changed. These areas, though nominally undisturbed, are covered with coal fines and contain extraneous debris. Changing their status would allow for better reclamation and control for a relatively small additional reclamation cost.

521.165. Plate 8-3, which is mentioned on page 3-62 of the PAP in connection with the ball park topsoil storage area, is missing from the plan. The operator must provide the Division with a copy of Plate 8-3.

527.100. The operator must classify each road as either primary or ancillary, throughout the PAP.

533. Appendix 3-K, which deals with sediment control structures, is missing from the PAP. The operator must provide the Division with a copy of Appendix 3-K.

535.100. Disposal of Excess Spoil. All excess spoil must be disposed of in a controlled manner, in a designated area(s) within the permit area. All solid waste mentioned in the PAP must be identified (i.e., non-coal waste, excess spoil, development waste, etc.). References to removing waste (pages 3-39, 3-60, 3-70, 3-72 and 4-12) must be deleted and proper disposal sites and disposal practices must be identified (R614-521).

537. Regraded Slopes. The following discrepancies refer to the return of disturbed area surface to approximate original contour.

Fig. 3.6-2 depicts total highwall reclamation, but Plate 3-1 indicates highwall retention, and minimal backfilling. Please amend said discrepancy.

Page 3-47 "...the purpose of these operations is to return disturbed area to approximate original makeup and contour."

Page 3-64 The sentence "...the establishment of noxious plant **series** (should be "species") will be prevented." Please change "series" to "species".

Page 3-68 "...restore disturbed land and surface areas to their approximate premining conditions."

Page 3-75 "...postmining land use achieved without return to Approximate Original Contour."

Page 3-75 Please describe what a "3:1 safety factor" means.

Page 3D-2 "...redistribution of road cut material to (the) approximate original contour of (the) surface."

Page 4-12 "...Operational benches will not be removed."

Page 4-15 "The proposed surface contour plan would allow the side hill cuts and operational benches at the mine site to be reduced so that they provide stable drainages and conform to natural contours."

542.200. Map 3-2, Post-Mining Topography, must be redone using a contour interval of 10 feet rather than the present contour interval of 25 feet (see 521.141.).

542.800. The operator must revise the estimate of reclamation costs to take into account any additional costs of reclaiming areas which are redesignated according to section 521.141.

R614-301-700 Hydrology-(TM)

722. Cross Sections and Maps. The applicant must provide sufficient contour maps to adequately represent the existing land surface configuration of disturbed areas for underground coal mining and reclamation activities. The use of a 10-foot contour interval map is considered appropriate to provide the necessary detail for the surface facilities plate and the reclamation plate. These plates must show the proper location of all structures and facilities.

724.100. (See R614-301-521.141) The applicant must provide the necessary documentation to verify that all water rights issues have been properly taken care of, in regards to a letter sent from the Division of Water Rights to Mr. Wendell Owens on July 10, 1990 by Mr. Mark Page.

731.121. Surface Water Protection. The applicant will provide a more detailed protection plan for Bear Creek expanding on future plans to insure protection of Bear Creek from water borne

and windblown coal fines in the reaches of the creek upstream from the scale house past the coal loading facilities. This response will incorporate any plans to culvert Bear Creek, or upgrade sediment control facilities.

731.210. Ground Water Monitoring The current estimates of ground water volumes intercepted in the mine are in contradiction with estimates found in the PAP on page 7-33. These numbers must be corrected to more accurately reflect current monitoring in-mine. In addition, the location of all in-mine sumps needs to be updated and accurately located on Plate 7-1A.

742.111., 112., and 113. The operator has provided a discussion of the Small Area Exemptions (SAE's) found within the Bear Canyon Mine Permit Area on page 7K-2 and 7K-3. The current rules require that the operator meet the effluent limitations under R614-301-751, and minimize erosion to the extent possible. In the text, the operator has provided an explanation of the treatment used, the size of the area, and shows the location of the area on Plate 7-1.

In addition to this verbage, the Division would like the operator to provide the following items.

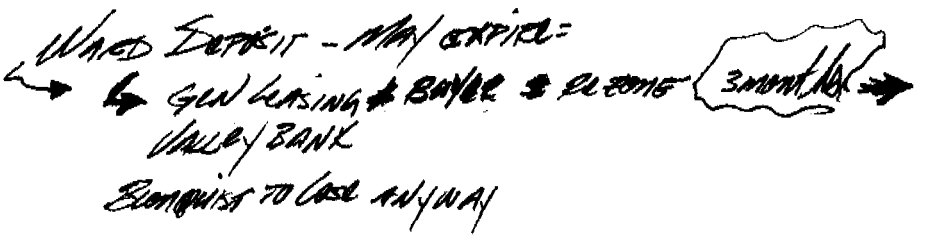
(1) calculated runoff volume for each area;

(2) a commitment to monitor drainage for state and federal effluent limitations; and

(3) change the verbage in the plan to reflect new terminology in the rules calling these treatment areas Best Technology Currently Available (BTCA's).

Small Area Exemptions denote a total removal of sediment control and bond release due to adequate vegetation.

djh/jb
AT-ACT15025.2


WIRED DEPOSIT - MAY EXPIRE
GEN LEASING + BAYLE + ELSEWHERE
3 MONTHS
VALLEY BANK
BLANQUISS TO CASE ANYWAY

Mining Plans

Co-Op controls 1,915 acres in Emery County Utah, (1700 acres in Bear Canyon , 215 acres in Trail Canyon (Figure 1-1), a portion of this area is not included in the permitted mine area.

Mining has been conducted on this site from 1938 to the present time and a total of 18 million tons of coal are estimated to remain in the Blackhawk Bed within the permit application area. Production during the first five year period will total 1 million to 1.5 million tons, with an average full capacity production of 200,000 ton/year increasing to 400,000 tons/year. The exact figure will depend on market conditions (all figures are for raw tons).

The main access to the reserves on the property is made through the Bear Canyon Seam (middle seam) portal (Portal 1). In total there are ten portals. The Hiawatha seam has an intake and a belt portal. The middle seam has Bear Canyon side; a belt portal, two intake portals and a fan portal, and Blind Canyon side; two intake portals, a fan portal and an explosion door portal. The new Blind Canyon side portals listed are to be added in 1990.

Since the main portal is in proximity to the old mine; main entry pillars will be columnized to provide vertical support and prevent "punching" by the pillars. "Punching" would produce unsafe working conditions and cause the loss of recoverable coal.

All portals will be sealed when workings cease. Mining conditions in the future may warrant additional ventilation. Surface breakouts, from the seam, for ventilation will be made in Bear Canyon and may be made in Trail Canyon.

The current mining system employs room and pillar mining with continuous miners. Pillars are removed wherever possible. In the virgin coal areas, development will allow use of either room and pillar or Long-wall methods or a combination of both, with room and pillar preferred wherever feasible.

As the mine develops, main entries will be driven in sets of either four, five, or six, with barrier pillars separating each set. These main entries will run East to West and South to North, to the property boundary. Sub-main entries will run at right angles from the main entries to the limits of the property.

Overall, an advance-retreat mining system is projected for this mine with retreat mining employed prior to abandonment of each section.

Barrier Pillars

Barrier pillars will be left to protect entries and steep escarpments within the permit area. Possible escarpment failures and the subsidence wave caused by maximum coal recovery is expected

to cause only minor damage that can be mitigated. Mining will be stopped a min of 200 ft (barrier pillars) from the surface to maintain stability of the surface in the places where coal outcrops occur.

Conservation of Coal Reserves

Mining of this area provides for maximum recovery of the coal reserves, about 50 pct overall. This high recovery is due both to known mining conditions and Co-Op's engineering and production practices. The main entry system allows access to the reserves to the North and West of the permit area.

Equipment

Equipment used to mine the permit area is listed in Section 3.4.5. Additional equipment will be acquired as needed.

Mine Safety

Bear Canyon Mine will comply with all federal, state, and local regulations for safety, security, and fire control in matters pertaining to signs, fences, hazardous and flammable materials, explosives, fire protection, monitoring of coal and refuse piles, routine accident reports, corrective actions, good housekeeping, mine maps and records.

Operations Schedule

Annual productions is scheduled to increase from 200,000 tons in 1983 to 400,000 tons by 1986. The mine operates three shifts per day for 240 days per year and employs 30 to 40 salaried and hourly workers. When production rises to 400,000 ton/year, employment could increase by a maximum of 5.

Permit Area

The permit area comprises federal leases and lands owned by COP Development company.

1.2 SUMMARY OF ENVIRONMENTAL IMPACTS

Impacts on Current and Future Land Use

Vegetation, Range Management, and Soils. Temporary disturbances will remove vegetation and increase erosion, but revegetation will return desired vegetation, decrease erosion, and increase forage production.

Minerals. There is oil and gas potential but no known wells wihtin the permit area; however, there should be no conflict between coal mining and development of this resource.

Archaeology. No known sites warranting preservation are located within the permit boundaries.

Timber, Fire, and Transportation. The only marketable timber within the permit area may be on the McCadden Ridge, in control of the U.S. Forest Service. Due to the high cover over the reserves, subsidence impacts will not render it unuseable. Some shrubs will be removed during operation, but they will be replaced by revegetation growth and yield. Access roads will provide for easier fire control and will allow removal of any fire hazards.

Recreation and Scenic Resources. In the short term the mine will reduce the recreational values of the permit area. Recontouring and grading of disturbed areas wherever possible will restore scenic values and revegetation will improve wildlife habitats.

Human Values. No public parks or historical sites lie within the permit area. There are no historical, archaeological or paleontological resources.

Hydrologic Balance. Soil disturbance during the life of the mine will increase erosion, but required sediment control measures will reduce impacts. There will be minimal discharge of ground water from the mine.

Bear Canyon Mine will have no impact on the quantity of ground

water. Subsidence caused by the mine will have no effect on springs; the mine will intercept only minuscule quantities of water destined for the Huntington Creek drainage; the mine will not affect water supply for vegetation or creek flow. Sediments and other impurities will be removed from surface water before discharge. Acid drainage will not occur because of the low sulfur content of the coal. Any ground water discharged from the mine will meet state and federal discharge regulations. Minimal discharge is anticipated, due to expected utilization of all water, once the mine is in full operation. Suspended sediments will increase in streams adjacent to construction areas, but this effect will be mitigated by required sediment control.

Soil Resources. Because the mine lies underground, the impact on soils is minimal overall. Surface operations and mining facilities will disturb surface materials; disturbed soil in construction areas add to erosion because removal of vegetation and reduced forage and livestock capacity. These impacts will be mitigated by the reclamation plan. Before disturbance on virgin areas the topsoil will be removed, stockpiled and stabilized temporarily. Disturbed surface areas will be backfilled, compacted and graded to return them to as near their original contour as possible. Topsoil will be redistributed and stabilized. Revegetation will control erosion and increase forage and wildlife capacity.

Vegetative Resources. Impacts on vegetative resources will not be

major due to the small amount of direct surface disturbance and planned mitigation of possible disturbance caused by subsidence or escarpment failure. Vegetation will be removed from areas of construction, erosion will increase and plant species will be reduced. These impacts will be mitigated by revegetation of disturbed areas with a suitable, permanent and diverse vegetative cover.

Fish and Wildlife. Since the mine will impact such a small area, the future impact of continued mining operation is expected to be minimal. Impact on large game species will be minimized by the location and timing of surface activities. Impact on small burrowing mammals in areas of subsidence will be locally great but only temporary. All species are of adequate density, and any losses will be made up by contiguous breeding populations.

Impact on nesting birds will be minimal and local. There are no endangered species nest in the area.

No permanent impact on amphibians and reptiles is expected because of the species widespread distribution.

Huntington Creek is the only quality stream in the area and no adverse impact on aquatic wildlife is expected. In the unlikely event of impact by sediment or escarpment failure, sediment controls would be incorporated as required to minimize impacts.

Air Quality. The only potential air pollutant produced by the mine will be particulates. Total annual controlled emissions should be less than the 250 ton/year, controlled emission PSD cutoff. Therefore, the mine does not qualify as a "major source" under the Prevention of Significant Deterioration (PSD) requirements.

Dust from road use is reduced by water and chemical treatment of roads, vehicle use restrictions, speed limits, soil stabilization and periodic grading where appropriate. Coal dust is controlled by spray, compaction and non-toxic dust suppressing chemicals.

Subsidence. Maximum removal of the coal resource could result in surface subsidence over the long term. The only known surface structures over the mine area that could be affected by subsidence are two 4x4 roads that cross the U.S. Forest Service land in the federal lease area. Impacts would be minimal to these roads due to the small subsidence expected and nature of 4-wheel drive roads. No damage is expected to result to power lines that exist within the permit area. If damage should prove to be greater than expected, such facilities could be moved to more stable sites. The 1,000 ft plus of overburden in the area should minimize surface subsidence effects in the unmined northern and eastern portion of the permit area.

Monitoring of Ground and Surface Impacts. Monitoring of ground and surface water is being conducted and mitigating measures will be employed is any significant impact occurs.

Waste Disposal. There is no refuse disposal in the mine plan area. However Mine generated garbage is contracted to be removed on an annual basis. Dumpsters are located in three locations and are emptied as needed.

1.3 DOCUMENT ORGANIZATION AND REVIEWER'S CHECKLIST

This mining and Reclamation Plan follows the "General Guideline for Organizational Format and Content Permit Applications" revised November 3, 1980 by DOGM. This organization is pursuant to U.C.A. 40-10-10-(2) and R614-301-120. The table of contents for the overall mine plan, located at the front of this first volume, lists the chapters and appendixes. A detailed chapter outline precedes each chapter and lists the chapter headings, plates, figures, tables and appendixes and attachments.

Tables appear with the chapter text following the reference. Tables are double-numbered; thus, Table 2-1 is the first table in Chapter 2, Table 2-2 the second, and so forth. Figures, which are normal sized (8-1/2 in. x 11 in. or 11 in. x 17 in.) illustrations, are double-numbered (Figure 2-1, 2-2 etc.) and also appear on following pages. Plates are oversized illustrations. Numbered

TABLE OF CONTENTS

2 OWNERSHIP AND CONTROL

2.1 SCOPE

This chapter provides relevant and required information about the ownership and control of persons operating the Bear Canyon Mine, ownership and control of lands in the permit area, compliance status and history of the mines and their owners and operators, insurance and performance bonds, applicable licenses and status of permits and filings and public notices of this application.

2.2 IDENTIFICATION OF INTEREST (R614-301-112)

Permit Applicant: CO-OP MINING CO.

53 West Angelo Ave
Salt Lake City, Utah 84115
Tele. 801-486-5047

NOTE: C.W. Mining Co. is doing business as (DBA) Co-Op Mining Company (Co-Op).

2.2.1 Owners of Record of Surface Area and Coal Rights

Land and Coal Owner: C O P Coal Development Co.

3140 South Main Street
Salt Lake City, Utah 84115

2.2.2 Holders of Leasehold Interest in Surface Area and Coal Rights

The names and addresses of holders of record in Leasehold interest are listed below: Coal mining lease by and between Co-Op Mining Co. and Peabody Coal Co., executed 1 December 1975 (Plate 2-1).

T16S, R7E SLBM	Sec. 14 SW 1/4, SE 1/4
	Sec. 23 E1/2, E1/2, NW1/4, E1/2, SW1/4, SW1/4, SW1/4
	Sec. 24 All West of N-S Fault
	Sec. 25 All West of N-S Fault
(Fed. Lease U024316)	Sec. 13 W 1/2 W 1/2
	Sec. 14, E 1/2 NW 1/4, NE 1/4
(Fed. Lease U024318)	Sec. 26 E 1/2 NW 1/4

The right to mine and remove from, and use for purposes incident to mining, including access roads, camp facilities, surface operations, storage of coal, and other activities. Also unrestricted use of all access roads leading to and from property. Lease in binding on the successors to the parties of the lease. Co-Op also holds Federal Lease U024316 (See Appendix 2-F, Plate 2-1).

2.2.3 Purchase of Record Under a Real Estate Contract for Surface Area Coal

See Appendix 2-B Title Insurance Policy and Property Title.

2.2.4 Operator, if Different from Applicant

Same as above.

2.2.5 Resident Agent of the Applicant

Nathan Atwood
P. O. Box 1245
Huntington, Utah 84528
(801) 381-5238

2.2.6 Business Designation (Partnership)

Officers and Directors of the Applicant (General Partners)

Earl W. Stoddard
P.O. Box 300
Huntington, Utah 84528

R.L. Brown
3140 South Main
Salt Lake City, Utah 84115

John Gustafson
1815 South 1100 West
Woods Cross, Utah 84087

2.2.7 Current, Pending or Previous Coal Mining Permits in the U.S. Held By Applicant and Principal Shareholder Subsequent to 1970

Act/015/021 Oil, Gas, and Mining Div.

Act/015/025 Oil, Gas, and Mining Div.

2.2.8 Owners of Record of Surface and Sub-surface Areas Contiguous to the Proposed Permit Area

Plate 2-2 shows surface ownership and Plate 2-3 display sub-surface

ownership for the permit area and parcels of land contiguous to the permit boundaries. The names and addresses of the owners of record of the mine property are the same as the General Partners (Section 2.2.6).

2.2.9 Mine Name and M.S.H.A. Identification

The name of the mining operation for which this application is submitted is:

Bear Canyon Mine Co-Op Mining Company

The M.S.H.A. Identification Number is:

MSHA #42-00081-0

2.3 COMPLIANCE INFORMATION (R614-301-113)

See Appendix 2-A.

2.4 RIGHT OF ENTRY AND OPERATION INFORMATION (R614-301-114)

The applicant's right to enter the lands and to conduct operations in the permit area is based on the documents listed in Section 2.4.1. It should be noted that the applicant's right is not subject to any pending litigation. Easements are included under Appendix 2-E.

2.5.1 Waiver of Owners of Nearby Occupied Dwellings

Applicant does not propose to conduct or locate surface facilities within 300 feet of an occupied dwelling.

2.6 PERMIT TERM INFORMATION - ANTICIPATED FOR EACH PHASE

2.6.1 Starting Date

The mine started construction in 1981 and was in production by late fall of 1981. Mining in the 160 acre Lease addition area is proposed to begin in the spring of 1989 (Appendix 3-K).

2.6.2 Termination Dates

Termination dates anticipated for each phase of mining are nebulous at this time although a detailed estimate of production and reserves are included in the Geology Section and a projection of 22-years appears realistic (from 1990). The final termination date for the mining operation is expected to be 2012.

2.6.3 Numbers or Surface Acres Affected

The anticipated disturbance by the Bear Canyon Mine totals about 12 acres. Plate 2-1 shows potential property expansion and future facilities of the mine.

2.6.4 Horizontal Extent of Underground Working for Each Phase

Section 3.4 tabulates the horizontal extent of underground working.

2.6.5 Vertical Extent for Each Phase

Plates 3-4 and 3-4a show the mine development plan by seam during each of the next five years, then for each five-year period thereafter for the life of the mine.

Between 1983 and 1986, all production was from the Middle Seam (Section 3.4.1, Mining Plans). In 1983 - 1986 recovery of the Middle Seam occurred on the Co-Op fee land (Plate 3-4). Production of the Hiawatha Seam began in 1987 (Plate 3-4a).

2.7 PERSONAL INJURY AND PROPERTY DAMAGE INFORMATION

Co-Op carries public liability and property damage insurance in due force. In response to OSM's completeness statement, this policy has been increased to comply with the requirements of 30 CFR 806.14 and R614-301-117. The policy bears a rider requiring the insurer to notify OSM and DOGM if the policy is cancelled. A copy of the certificate of insurance and rider is supplied to the Utah Division of Oil, Gas, and Mining. (Appendix 2-C).

2.8 PROPOSED PERFORMANCE BOND

As required by R614-301-800 and 30 CFR 800.11, the applicant has filed copies of a Performance Bond conforming to 30 CFR 805 and 806 and R614-301-800. Reclamation costs relevant to this bond are detailed in Section 3.6.7.

2.9 OTHER LICENSES AND PERMITS

Section 2.2.8 lists coal mining permits applied for by the applicant and principal shareholder. The other permits and licenses dealing with land use, air and water quality, water rights and health and safety laws and regulations are listed in Table 2-2.

2.10 LOCATION OF PUBLIC OFFICE FOR FILING APPLICATION

The applicant has simultaneously filed complete copies of this application with the following agencies:

State of Utah — 12 copies
Division of Oil, Gas, and Mining
355 W. No. Temple, 3 Triad Center Suite 350
Salt Lake City, Utah 84111

8 copies to be forwarded to OSM, etc.

Table 2-2 Apparent Completeness Review - Other Permits and Licenses

Agency and Address	Permit/License	Reference	ID #	Approval Date
Utah State Division of Oil Gas and Mining 355 W. No. Temple 3 Triad Cntr, Suite 350 Salt Lake City, Utah 84180-1203	Surface Mining Control and Reclamation Permit	Reclamation Permit	ACT/015/021	08/07/79
U.S. Environmental Protection Agency 999 18th Street Suite 500 Denver, Colorado 80202-2405	Spill Prevention Control & Counter Measure Plan	Federal Water Pollution Control Act		Pending
	Prevention of Significant Deterioration Permit (PSD)	Clean Air Act Amendments of 1977	Potential emissions less than 100 tons per year PSD not required	
State of Utah Department of Health Bureau of Water Pollution Control 288 North 1460 West P.O. Box 16690 Salt Lake City, Utah 84116-0690	Utah Pollutant Discharge Elimination System, Utah General Permit for Coal Mining	Utah Water Pollution Control Act	UTG040006	05/04/89
Utah Division of Water Rights 1636 West North Temple Salt Lake City, Utah 84116-3156	Approval order Small Structures	Section 73-5-5 of Utah Water Code		none
	Water Rights Appropriation of Record of Diversion			none
Utah Division of Water Rights - Dam Safety 1636 West North Temple Salt Lake City, Utah 84116-3156	Dam Design Review	Section 733-5-5 of Utah Water Code		none
Industrial Commission of Utah 160 East 300 South Salt LAke City, Utah 84151	General Safety Notice of intent to Mine Coal	Orders Utah Coal Mines		

Table 2-2 Apparent Completeness Review - Other Permits and Licenses (cont)

Agency and Address	Permit/License	Reference	ID #	Approval Date
Utah Department of Health, Division of Environmental Health Bureau of Air Quality 288 North 1460 West P.O. Box 16690 Salt Lake City, Utah 84116-6108	Utah Air Conservation Regulations	Approval Order		02/20/86
	Approval Order Culinary Water Wastewater & Solid Waste Disposal Site Facilities	Utah State Water Pollution Control Act		Solid waste not required
	Construction Permits for Sedimentation Ponds			11/19/85
	Driveway Permit for Each Location Where a Private Road Enters a County or State Road	Emery County		Have valid existing rights
U.S. Department of Labor, Mine Safety & Health Administration P.O. Box 25367 Denver, Colorado 80225	Mine Permit	Mine Safety & Health Act	42-00081-0 42-0697	12/22/78 09/27/80
U.S. Department of the Interior, Bureau of Land Management, Moab District, P.O. Box 970 Moab, Utah 84532	Right-of-Ways/ Special Use Permits	Federal Land Policy & Management Act of 1976		Pending
Utah Divisions of State Lands	Right-of-Ways Division of Permits	Special Use		Permit area on Fee Land

Table 2-2 Apparent Completeness Review - Other Permits and Licenses (cont)

Agency and Address	Permit/License	Reference	ID #	Approval Date
U.S. Department of Agriculture, Forest Service, Manti-LaSal National Forest 599 West Price River Dr. Price, Utah	Right-of-Ways Special Use Permits			Pending
Emery County Zoning Commission P.O.Box 297 Castle Dale, Utah 84513	Zoning Approval			04/07/80

NOTES: The interim permit for Trail Canyon mine was terminated in November 1983.

The interim permit for Bear Canyon Mine was temporarily suspended in August 1984. The suspension was lifted and the mine reopened 4 October 1984.

2.11 NEWSPAPER ADVERTISEMENT/PROOF OF PUBLICATION

As required with the filing of this application with Division of Oil, Gas, and Mining, the applicant has filed an advertisement with the Emery County Progress and Sun Advocate, local newspapers with circulation in Emery & Carbon countries sufficient to cover the locality of the applicant's operations. This advertisement follows the format required under 30 CFR 786.11 9aO and R614-300-121. A copy of the publication is attached in Appendix 2-D. Proof of publication can be found with a copy of the add, in Appendix 2-D.

NOV/CO STATUS REPORT

MINE: ACT/015/025

NOV/CO #	Issued/ Modify	Abatment/ Statement	Term/Vac Date	Pertinent Regulations
N87 26 04 01	06/05/87	06/30/87	T08/03/87	UMC817.121
N87 11 03 01	08/19/87 09/15/87	09/15/87 08/31/87	T09/24/87	UMC817.43, UMC817.45, Restore to cap or replace Dan Duce
N87 11 02 01	08/19/87 11/20/87	10/19/87 08/31/87	T11/20/87	UMC817.52, Dan Duce
N87 27 01 02 1 of 2	09/25/87 12/11/87	10/30/87 10/02/87	T12/11/87	UMC771.19
N87 27 01 02 2 of 2	09/25/87 12/11/87	10/30/87	T12/11/87	UMC817.153
N88 20 01 01	02/12/88	02/12/88 02/12/88	T02/09/88	UMC817.52, UMC817.52 01 OF 01, UMC771.19, Water Monitoring
N88 26 12 02 1 of 2	07/13/88	07/28/88 08/12/88 07/27/88	T08/16/88	UMC771.19, Lump Coal Storage
N88 26 12 02	07/13/88	07/27/88	T07/14/88	UMC771.19, UMC817.50, Hiawatha Seam Water Discharge, 2 of 2
N88 29 01 01	08/04/88 10/08/88	08/19/88 08/26/88 11/02/88 08/12/88	T11/03/88	UMC771.19, Hiawatha Seam Drainage
N88 20 02 01	08/18/88	09/15/88	T09/15/88	UMC771.19, Escape and Ventilation Portal
N88 30 03 01	10/07/88	11/07/88 10/17/88	T11/03/88	UMC817.43, UMC817.45
N88 30 06 03 1 of 3	12/21/88	01/27/88 12/27/88	01/25/89	UMC771.19

NOV/CO #	Issued/ Modify	Abatment/ Statement	Term/Vac Date	Pertinent Regulations
N89 30 06 03 2 of 3	12/21/88	01/27/88 06/30/89 04/04/89 12/27/88	T04/05/89	UMC817.43
N89 30 06 03 3 of 3	12/21/89	01/27/89 06/30/89 04/04/89 12/27/88	04/05/89	UMC817.42
N89 30 01 01	03/14/89	04/15/89 03/17/89	04/05/89	UMC817.43
N89 30 02 01	07/11/89	08/11/89	08/11/89	UMC771.19, UMC817.23
N89 26 21 02 1 of 2	11/16/89 12/29/89	12/15/89 11/27/89	12/24/89 12/24/89	UMC771.19 Compliance w/ permits
N89 26 21 02 2 of 2	11/16/89 12/29/89	12/15/89 11/27/89	12/24/89	UM817.43
N89 28 18 01	07/14/89 07/28/89 08/01/89	07/14/89 10/10/89 07/14/89	10/12/89	UMC771.19, UMC817.43 Cross-Over Belt

During this period 0 unvacated CO's were issued for this mine.
During this period 18 unvacated NOV's were issued for this mine.

ACORD. CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY)
1-22-90

PRODUCER

Diversified Ins. Brokers
[redacted]6 East South Temple #2300
[redacted]lt Lake City, Utah 84111

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW

CODE SUB-CODE

INSURED

CO-OP Mining
P.O. Box 15644
Salt Lake City, Utah 84115

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A — Homestead Ins. Co.
COMPANY LETTER B — Sphere Drake Ins. Co.
COMPANY LETTER C
COMPANY LETTER D
COMPANY LETTER E

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS	
	GENERAL LIABILITY				GENERAL AGGREGATE	$500,
A X	COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OPS AGGREGATE	$500,
	CLAIMS MADE X OCCUR.	LM10023	1-1-90	1-1-91	PERSONAL & ADVERTISING INJURY	$
	OWNER'S & CONTRACTOR'S PROT.				EACH OCCURRENCE	$500,
					FIRE DAMAGE (Any one fire)	$
					MEDICAL EXPENSE (Any one person)	$
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	ANY AUTO					
	ALL OWNED AUTOS				BODILY INJURY (Per person)	$
	SCHEDULED AUTOS					
	HIRED AUTOS				BODILY INJURY (Per accident)	$
	NON-OWNED AUTOS					
	GARAGE LIABILITY				PROPERTY DAMAGE	$
	EXCESS LIABILITY				EACH OCCURRENCE	AGGREGATE
B X		XML1001	1-1-90	1-1-91	$ 500,	$ 500,
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY	
					$	(EACH ACCIDENT)
					$	(DISEASE—POLICY LIMIT)
					$	(DISEASE—EACH EMPLOYEE)
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

CERTIFICATE HOLDER

Division of Oil, Gas & Mining
[redacted]55 West North Temple
[redacted]Triad Center
Salt Lake City, Utah 84180-1203

Attn: Pam Littig

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

2C-2

August 1988

CERTIFICATE OF LIABILITY INSURANCE
Issued To:
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
--oooOoo--

THIS IS TO CERTIFY THAT:

HOMESTEAD INSURANCE COMPANY
(Name of Insurance Company)

C/O VAN WAGONER COMPANIES, 801 EAST CAMPBELL ROAD #390, RICHARDSON, TEXAS 75081
(Home Office Address of Insurance Company)

HAS ISSUED TO:

CO-OP MINING
(Name of Permit Applicant)

BEAR CANYON & TRAIL CANYON MINES (Mine Name)

(Permit Number)

CERTIFICATE OF INSURANCE:

IM10023 (Policy Number)

1-1-90 (Effective Date)

UNDER THE FOLLOWING TERMS AND CONDITIONS:

Per UMC/SMC Part 800.60 Terms and Conditions for Liability Insurance;

A. The Division shall require the applicant to submit as part of its permit application a certificate issued by an insurance company authorized to do business in the state of Utah certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations for which the permit is sought. Such policy shall provide for personal injury and property damage protection in an amount adequate to compensate any persons injured or property damaged as a result of the surface coal mining and reclamation operations, including the use of explosives and who are entitled to compensation under the applicable provisions of state law. Minimum insurance coverage for bodily injury and property damage shall be $300,000 for each occurrence and $500,000 aggregate.

B. The policy shall be maintained in full force during the life of the permit or any renewal thereof, including the liability period necessary to complete all reclamation operations under this chapter.

C. The policy shall include a rider requiring that the insurer notify the Division whenever substantive changes are made in the policy including any termination or failure to renew.

IN ACCORDANCE WITH THE ABOVE TERMS AND CONDITIONS, and the Utah Code Annotated 40-10-1 et seq., the Insurance Company hereby attests to the fact that coverage for said Permit Application is in accordance with the requirements of the State of Utah and agrees to notify the Division of Oil, Gas and Mining in writing of any substantive change, including cancellation, failure to renew, or other material change. No change shall be effective until at least thirty (30) days after such notice is received by the Division. Any change unauthorized by the Division is considered breach of the RECLAMATION AGREEMENT and the Division may pursue remedies thereunder.

UNDERWRITING AGENT:

Paul Van Wagoner II JR. — 214-699-0551
(Agent's Name) (Phone)

Van Wagoner Companies Inc
(Company Name)

801 E. Campbell Rd #390
(Mailing Address)

Richardson, Texas 75081
(City, State, Zip Code)

Revised February 1990
CERTIFICATE OF LIABILITY INSURANCE

The undersigned affirms that the above information is true and complete to the best of his/her knowledge and belief, and that he/she is an authorized representative of the above-named insurance company. (An Affidavit of Qualification must be completed and attached to this form for each authorized agent or officer.)

Pres. 2/19/90
(Date, Signature and Title of Authorized Agent of Insurance Company)

Signed and sworn before me by _____

this 28th day of February, 19 90

(Signature)

My Commission Expires: 11-10-90
(Date)

rm 4-696
ctober 1956)

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Land Office
Post Office Box No.777
Salt Lake City 10, Utah

Office Salt Lake City, Utah

Serial No. Utah 024316

LEASE OF COAL LANDS UNDER THE ACT OF FEBRUARY 25, 1920, AS AMENDED

This lease, entered into on May 1, 1958, by the United States of America, the lessor, through the Bureau of Land Management, and Huntington Corporation, Box 1001, Palo Alto, California

the lessee, pursuant and subject to the terms and provisions of the act of February 25, 1920 (41 Stat. 437), as amended, hereinafter referred to as the act, and to all reasonable regulations of the Secretary of the Interior now in force which are made a part hereof,

WITNESSETH:

Section 1. Rights of lessee.--The lessor, in consideration of the rents and royalties to be paid and the conditions to be observed as hereinafter set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in the following-described tracts of land, situated in the State of Utah:

T. 16 S., R. 7 E., SL Mer, Utah
Sec. 10: $N\frac{1}{2}$, $N\frac{1}{2}S\frac{1}{2}$, $S\frac{1}{2}SE\frac{1}{4}$, $SE\frac{1}{4}SW\frac{1}{4}$
Sec. 11: All
Sec. 12: $W\frac{1}{2}W\frac{1}{2}$
Sec. 13: $W\frac{1}{2}W\frac{1}{2}$
Sec. 14: $E\frac{1}{2}W\frac{1}{2}$, $NE\frac{1}{4}$

containing 1,800 acres, more or less, together with the right to construct all such works, buildings, plants, structures, and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and, subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted.

Sec. 2. In consideration of the foregoing, the lessee hereby agrees:

(a) Bond.--To maintain the bond furnished upon the issuance of this lease, which bond is conditioned upon compliance with all the provisions of the lease, and to increase the amount of or furnish such other bond as may be required.

(b) Rental.--To pay the lessor annually, in advance, for each acre or part thereof covered by this lease, beginning with the date hereof, the following rentals: 25 cents for the first year, 50 cents for the second, third, fourth, and fifth years, respectively, and $1 for the sixth and each succeeding year during the continuance of the lease, such rental for any year to be credited against the first royalties as they accrue under the lease during the year for which the rental was paid.

(c) Royalty.--To pay the lessor a royalty of 15 cents on every ton of 2,000 pounds of coal mined during the first 20 years succeeding the execution of this lease. Royalties shall be payable quarterly within 30 days from the expiration of the quarter in which the coal is mined.

(d) Minimum production.--Beginning with the sixth year of the lease, except when operations are interrupted by strikes, the elements, or casualties not attributable to the lessee, or unless an application and showing made, operations shall be suspended when market conditions are such that the lessee cannot operate except at a loss or suspended for the other reasons specified in section 39 of the act, to mine coal each year and pay a royalty thereon to a value of $1 an acre or fraction thereof. Operations under this lease shall be continuous except in the circumstances described or unless the lessee shall pay a royalty, less rent, on such minimum amount of the leased deposits, for one year in advance, in which case operations may be suspended for that year.

(e) Payments.--Unless otherwise directed by the lessor, to make rental, royalty, or other payments to the Regional Mining Supervisor of the United States Geological Survey of the region in which the leased lands are situated. All remittances must be made payable to the United States Geological Survey.

(f) Plats, reports, maps.--At such times and in such form as the lessor may prescribe, to furnish a plat showing development work and improvements on the leased lands and a report with respect to stockholders, investment, depreciation, and costs. To furnish in such form as the lessor may prescribe, within 30 days from the expiration of each quarter a report covering such quarter, certified by the superintendent of the mine, or by such other agent having personal knowledge of the facts as may be designated by the lessee for such purpose, showing the amount of leased deposits mined during the quarter, the character and quality thereof, amount of its products and byproducts disposed of and price received therefor, and amount in storage or held for sale. To keep and prepare maps of the leased lands in accordance with the regulations in 30 CFR, Part 211.

(g) Weights.--To determine accurately the weight or quantity and quality of all leased deposits mined, and to enter accurately the weight or quantity and quality thereof in due form in books to be kept and preserved by the lessee for such purposes.

(h) Inspection.--To permit at all reasonable times (1) inspection by any duly authorized officer of the Department, of the leased premises and all surface and underground improvements, works, machinery, equipment, and all books and records pertaining to operations and surveys or investigations under this lease; and (2) the lessor to make copies of and extracts from any or all books and records pertaining to operations under this lease, if desired.

(i) Assignment of lease or interest therein.--To file for approval with the office prescribed in the regulations, within 90 days from the date of final execution, any assignment, sublease, or transfer made of this lease, whether by direct assignment, working agreement, transfer of royalty interest, or otherwise. Such instrument will take effect the first day of the month following its final approval by the Bureau of Land Management, or if the assignee requests, the first day of the month of the approval.

(j) Nondiscrimination.--In connection with the performance of work under this lease, the lessee agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The lessee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

(k) Lands disposed of with the coal deposits reserved to the United States.--If the lands embraced herein have been or shall hereafter be disposed of under laws reserving to the United States the deposits of coal therein, to comply with all conditions as are or may hereafter be provided by the laws and regulations reserving such coal.

(l) Operations, wages, freedom of purchase.--To comply with the operating regulations (30 CFR, Part 211), to exercise reasonable diligence, skill, and care in the operation of the property, and to carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health or property, and of waste or damage to any water or mineral deposits; to fairly and justly weigh or measure the coal mined by each miner; to pay all wages due miners and employees, both above and below ground, at least twice each month in lawful money of the United States; to accord all miners and employees complete freedom of purchase; to restrict the workday to not exceeding eight hours in any one day for underground workers, except in cases of emergency; to employ no boy under the age of sixteen and no girl or woman, without regard to age, in any mine below the surface; unless the laws of the State otherwise provide, in which case the State laws control.

(m) Taxes.--To pay when due, all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, output of mines, or other rights, property, or assets of the lessee.

(n) Overriding royalties.--Not to create, by assignment or otherwise, an overriding royalty interest in excess of 50 percent of the rate of royalty first payable to the United States under this lease or an overriding royalty interest which when added to any other outstanding overriding royalty interest exceeds that percentage, excepting, that where an interest in the leasehold or in an operating agreement is assigned, the assignor may retain an overriding royalty interest in excess of the above limitation if he shows to the satisfaction of the Bureau of Land Management, that he has made substantial investments for improvements on the land covered by the assignment.

(o) Delivery of premises in case of forfeiture.--In case of forfeiture of this lease, to deliver up to the lessor in good order and condition the land leased, including all buildings, and underground timbering and such other supports and structures as are necessary for the preservation of the mine or deposit.

Sec. 3. The lessor expressly reserves:

(a) Rights reserved.--The right to permit for joint or several use such easements or rights-of-way, including easements in tunnels upon, through, or in the land leased, occupied, or used as may be necessary or appropriate to the working of the same or other lands containing the deposits described in the act, and the treatment and shipment of the products thereof by or under authority of the Government, its lessees or permittees, and for other public purposes.

(b) Disposition of surface.--The right to lease, sell, or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted, insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the coal therein, or to dispose of any resource in such lands which will not unreasonably interfere with operations under this lease.

(c) Monopoly and fair prices.--Full power and authority to promulgate and enforce all the provisions of section 30 of the act to insure the sale of the production of said leased lands to the United States and to the public at reasonable prices, to prevent monopoly, and to safeguard the public welfare.

(d) Readjustment of terms.--The right reasonably to readjust and fix royalties payable hereunder and other terms and conditions at the end of 20 years from the date hereof and thereafter at the end of each succeeding 20-year period during the continuance of this lease unless otherwise provided by law at the time of the expiration of any such period. Unless the lessee files objections to the proposed terms or a relinquishment of the lease within 30 days after receipt of the notice of proposed terms for a 20-year period, he will be deemed to have agreed to such terms.

(e) Waiver of conditions.--The right to waive any breach of the conditions contained herein, except the breach of such conditions as are required by the act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with respect to any future breach; nor shall the waiver of a particular cause of forfeiture prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 4. Relinquishment of lease.--Upon a satisfactory showing that the public interest will not be impaired, the lessee may surrender the entire lease or any legal subdivision thereof. A relinquishment must be filed in duplicate in the appropriate land office. Upon its acceptance it shall be effective as of the date

it is filed, subject to the continued obligation of the lessee and his surety to make payment of all accrued rentals and royalties and to provide for the preservation of any mines or productive works or permanent improvements on the leased lands in accordance with the regulations and terms of the lease.

Sec. 5. Protection of the surface, natural resources, and improvements.--The lessee agrees to take such reasonable steps as may be needed to prevent operations from unnecessarily: (1) Causing or contributing to soil erosion or damaging any forage and timber growth thereon; (2) polluting the waters of springs, streams, wells, or reservoirs; (3) damaging crops, including forage, timber, or improvements of a surface owner; or (4) damaging range improvements whether owned by the United States or by its grazing permittees or lessees; and upon any partial or total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required by the lessor and to the extent deemed necessary by the lessor, to fill any sump holes, ditches and other excavations, remove or cover all debris, and, so far as reasonably possible, restore the surface of the leased land to its former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to lands of the United States and improvements thereon.

Sec. 6. Removal of equipment, etc., on termination of lease.--Upon termination of this lease, by surrender or forfeiture, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools and materials, other than underground timbering placed by the lessee in or on the leased lands, which are not necessary for the preservation of the mine. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90-day period or such extension thereof as may be granted because of adverse climatic conditions, but the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 7. Proceedings in case of default.--If the lessee shall not comply with any of the provisions of the act or the regulations thereunder or default in the performance or observance of any of the provisions of this lease, and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, the lessor may institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in section 31 of the act (30 U.S.C., sec. 188). If the lessee fails to take prompt and necessary steps to prevent loss or damage to the mine, property, or premises, or danger to the employees, the lessor may enter on the premises and take such measures as may be deemed necessary to prevent such loss or damage or to correct the dangerous or unsafe condition of the mine or works thereof, which shall be at the expense of the lessee. However, the lessee shall not be held responsible for delays or casualties occasioned by causes beyond the lessee's control.

Sec. 8. Heirs and successors in interest.--Each obligation hereunder shall extend to, and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 9. Unlawful interest.--No Member of, or Delegate to, Congress or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of section 3741 of the Revised Statutes of the United States, as amended (41 U.S.C., sec. 22), and sections 431, 432, and 433, title 18, U.S.Code, relating to contracts, enter into and form a part of this lease so far as the same may be applicable.

IN WITNESS WHEREOF:

THE UNITED STATES OF AMERICA,

By _____
(Signing Officer)

Manager Land Office — APR 14 1958
(Title) (Date)

HUNTINGTON CORPORATION
(Lessee's signature)

By _____
(Lessee's signature)

Laurence C. [illegible]
(Lessee's signature)

By _____
Frederick [illegible]

_____
_____
_____
(Witnesses to signature of lessee)

(If this lease is executed by a corporation, it must bear the corporate seal)

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE

The lands embraced in this lease (permit) issued under the Mineral Leasing Act of February 25, 1920 (41 Stat. 437, 30 U.S.C., 1946 ed., sec. 181 et seq.), as amended, the Mineral Leasing Act for Acquired Lands of August 7, 1947 (61 Stat. 913, 30 U.S.C., 1946 ed., Supp. III, sec. 351 et seq.) the act of September 1, 1949 (63 Stat. 683, 30 U.S.C., 1946 ed., Supp. III, sec. 192c) the act of June 30, 1950 (64 Stat. 311, 16 U.S.C., 1946 ed., Supp. IV, sec. 508(b)) or under the authority of any of the acts cited in section 402 of the President's Reorganization Plan No. 3 of 1946 (60 Stat. 1097, 5 U.S.C. 1946 ed., sec. 133 y-16, note) being under the jurisdiction of the Secretary of Agriculture, the lessee (permittee) hereby agrees:

(1) To conduct all operations authorized by this lease (permit) with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disburb the surface of the leased (permitted) lands within 200 feet of any building standing on the leased (permitted) lands and whenever required in writing by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the leased (permitted) lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush or grass fires on the leased (permitted) land and in its vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee (permittee) shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the leased (permitted) land at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the leased (permitted) lands or on adjacent areas or caused by the negligence of the lessee (permittee) or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: Provided, that if the lessee (permittee), his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee (permittee) shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the leased (permitted) area except at established camps, and shall enforce this prohibition by all means within his power: Provided, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee (permittee), smoking may be permitted.

The lessee (permittee) shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the land during the forest, brush, or grass fire season, except as authorized to do so or on areas approved by such representative.

The lessee (permittee) shall build or construct such [illegible] or do such clearing on the leased land as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this lease (permit), and shall maintain such [illegible] at his headquarters or at the appropriate [illegible] on the leased (permitted) [illegible]d as are deemed necessary by [illegible]n representative.

(3) In the location, design, construction and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearances, the lessee (permittee) shall [illegible] as reasonably necessary to prevent or reduce to the [illegible] extent scarring and erosion of the land, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease (permit) causes damage to the watershed or pollution of the water resources, the lessee (permittee) agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture

(4) To pay the lessor (permitter) or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by lessee's (permittee's) operations hereunder; to save and hold the lessor (permitter) or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from lessee's (permittee's) operations under this lease (permit).

(5) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(6) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee (permittee) or his contractors to provide access to the lands covered by this lease (permit) for automotive and other equipment.

(7) If lessee (permittee) shall construct any camp on the land, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(8) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease (permit).

(9) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease (permit) a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee (permittee) shall immediately so inform the said representative.

(10) To address all matters relating to this stipulation to Regional Forester, U. S. Forest Service, Forest Service Building, Ogden, Utah.
at _____,
who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee (permittee) or his agent.

(11) If all or any part of the leased (permitted) lands lie within a municipal watershed or are, in the opinion of the authorized representative of the Secretary of Agriculture, primarily valuable for watershed protection, the lessee (permittee) shall reseed or otherwise restore the vegetative cover, as required by the authorized representative of the Secretary of Agriculture, for watershed protection and erosion prevention on any areas damaged because of the operation.

This lease authorizes mining by underground methods only.

No roads or tipple sites will be located on national forest lands without obtaining prior written approval of the forest supervisor.

HUNTINGTON CORPORATION
Lessee (Permittee)

By: Lawrence E. Duerig
Secretary

2F-8 7/90

By: Frederick L. Anderson
Frederick L. Anderson, President

Printing and Publishing Section, Washington, D. C.

72443

255-018

Form 4-696
(October 1956)

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Land Office
Post Office Box No. 777
Salt Lake City 10, Utah

Office Salt Lake City, Utah

Serial No. Utah 024318

LEASE OF COAL LANDS UNDER THE ACT OF
FEBRUARY 25, 1920, AS AMENDED

This lease, entered into on May 1, , 1958, by the United States of America, the lessor, through the Bureau of Land Management, and Huntington Corporation, Box 1001, Palo Alto, California

the lessee, pursuant and subject to the terms and provisions of the act of February 25, 1920 (41 Stat. 437), as amended, hereinafter referred to as the act, and to all reasonable regulations of the Secretary of the Interior now in force which are made a part hereof,

WITNESSETH:

Section 1. Rights of lessee.--The lessor, in consideration of the rents and royalties to be paid and the conditions to be observed as hereinafter set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in the following-described tracts of land, situated in the State of Utah

T. 16 S., R. 7 E., SL Mer, Utah

Sec. 24: SE¼NE¼, E½SE¼
Sec. 25: N½NE¼, SW¼NE¼, W½SE¼, SE¼SE¼, SW¼NW¼, NE¼SW¼
Sec. 26: E½W½

T. 16 S., R. 8 E., SL Mer, Utah

Sec. 19: Lots 2, 3, 4, SW¼SE¼, SE¼NW¼, E½SW¼

containing 820.39 acres, more or less, together with the right to construct all such works, buildings, plants, structures, and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and, subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted.

Sec. 2. In consideration of the foregoing, the lessee hereby agrees:

(a) Bond.--To maintain the bond furnished upon the issuance of this lease, which bond is conditioned upon compliance with all the provisions of the lease, and to increase the amount of or furnish such other bond as may be required.

(b) Rental.--To pay the lessor annually, in advance, for each acre or part thereof covered by this lease, beginning with the date hereof, the following rentals: 25 cents for the first year, 50 cents for the second, third, fourth, and fifth years, respectively, and $1 for the sixth and each succeeding year during the continuance of the lease, such rental for any year to be credited against the first royalties as they accrue under the lease during the year for which the rental was paid.

(c) Royalty.--To pay the lessor a royalty of 15 cents on every ton of 2,000 pounds of coal mined during the first 20 years succeeding the execution of this lease. Royalties shall be payable quarterly within 30 days from the expiration of the quarter in which the coal is mined.

(d) Minimum production.--Beginning with the sixth year of the lease, except when operations are interrupted by strikes, the elements, or casualties not attributable to the lessee, or unless on application and showing made, operations shall be suspended when market conditions are such that the lessee cannot operate except at a loss or suspended for the other reasons specified in section 39 of the act, to mine coal each year and pay a royalty thereon to a value of $1 an acre or fraction thereof. Operations under this lease shall be continuous except in the circumstances described or unless the lessee shall pay a royalty, less rent, on such minimum amount of the leased deposits, for one year in advance, in which case operations may be suspended for that year.

(e) Payments.--Unless otherwise directed by the lessor, to make rental, royalty, or other payments to the Regional Mining Supervisor of the United States Geological Survey of the region in which the leased lands are situated. All remittances must be made payable to the United States Geological Survey.

(f) Plats, reports, maps.--At such times and in such form as the lessor may prescribe, to furnish a plat showing development work and improvements on the leased lands and a report with respect to stockholders, investment, depreciation, and costs. To furnish in such form as the lessor may prescribe, within 30 days from the expiration of each quarter a report covering such quarter, certified by the superintendent of the mine, or by such other agent having personal knowledge of the facts as may be designated by the lessee for such purpose, showing the amount of leased deposits mined during the quarter, the character and quality thereof, amount of its products and byproducts disposed of and price received therefor, and amount in storage or held for sale. To keep and prepare maps of the leased lands in accordance with the regulations in 30 CFR, Part 211.

(g) Weights.--To determine accurately the weight or quantity and quality of all leased deposits mined, and to enter accurately the weight or quantity and quality thereof in due form in books to be kept and preserved by the lessee for such purposes.

(h) Inspection.--To permit at all reasonable times (1) inspection by any duly authorized officer of the Department, of the leased premises and all surface and underground improvements, works, machinery, equipment, and all books and records pertaining to operations and surveys or investigations under this lease; and (2) the lessor to make copies of and extracts from any or all books and records pertaining to operations under this lease, if desired.

(i) Assignment of lease or interest therein.--To file for approval with the office prescribed in the regulations, within 90 days from the date of final execution, any assignment, sublease, or transfer made of this lease, whether by direct assignment, working agreement, transfer of royalty interest, or otherwise. Such instrument will take effect the first day of the month following its final approval by the Bureau of Land Management, or if the assignee requests, the first day of the month of the approval.

(j) Nondiscrimination.--In connection with the performance of work under this lease, the lessee agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The lessee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

(k) Lands disposed of with the coal deposits reserved to the United States.--If the lands embraced herein have been or shall hereafter be disposed of under laws reserving to the United States the deposits of coal therein, to comply with all conditions as are or may hereafter be provided by the laws and regulations reserving such coal.

(l) Operations, wages, freedom of purchase.--To comply with the operating regulations (30 CFR, Part 211), to exercise reasonable diligence, skill, and care in the operation of the property, and to carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health or property, and of waste or damage to any water or mineral deposits; to fairly and justly weigh or measure the coal mined by each miner; to pay all wages due miners and employees, both above and below ground, at least twice each month in lawful money of the United States; to accord all miners and employees complete freedom of purchase; to restrict the workday to not exceeding eight hours in any one day for underground workers, except in cases of emergency; to employ no boy under the age of sixteen and no girl or woman, without regard to age, in any mine below the surface; unless the laws of the State otherwise provide, in which case the State laws control.

(m) Taxes.--To pay when due, all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, output of mines, or other rights, property, or assets of the lessee.

(n) Overriding royalties.--Not to create, by assignment or otherwise, an overriding royalty interest in excess of 50 percent of the rate of royalty first payable to the United States under this lease or an overriding royalty interest which when added to any other outstanding overriding royalty interest exceeds that percentage, excepting, that where an interest in the leasehold or in an operating agreement is assigned, the assignor may retain an overriding royalty interest in excess of the above limitation if he shows to the satisfaction of the Bureau of Land Management, that he has made substantial investments for improvements on the land covered by the assignment.

(o) Delivery of premises in case of forfeiture.--In case of forfeiture of this lease, to deliver up to the lessor in good order and condition the land leased, including all buildings, and underground timbering and such other supports and structures as are necessary for the preservation of the mine or deposit.

Sec. 3. The lessor expressly reserves:

(a) Rights reserved.--The right to permit for joint or several use such easements or rights-of-way, including easements in tunnels upon, through, or in the land leased, occupied, or used as may be necessary or appropriate to the working of the same or other lands containing the deposits described in the act, and the treatment and shipment of the products thereof by or under authority of the Government, its lessees or permittees, and for other public purposes.

(b) Disposition of surface.--The right to lease, sell, or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted, insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the coal therein, or to dispose of any resource in such lands which will not unreasonably interfere with operations under this lease.

(c) Monopoly and fair prices.--Full power and authority to promulgate and enforce all the provisions of section 30 of the act to insure the sale of the production of said leased lands to the United States and to the public at reasonable prices, to prevent monopoly, and to safeguard the public welfare.

(d) Readjustment of terms.--The right reasonably to readjust and fix royalties payable hereunder and other terms and conditions at the end of 20 years from the date hereof and thereafter at the end of each succeeding 20-year period during the continuance of this lease unless otherwise provided by law at the time of the expiration of any such period. Unless the lessee files objections to the proposed terms or a relinquishment of the lease within 30 days after receipt of the notice of proposed terms for a 20-year period, he will be deemed to have agreed to such terms.

(e) Waiver of conditions.--The right to waive any breach of the conditions contained herein, except the breach of such conditions as are required by the act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with respect to any future breach; nor shall the waiver of a particular cause of forfeiture prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 4. Relinquishment of lease.--Upon a satisfactory showing that the public interest will not be impaired, the lessee may surrender the entire lease or any legal subdivision thereof. A relinquishment must be filed in duplicate in the appropriate land office. Upon its acceptance it shall be effective as of the date

it is filed, subject to the continued obligation of the lessee and his surety to make payment of all accrued rentals and royalties and to provide for the preservation of any mines or productive works or permanent improvements on the leased lands in accordance with the regulations and terms of the lease.

Sec. 5. Protection of the surface, natural resources, and improvements.--The lessee agrees to take such reasonable steps as may be needed to prevent operations from unnecessarily: (1) Causing or contributing to soil erosion or damaging any forage and timber growth thereon; (2) polluting the waters of springs, streams, wells, or reservoirs; (3) damaging crops, including forage, timber, or improvements of a surface owner; or (4) damaging range improvements whether owned by the United States or by its grazing permittees or lessees; and upon any partial or total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required by the lessor and to the extent deemed necessary by the lessor, to fill any sump holes, ditches and other excavations, remove or cover all debris, and, so far as reasonably possible, restore the surface of the leased land to its former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to lands of the United States and improvements thereon.

Sec. 6. Removal of equipment, etc., on termination of lease.--Upon termination of this lease, by surrender or forfeiture, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools and materials, other than underground timbering placed by the lessee in or on the leased lands, which are not necessary for the preservation of the mine. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90-day period or such extension thereof as may be granted because of adverse climatic conditions, but the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 7. Proceedings in case of default.--If the lessee shall not comply with any of the provisions of the act or the regulations thereunder or default in the performance or observance of any of the provisions of this lease, and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, the lessor may institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in section 31 of the act (30 U.S.C., sec. 188). If the lessee fails to take prompt and necessary steps to prevent loss or damage to the mine, property, or premises, or danger to the employees, the lessor may enter on the premises and take such measures as may be deemed necessary to prevent such loss or damage or to correct the dangerous or unsafe condition of the mine or works thereof, which shall be at the expense of the lessee. However, the lessee shall not be held responsible for delays or casualties occasioned by causes beyond the lessee's control.

Sec. 8. Heirs and successors in interest.--Each obligation hereunder shall extend to, and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 9. Unlawful interest.--No Member of, or Delegate to, Congress or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of section 3741 of the Revised Statutes of the United States, as amended (41 U.S.C., sec. 22), and sections 431, 432, and 433, title 18, U.S.Code, relating to contracts, enter into and form a part of this lease so far as the same may be applicable.

IN WITNESS WHEREOF:

THE UNITED STATES OF AMERICA,

By _____
(Signing Officer)

Manager Land Office — MAY 1 - 1953
(Title) (Date)

_____
_____
(Witnesses to signature of lessee)

HUNTINGTON CORPORATION
(Lessee's signature)

By _____
(Lessee's signature)

Laurence G. Duerig, Secretary

(If this lease is executed by a corporation, it must bear the corporate seal)

By _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE

The lands embraced in this lease (permit) issued under the Mineral Leasing Act of February 25, 1920 (41 Stat. 437, 30 U.S.C., 1946 ed., sec. 181 et seq.), as amended, the Mineral Leasing Act for Acquired Lands of August 7, 1947 (61 Stat. 913, 30 U.S.C., 1946 ed., Supp. III, sec. 351 et seq.) the act of September 1, 1949 (63 Stat. 683, 30 U.S.C., 1946 ed., Supp. III, sec. 192c) the act of June 30, 1950 (64 Stat. 311, 16 U.S.C., 1946 ed., Supp. IV, sec. 508(b)) or under the authority of any of the acts cited in section 402 of the President's Reorganization Plan No. 3 of 1946 (60 Stat. 1097, 5 U.S.C. 1946 ed., sec. 133 y-16, note) being under the jurisdiction of the Secretary of Agriculture, the lessee (permittee) hereby agrees:

(1) To conduct all operations authorized by this lease (permit) with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disburb the surface of the leased (permitted) lands within 200 feet of any building standing on the leased (permitted) lands and whenever required in writing by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the leased (permitted) lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush or grass fires on the leased (permitted) land and in its vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee (permittee) shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the leased (permitted) land at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the leased (permitted) lands or on adjacent areas or caused by the negligence of the lessee (permittee) or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: Provided, that if the lessee (permittee), his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee (permittee) shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the leased (permitted) area except at established camps, and shall enforce this prohibition by all means within his power: Provided, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee (permittee), smoking may be permitted.

The lessee (permittee) shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the land during the forest, brush, or grass fire season, except as authorized to do so or on areas approved by such representative.

The lessee (permittee) shall build or construct [illegible] or do such clearing on the leased land as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this lease (permit) and shall maintain such [illegible] at his headquarters or at the appropriate [illegible] on the leased (permitted) [illegible]d as are deemed necessary by [illegible]h representative.

(3) In the location, design, construction and maintenance of all authorized roads, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, the lessee (permittee) shall do all things reasonably necessary to prevent or reduce to the fullest extent scarring and erosion of the land, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease (permit) causes damage to the watershed or pollution of the water resources, the lessee (permittee) agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) To pay the lessor (permitter) or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by lessee's (permittee's) operations hereunder; to save and hold the lessor (permitter) or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from lessee's (permittee's) operations under this lease (permit).

(5) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(6) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee (permittee) or his contractors to provide access to the lands covered by this lease (permit) for automotive and other equipment.

(7) If lessee (permittee) shall construct any camp on the land, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(8) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease (permit).

(9) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease (permit) a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee (permittee) shall immediately so inform the said representative.

(10) To address all matters relating to this stipulation to Regional Forester, U. S. Forest Service, Forest Service Building, Ogden, Utah.
at _____,
who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee (permittee) or his agent.

(11) If all or any part of the leased (permitted) lands lie within a municipal watershed, or are, in the opinion of the authorized representative of the Secretary of Agriculture, primarily valuable for watershed protection, the lessee (permittee) shall reseed or otherwise restore the vegetative cover, as required by the authorized representative of the Secretary of Agriculture, for watershed protection and erosion prevention on any areas damaged because of the operation.

This lease authorizes mining by underground methods only.
No roads or tipple sites will be located on national forest lands without obtaining prior written approval of the forest supervisor.

HUNTINGTON CORPORATION
Lessee (Permittee)

By Laurence G. Duerig
Laurence G. Duerig, Secretary

2F-14 7/90

By Frederick L. Anderson
Frederick L. Anderson, President

Forms-Duplicating Section, Washington, D. C. 28398

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3.3.2 Portals

Bear Canyon Mine has ten portals:

Bear Canyon Seam -	Bear Canyon Side	4
	- Blind Canyon Side	4
Hiawatha Seam		2
	TOTAL	10

The Bear Canyon Seam (Plate 3-4) has two fan, one explosion door, one belt, and four intake portals. The first fan portal is in Bear canyon near the upper storage pad and the second along with the explosion door portal are in Blind Canyon and are to be made in 1990 for future use. One intake portal is located in the main portal area, two in Blind Canyon (Appendix 3-I), and the third; an Escape-Ventilation Portal located in Bear Creek Canyon, approx one mi north of the main portal area (Appendix 3-J).

There are two portals in the Hiawatha Seam (Plate 3-4A): a belt and an intake portal. A new fan portal is planned in the Hiawatha seam when mining conditions warrant.

3.3.3 Surface Buildings and Structures

Surface structures consist of; shops, parts warehouse, bath house; truck scales, weighman office, mine offices; caretaker dwelling, mine run coal receiver bin, crushing and sizing structure, truck load out bins, stockpile towers, and conveyors to carry coal to storage and load out sites, etc.. A complete list of surface buildings and structures is in Appendix 3-A and shown on Plate 2-4.

Pages 3 through 4 were left out due to misnumbering on the word processor.

3.3.4 Coal Handling, Storage and Loading

Coal carried from the mine by conveyor belt to a receiver bin, conveyed to the sizing and crushing plant, the lump removed and diverted to the lump bin or seasonal storage area, the rest of the oversized crushed, and the coal sized to meet the various requirements of the different customers, then conveyed to the truck load out bins, or the stockpile area.

3.3.5 Power System, Transmission Lines and Substations

Surface power systems, transmission lines and substations will be removed and the areas reclaimed, when they are no longer required.

3.3.6 Water Supply System

The system, which carries water from the mine or cistern to the loadout area, wash plant, bathhouses and offices, consists of a 2-inch pipeline and water storage tanks will be removed. The area will be topsoiled and revegetated. Copies of the approved culinary water permit plans are attached in Appendix 3-B.

A water right transfer has been approved from Trail Canyon to Bear Canyon and water is supplied from underground to a surface Water rights information for the mine and surounding area is found in Appendix 7-C.

3.3.7 Water Diversion Structures

Water diversion structures will be maintained until revegetated areas are well established and stable. Unless an accepted and approved use for these is established after mining they will be removed as above; graded and revegetated. See Chapter 7.

3.3.8 Sedimentation Control and Water Treatment Facilities

This facility will be maintained as long as it is required to meet the effluent limitations of applicable federal or state laws for runoff or drainage. When their usefulness is ended, they will be removed and the sites reclaimed as described previously

3.3.9 Storage, Waste and Refuse Areas

Co-Op disposes of underground development waste in abandoned areas underground in line with R614-301-513.300 and MSHA regulations.

3.3.10 Transportation, Roads and Parking Areas

There are two main roads in the permit area: Bear Canyon Haul Road and the mine area/portal access road. All roads are shown on Plate 2-4. A description of all roads is included in Appendix 3-D, along with maintenance and reclamation procedures.

The Bear Canyon Haul Road is a Class I road approx 1800 ft long from the gate to the scale house. The road is 30 ft wide and crowned in the middle (Plate 3-5). Drainage is provided by ditches on each side and culverts are installed where needed.

The mine area/portal access road is a Class II road, approx 2,112 ft long and drainage structures are also in place (Plates 3-1 and 3-5). Three other Class II roads provide access to the Sediment Pond A, the coal preparation facility and to the bathhouse. Sections of these three roads are found on Plate 3-1a.

There is one Class III (jeep trail) road shown near the portal on plate 2-4, but it is not in use.

Roads are maintained in such a manner that the performance standards will be met throughout the life of the entire transportation facility, including maintenance of the surface, shoulders, parking and side areas, and erosion control structures for safe and efficient utilization of the road.

Reclamation of roads and parking areas is treated in the same manner as other working areas. Any asphalt or treated surfaces will be removed prior to rehabilitated upon completion of mining. See Plates 3-1, 3-1a, 3-2 and 3-5, and road agreement under Appendix 3-D.

3.3.11 Topsoil Storage Piles

Topsoil storage piles are located as shown in Plate 8-3. This material will be recovered as needed to carry out the reclamation plan described herein.

3.3.12 Explosives Storage and Handling

Co-Op has an explosives facility within the permit area but does not anticipate the use of explosives in their normal mining operation. However, in the unlikely event the need arises in the underground operation the following procedure will be adhered to:

3.3.12.1 Use of Explosives

There will be no surface blasting activities incident to this underground operation. There is a possibility that the need to use explosives in the underground operation to advance through faults, dikes, or other rock strata too hard for cutting by the continuous miner. Any use of explosives in the underground operation will be in compliance with all applicable state and federal laws, and will be conducted by persons trained, examined and industrial commission. Blasting material will be stored in fire proof bullet proof magazines and clearly designated as an (Explosive Storage Area), as required by state and federal laws.

Co-Op will adhere to all State and Federal requirements, regulations and mandates applicable to the prescribed use and quantity. Including but not limited to:

1. A federally approved storage facility.
2. An individual trained and certified in the use of explosives.
3. All forms, notifications and reporting procedures.

3.3.13 Relocation or Use of Public Roads

There are no public roads within the permit area.

3.3.13.1 Protective Measures

Access roads will be posted with "Authorized Personnel Only", speed and road information signs upon entrance to the property; use of these roads is restricted to authorized personnel. Security is maintained by adequate security personnel.

3.3.13.3 Cross Section

Plans and cross-section of the access road to the portal area are shown on Plate 3-1 and section D-D; Mine Access Road - Construction Plan.

3.3.14 Total Area for Surface Disturbance During Permit Term

Total area or surface disturbance during the permit term is approx 12 acres. Individual areas are shown on Plate 3-2.

3.3.15 Additional Area for Surface Disturbance for Life of Mine

Surface disturbance in addition to what has already been disturbed is not anticipated.

3.3.16 Detailed Construction Schedule

Construction of coal handling and processing facilities began on 1 April 1981, and were largely completed by 1 Nov 1985. Construction of truck scale and caretaker dwelling was completed by 1 Dec 1985. Construction of shop complex began on 15 Aug 1983, and completed on 1 Oct 1985. Construction of the new bath house and road widening over Bear Creek began in the summer of 1990.

3.4 OPERATION

Co-Op started it's mining operation through an existing mine in the Bear Canyon Seam and later extended into the Hiawatha Seam below. Access to the lower Hiawatha seam was made in the summer of 1986 through two new portals in the outcrop, and through a rock slope tunnel from the Bear Canyon seam. The following mining plans pertain to the existing operation in these two seams.

3.4.1 Mining Plans

The permit area comprises approx 1700 acres located and outlined as shown on Plate 2-1.

There are three main seams in the Bear Canyon Property, the upper (Upper Bear), the middle (Bear or Blind Canyon), and lower (Hiawatha) Seam. There are no plans to mine the uppermost seam due to extensive burning and limited lateral extent of the seam. Mining plan, sequence and projected development for the Bear Canyon and Hiawatha seams are shown on Plates 3-4 and 3-4A respectively.

3.4.1.1 Advance-Retreat Mining Procedures

Underground coal mining procedures follow two basic approaches to the recovery of involved reserves. These are advancing and retreating. If mining advances along both sides of any set of entries from their starting point to their termination, the system is advancing; if mining is not started until the entries reach their limit and then begins at the termination point on both sides, the system is retreating. If mining begins at the initiating point of the entries on one side and advances to the end, then moves to the other and works out to the starting point, it becomes an advance-retreat system.

Because advancing to the most remote area before mining back to the portal is not generally possible, development work and mining are usually accomplished simultaneously as the workings advance into the property. This concept can be applied to various parts of the main entries, sub-main entries and even panels. Frequently this method is attractive, as it permits high production work to proceed in combination with development, creates favorable strata control conditions and, if done properly, facilitates ventilation and enhances safety of the operation. When an overall advance-retreat system is used, the faces will retreat along the panel entries. We have an advance-retreat situation for the entire property.

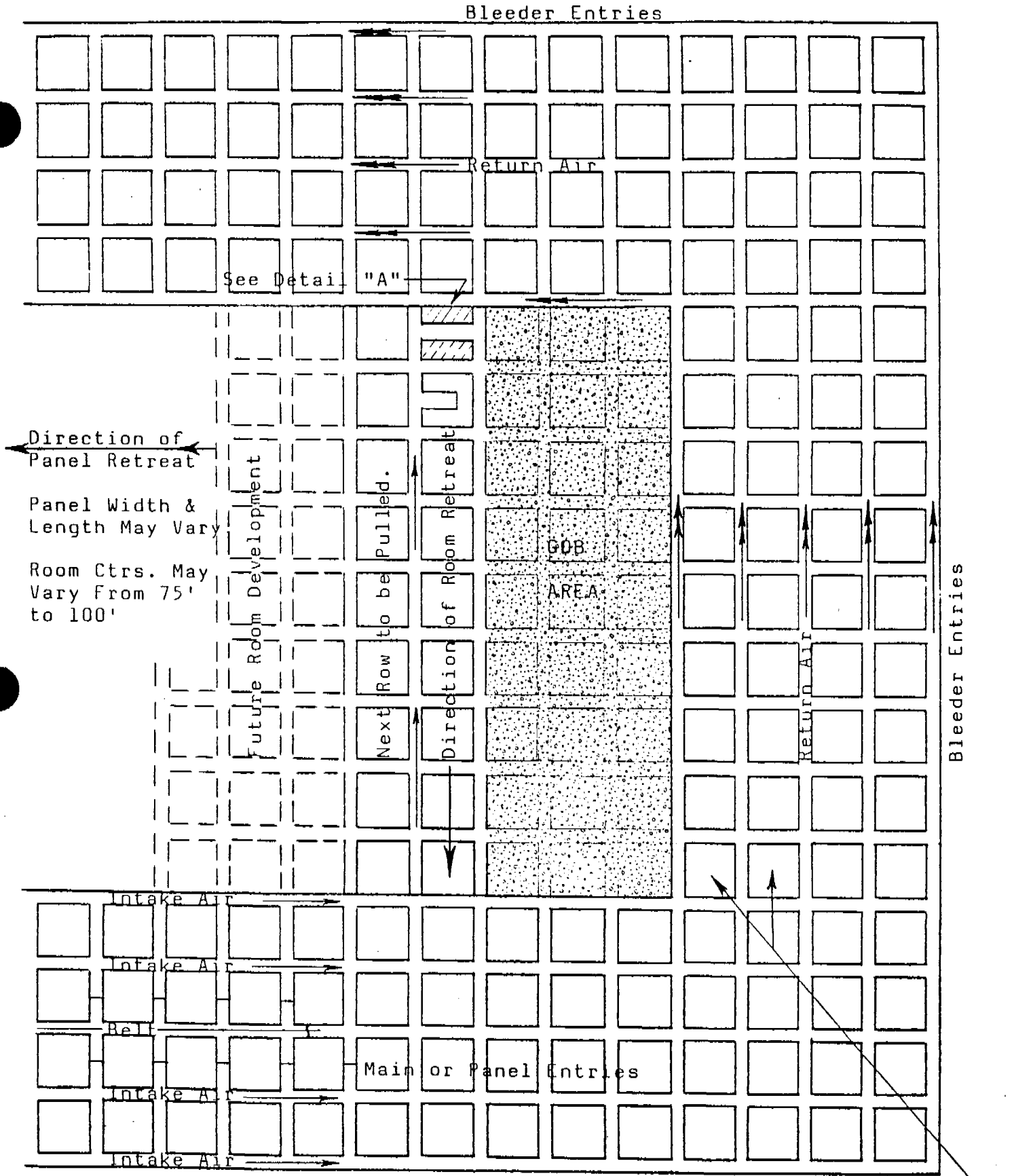
Advance-retreat is not to be confused with First and Second mining, which applies primarily to room and pillar work. First mining refers to the excavation of rooms and entries, leaving the intervening pillars of coal in place. Second mining can accompany First mining as it advances into a solid block of coal, in which case it is advancing; or it can retreat through an area which has been first-mined. The former is probably the safer and preferred method. It will be used where Second mining is applicable in the Bear Canyon Mine.

3.4.1.2 Mining Methods

Mining in both the Bear Canyon and Hiawatha Seams is done by continuous miners. The miners discharge into shuttle cars (diesel or electric which carry the coal to the feeder breaker. The feeder breaker discharges the coal onto the belt conveyor where it is taken out of the mine.

The main entries consist of a five-entry system on 80 ft - 100 ft centers to be driven to the property limits. Sub-mains consisting of five entries on 83 ft centers are then driven off the mains and room-and-pillar panels are developed off the sub-mains. Rooms are developed within the panels on 70 ft - 83 ft centers. The pillars are then recovered according to the approved plan. Timber is installed to support the roof and provide for breaker control of caving roof. Retreat mining of this type will provide a recovery of 75 pct - 78 pct within the panels. As the panel retreat is completed, the sub-mains will be pulled upon final retreat of the mine operation. See Figures 3.4-1 and 3.4-2.

As can be seen on Plates 3-4 and 3-4A, the lower seam workings are planned to be columnized with the upper as closely as practicable. The mining plan sequence allows for recovery of the upper seam areas prior to final recovery of the lower seam. This procedure is consistent with accepted engineering practice in multiple seam mining.

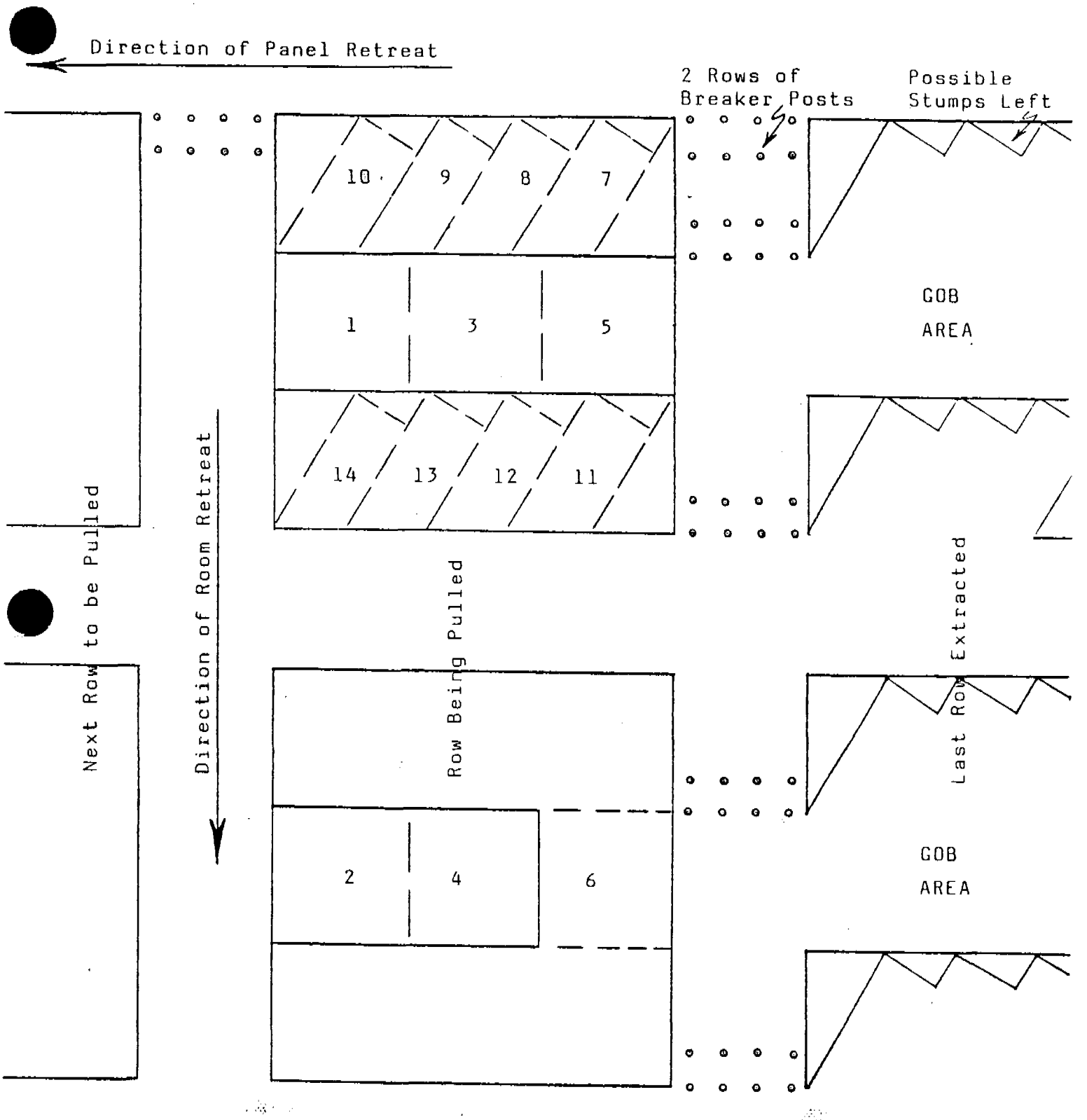


Note: 2 Rows of Bleeder Entries may be pulled if conditions allow.

Scale: 1 in. = 200 ft

Figure 3.4-1 Typical Panel Recovery

Note: Room centers may vary from 75' to 100'.
Typical cut sequence is as shown. May vary due to conditions.



Scale: 1 in. = 200 ft

Figure 3.4-2 Typical Pillar Extraction

3.4.2.2 Outcrop Protection

In most areas, coal outcrops are buried and are not visible from the surface. Outcrops are either covered to some depth with overburden or, in many areas, the coal has been burned for some distance from the surface. Where neither of these situations exist, routine tests of the coal may show that it has been "weathered" or "oxidized" and mining will be stopped within 200 ft of the outcrop.

Barrier pillars to protect main and sub-mine entries have been made large enough (200 ft or greater) to assure protection of the entries for their useful life. When the area serviced is mined out, entry pillars will be recovered on the way out.

3.4.2.3 Protection of Natural Surface Structures & Streams

Co-Op's commitment to maintain a min of 200 ft barrier pillars to outcrops will minimize the possibility of escarpment failure and resulting detrimental impacts to down stream water quality or nesting raptor. No stream channels lie over the minable portion of the permit area. Downstream channels are protected from disturbed area runoff contamination by utilization of sediment ponds. Temporary sediment controls i.e.; silt fences, straw bail dikes etc. will be installed and vegetation will be reestablished as required in the event of impacts by escarpment failure.

3.4.2.4 Protection of Manmade Features (Surface & Subsurface)

Man made features and structures do not exist on the minable portion of the permit area. There are some forest trails but they are all located beyond the coal outcrops. Maximum coal recovery in the controlled uniform manner planned for this mine should result in even surface substance with min disturbance.

Buildings within 1,000 ft of Permit Area. No buildings lie within 1,000 ft of the permit area.

Existing Public Roads. The main access road to the property is a public road. It provides access from Huntington Canyon to the mine. Access beyond the gate entrance to the mine is controlled by the company and the road is posted with no trespassing, speed control and general traffic control signs. When mining has been completed, the road would be reclaimed. There are two 4x4 roads above Federal Lease U-024316.

3.4.2.5 Protection of Oil, Gas and Water Wells

There are no active or abandoned oil or gas wells within the permit boundary.

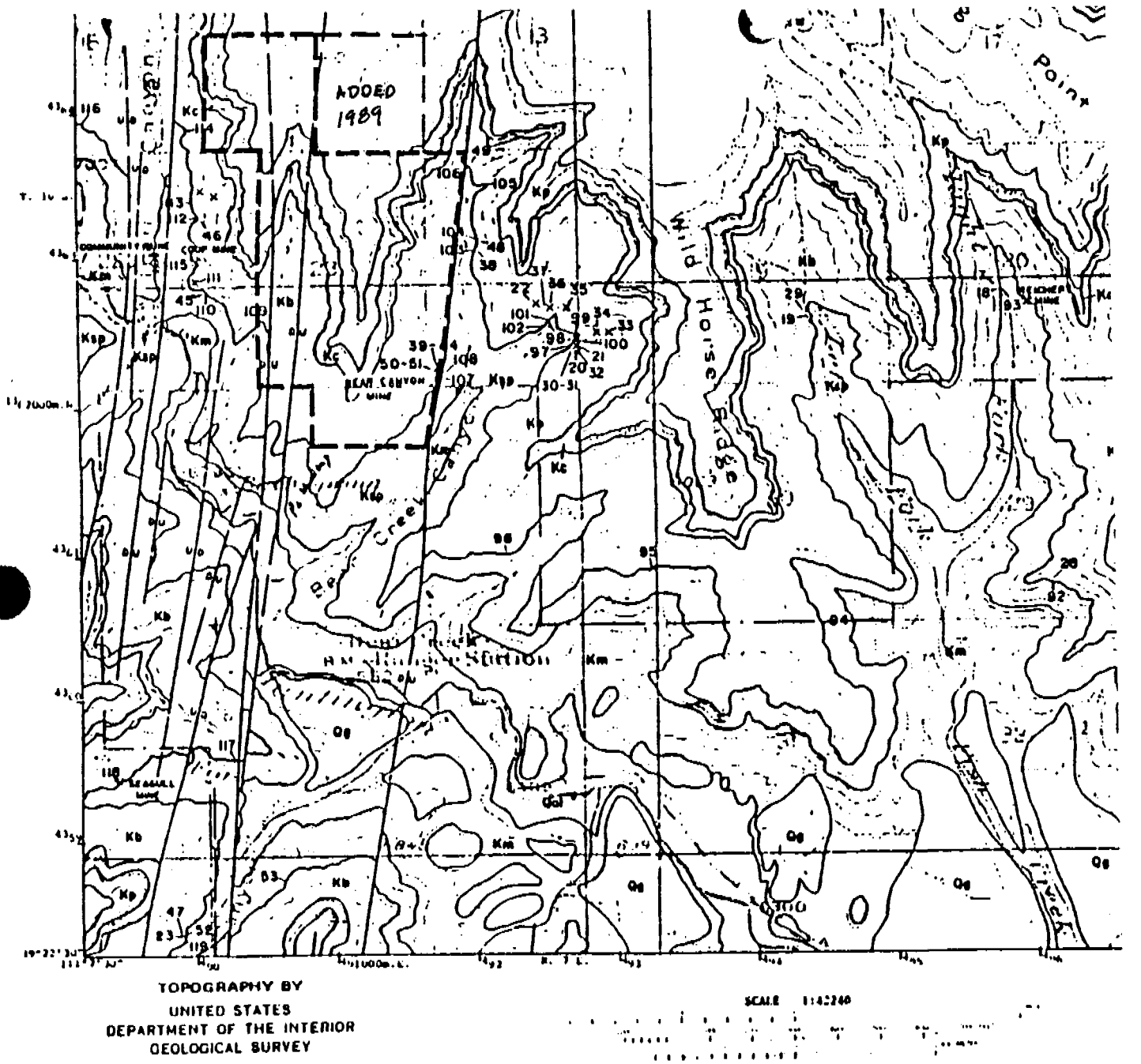


Figure 3.4-3 Coal and Geography Map, Hiawatha NE Quadrangle

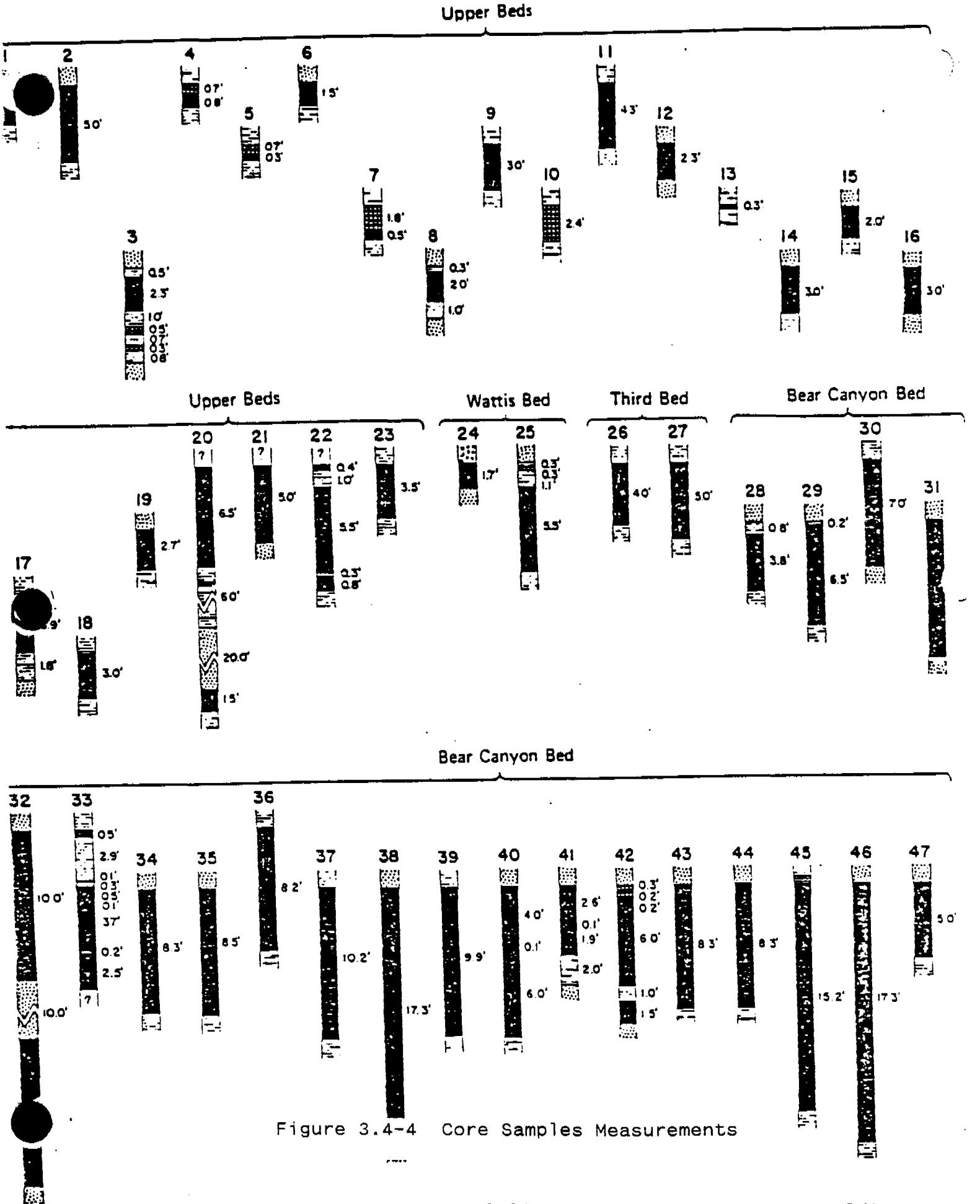


Figure 3.4-4 Core Samples Measurements

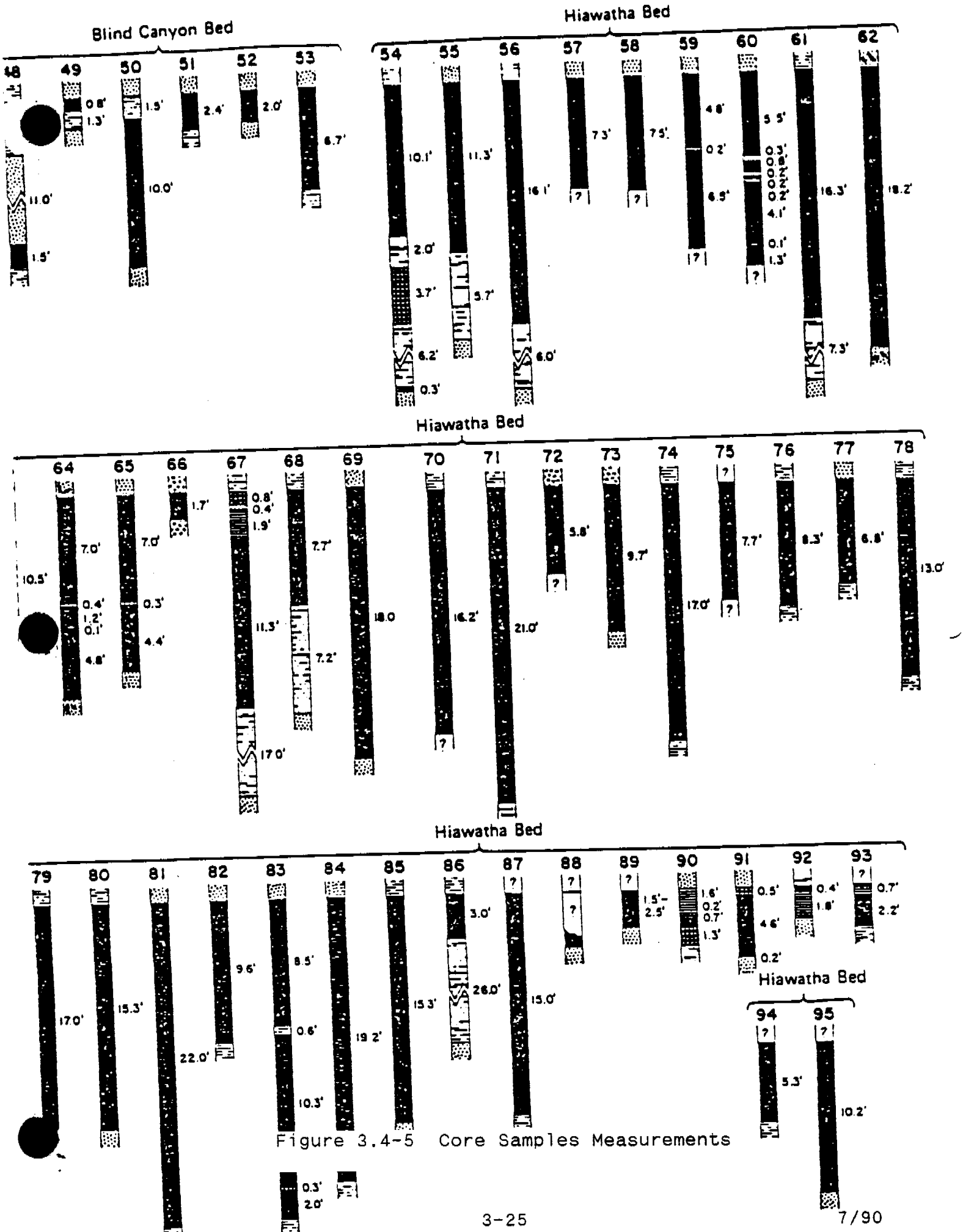


Figure 3.4-5 Core Samples Measurements

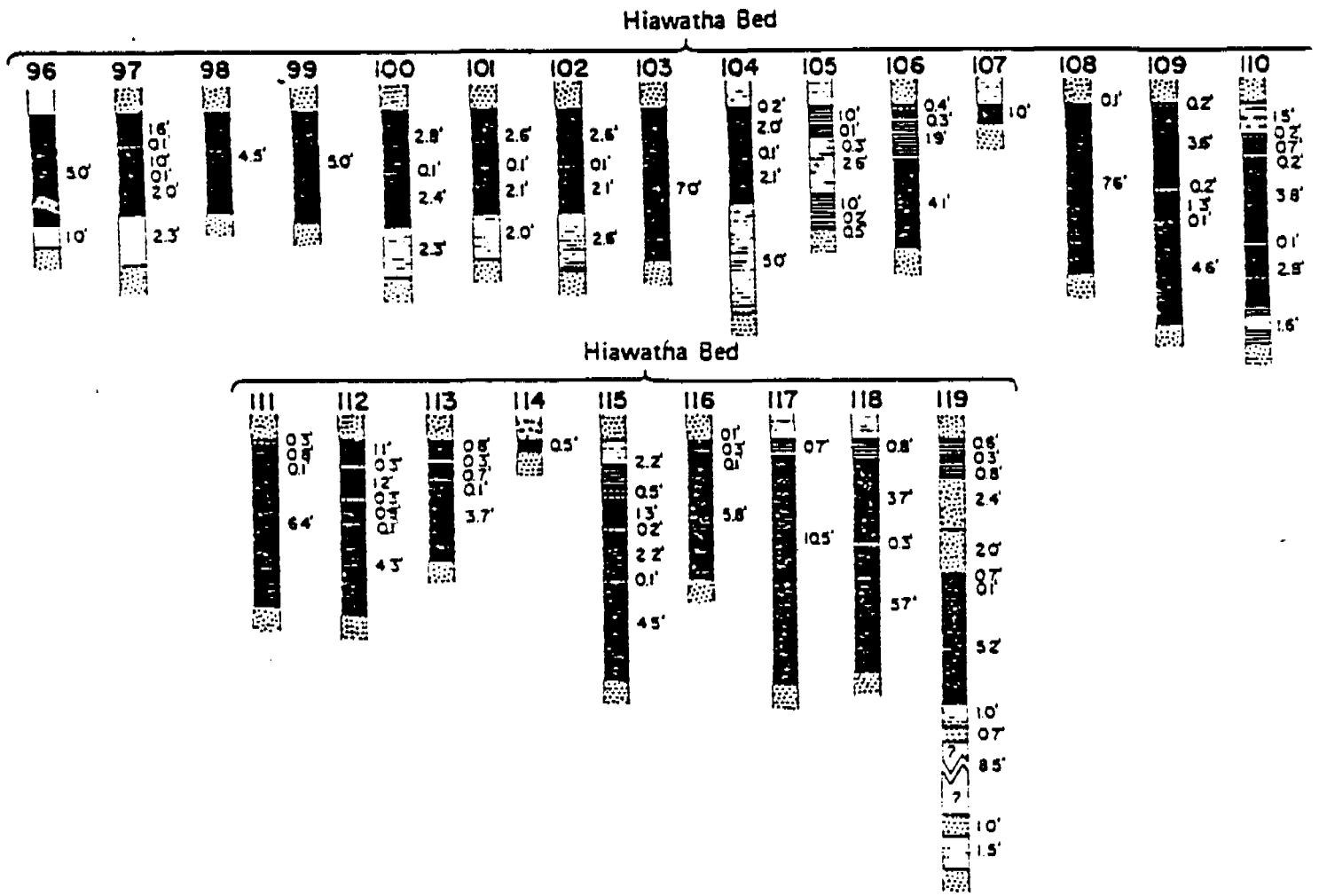


Figure 3.4-6 Core Samples Measurements

3.4.3.2 Projected Maximum Recovery and Rate

Recoverable Reserves. Table 3.4-1 shows the reserves in each seam determined from our most recent data.

Table 3.4-1 Coal Reserves - Bear Canyon Mine

Reserve Area	Seam	Coal Reserves (tons) In Place	Coal Reserves (tons) Recoverable
Federal Lease (U-024316)	Bear Canyon	65,363	12,600
	Hiawatha	48,003	24,002
	SUBTOTAL	113,366	36,602
(U-024316)	Bear Canyon	4,966,000	2,483,000
	Hiawatha	*3,310,500	*1,655,000
	SUBTOTAL	8,276,500	4,138,000
Fee Land	Bear Canyon	6,839,142	3,419,571
	Hiawatha	2,499,172	1,249,586
		9,338,314	4,669,157
Total Area	Bear Canyon	11,870,505	5,915,171
	Hiawatha	5,857,675	2,928,588
	TOTAL	17,728,180	8,843,759

NOTES:
1. Reserves bases on latest projections (4/10/90) submitted to the B.L.M. in the L.M.U. Application.

* Minable tonnage questionable based on adjacent drilling (See Plate 3-4A).

The reserves shown reflect minable coal in only Bear Canyon and Hiawatha Seams. These reserve estimates are based on numerous outcrop measurements as well as inseam measurements, both in Bear Canyon and Trail Canyon (Figure 3.4-3 through 3.4-6).

Recovery Rate. The recoverable coal reserves were estimated by multiplying the in-place reserve by a recovery factor of 50 pct.

The operation will produce 200,000 to 400,000 tons of raw coal per year with at least 3 miner sections working 240 days. This is 400+ to 800+ tons per day with 2 production shifts operating. The rate of production (considering a lower rate during the initial buildup years plus the tonnage still to be mined in the area of old workings) will make the projected mine life of approx 22 years.

3.5 ENVIRONMENTAL PROTECTION

3.5.1 Preservation of Land Use

COP Development Company, which is the legal owner of affected surface operations, anticipates that the post-mining land uses of the affected areas will remain the same as the pre-mining land uses. These uses are identified in Chapter 4. State or local governments have not proposed any changes in land use following reclamation.

Once operations in an area have ceased, the disturbed area will be scarified, sloped and seeded before the next growing season. The site will be reseeded with a mixture of seed approved by the Division of Oil, Gas, and Mining. Grass will be maintained by fertilization or reseeding until stable up to five years (Section 9.5). Co-Op is committed to total Reclamation of all disturbed areas. The mine access roads to the mine portal will be reclaimed and revegetated. This will accomplish a dual purpose of controlling runoff and revegetating the hillsides with vegetation comparable to existing growth.

Emery County zoning ordinances classify the Bear Canyon Mine plan area as Mining and Grazing (MG-1) and Critical Environment (CE-1). Co-Op will cooperate with all state and local land use plans and programs.

3.5.1.1 Projected Impacts of Mining on Current and Future Land Use

The tentative acreage to be disturbed for each activity described above are as follows:

Mine Shop Area	.75	acres
Mine Access Road	2.15	acres
Portal and Pad Areas	5.1	acres
Sediment Treatment Area	.5	acres
Scale Area	1.42	acres
Bath House/Road Widening	1.98	acres
Total	11.90	acres

The management objectives and the impacts from the Bear Canyon Mine pertaining to these objectives are described in detail in Chapter 4.

Impacts. Approx 12 acres of soil will be disturbed within the permit area. This includes loadout areas, offices, shops and substations, roads, portal areas, bath house and the topsoil storage area. The reduction in desirable plant species will temporarily reduce forage production and wildlife capacities. The short-term negative impact of vegetation removal would be outweighed by the positive impacts of revegetation and improved fire protection and prevention.

Wildlife in the area will adapt to the operation in a relative short time as witnessed by existing coal operations. Proposed construction may temporarily disrupt wildlife if human disturbance

3.5.2.1 Projected Impact of Mining on Human Values, Historical and Cultural

The projected impact of mining on cultural resources can be direct or indirect. Direct impacts are a direct consequence of project development and operation, such as earthmoving. Indirect impacts arise from activities that are not strictly part of the project development and operation, such as changes in local population.

3.5.2.2 Control Measures to Mitigate Impacts

Co-Op is committed to take all necessary steps to remedy any adverse impacts from slides and to notify the Division and other applicable federal agencies, (Price District Ranger) by the fastest available means to safeguard human and environmental values.

3.5.3 Protection of Hydrologic Balance

Co-Op will conduct all mine site operations in such a way as to minimize potential impact to surface and ground water quality.

Water originating in or flowing through disturbed areas is collected by a drainage control system and the additional suspended material allowed to settle in a sediment treatment facility before discharge into the natural drainage system. No permanent changes to the natural drainage channels are anticipated. Post-mining land

area wide basis generally yields less than 10 gal./min. per active face, it will be collected in the face area and pumped to impoundments located within the mine. The impoundments will be designed to allow sufficient time for suspended solids to settle. If necessary, mechanical devices will be installed to remove grease and oil that might be present in the water before it is used for dust suppression.

The construction of proposed surface facilities will result in increases of the suspended solids concentration increases, however are expected to be temporary because of compliance with the regulatory requirements that sediment control features be provided for all areas of surface disturbance.

Water quantity will remain generally unaffected due to the geological conditions in the mine area. Therefore, there will be little or no impact, adverse or otherwise, on the hydrologic system.

State and federal regulations (30 CFR 817.54) require that an alternate water supply be provided to replace any water supplies in the area, Co-Op will provide this alternate supply if needed. Several alternate sources of supply exist:

a. Water from springs could be piped to the affected site.

R614-301-528.330 Disposal of Non-Coal Waste. Co-Op has undertaken a massive clean-up operation wherein large quantities of scrap have already been removed from the permit area. This operation was completed (1 Sept 1983) the balance of the salvageable equipment is being stored in the designated area.

The equipment which is not scrapped out is temporarily stored in the storage yard in Bear Canyon. This site is situated in such a manner to insure that whatever runoff results from the area will pass through designated sediment facilities.

The non-coal waste (other than rock refuse) generated in the operation of the mine is placed in metal dumpsters which are strategically located on the property. A local trash collector is contracted to replace these bins when they are approx 80 pct full,

Appendix 3-E addresses a comprehensive plan to handle toxic or contaminated material in the course of reclamation.

3.6 RECLAMATION PLAN

Co-Op upon completion of mining on the permit area, will reclaim all disturbed surface areas as diligently and rapidly as possible, to restore the property to a variety of alternative uses. All reclaimed areas will be maintained for the entire 10 yr responsibility period.

Shafts. The shafts will be filled from bottom to collar with non-combustible material. A cap consisting of a 6 inch thick reinforced concrete slab will be used as a seal. The cap will be equipped with a 2 inch diameter vent pipe and will extend for a distance of 15 ft below the surface of the shaft collar.

Mine Entries (R614-301-529). Seals will be installed in all entries as soon as mining is completed and the mine is to be abandoned. Seals will be located at least 25 ft inside the portal mouth entry. Prior to installation all loose material within 3 ft of the seal will be removed from the roof, fib and floor. The mine entry seals will be made of solid concrete blocks (average min compressive strength of 1,800 lbf/in^2 tested in accordance with ASTM C140-70) and mortar (1 part cement, 3 parts sand and no more than 7 gallons of water per sack of cement) to form a wall two blocks thick.

Seals will be installed in the following manner:

a. The seal will be recessed at least 16 inches deep into the fib and 12 inches deep into the floor. No recess will be made into the roof. The recess will be made into the floor. The blocks will be at least 6 inches high, except in the top course and 8 inches wide.

b. The blocks will be laid and mortared in a transverse pattern.

3.6.3.3 Disposition of Dams, Ponds and Diversions

After the disturbed areas are stabilized and runoff is comparable to the area's pre-mining conditions without detention time, the site drainage system will be removed. The site drainage system areas will be backfilled and revegetated. All ponds will be drained and allowed to dry; thereafter they will be backfilled and revegetated.

Natural drainage pattern will be returned to a surface drainage pattern similar to the original.

3.6.4 Backfilling and Grading Plans

The objective of the proposed backfilling, soil stabilizing, compacting, contouring and grading process is to achieve a reclaimed surface which all provide a variety of topographic features enhancing post-mining land use.

Reclamation earthwork activities will be conducted as outlined in Section 4.5, Post-mining Land Use and Section 3.6.6, Schedule of Reclamation. The steps to be taken in the backfill, soil stabilization, compaction, contouring and grading problems are described in the following subsections. Stability analysis of backfilled areas are discussed in Appendix 3-F.

Fertilization and Neutralization-R614-301-243. The topsoil will be tested before it is seeded to determine the type and amount of fertilizer or neutralizer required. Soil analysis will measure the following components:

Phosphorus
Nitrogen
Soil pH and salinity
Soil Texture
Sodium Absorption Ratio (SAR)

Chemical analyses for micronutrients will be conducted by testing soil extract potassium, calcium and magnesium for atomic absorption analyzer. Ammonium acetate will be used to extract potassium, calcium and magnesium for atomic absorption analysis. Phosphors will be determined with sodium bicarbonate extraction and calorimetric analysis. The kjeldahl method will be used for determination of total nitrogen. Soil texture will be determined by a Bouyoucus hydrometer method (solium herametaphosphate dispersing agent).

Soil pH will be determined on a 1:1 soil/water mixture tested with an electrode pH meter. Salinity will be analyzed by using a Whetstone conductivity cell on an extract of each soil sample.

All necessary fertilization or neutralization, as determined by soil testing will be done.

3.6.7 Reclamation Bonding

BOND

CO-OP MINING COMPANY

BEAR CANYON MINE

ACT/015/025, EMERY COUNTY, UTAH

3.6.7.1 Detailed Timetable for Completion of Major Reclamation Processes

The following schedule of reclamation if proposed to be initiated within 90 days (weather permitting) of final abandonment of the mining operation:

		Actual Time
a.	Seal Portal - 1 week	1 week
b.	Remove Structures - 2.5 weeks	3.5 weeks
c.	Soil Placement (backfilling and grading)	
	1. Upper Pad - 1 week (including road)	4 weeks
	2. Channel Restoration - 1.5 week	6 weeks
	3. Lower Pad and Diversions - 1.5 week (including road)	7.5 weeks
d.	Seed-bed Material and Handling - 1 week	8.5 weeks
e.	Reseeding and Fertilizing - 1 week	9.5 weeks
f.	Mulching - .5 week	10 weeks
g.	Protective Fencing - 2 weeks (concurrently)	10 weeks

The above reclamation tasks are, therefore, proposed to be completed within 10 weeks following the start of reclamation activities.

3.6.7.2 Reclamation Cost and Bonding

Labor - Hourly Rates from 1990 Means Site Work Cost Data

Equipment Operator	= $22.10
Truck Driver	= $18.10
Average Helper	= $22.10
Foreman	= $24.10
Crane Operator	= $22.90
Welder	= $23.45

Equipment - Hourly Rates from 1990 Means Site Work Cost Data (Rate includes rental and operating cost)

a.	Loader - 950B (2-1/2 cu yd bucket) - $769.60/day	$ 96.20
	Operator	22.10
		$118.30
b.	Crane - Groves RT-580 20T - $630.40/day	$ 78.80
	Operator	22.90
		$101.70
c.	Truck and Operator - $419/day	$ 52.38
	Operator	18.10
		$ 70.48
d.	Cat D-7G - $819.20/day	$102.40
	Operator	22.10
		$124.50
	Ripper (three shanks = $13.13 + 1.40 operator/hr)	$ 14.53
e.	Backhoe (Cat 235) - $1587.40/day	$198.43
	Operator	22.90
		$221.33
f.	Acetylene Torch	$ 6.30

g.	Lowboy (truck/trailer) - $45.63 + 27.50 + 13.90 + 2.45	$ 89.48
h.	Cat D-3 - $392.80/day	$ 49.10
	Operator	22.10
		$ 71.20
i.	Dump Truck (10 yd) - $311.10/day	$ 38.89
	Operator	18.10
		$ 56.99

Backhoe (BH) Cycle Time Estimates - 235 Backhoe (From Cat Performance Handbook)

Average

Load Bucket	6.5 Sec
Swing Bucket	6.0 Sec
Dump Bucket	2.5 Sec
Swing Empty Bucket	5.0 Sec
	20.0 Sec-2.12 yds3

Medium to hard digging (hard packed soil with up to 50 pct rock content) depth to 70 pct of machine's capability

3 cu yd/min x 2.12 yd x 60 = production/hr = 381.60 cu yd/hr or 180 cycles/hr

Cut and fill yardage (same number - 1- cycle)

Crawler Tractor (D7G) Cycle Time Estimates (From Cat performance Handbook)

D7G Cut Material - 200 yd run
Average Blade Load of 15 cu yd

Cycle Time	7.6 min	- Loaded Average
	4.0 min	- Return
	11.6 min	

Efficiency 50 min/hr
50 min/11.6 min cycle x 15 yd/cycle = 64.65 yd/hr

950B Loader Cycle Time (From Cat Performance Handbook)

a.	Pile (10 in. material and smaller)	+ .01 min
b.	Common ownership of trucks	- .04 min
c.	3/4 inch to 6 inch	.00 min

113 cu yd/hr
196 cu yd/hr topsoil

Summary of Reclamation Cost Estimate

a.	Seal Portals and Backfill	$ 35,000.00
b.	Removal Structures	$ 32,595.00
c.	Solid Waste Removal	$ 2,451.44
d.	Soil Placement (backfilling and grading)	$ 36,146.00
e.	Channel Restoration	$ 16,892.24
f.	Reseeding and Fertilizer	$ 7,511.52
g.	Mulching	$ 9,092.80
h.	Protective Fencing	$ 6,000.00
i.	Baseball Park Seeding	$ 2,520.00
j.	Retaining Wall Removal	$ 442.66
k.	Borehole Plugging	$ 343.40
l.	Maintenance and Monitoring of Subsidence, Vegetation and Erosion (10 yr bond liability period)	$ 19,460.00
m.	Hydrology Monitoring (10 yr bond liability period)	$ 23,072.00
n.	Supervision (10 weeks)	$ 9,640.00
o.	Mobilization and Demobilization	$ 2,500.00
		$203,667.06
	10 pct Contingency	$ 20,366.70
	(1990 dollars)	$224,033.70

Escalated Values	Escalation Factor
1991 - $228,155.00	1.84% (actual)
1992 - $232,354.00	1.84% (est)
1993 - $236,629.00	1.84% (est)
1994 - $240,983.00	1.84% (est)
1995 - $245,417.00	1.84% (est)

NOTE: Section 3.6.7.3 modification and adjustment

Reclamation Costs

a.	Seal and Backfill Portals	$ 35,000.00
	AMR Costs-$3,500/seal including backfill x 10 seals	$ 35,000.00

b. Removal Structures

Fan

Labor - 2 men. X $176.80/day x 2 days	$ 707.20
Equipment (hauling) - truck + operator x 4 hrs x & 70.48/hr	281.92
20 T crane x 2 hrs x $101.70/hr	203.40
SUBTOTAL	$ 1,192.52

Structures and Conveyors (Principle and Secondary)

Labor - 3 men x $176.80/day x 4 days	$ 2,121.60
Equipment (hauling) - truck + operator x 32 hrs x $70.48/hr	2,255.36
1 loader + operator x 32 hrs x $118.30 (950B - 2 - 1/2 cu yd bucket)	3,785.60
Crane - 4 hrs @ $101.70/hr	406.80
SUBTOTAL	$ 8,569.36

Hiawatha Receiving Bin

Labor - 2 men @ $176.80/day x 2 days	$ 707.20
20 ton Crane - 4 hrs x $101.70	406.80
Truck + Operator - 4 hrs x $70.48	281.92
Subtotal	$ 1,395.92

Substation Power Transformer

Labor - 2 men x $176.80/day x 2 days	$ 707.20
Hauling - truck + operator x 16 hrs x $70.48	1,127.68
Loader - 4 hrs x $118.30/hr (+ operator)	473.20
SUBTOTAL	$ 2,308.08

Sales-Receiving-Scale House Complex

Labor - 2 men x $176.80/day x 3 days	$ 1,060.80
Equipment (hauling) - truck + operator x 16 hrs x $70.48/hr	1,127.68
Loader - 8 hrs x $118.30/hr + operator	946.40
SUBTOTAL	$ 3,134.88

Water System (10,000 gal & 12,000 gal tanks)

Labor - 2 men x $176.80/day x 1 day	$ 353.60
Hauling - truck + operator x 4 hrs x $70.48/hr	281.92
Loader - 2 hrs x $118.30/hr + operator	236.60
Acetylene Torch - 4 hrs @ $6.30/hr	25.20
Welder - 4 hrs @ $23.45/hr	93.80
SUBTOTAL	$ 991.12

Reclamation Costs (cont)

Fuel Storage Tank and System		
Labor - 2 men x $176.80/day x 2 days	$	707.20
Hauling - truck + operator x 16 hrs x $70.48/hr		1,127.68
Loader - 8 hrs @ $118.30/hr + operator		946.40
Acetylene Torch - 2 hrs @ $6.30/hr		12.60
Welder - $23.45/hr x 2 hrs		46.90
SUBTOTAL	$	2,840.78
Truck Loadout		
Labor - 48 hrs @ $22.10/hr	$	1,060.80
Lowboy truck + operator @ $89.48/hr x 5.5 hrs		492.14
20 ton Crane 2 hrs x $101.70		203.40
10 yd dump 6 hrs @ $56.99		341.94
Torch - 4 hrs @ $6.30/hr		25.20
Welder - 4 hrs x $23.45/hr		93.80
950B Loader @ $118.30/hr x 4 hrs		473.20
D-7 Crawler Tractor - 4 hrs @ $124.50/hr		498.00
SUBTOTAL	$	3,188.47
Stacking Facility and Coal Bins		
Labor - 4 men x $176.80/day x 1 day	$	707.20
Truck and operator $70.48 x 4 hrs		281.92
20 ton Crane 4 hrs x $101.70		406.80
950B Loader $118.30/hr x 4 hrs		473.20
Acetylene Torch - 2 hrs @ $6.30/hr		12.60
Welder - 2 hrs @ $23.45/hr		46.90
SUBTOTAL	$	1,928.62
Crusher Facility		
Labor - 2 men @ $176.80/day x 4 days	$	1,414.40
20 ton Crane - 8 hrs x 101.70/hr		813.60
truck + operator - 8 hrs x $70.48		563.84
Acetylene Torch - 4 hrs @ $6.30/hr		25.20
Welder - 4 hrs @ $23.45/hr		93.80
SUBTOTAL	$	2,910.84
Oil Slack Loadout		
Labor - 2 men @ $176.80/day x 2 days	$	707.20
20 ton Crane - 4 hrs x $ 101.70		406.80
Truck + operator - 4 hrs x $70.48		281.92
SUBTOTAL	$	1,395.92
Misc. Structures (Lamphouse, powder magazine, electrical service depot, etc.)		
Labor - 2 men @ $176.80/day x 1 day	$	353.60
Truck + operator - 4 hrs x $70.48		381.92
SUBTOTAL	$	635.52

Reclamation Costs (cont)

Cross Conveyor

Labor - 3 men x 176.80/day x 1 day	$	530.40
Equipment (hauling) truck + operator x 6 hrs x 70.48/hr		422.88
loader + operator x 8 hrs x $118.30 (950B - 2 1/2 cu. yd. bucket)		946.40
Crane - 2 hrs. @ $101.70/hr.		203.40
Subtotal	$	2,103.08

c. Waste Removal

Labor - 2 men x $176.80/day x 4 days	$	1,414.40
Hauling - truck + operator x 8 hrs x $70.48/hr		563.84
Loader (+ operator) - 4 hrs x $118.30		473.20
SUBTOTAL	$	2,451.44

d. Soil Placement and Seed-Bed Material & Handling

SUBTOTAL	$	36,146.00

e. Channel Restoration (pulling culverts, reshaping channel, rip-rap and gabion structures)

Backhoe + operator x $221.33 x 48 hrs	$	10,623.84
Labor - 4 men x $176.80/day x 4 days		1,414.40
Cat x 1 day @ $124.50/hr		996.00
Gabion Structures @ $63.00/sy (53.3 sy)		3,358.00
Miscellaneous Rip-rap- $500.00		500.00
SUBTOTAL	$	16,892.24

f. Reseeding and Fertilization (5 ac) Hydroseeding, operator and driver (Section 9.5)

Seeding = 853/ac x 20 pct reseeding	$	5,118.00
rate shrubs(1,752/ac x 2 ac)@ $.63/plant		2,207.52
$93.00/ac x 2 ac (labor)		186.00
SUBTOTAL	$	7,511.52

g. Mulching (5 ac) (Section 9.5)

Hydromulcher, operator and driver $843/ac x 5 ac x 20 pct reseeding rate	$	8,092.80
Straw bales for sediment control		500.00
Mobilization of hydromulcher		500.00
SUBTOTAL	$	9,092.80

h. Protected Fencing (10 ac)

6 ft high x 3,000 liner ft x $2.00/ft installed	$	6,000.00

Reclamation Costs (cont)

i.	Baseball Park Seeding		
	3 ac drill seeding @ $240.00/ac	$	720.00
	600 lbs seed @ $3.00/lb		1,800.00
	SUBTOTAL	$	2,520.00
j.	Retaining Wall Removal		
	2 hrs backhoe @ $221.33	$	442.66
k.	Borehole Plugging		
	5 yds cement @ $51.00/yd	$	255.00
	4 hrs labor @ $22.20/hr		88.40
	SUBTOTAL	$	343.40

l. Maintenance and/or Monitoring for Subsidence, Vegetation and Erosion (bond for 10-year bond liability period)

Vegetation - 1 person (truck, expenses)		
- 3 days	$	500.00/yr
Erosion -D- for 1 day @ $74.45/hr		595.60/yr
1 day to field check erosion		
8 hrs @ $25/hr		200.00/yr
Subsidence		
2 day field survey @ $200/day		
1 day certified surveyor @ $250/day		650.00/yr
SUBTOTAL	$	1,946.00/yr

10 yrs x $1,946.00 = $19,460.00

m.	Hydrology Monitoring, Quarterly		
	Labor - 4 days annually @ $176.80/day	$	707.20
	Laboratory work - $400.00/ quarter x 4		1,600.00
	SUBTOTAL	$	2,307.20/yr

10 yrs x $2,316.80 = $23,072.00

n.	Supervision - 10 weeks @ $964/week	$	9,640.00
o.	Mobilization and Demobilization of 5 pieces of equipment @ $500 each	$	2,500.00

The above listed costs include reclamations costs added between 1985 and 1990; such as the Hiawatha Seam and related portals, additional portals in the middle seam, and the cross conveyor. Also included are some of the costs related to the additional disturbed land discussed in Section 3.6.7.3.

3.6.7.3 Modifications to Bonding

NEW SHOWER HOUSE AND ROAD WIDENING, REVISION COSTS*:

In 1990 the main culvert in Bear Creek will be extended approx 700 ft to allow for widening of the loadout road and to provide a pad for construction of a new shower house. Thess modification to the existing plan will add the following reclamation costs.

Shower House		
Labor - 2 men x $176.80/day x 2 days		$ 707.20
Equipment (hauling) - truck + operator x 12 hrs x $70.48/hr		845.76
Loader - 6 hrs x $118.30/hr + operator		709.80
	SUBTOTAL	$ 2,262.76
Channel Restoration (pulling culvert, reshaping channel, rip-rap and gabion structures)		
Backhoe + operator x $221.33 x 16 hrs		$ 3,541.28
Labor - 4 men x $176.80/day x 2 days		1,414.40
Cat x 1 day @ $124.50/hr		996.00
Gabion Structures @ $63.00/sy (10 sy)		630.00
Miscellaneous Rip-rap- $250.00		250.00
	SUBTOTAL	$ 6,831.68
Reseeding and Fertilization (2 ac) Hydroseeding, operator and driver (Section 9.5)		
Seeding = 853/ac x 20 pct reseeding		$ 2,047.20
rate shrubs(1,752/ac x 1.5 ac)@ $.63/plant		1,655.64
$93.00/ac x 1.5 ac (labor)		139.50
	SUBTOTAL	$ 3,842.34
Mulching (2 ac) (Section 9.5)		
Hydromulcher, operator and driver $843/ac x 2 ac x 20 pct reseeding rate		$ 3,237.20
Straw bales for sediment control		200.00
	SUBTOTAL	$ 3,437.20
	SUBTOTAL	$ 16,373.98
(1990 Dollars)	NEW TOTAL	$240,407.75

Escalated Values	Escalation Factor
$244,831 1991 dollars	1.84% (actual)
$249,336 1992 dollars	1.84% (est)
$253,924 1993 dollars	1.84% (est)
$258,596 1994 dollars	1.84% (est)
$263,354 1995 dollars	1.84% (est)

An irrevocable letter of credit was posted 2 December 1988 for $285,067 by Co-Op (C. W. Mining Co.).

*Additions to Bonding after approval of MRP.

3.6.8 Alluvial Valley Floor Determination R614-302-320

Co-Op contends there are no alluvial valley floors within the permit area. This opinion is based on the following evidence:

a. The soils are of such a nature that both the water holding capacity and the rocky nature preclude any but the sparsest of vegetation cover (Chapter 8).

b. The area receives less than 14 in. annual precipitation and has no evidence of subterranean irrigation.

c. Water quality of the perennial Bear Creek is marginal and the flows are tied to precipitation event rather than ground water interaction.

d. The area has no history of agriculture attempts and the terrain is such as to preclude any but the min of level areas of small size to facilitate USX.

Co-Op requests the Division to evaluate the site-specific conditions and render a judgement in this regard.

3.6.9 Temporary Cessation

In the event of a temporary cessation of operation, Co-Op will

notify the Division within 48 hours of pending shut down and will submit all information regarding exact number of surface acres and the horizontal and vertical extent of sub-surface strata in the permit area prior to cessation or abandonment, extent and kind of surface reclamation, and identification of backfilling, regrading, revegetation, environmental monitoring, underground opening closured and water treatment activities that will continue during temporary cessation.

3.6.9.1 Temporary Portal Seals

Co-Op will seal portals which are not to be utilized for mine inspection or access during temporary cessation of operation. These seals will be constructed of woven wire and securely attached to the portal entry so as to make trespass by men or animals prohibitive. All portals which are to be utilized will be posted with "No Trespassing" and " Keep Out " notices. Where doors exist such as fan entries, this will also be locked and signed accordingly.

Each mine entry which is temporarily inactive, but has a further projected useful service under the approved permit application, shall be protected by barricades or other covering devices, fenced, and posted with signs, to prevent access into the entry and to identify the hazardous nature of the opening, These devices shall be periodically inspected and maintained in good

operation condition by the person who conducts the underground coal mining activities.

Co-Op is committed to sealing all portals in the prescribed manner which are temporarily inactive in course of normal mining activities.

EXISTING STRUCTURES

Table 3A-1 lists each structure and construction dates. Reclamation is expected in 2012.

Table 3A-1 Existing Structures

Existing Structure	Construction Dates Starting	Completion	Photo #
Fuel Tanks	10/83	6/84	2
Truck Loading Facility	9/82	4/83	3
Shop - Bathhouse - Warehouse Added Machine Shop	10/83 11/89	9/84 12/89	4 5
Oil Slack Loading Facility	4/83	7/83	3
Storage* & Stacking Facility	6/80	4/84	3
Coal Processing Facility	4/80	12/85	6
Non-Coal Storage Yard	3/80	9/84	7
Transformer Sub-Station	4/80	6/80	8
Conveyor Structures	3/80	6/80	3
Cross Conveyor	7/89	9/89**	9
Sales Receiving-Scale Office	6/84	10/87 (Phase I) 10/92 (Phase II)	Fig 3A-1 1
Lamp House	10/83	4/84	10
Coal Storage Bins	4/85	10/85	11
Powder Magazine	9/82	containerized	7
Lump Coal Facility	10/83	12/85	6
Electric Service Depot	Mobile Trailer		12
Water Tanks & System	8/82	11/82	13
Mine Fan	9/82	11/82	14
			15

* Seasonal Coal Storage Area approved 10/88.

A detailed plan will be provided to the Division if future structures are required.

The location of each of the listed structures is shown on Plate 2-4 Surface Facilities. Co-Op has sought interim approval for each structure in the course of construction, the hydrologic safeguards have been implemented, top soil removed and stored, interim revegetation completed where earthwork is at final grade, and health and safety standards implemented as per MSHA standards.

All of the structures are to be reclaimed during reclamation (year 2012) and are detailed in Section 3.6.6 and 3.6.7. In order to consolidate all previous plan submittals, current photographs were taken 5/90 and are attached herein. A brief description of each facility follows under "Facility Description".

FACILITY DESCRIPTIONS

1. Sales - Receiving - Scales Office. Containing parts warehouse, parts receiving, scale office, mine offices, and security guard quarters. See Figure 3A-1, and Photo #1.

2. Fuel Tanks. There are three - 10,000 gal. fuel storage tanks installed at the downslope of the shop area. These tanks are contained within a natural berm of the slope with the only access by way of the disturbed drainage ditch leading directly to the sediment pond. The pond is designed to contain any spillage which could foreseeably occur. The area will be posted " No Smoking " and fire extinguishers are in place, all

MSHA safety standards will be adhered to. See Photo #2.

3. Truck Loading Facility. The truck loadcut is a conveyor system designed to load tractor-trailer trucks from any of the storage areas. It is electrically manipulated so as to minimize spillage. As each unit is loaded, the area is cleaned of spilled coal on a daily basis, and all runoff is contained. See Photo #3.

4. Shop - Bathhouse - Warehouse. The shop building with attached bathhouse is for servicing of both underground and surface equipment. Major and minor repairs are implemented and it is used to inventory parts to be utilized on a continual roll over basis. The buildings are heated with a coal furnace and are equipped with standard heavy equipment handling implements such as wenches, welders, etc. See Photo #4. A new machine shop (30 ft by 40 ft) was added in 1989 to better facilitate mine related repairs. See Photo #5.

5. Oil Slack Loading Facility. The oil slack loadout is designed to handle oiled stoker coal, primarily for non-commercial clients, it maintains a 20,000 ton storage bin with an electrical controlled auger to load small tonnages. The bin is fed via of a hopper and conveyor which is loaded by way of an end loader. See photo #3.

6. Coal Storage Area and Stacking Facility. The coal storage yard (Phase 1) is equipped with a system of conveyors wherein coal can be segregation according to size and is of a short term nature where the piles are constantly being consumed and replenished. The area also contains two 6,000 gal oil storage tanks which are used to store oil for stoker coal. All run-off is controlled, and passes through the primary sediment pond. See Photo #3. A seasonal coal storage area (approx .5 acres) is located east of the Sales Office. See Photo #15. Run-off flows to sediment pond "B".

7. Coal Processing Facility. This facility is primarily a coal segregation site where the various sizes of coal can be separated and then stacked in the designed locations. This area is controlled run-off and is passed through the sediment pond. See Photo #6.

8. Non-Coal Storage Yard. This area is utilized for all material which is in storage on the property with projected use and or salvage value. Historically, the site has been utilized for this purpose and is designed with hydrologic safeguards to protect for this purpose and is designed with hydrologic safeguards to protect the watershed. See Photo #7.

9. Transformer Substation. This facility is the concern of the mine's power supplier, Utah Power & Light. However, Co-Op does maintain the fence, and enforces health and environmental safeguards. The structure is pictured on Photo #8.

10. Conveyor Structures. These conveyors are the route by which the coal exits the mine to the storage piles and loadouts. Photo #3 pictures the conveyors and load out facilities from below.

Cross Conveyor. In order to reduce problems encountered with the use of the Coal Recovery bin (i.e. fires and coal fine movement) a cross-over belt from the Blind Canyon Seam conveyor to the Hiawatha Seam conveyor was installed in 1989, bypassing the bin. See Photo #9.

11. Lamp House. Located near the mine portal to charge cap lamps, and to store safety equipment & supplies. See Photo #10.

12. Caretakers Residence. There is not a caretakers Residence in the Permit area at the Present time.

13. Coal Recovery Bin. As the name implies, is approximately 50 ft X 100 ft bin where coal fall from the conveyor chute prior to traveling to the crusher is pictured in Photo #11. - **To be removed** -

14. Powder Magazine. Consists of a storage shed. See Photo #7.

15. Lump Coal Facility. Consists of storage bin & loading conveyor. See Photo #6.

16. Electric Service Depot. Storage for electric supplies - located in non-coal storage yard. See Photo #12.

17. Water Tanks. Surge tanks - part of bathhouse water supply system. See Photo #13.

18. Mine Fan. Mine Ventilation fan - MSHA approved has safety guards in place. See Photo #14.

Co-Op is committed that all support facilities, mine disturbance of associated disturbance of any kind will be restored so as to prevent damage to fish, wildlife and related environmental values and, minimize the possibility of additional contributions of suspended solids to stream flow or runoff outside the permit area.

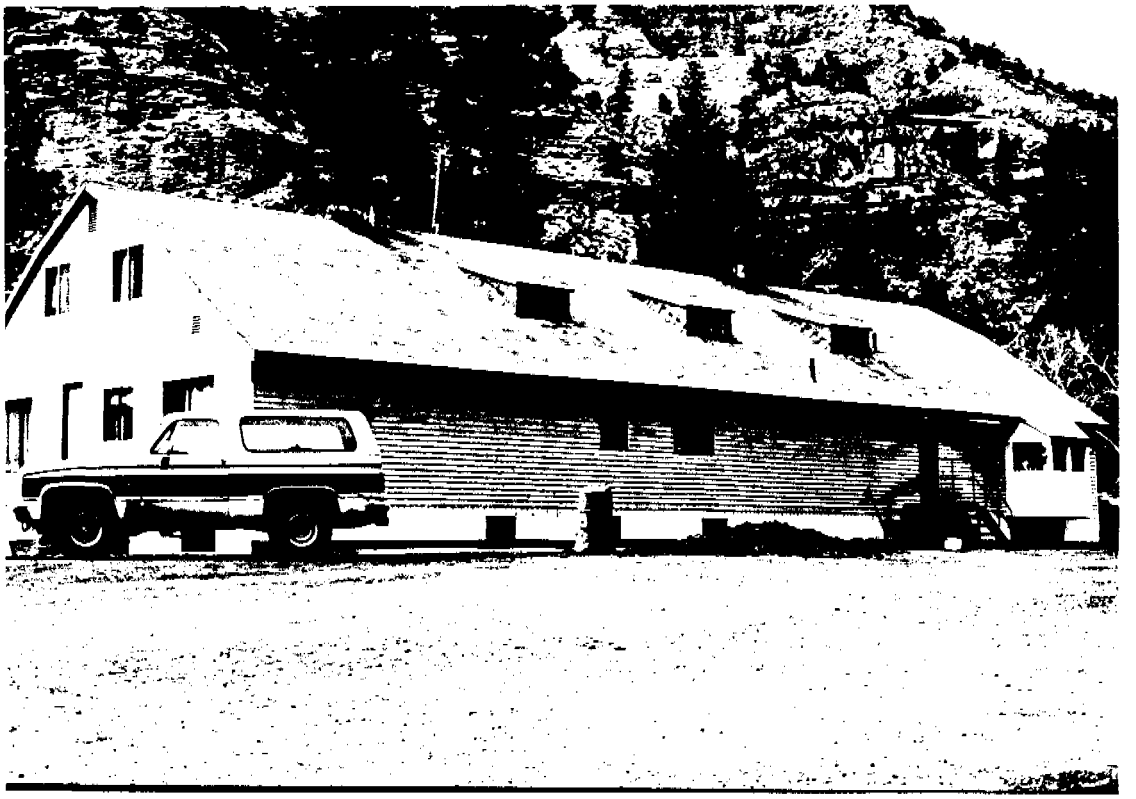


Photo #1 Sales Receiving - Scale Office

Photo #2 Fuel Tanks

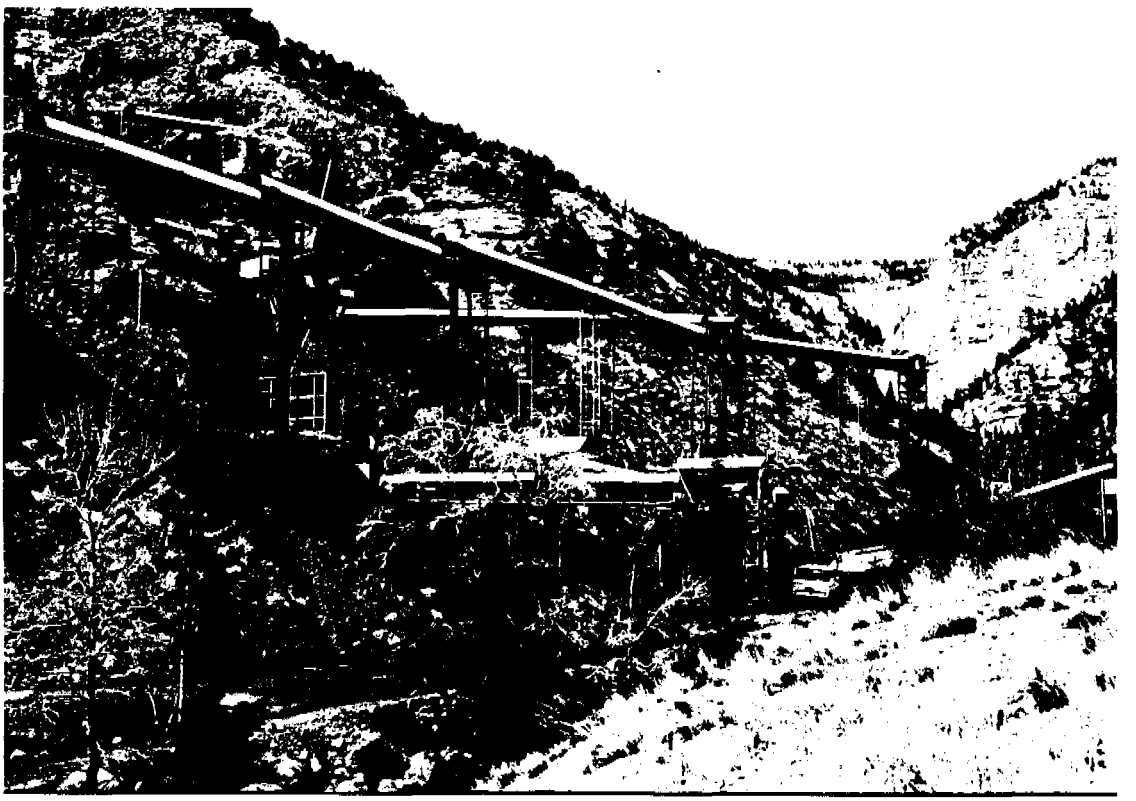


Photo #3 Truck Loading Facility, Oil Slack Loading Facility, Storage & Stacking Facility

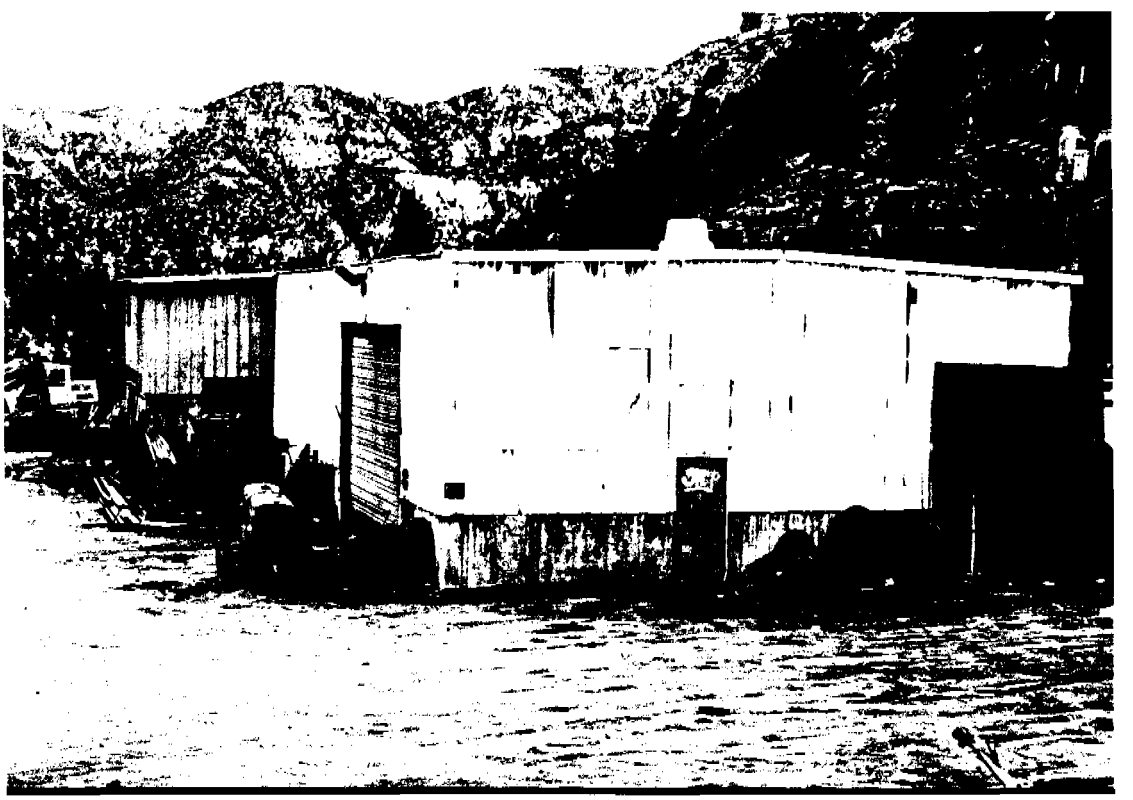


Photo #4 Shop - Bathhouse - Warehouse

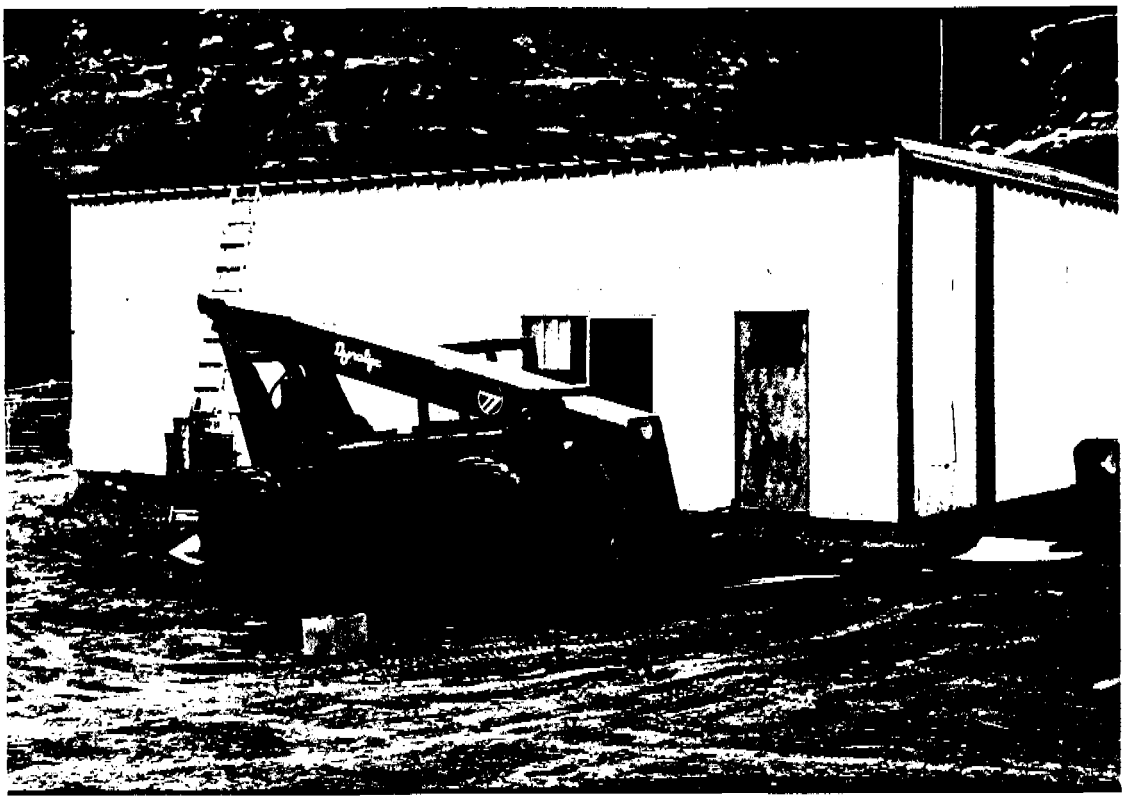


Photo #5 Machine Shop

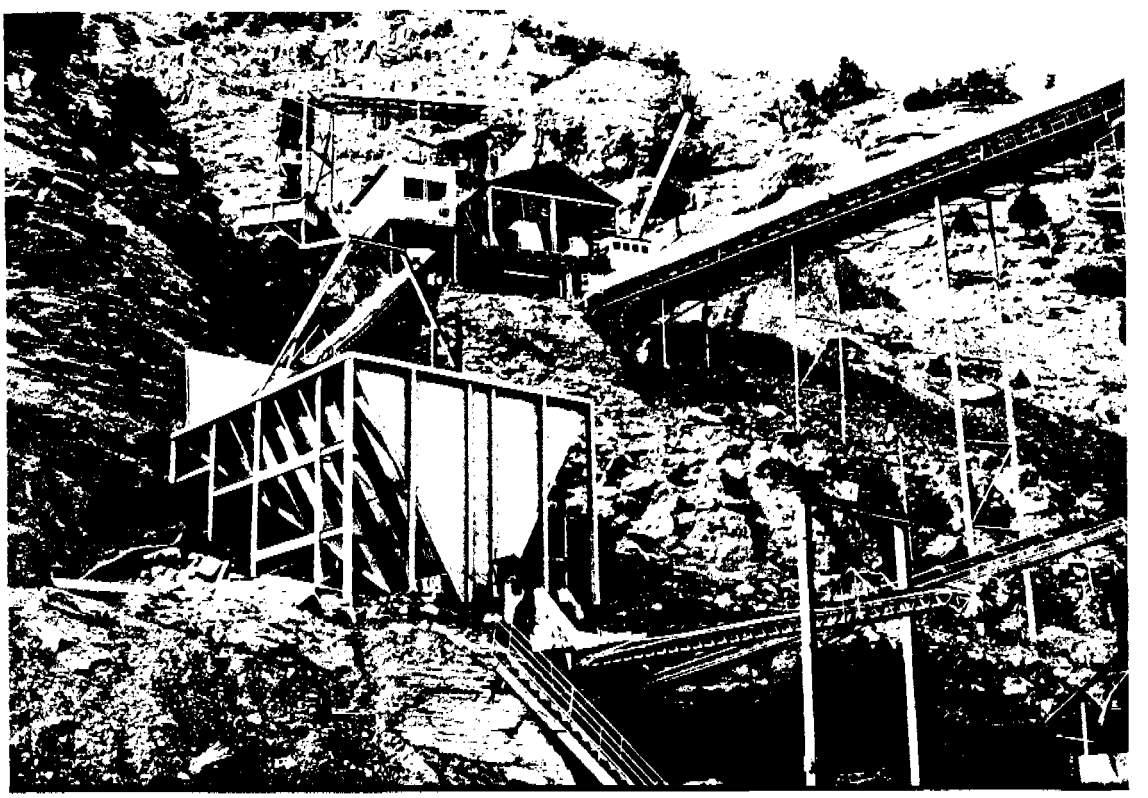


Photo #6 Coal Processing Facility, Lump Coal Facility

Photo #7 Non-Coal Storage Yard

Photo #8 Transformer Sub-Station

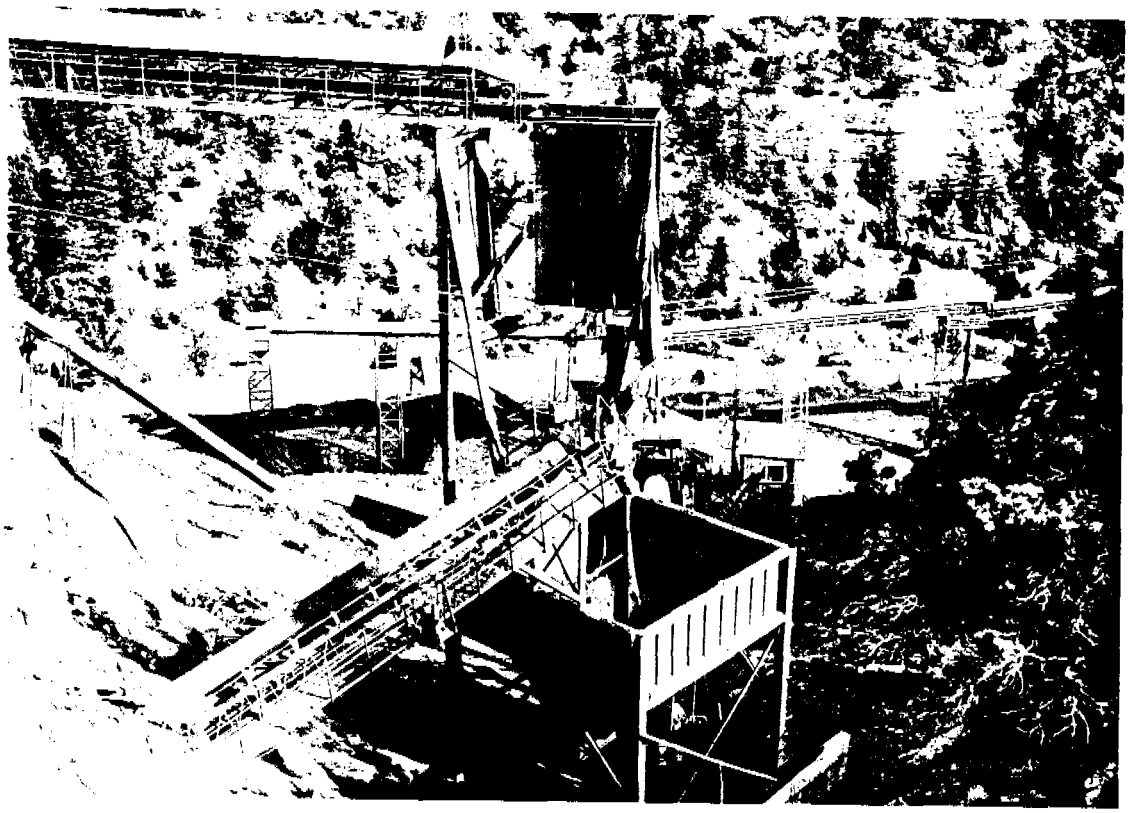


Photo #9 Cross Conveyor

Photo #10 Lamp House

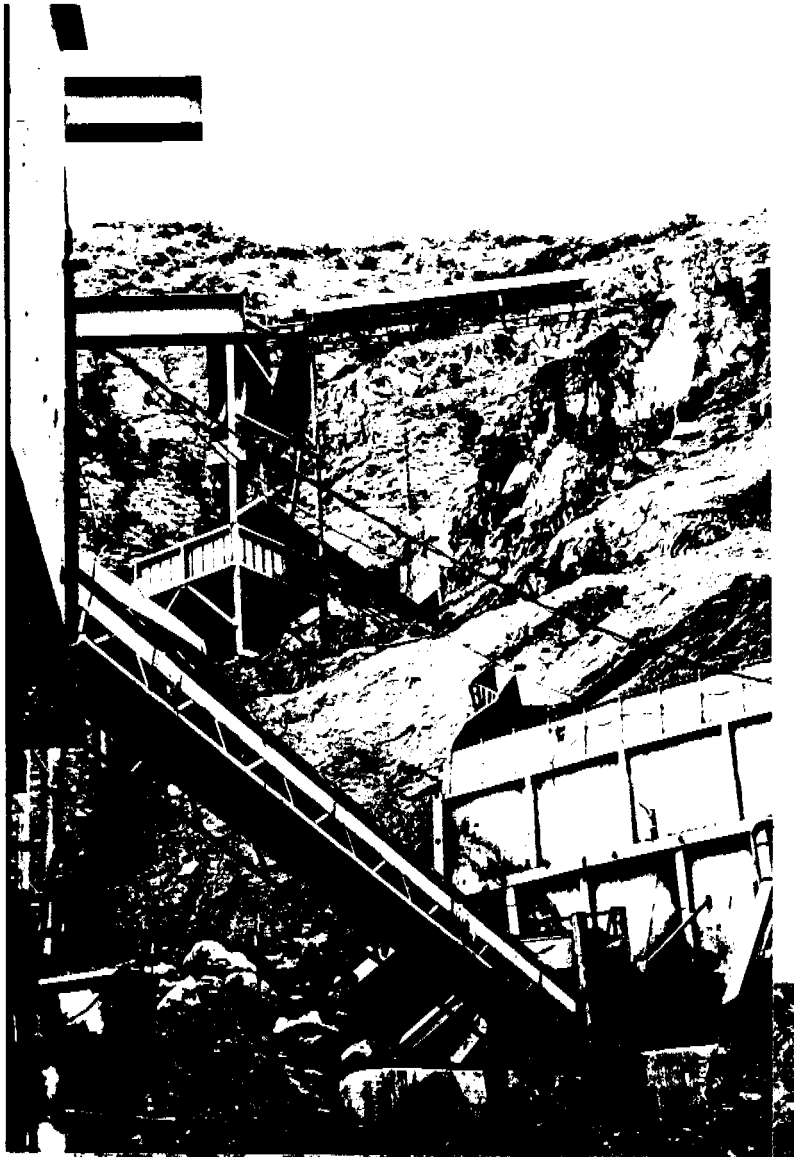


Photo #11 Coal Recovery Bin

Photo #12 Electrical Service Depot

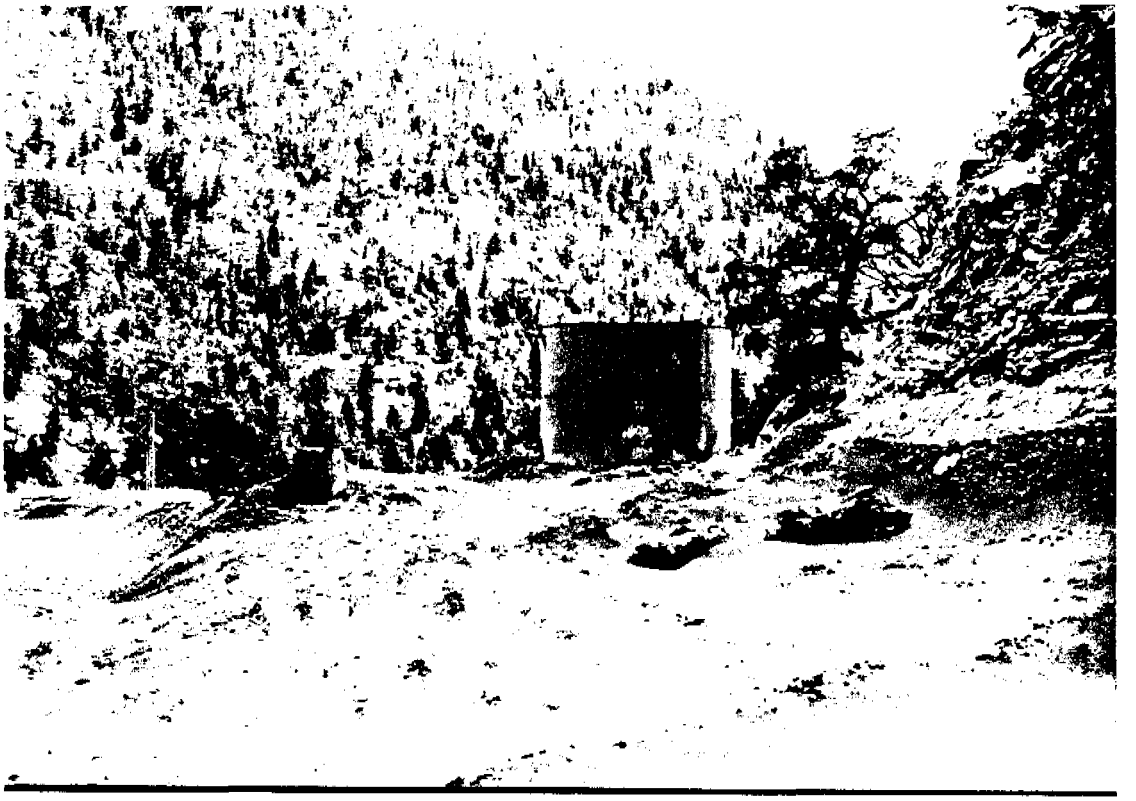


Photo #13 Water Tank

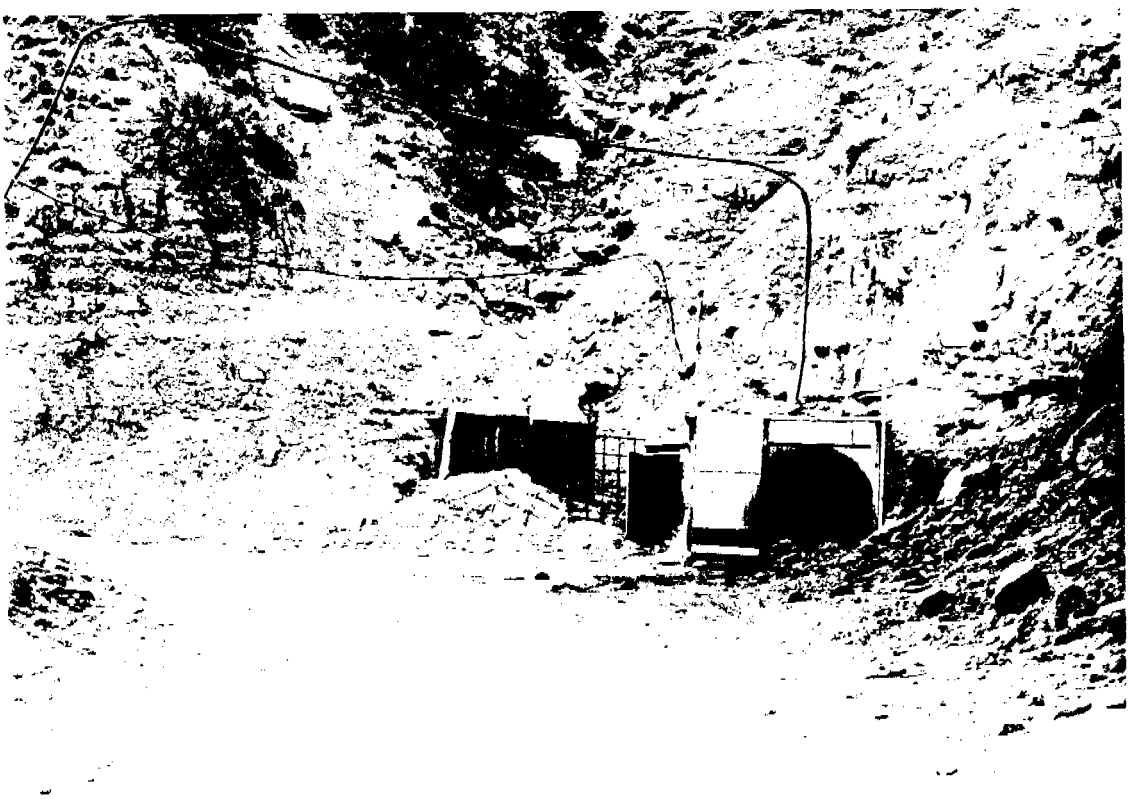


Photo #14 Mine Fan

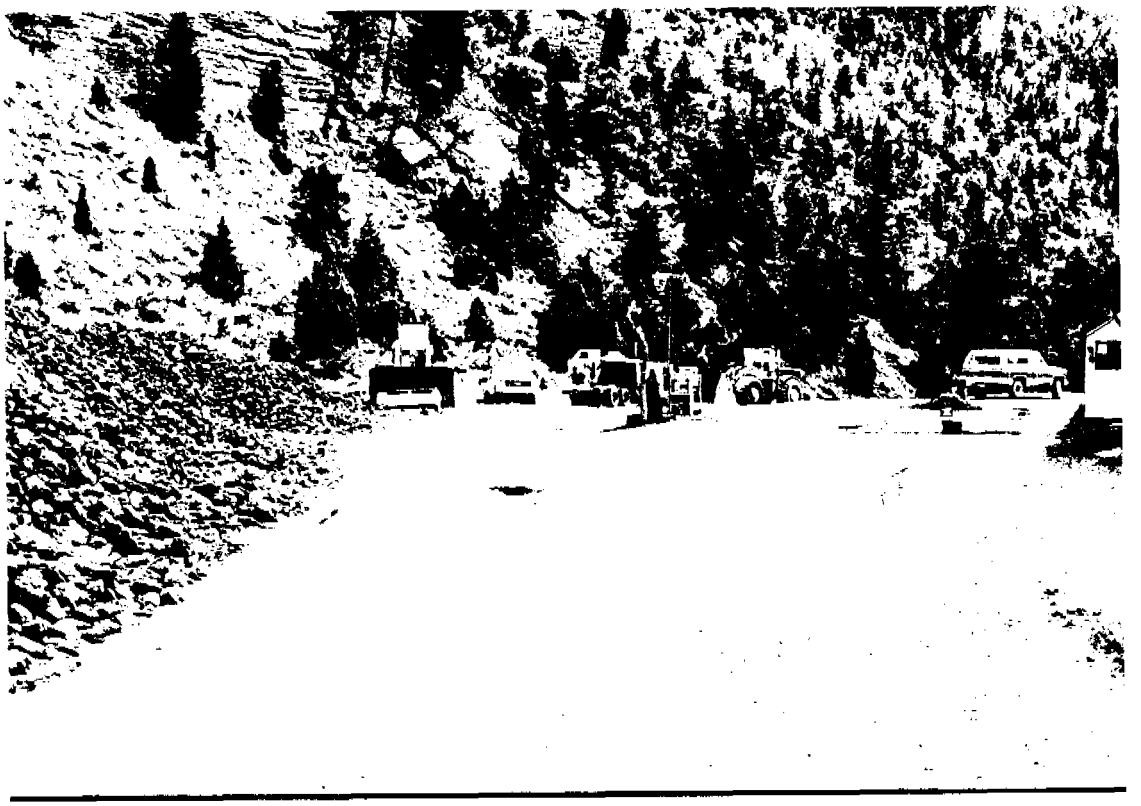


Photo #15 Lump Coal Storage

GENERAL INFORMATION

Co-op Mining Company (Co-Op) has proposed the expansion of the Bear Canyon Mine to include an additional 160 acres of fee property and Federal Leases U-024316 and U-023418, see Chapter 2 for legal description.

Legal Right of Entry is addressed in Appendix 2-B (Note that all references to Chapters, Sections and Appendixes in this appendix, refer to the present Bear Canyon Mine Plan).

The property was omitted from the original permit application due to the uncertainty of mining conditions; however, as the mining sequence advanced northward, it has become apparent that the reserves in this area are consistent with the reserves presently being mined, and as such, should be mined in the same logical and economical manner as these existing permitted reserves.

Impacts. The expansion of the Bear Canyon Mine to incorporate these reserves will have limited potential for negative environmental impacts. There will be no additional surface disturbance or facilities associated with the mine expansion area. Mining procedure and equipment will be the same as listed in Section 3.4. It is not anticipated that underground development waste will be generated with the addition of the fee property, however, if waste is generated it will be handled in the same

manner as approved in Section 3.3.9.

Minable Reserves. The reserve calculations have been expanded and are tabulated in Table 3.4-1. The nature, depth and thickness of coal to be mined in the additional fee area are shown on Plates 6-1 thru 6-8. All portions of the approved MRP Bear Canyon Mine, will remain unchanged and applicable to the additional area with the addition of this Appendix. Updated maps have been submitted to show the new permit area.

Renewable Resource Survey and Subsidence. A renewable resource survey was conducted in 1984 and covered the additional fee property as well as adjacent federal leases. There are no man made structures, roads, power lines etc. in the area of the new fee property or adjacent areas of potential impacts, with exception of two 4x4 roads above federal lease U-023416. Upon approval of the mining in the expansion area, and before mining progresses to within 1500 ft of the subsidence control point designated CON-5, an additional control point will be established outside the area of mining influence, and CON-5 will become an additional subsidence monitoring station. These stations, along with the proposed new control point, are shown on Plate 3-3. Subsidence monitoring will proceed at the same frequency and methods as described under the approved subsidence monitoring section in Chapter 3.

The only foreseeable potential negative impacts would be to the ground water hydrology through actual intercept of aquifers or the disruption of aquifers as a result of subsidence and the possible impacts of escarpment failure. The potential for these impacts have been investigated and are discussed in detail in the remainder of this appendix.

GEOLOGY-PERMIT EXPANSION AREA

Geologic conditions, specifically stratigraphic and structural conditions, for the permit expansion area are a continuation of those existing in the present Mine plan area, with modifications as noted below.

Based on site inspections, published literature (Spieker, 1931, and Danielsen, et.al. 1981) and test hole data (Appendix 7-A, Figure 7A-10), the geologic structure of the Bear Creek Trail Canyon areas and vicinity consists of a gentle (<4 deg.), regional, S to SE dip. The general geologic conditions of the permit expansion area, including stratigraphy and structure, are thus a continuation of the general geologic conditions described in Chapter 6. The Mine Plan covers areas that adjoin the permit expansion area on the south and west (Plate 2-1). This proximity illustrates the continuity of the geologic structure of the permit expansion area with the present Mine Plan conditions. Reference is thus made to Section 6 to meet the requirements of UMC 783.14 Geology Description, for the proposed addition with the following

GROUND WATER HYDROLOGY - PERMIT EXPANSION AREA

1 INTRODUCTION

The groundwater hydrologic conditions of the proposed permit addition, due to its adjacent, up-gradient location from the present Mine Plan area and the similarity of the general geologic conditions, as previously discussed (Geology Permit Expansion Area, Appendix 3-C), are a continuation of those presented in Chapter 7, Section 7.1.3 of the present Mine Plan. A summary of the hydrologic conditions presented in that chapter will be made in the following text, as appropriate, to satisfy the requirements for the permit expansion area.

2 SCOPE

The scope of this study consisted of a review of the geologic and hydrologic conditions of the present Mine Plan area, previous investigations of the proposed addition and information on the existing ground water resources and occurrences obtained from site investigations, available literature, personal communications and information on water occurrences obtained by Co-Op.

5.1 Aquifer Recharge

Two and one-half in. of average annual precipitation, of roughly 65 acre ft for the Mine Plan area, are available for recharge for the present Mine Plan area, based on an 8000 ft mean elevation and 17-18 in. of annual precipitation. Surface runoff accounts for 11 to 12 in. and evapotranspiration 3 to 4 in. annually. For the proposed permit addition, precipitation available for recharge is increased to about 3 1/2 in. due to less outcrop area and gentler sloped, outcrops of porous rock, vertical joints and drainage channels are the principal recharge source on the present Mine Plan area. The deeper soil cover on the commonly gently to moderate sloped in the proposed permit addition will serve as a major recharge source in this area.

5.2 Aquifer Storage

Quantitative data of published estimates are not available on the amount of water stored in the rock units in the present or proposed permit areas. Sandstones within the Blackhawk formation have a large potential for storage due to there volume; however, due to their limited lateral extent and separation by impervious rock, the potential is probably not realized. Assuming as overall storage coefficient of 0.1 for the entire formation, inclusive of impervious rock, 50 pct saturation

9 AFFECTS OF MINING ON GROUNDWATER BALANCE

Mining operations in the permit expansion area will be confined to the coal bearing strata within the basal part of the Blackhawk formation. The coal strata are generally dry and are part of an undeveloped regional aquifer system which consists of a series of generally discontinuous perched water zones within the Blackhawk formation. Overlying and underlying formations are unsaturated. Negligible impacts are anticipated by mining activities in the permit application area on the regional aquifers or existing ground water development areas. Additional information, gained as mining progresses into the east side of the application area, will be required to determine the potential impact to the apparent fault related water occurrences in the East Bleeders.

10 QUANTITY

Mining affects on water quantities consist of interceptions of local perched zones, collected as sumps within the mine and diverted for dust control or surface discharge into Bear Creek and as evidently fault related occurrences in the East Bleeders. These same conditions are projected for the permit expansion area. The perched zones, if undisturbed, would flow to the southeast to be eventually intercepted by the Bear Spring fault. the ground water intercepted from this source by mining is very small (estimated 10 - 15 gpm total) in relation to the aquifer storage in the present permit area. The permit expansion area is projected to intercept

a proportionally smaller amount form this source. Larger water volumes, evidently fault related, are encountered in the East Bleeders. These volumes have, through Hydraulic connection, diminished the flow to the sump near the portal entrance, resulting in a reported net decrease. As mining progresses into this area, the additional information can be evaluated to determined the future impact, if any, of this source on the groundwater quantity.

The affects of subsidence in the permit expansion area, on regional or local groundwater flow, are expected to be minor and of short duration. Localized diversions or interceptions of short duration only are expected due to the plastic flow of shale unites and to both development and tightening of existing fractures which occur due to unbalanced compressive-tensile forces associated with subsidence. The reclamation plan proposes to control post-mining subsidence.

11 QUALITY

No significant degradation of water quality due to mining in the permit expansion area is expected. The coal seams encountered in the present mine permit area are essentially dry; these conditions are expected to persist into the permit expansion area. Mine sumps are thus the source of possible contamination. Water quality data of the sump water to date, presented in Tables 7.1-3, 7.1-4 and 7.1-5, are of overall high quality. The sump water will eventually

5 SUBSIDENCE

Refer to: same paragraph heading, Appendix 3-H of the present Mine Plan with the following Modifications:

Expected Subsidence. Due to the increased cover in the federal lease area, the width/depth ratio for the typical pillar panel has decreased to 0.35 (based on an average depth of 1750 feet). Using the methodology described in Appendix 3-H (p 3H-8), the maximum potential subsidence over a pillared panel in a nine foot coal seam is 20 pct of t or 1.80 feet. If the lower 5 is mined in addition, an additional 1.0 feet of maximum subsidence is projected, resulting in a maximum potential subsidence of 2.80 feet for both seams. It should be noted, again, that no actual subsidence has been noted from areas pillared as much as 40 years ago, and the subsidence monitoring network initiated in 1987, has shown only minor (0.47 ft max) variations in elevation. Based on this, little, if any, detectable subsidence is expected to become apparent when mining under these depths. Some minor fracturing and an escarpment rock fall have been noted in the adjacent Trail Canyon Mine area, and although these are assumed to be mine-related, they occurred in areas of relatively low cover and unknown outcrop protection. No such occurrences have been noted in relation to the Bear Canyon Mine. (See Plate 3-3).

Potential Subsidence Impacts. The following will discuss potential subsidence impacts on each of the renewable resources:

a. Hydrologic Balance. Potential affects of mining on the hydrologic balance are discussed in Appendix 3C and in the Gentry Mountain C.H.I.A., Appendix 7-L. An additional concern over escarpment failure has been raised by the U.S. Forest Service; therefore, the following discussion will address the potential for such failure.

The steep area of Bear Canyon in the S.W. corner of Section 13 is approx 1400 feet above the coal seam (See Plate 6-2). Based on past mining experience and the subsidence calculations in this response, the potential for escarpment failure under these conditions is very remote. Due to the high cover, it is not conceivable to limit second mining in this area, since a 30 deg Angle-of-Draw protection would effectively prevent second mining on the majority of the Lease U-024316, resulting in a major loss of recoverable reserves. It should also be noted that the mine plans shown on Plate 3-4 do not extend beneath this escarpment area because of a fault.

Although escarpment failures and slides are considered unlikely under this projected mining scenario, such occurrences are always possible in steep canyon areas such as this. If such failures should occur, the Division and U.S.

Forest Service, Price District Ranger would be notified and mining in the affected area would be stopped until an evaluation could be made as to the cause and any remedies or protection could be implemented. Such failures would potentially impact the quality of surface water, due to an increase in sediment load; however, sediment controls would be installed down stream, if monitoring showed such increases, to protect the quality of water reaching Huntington Creek.

Outcrop protection has been increased to a minimum of 200 feet in the plan (see pp 3-18, 3H-6). This is consistent with other mines in the Wasatch Plateau, and with the exception of some longwall operations, has been shown to be effective at preventing escarpment failure near outcrops.

b. Timber. The only marketable timber in the area may be on the McCadden Ridge within Lease U-024316, which is under the control of the U.S. Forest Service. Due to the High amount of cover in the area, and the relatively small amount of subsidence expected, it is unlikely that subsidence affects would impact this resource in a manner to render it unusable.

c. Vegetation. The vegetation resource above the lease area consists of some rangeland for grazing of stock and wildlife. Past mining in areas of less cover has indicated no negative impacts on the vegetation resource. If subsidence should

occur, effects would likely be minimal, resulting in some fracturing or slight depressions and could result in displacement of vegetation. Mitigation of such a situation could be accomplished by filling of fractures, regrading and replanting such areas.

d. Fish and Wildlife. There are no fish known to exist above the federal lease permit area. The area is heavily utilized by a wide variety of wildlife. Although subsidence is unlikely, should it occur, some loss of riparian area or water resources is possible. Such impacts and mitigation measures would be as described in Appendix 3C and the Gentry Mountain C.H.I.A. (Appendix 7-L).

The stream in McCadden Hollow is of concern; however, the extreme cover in this area makes it very unlikely to be impacted by a room and pillar operation such as that in the Bear Canyon Mine. Mining under such streams is not inconsistent with other mines in the area, often under lighter cover conditions. The stream will be monitored per the plan TDB for flow, to establish any trend of negative impacts.

e. Paleo-Archeological. There are no known sites within this area. (See Appendix 5-A)

f. Man-Made Structures. There are no man-made structures above the lease area with the exception of two 4x4 roads. Potential subsidence impacts to the roads would be minimal, since the unlikely formation of fractures or depressions would hardly be noticeable on a 4-wheel drive road.

g. Minerals, Oil, and Gas. There are no known oil and/or gas wells within the lease expansion area.

5.1 Subsidence Monitoring

Before expansion into the Federal Lease area U-023416 the subsidence monitoring plan consisted of 3 monitoring points (SMS-1, SMS-2, and SMS-3) in the Bear Canyon Permit Area, a fourth point SMS-4 in the Trail Canyon Permit Area, and a Control Point CON-5, located outside the mining area. SMS-1, SMS-3, and SMS-4 are common to both the Trail Canyon and Bear Canyon Permits. As noted in this appendix (Appendix 3-C), Lease Addition, p 3C-4, a new control point will be established outside the permit expansion area, and CON-5 will become an additional subsidence monitoring point (to be redesignated SMS-5). In addition to the new control point (CON-6), four additional subsidence points (SMS-7, SMS-8, SMS-9, and SMS-10) are proposed to be added in the Federal Lease expansion area. The location of all existing and proposed points are shown on Plate 3-3.

It is proposed to install the new points in an approved manner described in Appendix 3-H, and to monitor the points annually per the approved plan. In addition, a field investigation shall be made yearly of the mining area (including escarpment areas), and any obvious subsidence or mine-related surface effects will be noted and located on the maps. The results of the Annual Survey will be submitted to the Division in the annual report, starting with the 1990 report.

d. Fish and Wildlife. The absence of water precludes the presence of fish. The entire area of influence is utilized by a wide variety of wildlife.

e. Paleo-Archeo. There are no known sites within the area as documented by ground Paleo-Arch survey, Appendix 5-A.

f. Man-Made Structure. There are no man-made structures within the area of influence other than two 4x4 roads above Federal Lease U-023416.

g. Minerals, Oil & Gas. There are no known oil and/or gas wells within the area and no known mineral reserves. Coal mining will not hinder the potential for discoveries.

Potential Impacts

No negative impacts to renewable resources are anticipated other than potential impacts to wildlife.

Mr. Larry Dalton, Resource Analyst Utah Division of Wildlife Resources and the State's foremost authority on potential impacts of subsidence on wildlife, inspected the site on June 18, 1984. The results of that investigation in part are as follows:

Considering the absence of spring, water sources, the negative

Structures

No manmade structures occur anywhere above the Bear Canyon Permit Area, other than two 4x4 roads above federal lease U-023416.

Renewable Resources

The renewable resources that exist above the mine area are of a hydrologic and vegetative nature.

Vegetation Resources. The vegetation resource above the mining area consists of some rangeland for grazing of stock and wildlife and limited potential for timbering. Again, past mining in the area has indicated no surface effects upon this resource. If subsidence should occur, the effects would be minimal, possible resulting in some fractures or slight depressions. The effect upon the vegetation resource would also be minimal, since subsidence (should it occur) is not likely to destroy vegetation, but merely displace it. It is not expected that subsidence will have any negative effect upon the plant communities or even become evident on the surface. Should this happen, mitigation measures may include: filling of fractures, regrading of broken areas, replanting degraded areas, intensified monitoring.

Hydrologic Resources. The hydrologic resources above the mining area consists primarily of a potential recharge zone for groundwater resources (springs)located in the strata below the mining. While it is unlikely that mining activities will have any effect upon the springs, there is some potential for mining to have an effect upon the upper recharge zones. The potential effect of mining on the hydrologic regime, as will as any proposed mitigation measures are discussed in detail in Chapter 7 of the PAP.

MINING METHODS

Mining at the Bear Creek Mine is conducted by the room and pillar method. This method may result in 75 pct - 78 pct extraction within the pillar panels, with an overall extraction of approximately 60 pct for the entire reserve. Longwall mining is not currently a proposed mining method for this mine.

A 200 ft barrier is proposed to be left between the mining and the coal outcrop, and a 100 ft barrier will be left between mining and property boundaries.

It is not proposed to leave any other coal permanently in place for protection of resources above the mine, since the resources that could potentially be affected by subsidence are not localized, but exist above the entire area. It is therefore proposed that subsidence protection measures will be employees only

foreseeable uses such surface lands were capable of supporting before mining. Nothing in the paragraph shall be deemed to grant or authorize an exercise of the power of condemnation of the right of eminent domain by any person engaged in underground coal mining activities; or

c. Compensate the owner of any surface structure in the full amount of the diminution in value resulting from subsidence, by purchase prior to mining of a noncancellable premium prepaid insurance policy or other means approved by the Division as assuring before mining begins that payments will occur; identify every person owning an interest in the surface for all damages suffered as a result of the subsidence; and , to the extent technologically and economically feasible, fully restore the land to a condition capable of maintaining reasonably foreseeable uses which it could support before subsidence.

d. The area will be monitored on an annual basis, and field investigation will also be performed at that time. If escarpment failure is observed, mining will be immediately stopped in he effected area, until a proper evaluation can be performed to determine cause of the failure, and any necessary remedies or protection required. The DOGM and the U.S. Forest Service, Price District Ranger would be notified of such an occurrence.

BLIND CANYON INTAKE PORTAL

In order to facilitate adequate ventilation across the working face as mining advances from the existing intake portal and to provide an alternative escape way, Co-op Mining requested approval for the Blind Canyon Ventilation Portal as shown on Plate 3-4. In 1990 while mining in the area, Co-Op requested that two additional portals be permitted approximately 80 ft and 180 ft south of the main ventilation portal. In addition to the main intake portal a small breakthrough exists 80 ft to the north. A ventilation fan will be installed within the mine in this opening when demanded by mining conditions as mining advances to the north.

Because of the proximity of the portals, the surface configuration and operations involved in their creation are similar. The portals are implemented from within the mine by utilization of standard mining methodology and implementation of a continuous miner. The portals simply extended to an exposed coal outcrop in the head of Blind Canyon. The outcrop originally had a 4 ft overhang made up of an overlying sandstone seam approx 12 ft thick. The coal being of a more erosive nature than the sandstone is incised into the slope. The toe of the coal outcrop is composed of broken ledge rock and lies on approximately a 70 pct slope. The nature and location of the outcrop precludes surface access by any means other than foot. Due to this, they are suitable for an escapeway in the event of a catastrophic closure

of the existing portal area and is strongly supported by Co-op's safety personnel as well as M.S.H.A.

The portals are supported by 4 in. steel "I" beams placed on 5 ft centers for a distance of 25 ft into the slope. The roof is bolted and shielded as needed with a combination of 1/4 in. plate and chain link to minimize sluffing of rock. The entries will be reinforced and covered with chain link and posted with a "No Trespassing" sign. An escapeway door is installed which only allows access from within the mine. The chain link will prevent access of people as well as large animals which could theoretically utilize the portal for denning (Figure 3I-1).

Surface disturbance is minimal due to the nature of a continuous mining machine pulling the material into the mine. Coal debris which crumbled and fell down the slope has been retrieved by hand to whatever degree is reasonable. It is important to note that due to the exposed nature of the coal seam, there is eroded coal presently on the slope.

RECLAMATION

It is anticipated that the reclamation can be accomplished from within the mine by removing all metal support structures and by utilizing a D-2 Class Crawler dozer to push non-combustible fill into the portals for a minimum distance of 25 ft, then install a

seal as pictured in Chapter 3, Figure 3.6-1. The natural appearance of the canyon will be re-established with only the sealing of the portal due to the total lack of vegetation on an exposed seam.

Minimal adverse impacts are anticipated to the surrounding environment. Surface water will not enter the mine due to the overhanging ledge and dip of the coal seam at this point. Also, this is a dry area of the mine, so no mine water is anticipated to be discharged from the portal. If water were to be encountered, Co-Op would take whatever action was necessary to contain this water within the mine.

There are no raptor nests present within a half mile of the portal as noted on Co-Op's most recent raptor survey.

When the fan is installed there will be an increase in noise anticipated in the area, but due to the constant nature of fan related noise the impact should be minimal. In order to reduce disturbance during periods of construction, work will not be accomplished during elk calving period or deer fawning periods. Vegetation and forage loss is not anticipated due to the absence of vegetation on an exposed coal seam.

4.3 LAND STATUS

4.3.1 Surface Land Status/Mine Plan

The land within the Co-Op permit area fall under the jurisdiction of the State of Utah, U.S Forest Service, Emery County, and private surface owners.

County zoning ordinances classify the permit area as MG-1 (Mining and Grazing) and CE-1 (Critical Environment), Site Plan approval has been issued by the county to approve mining.

4.3.1.1 Ownership

Plates 2-2 and 2-3 show the ownership of property within and contiguous to the permit boundaries. Land parcels within or adjacent to the permit boundaries are designated by capital letters, See Chapter 2.

4.3.1.2 Surface Managing Authorities

Plate 2-2 shows the surface ownership for each parcel within the permit boundaries. The local, state, and federal managing authorities are Emery County, State of Utah, Bureau of Land Management and the U.S. Forest Service.

The Emery County zoning ordinance, zones the coal property MG-1 and CE-1, and has approved it for mining.

4.3.1.3 Utility Corridors and Other Right-of-Ways

Co-Op has been granted a mine access right-of-way in Section 26 (Plate 7-1). Utility corridors, such as power lines, telephone lines and water pipes, are also shown on Plate 7-1.

4.3.1.4 Special use Permits and Leases

Co-Op leases land owned and leased by COP Development Company. Special use permits and leases are not applicable.

4.3.2 Mineral Ownership/Mine Plan Area

Other than coal, no minerals of value have been mined within the lease and permit area. No other mineral resources are known to be present in commercial quantities however there is potential for discoveries.

4.3.2.1 Coal Ownership and Mines (Permit Area and Contiguous Areas)

Coal ownership and mines in the permit area and contiguous areas are shown on Plate 2-3 and listed with addresses in Section 2.2,

Appendix 5-A

PALEO-ARCHEOLOGICAL SURVEY

SENCO–PHENIX

INTENSIVE CULTURAL RESOURCE SURVEY AND INVENTORY OF PORTIONS OF THE PROPOSED MINE EXPANSION FOR CO-OP MINING COMPANY

PERFORMED FOR
CO-OP MINING COMPANY THROUGH
MANGUM ENGINEERING CONSULTANTS

In accordance with Forest Service
and State of Utah Guidelines in
Emery County, Utah,
State of Utah Antiquities Permit #U-90-SC-263f

SP-UT-125
July 6, 1990

John A. Senulis

Direct Charge of Fieldwork

P.O. BOX 9197, SALT LAKE CITY, UTAH 84109 • PHONE 801-272-1415 • ARCHAEOLOGICAL CONSULTING SERVICES

CULTURAL RESOURCE SUMMARY REPORT FORM

USDA-Forest Service · Intermountain Region

FSM 2360

Type all information except the small encoding blocks.

Cards

(I) 1 Report Number: [ ]-[ ]-[ ]

2 Project Title (max. 69) (Typewritten): PROPOSED MINE EXPANSION OF CO-OP MINE, CRM

(II) 3 Author's Last Name, Initial (max. 30) (Typewritten): SENULIS, J

4 Survey Institution: SC SENCO-PHENIX

5 Month Day Year: 07-06-90

6 Forest: 10 MANTI-LASAL

7 USFS District: 42 PRICE

8 State (#1): 42 UTAH

(#2):

9 County (#1): EM EMERY

(#2):

(III) 10 Mer. Township Range Sections: 16S 07E 13 14

(IV) 11 UTM: 1 249050 4365025 / 1 249150 4364500

Zone Easting Northing

(V) 12 Investigation Type: B INTENSIVE COMPLETE

13 Project Function: 01 CRM

14 Total Costs: NA

Man-Hours

15 Field: 0012

16 Travel: 0007

17 Admin.: 0020

18 Lab.: 0000

Acres

19 Total Project: 0000070

20 Impact: 0000070

21 Cleared: 0000070

Acres Surveyed

22 Intensive-Complete: 00070

23 Intuitive-Complete: 00000

24 Miles Surveyed: 000

25 Project Effect: 1

26 Total No. Sites: 000

(VI) 27 USFS Site No.

28 State Site No.

29 N.R.

30 Effect

31 Old/New

32 Relation to Project

If more than 6 sites, continue on another form.

33 Comments, Conclusions, Recommendations

Various isolates were recorded none of which will be impacted by proposed project. Archeological clearance is recommended.

Author's Signature: John A Senulis Date: 7-6-90

Reviewer's Signature: 5A-9 Date: 7/90

☐ Check if form continued.

R-4 2300-3 (4/93)

ABSTRACT

An intensive cultural resource survey was performed on portions of the proposed expansion of the CO-OP coal mine within the Manti-LaSal National Forest by John A. Senulis of SENCO-PHENIX. No impact is planned to the surface of the survey area as the mining is a continuation of underground operations accessed from the existing mine in the canyon below.

Cultural resources were located and are addressed in this report as "isolates" after a discussion with Stan McDonald, archeologist for the Forest. The isolates encountered on the ridgetop included a modern-day hunting camp, an isolated hole-and-cap tin can, a piece of red glass, a wood pile with both logs and sawn logs and associated evaporated milk can, one meat tin, one piece of rubber, and one remnant of industrial metal. The finding in the drainage bottom consisted of a "possible" small prehistoric rock shelter with one "probable" flake.

Because the "findings" are not significant in terms of National Register of Historic Places criterion, and no direct impact is planned for the surface, archeological clearance is recommended for the proposed project.

2. 1984, SENCO-PHENIX surveyed an expansion area for the CO-OP Mine in Sections 14, 23, and 24, T16S, R7E. No cultural resources were located.

The site concentration, both historic and prehistoric, seems to be clustered in the Huntington Canyon ca. 2 miles south of the project area. The sites recorded for that area include prehistoric flake scatters, isolates, and rock shelters. The historic sites consist primarily of evidence of mining activities.

METHODOLOGY

On June 21, 1990, a walkover survey was conducted by John A. Senulis and Jeanne Senulis. Transect spacing was 15 meters in a meandering fashion according to the topography. Special attention was paid to areas of ground exposure from animal burrowing and erosion, and to areas of human activity.

SURVEY CONDITIONS

The sky was clear and sunny and the temperature was approximately 80 degrees F..

Visibility was variable and ranged from 80% in the sagebrush areas to 0% in the forest duff areas on the ridge top. Visibility in the drainage area ran as high as 85% due to cattle trampling.

FINDINGS

Cultural resources were located. After a discussion with Stan McDonald of the Price Ranger District of the Forest Service, it was decided that the findings were of such minimal importance that site designations were not necessary. They have, however, been photographed and located on the project area map for future reference.

The findings on the ridgetop consisted primarily of modern-day and historic isolates which included a modern-day hunting camp with a rock-ringed firepit, associated stripped logs, several rusted and flattened crimped-top tin cans, and an isolated hole-and-cap rusted and flattened tin can which was found nearby; an isolated piece of red glass located beside the ridgetop road (red glass usually indicates the use of copper or selenium and was used in specialty medicine bottles); a pile of partially milled lumber and unmilled logs with associated rusted evaporated milk can, one partially rusted meat tin with the maker mark of "CANCO" painted on the end, a small piece of black rubber, and one heavy industrial metal fragment of unknown function. Nearby were several faint two-track roads going off into the forest which may indicate former logging roads.

The McCadden Hollow drainage finding consisted of a small rock shelter that may have been occupied in prehistoric times. One small possible primary flake of red quartzite was located on the floor of the shelter. The was no evidence of burning on the roof of the rock shelter, and no definite artifacts on the floor

SURVEY LOCATION

The survey location was on a northeast to southwest trending ridgetop overlooking the CO-OP Mine in the valley below in the C/NW/NW, Section 13, and the C/SE/NE of Section 14, T16S, R7E. The lower survey area was along both sides of McCadden Hollow drainage in the N1/2/NE/NW and the N1/2 of the NW/NW/NE of Section 14, T16S, R7E.

The project area location is noted on the enclosed copy of the U.S.G.S. 7.5' quad: Hiawatha, UT (1978). The survey location was not staked, but was located using known roads, a brunton compass, and topographical features.

SPECIFIC ENVIRONMENT

The project area falls within the rugged dissected uplands of the Wasatch Plateau, which in turn is part of the larger basin and range Colorado Plateau transition area. The uplands are deeply dissected by intermittent streams which flow southerly into the Huntington Creek drainage ca. 2 miles south of the project area.

The upper portion of the project area is along a northeasterly to southwesterly trending ridgetop at an elevation of approximately 9380 feet. The lower portion of the project area is in the intermittent McCadden Hollow drainage at an elevation of 8700 feet.

Soils on the ridgetop are primarily rocky colluviums mixed with tan silty loams. There are scattered areas of metamorphic bedrock on the ridgetop. The lower survey area had large outcroppings of sandstone and metamorphic bedrock along the drainage bottom with deep alluvial soils.

Vegetation on the ridgetop consisted of areas of low sage with sparse grasses grading into silver sage and other brush-type vegetation downslope. The ridgetop road passes through areas of heavy Ponderosa pine and aspen forest with attendant understory shrubs and grasses. The drainage bottom had a heavier aspen concentration with medium sagebrush areas and heavily forested areas.

Fauna for the area includes deer, antelope, rabbits and other burrowing animals including marmots. Birds, rodents and reptiles complete the scenario. On the day of survey several hawks and marmots were observed.

ARCHEOLOGICAL POTENTIAL

A files search conducted on June 19, 1990 by John A. Senulis at the Utah Division of State History, Antiquities Section indicated that the following projects had been performed in the vicinity of the survey area:

1. 1982, R. Holmer of the University of Utah surveyed six drill locations and access roads on the Wasatch Plateau. No cultural resources were located.

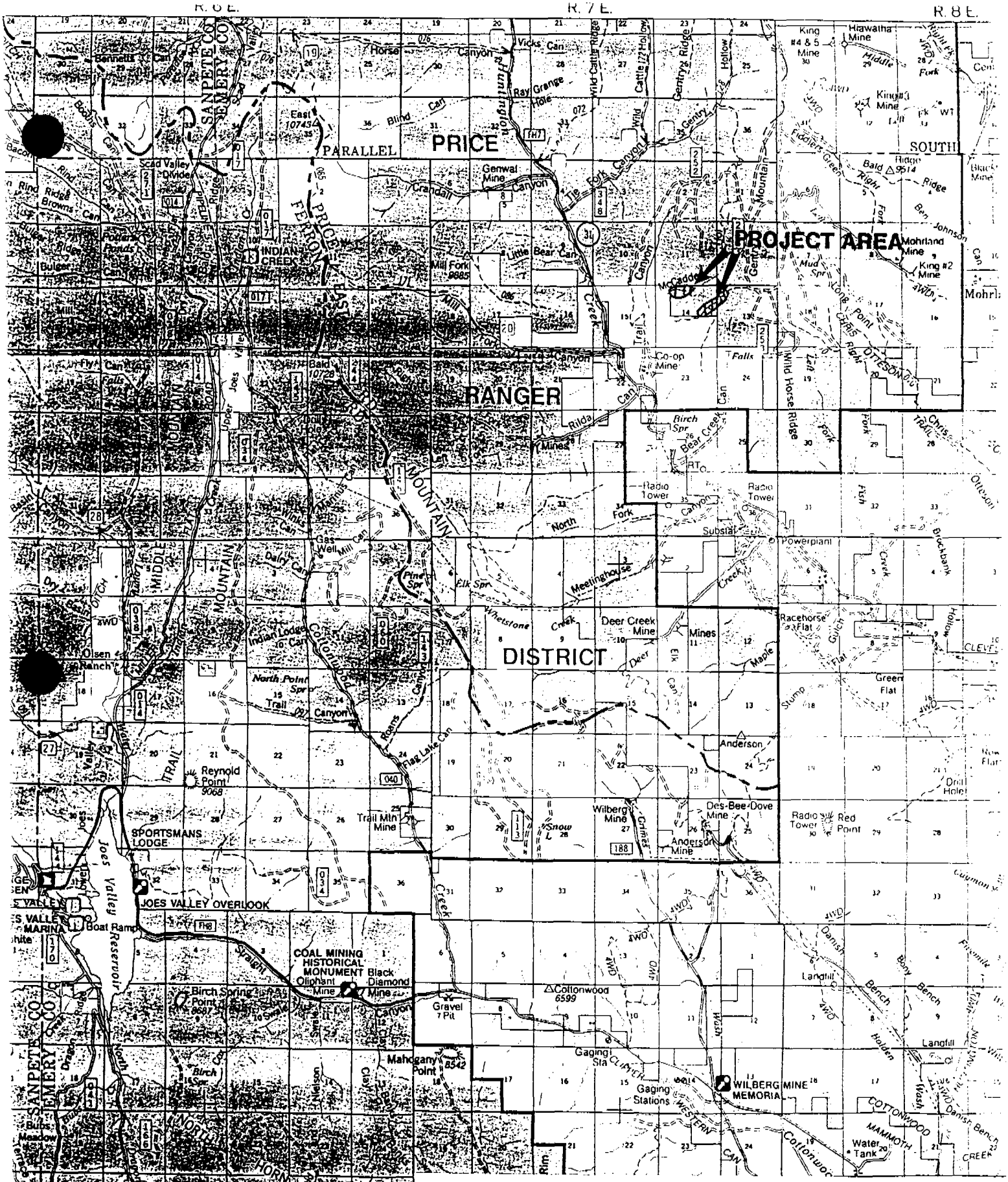
of the shelter or downslope. The rock shelter is noted on the enclosed project area map and has been photographed. It is considered a "possible" site. Test excavations would be necessary to determine whether the shelter had been occupied. No other cultural findings were located in the drainage bottom.

RECOMMENDATIONS

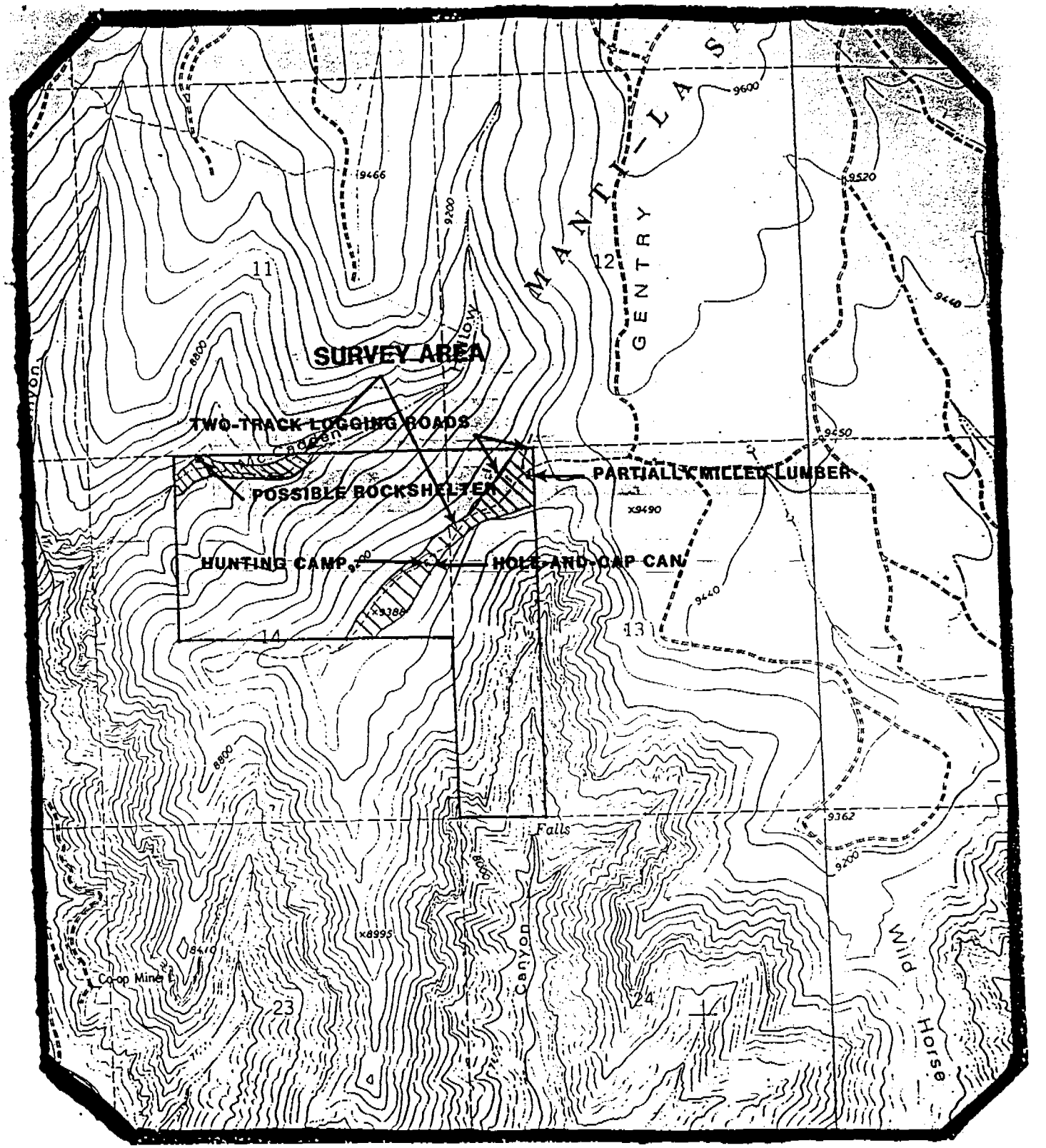
No cultural resources of National Register significance were located and archeological clearance for the proposed project is recommended. The possible rock shelter in McCadden Hollow should be tested to determine whether it is an archeological site if the mine expansion were to directly impact the potential site.

If any cultural values are observed during operation of this lease/permit/right-of-way, they are to be left intact and the Forest Ranger in Price, Utah should be notified.

These recommendations are subject to approval or modification by the Forest Service, and the Utah State Historic Preservation Office.



MANTI-LASAL NATIONAL FOREST
SANPETE, FERRON AND PRICE RANGER DISTRICTS
U.S.D.A. FOREST SERVICE
INTERMOUNTAIN REGION, OGDEN, UTAH, 1989
1/2" = 1 mile

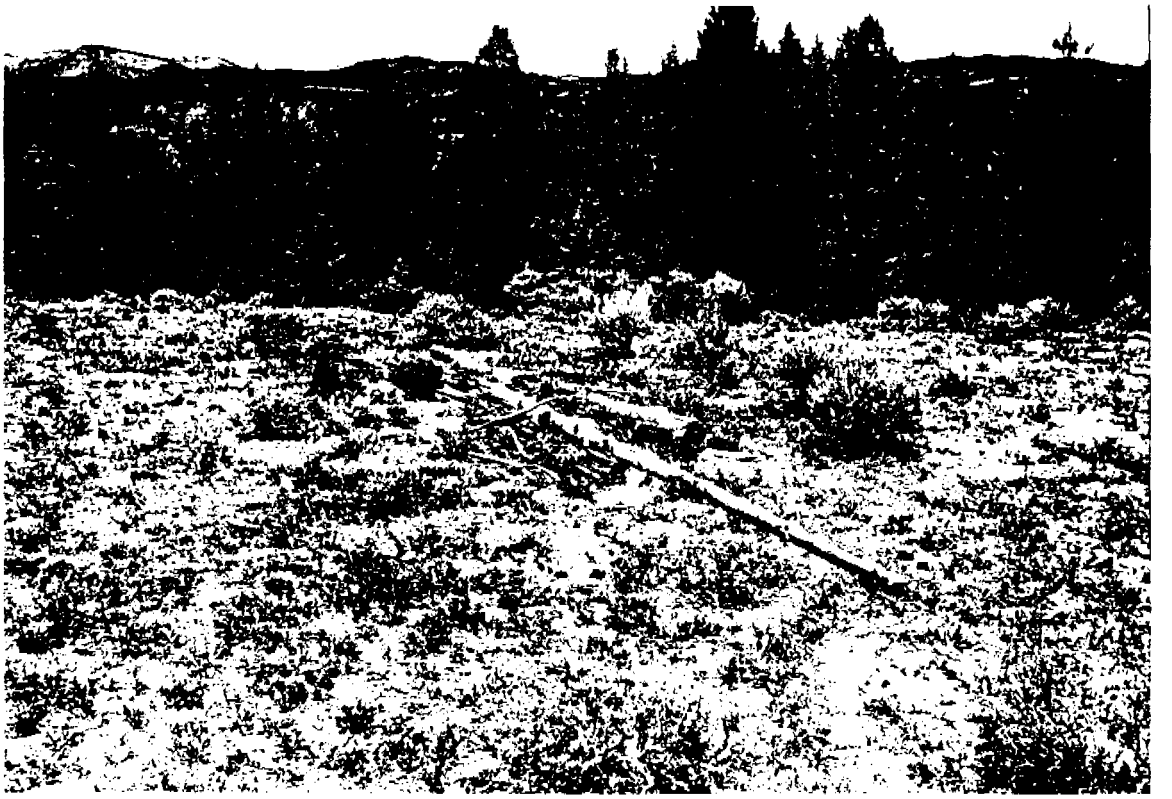


BEAR CANYON MINE EXPANSION
CO-OP MINING COMPANY
SECTIONS 13,14, T16S, R7E, EMERY COUNTY, UTAH
U.S.G.S. 7.5' QUAD: HIAWATHA, UT (1978)
SENCO-PHENIX (UT-125)

SENCO-PHENIX
ARCHAEOLOGICAL SURVEYS
P.O. BOX 9197
SALT LAKE CITY, UTAH
84109

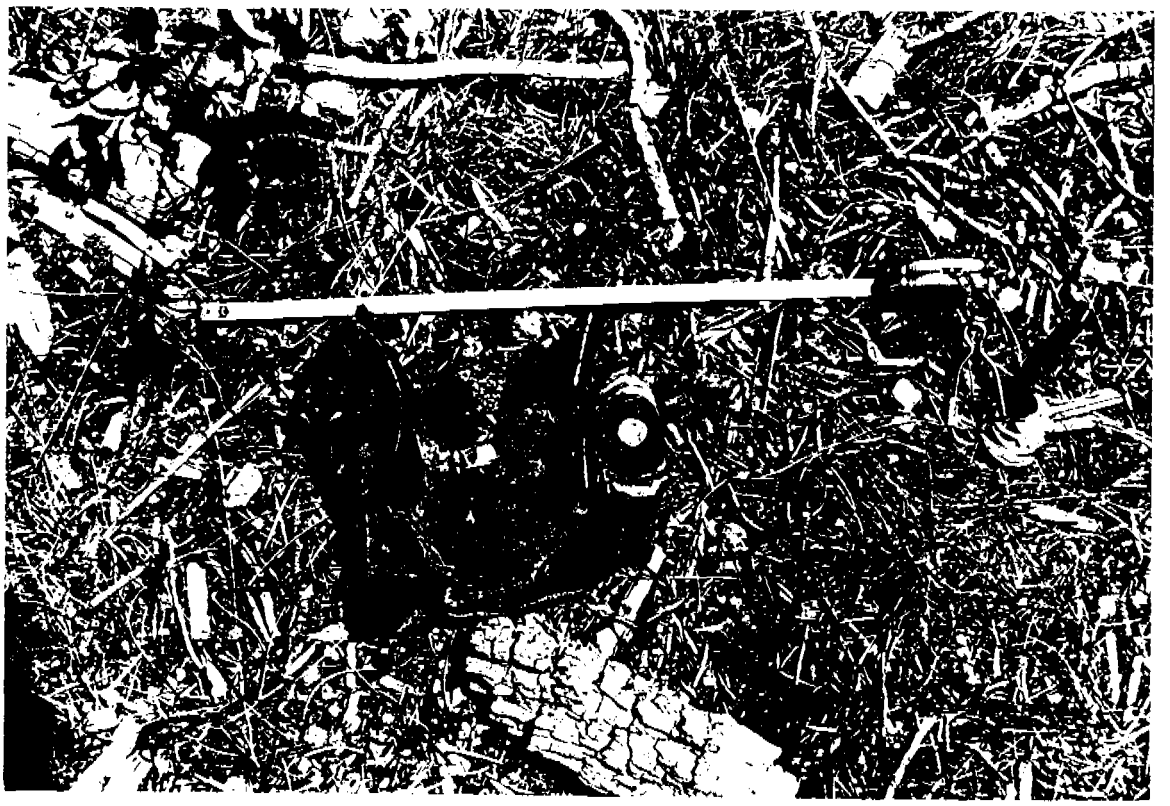
VIEW SW OF RIDGETOP SURVEY AREA

VIEW SE OVER RIDGETOP SURVEY AREA



3 LOGS WITH LIMBS REMOVED NEAR HUNTING CAMP

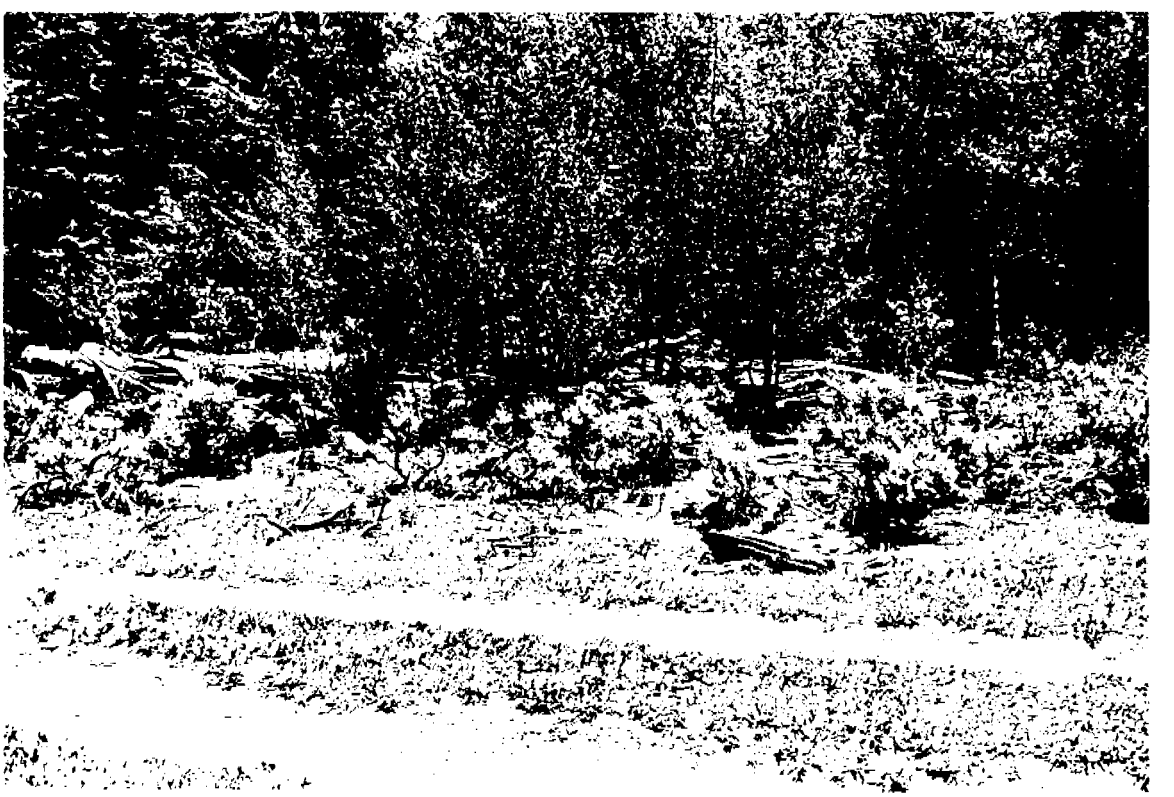
HUNTING CAMP



ISOLATED HOLE-IN-TOP CAN

ISOLATED RED GLASS FRAGMENT

VIEW SOUTH OVER RIDGETOP NARROWS



VIEW EAST, LOG AND SAWN LUMBER PILE

VIEW NORTH, LOG AND SAWN LUMBER PILE

VIEW NW, POSSIBLE ROCK SHELTER, LOWER SURVEY AREA

VIEW NW, POSSIBLE ROCK SHELTER, LOWER SURVEY AREA

GENERAL VIEW NE OF LOWER SURVEY AREA

7.2.6 Surface Water Control and Diversions

The vast majority of the disturbed area of the Bear Canyon Mine is on the west side of Bear Canyon (same side as the mine portal and to the south). Run-off from this west side disturbed area is collected and channelled to Sedimentation Pond "A" with exception of runoff from the Small Area Exemption (SAE) areas which are described in Appendix 7-K. The small amount of run-off from the disturbed area east of Bear Creek is channelled to Sedimentation Pond "B." In order to minimize the amount of water crossing the disturbed area, run-off from the undisturbed area above is diverted around or channelled through the disturbed area and into Bear Creek.

In addition, Co-Op implemented an extensive interim revegetation program in October, 1983 wherein soil tackifiers and mulches were utilized to stabilize the soil for vegetation establishment.

Plate 7-1 shows the arrangement of the various sedimentation and diversion structures.

Table 7.2-8 Summary of Ditch Sizes

All ditches are triangular "V ditch" with 1:1 side slopes.

Ditch	Flow (cfs)	Velocity (fps)	Rip-Rap Size**	Slope (pct)	Depth of Ditch	Depth of Water
D-1R	10.2	6.8	6 in.	6.0	2 ft 0 in.	1 ft 6 in.
D-2R	12.1	6.8	6 in.	6.0	2 ft 0 in.	1 ft 6 in.
D-3R	10.4	6.8	6 in.	6.0	2 ft 0 in.	1 ft 6 in.
D-1U	1.5	3.5	N/R	4.0	1 ft 3 in.	0 ft 9 in.
D-2U	1.5	3.9	N/R	5.0	1 ft 3 in.	0 ft 9 in.
D-3U	6.1	5.5	4 in.	5.0	1 ft 9 in.	1 ft 3 in.
D-4U	11.8	6.6	6 in.	5.0	2 ft 0 in.	1 ft 6 in.
D-5U	0.9	3.5	N/R	7.0	1 ft 0 in.	0 ft 6 in.
D-6U	0.9	3.5	N/R	7.0	1 ft 0 in.	0 ft 6 in.
D-7U	10.3	6.6	6 in.	5.0	2 ft 0 in.	1 ft 6 in.
D-8U	2.3	4.4	N/R	6.25	- down road-	
D-9U	1.8	5.0	4 in.	8.3	1 ft 3 in.	0 ft 9 in.
D-10U	1.5	5.7	6 in.	18.0	1 ft 0 in.	0 ft 6 in.
D-11U	7.6	7.9	9 in.	14.0	1 ft 6 in.	1 ft 0 in.
D-12U	4.5	4.7	N/R	5.0	1 ft 6 in.	1 ft 3 in.
D-1D	0.8	4.0	N/R	9.0	1 ft 0 in.	0 ft 6 in.
D-2D	1.5	5.5	4 in.	10.0	1 ft 3 in.	0 ft 9 in.
D-3D	1.0	5.2	4 in.	15.0	1 ft 0 in.	0 ft 6 in.
D-4D	4.8	5.3	4 in.	6.25	1 ft 6 in.	1 ft 0 in.
D-5D	7.2	6.2	6 in.	6.4	1 ft 9 in.	0 ft 9 in.
D-6D	1.2	4.4	N/R	6.25	1 ft 3 in.	0 ft 9 in.

* 6 in. freeboard added to required flow depth.
** See Plate 7.1 for location of rip-rap.
N/R - not required

PROPOSED 60 IN. CULVERT EXTENSION - BEAR CANYON

The existing Bear Canyon Culvert is 60 in. dia. This proposal is to extend the existing culvert approx 700 ft upstream, to a point just below the confluence of the main channel and the right forks of Bear Canyon. This will serve two purposes:

1. To protect the perennial stream flow from additional sediment loading due to it's close proximity to the haul road and loadout area;

2. To allow for widening of the pad and road areas to facilitate safer truck movement and allow room to construct a new bath house facility and parking area.

The justification for the 60 in. dia sizing is based on the fact that the existing culvert is also 60 in. dia, and is approved to carry the main channel drainage. The proposed extension of the culvert upstream will result in slightly less runoff from entering the culvert, since a portion of the undisturbed drainage will now be intercepted by undisturbed diversion D-12U (Plate 7-1).

The existing culvert is sized to handle the runoff from a 10 yr/24 hr event, which is calculated to be 231 cfs. A check on the required diameter for this flow was made using Manning's equation:

$$D = \left[\frac{2.16Qn}{\sqrt{S}}\right]^{0.375}$$

where: D = Required dia in ft
Q = 231 cfs
n = 0.025
S = slope in ft/ft = 0.055

Based on the above, the required D of the culvert is 4.44 ft; therefore the culvert will handle the flow.

Rip-Rap Sizing

The culvert inlet is proposed to be protected by a headwall utilizing 24 in. D_{50} rip-rap. The rip-rap sizing is based on the tractive force method as shown below, and results in a safety factor of 1.7 for 24 in. D_{50}:

n = 0.0395; $D_{50}^{1/6}$ = 0.044; b = 15 ft

$$Q = bd\left(\frac{1.5}{0.0395}\right)$$

$$d = \left[\frac{nQ}{1.5bS^{1/2}}\right]^{3/5} = \left[\frac{(0.0443)(231)}{(1.5)(15)(0.055)^{1/2}}\right]^{3/5}$$

d = 1.49 ft (depth to carry flow)
T = δds = (62.4)(1.49)(0.055) = 5.11

$$n_b = \frac{21T}{\delta(sg-1)D_{50}} = \frac{(21)(5.11)}{(62.4)(2.65-1)(2)} = 0.521$$

ϕ = 40°
θ = 3.15°

$$SF = \frac{\cos\theta\tan\phi}{\sin\theta + n_b\tan\Phi} = \frac{(cos3.15°)(tan40°)}{(sin3.15°) + (0.521)(tan40°)}$$

$$SF = 1.70$$

therefore 24 D_{50} rip-rap is more than adequate at the inlet.

GENERAL

Upon inspection of the Mine permit area it was found that the areas described below exist in the undisturbed zones and that surface runoff going through these areas does not pass through the sediment pond treatment facilities. In order to provide adequate treatment for these areas, straw bale dikes and/or silt fences will be installed as indicated on Plate 7-1. The sediment control structures will be positioned so that surface runoff passes through them before entering Bear Creek. Treatment facilities will be maintained for each area until approved and determined that adequate revegetation cancels the need for treatment.

OUTSLOPE BANK OF UPPER STORAGE PAD.

During construction of the Upper Storage Pad (Plate 7-1) some fill was apparently overcast down the face of the slope below. The area covers approximately 800 sq ft. A silt fence will be installed and maintained at the inlet to culvert C-8U.

AREA NEAR PORTAL NO.1

This area lies between the upper lamphouse/mine portal bermed pad and the portal access road, extending from the road junction on the south to just north of the upper office trailer at the beginning of the Cattle Co. Road. The area is approx. 0.28 acres. A silt

fence is installed at the north end of the area where runoff flows down hill from the Cattle Co. Road area. Runoff from the area passes through a silt fence near the inlet to culvert C-6U.

BALL PARK TOPSOIL PILE

The ball park covers 1.2 acres. Straw bale dikes and/or silt fences will be installed on the south east side, in line with the natural flow to treat runoff before it enters Bear creak.

AREA SOUTH OF SHOP/BATH HOUSE & WAREHOUSE

This area lies between the shop/bath house & warehouse pad and ditch D-10U. The area is only a few feet wide, is partially vegetated, separated from the pad with a berm and a silt fence is installed and maintained in the drainage below the area.

TOPSOIL STOCKPILE

The main topsoil storage pile covers approx 0.1 acres. The area is encircled by an 18 in. berm and is protected by established vegetation.

Appendix 7-M

SPRING AND SEEP INVENTORY

FEDERAL LEASE AREA

SPRING AND SEEP INVENTORY

CO-OP BEAR CANYON MINE FEDERAL LEASE

SCOPE

An inventory was conducted on the Co-Op Mine Lease areas during June, 1990. The purpose of the inventory was to establish locations of seeps and springs within the actual permit area as well as a one-half mile periphery area which could feasibly be impacted through future subsidence. The inventory was designed to not only locate, but to establish baseline data relative to both quantitative and qualitative parameters of each site where springs were observed which had greater than 2 gpm. The area in question is defined on Figure 1.

METHODOLOGY

June 18, 1990, an aerial survey reconnaissance of the permit area was conducted by 3 staff members from E.I.S.. The purpose of the reconnaissance was to locate evidence of surface water through actual observation as well as suspect areas of moisture which would be indicated by a lushness of vegetation and/or indicator species such as willow, or cottonwood trees. An aerial survey was beneficial also in establishing a plan to contour ground search the area due to the extreme roughness of the terrain and limited access by any means other than foot.

With the information secured from the aerial survey, the U.S.F.S. was contacted and a search of their files was conducted to locate all existing water rights within the survey area. A copy of the rights are attached as Table 2. The location of all existing water rights were plotted on Figure 1 and correlated against the observation from the aerial survey. These water rights which fell within the area of potential influence were then confirmed with actual ground sightings. The results of the ground observations are recorded on Table 1 with photographs in Appendix #1.

The final phase was to conduct a ground survey of the entire area of potential influence. The method involved a 100% survey of all areas which could theoretically be impacted through mining activities; then to walk all areas within the area of influence at approximately a 200' interval (where accessible) with particular emphasis on all draws and drainage areas. This was accomplished by utilizing a four man team. Access to the ridge was gained by the road up Mohrland. then across Gentry Mt. to McCadden Hollow, then, a jeep trail down the main ridge separating Bear and Trail Canyons. Three men would be let out along the ridge, then contour search the side hills and canyon bottoms to the lower road where they would be picked up. Due to extreme roughness of the terrain and the time involved in transport, an normal working day was limited to approximately 6 hours. Each man carried with him, 2 sets of sample bottles, a thermometer, Ph and Conductivity meters, and the means to determine flow through time-volume materials. When a spring or seep was observed, its location was plotted on a map. If there was flow, it was measured as to volume, temperature, and Ph and Conductivity. There were no springs within the survey area (that were accessible) with flows in excess of 2 gpm's. The upper region of Bear Canyon was inaccessible and the main flow of Bear Creek originates approximately 300' below the ridge. This area is not accessible by conventional means, however, Bear Creek has been historically sampled by Co-Op Mine over the last 9 years.

CONCLUSIONS AND RESULTS

The area of potential influence in association with underground mining of the lease areas had springs and or seeps. There were a total of 14 seeps and/or springs that were located; none of these had sufficient flow to collect qualitative samples. The flow from 9 of the sampled springs was less then .5 gpm. Only 1 site had in excess of 2 gpm. These are labeled on Figure 1 as BL-8. BL-8 is associated with Water Right # 714 with a flow of 2 gpm. This spring is located at the outer edge of the area of potential influence and is the only source which has a well

defined outfall and established riparian zone. It is believed to be a permanent year-round source of water. M-4, (USFS # 142) has a flow of .25 gpm at the source but then diminishes to 0 gpm within approximately 200 ft. of channel. The absence of a well defined riparian zone leads to the assumption that this spring is of an intermittent nature and is most likely dry during the fall of the year.

All of the remaining springs and seeps had a very small area of influence with virtually no surface flow beyond 10' to 15' and no defined riparian zones other than that a minor lushness of vegetation in the immediate area of influence. There was no riparian based vegetation but simply a lushness of vegetation which was indigenous to the surrounding area. Table 1 lists each spring and seep with flow.

RECOMMENDATIONS

Only 1 spring has sufficient flow to warrant baseline monitoring. This constitutes the head water of Bear Creek BL-8. Due to the nature and location of this, it would necessitate an experienced rock climber to collect at the source, considering that the creek is sampled with 1300 to 1600 feet of the source, it would seem redundant to re-initiate baseline data in this inaccessible area.

CONCLUSIONS

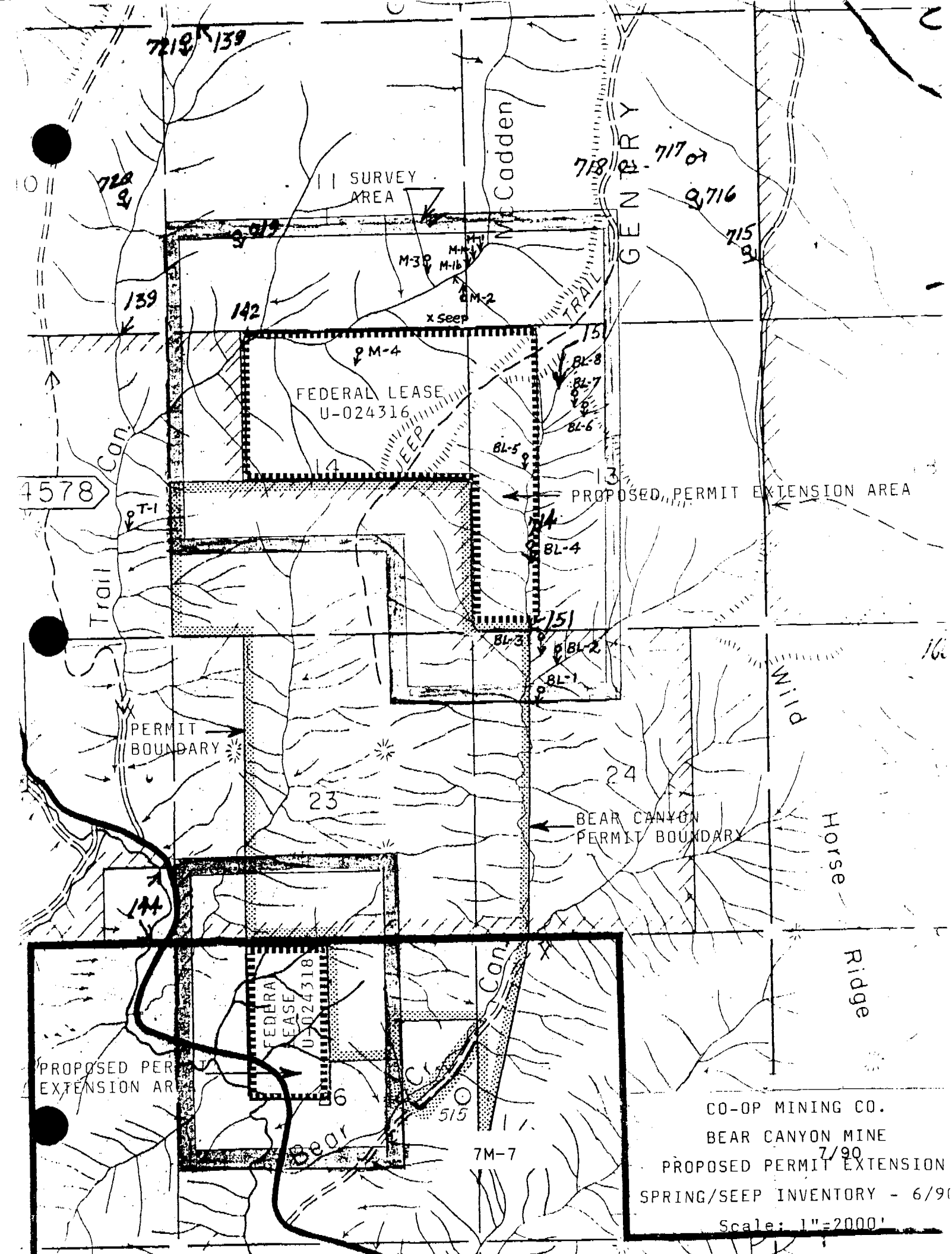
It is apparent after the survey, that surface water is conspicuously absent over the majority of the proposed lease area. In this light, all effort should be made to maintain the integrity of the existing springs. However, due to the amount of overburden and depth of the coal seam, no adverse impacts appear likely; in fact, the general consequence of the existing mining operation with its associated sediment control structures and ponds has resulted in a positive benefit to Bear Creek in eliminating considerable sediment as the creek transverses the existing permit area.

Table 1

BL-1	Spring	.3 gpm	
BL-2	Spring	.5 gpm	
BL-3	Seep	No Flow	
BL-3a	Associated seep	No Flow	
BL-4	Spring	.5 gpm	
BL-5	Spring	.5 gpm	
BL-6	Spring	.5 gpm	
BL-7	Spring	.5 gpm	
BL-8	Spring	2+ gpm	Main source
M-1a			
M-1b	Intermittant in main drainage		
M-1c			
M-2	Spring	.5 gpm	
M-3	Spring	.25 gpm	
M-4	Spring	.25 gpm	
T-1	Seep	.1 gpm	puddled

Table 2

USFS 712	Channel Area 151
USFS 714	Channel Area 142
USFS 713	Off Area of Influence

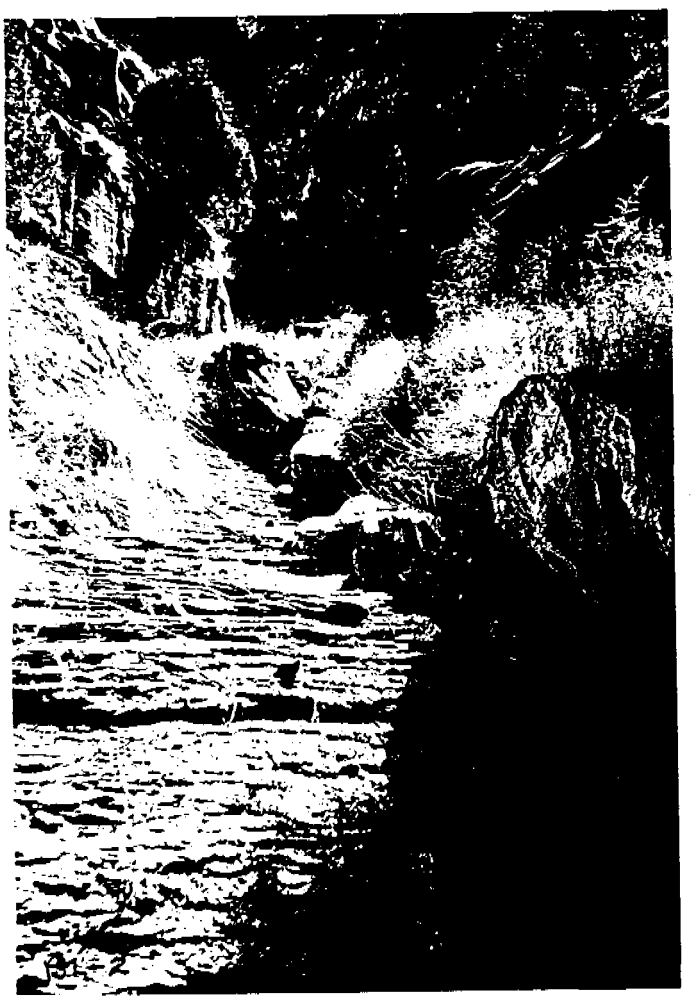


CO-OP MINING CO.
BEAR CANYON MINE
PROPOSED PERMIT EXTENSION
SPRING/SEEP INVENTORY - 6/90 7/90
Scale: 1"=2000'

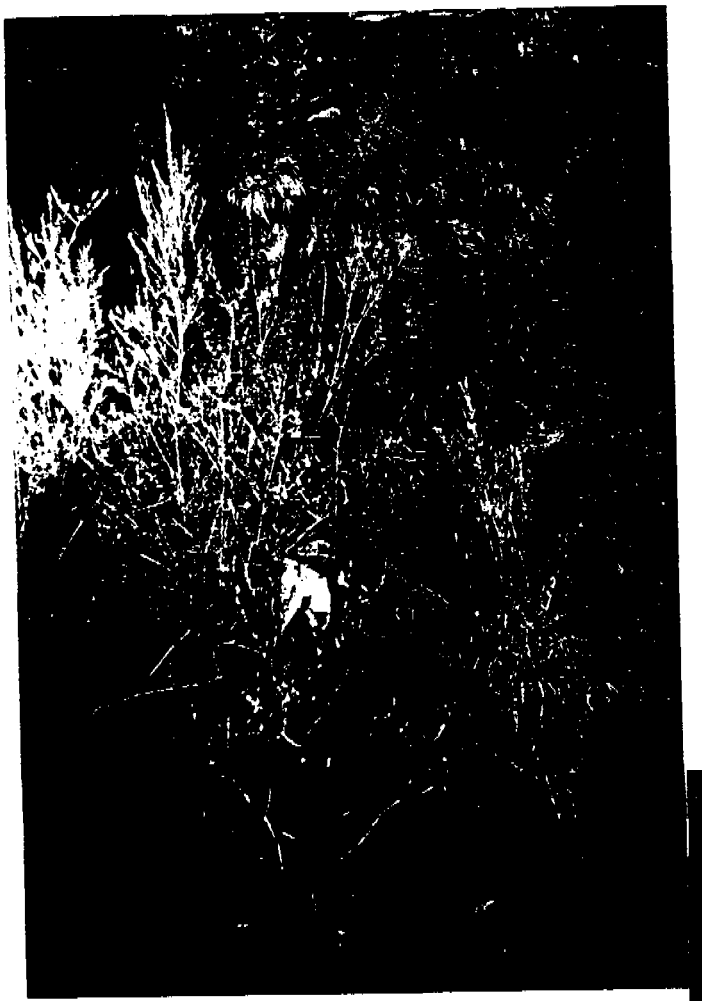
M-2

M-3

BL-1



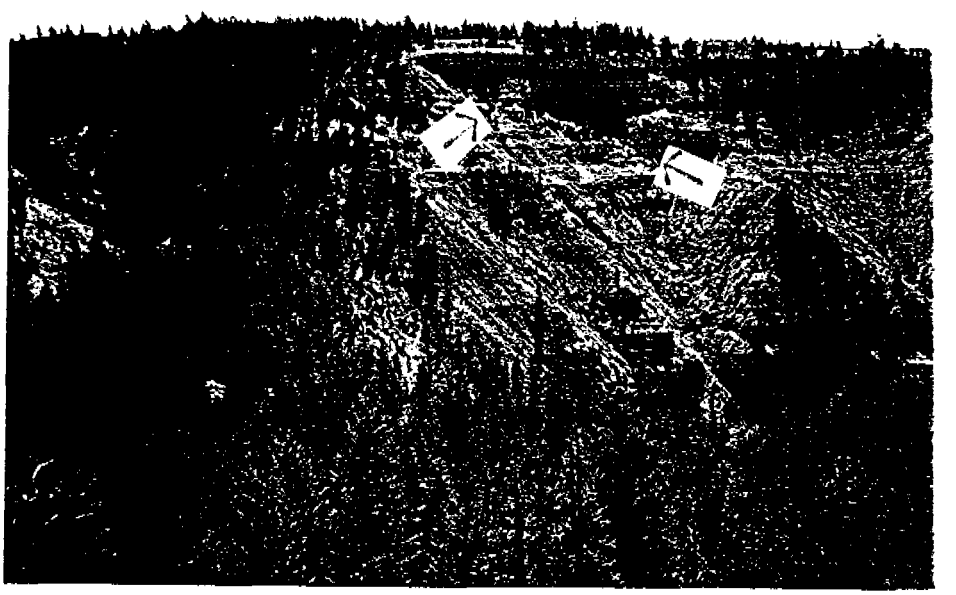
BL-2



BL-3

BL-4

BL-5



BL-6 BL-7

BL-8

APPENDIXES

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

has been purchased to relieve the deficiencies in the present stockpile. These results are attached in Appendix 8-A.

8.6 SELECTED OVERBURDEN MATERIALS OR SUBSTITUTES

There are approx 12 acres of disturbed area at the Bear Canyon Mine site. Of the 12 acres, approx 3.8 acres were constructed prelaw, and although no topsoil was saved, native material is available as down-cast material. In order to show that the downcast material is adequate and suitable as final reclamation plant growth material for the 3.8 acres, procedures outlined in Appendix 8-D will be followed.

The remaining 8.2 acres of disturbance will be covered with 6 in. of topsoil during reclamation. This will require approx 6,600 cu yds of topsoil. There are two topsoil storage areas on site (Plate 8-3), with storage quantities that meet this requirement.

8.6.1 Main Topsoil Storage Pile

The original topsoil storage pile was located north-east of the scale house in Bear Canyon. This pile consisted of approx 2,600 cu yds of topsoil stripped from the Bear Canyon disturbance. In 1990 this pile was moved to the location shown on Plate 8-3. During the construction of the new storage pile and culvert extension a minimum of 1,000 cu yds of additional topsoil will be recovered and

incorporated into the pile following methods described in Section 8.7 and other applicable section of the mine plan. The pile will be marked and protected by a berm and vegetation to prevent soil loss (Plate 8-2).

8.6.3 Topsoil Summary

The following table summarizes the information discussed in the previous Sections:

Table 8.6-2 Summary Table

Total mine disturbance	12 acres
Area with topsoil (pre-law, down-cast material)*	3.8 acres
Area requiring topsoil	8.2 acres
Topsoil required	
8.2 acres x 6 in. depth	6,615 cu yds
Topsoil stored	
Upper site	3,600 cu yds
Ball Park site	3,400 cu yds
Total topsoil available	7,000 cu yds
Excess topsoil available	385 cu yds

* Downcast material to be used as substitute plant growth material.

8.7 REMOVAL, STORAGE AND PROTECTION OF SOILS

8.7.1 Physical and Chemical Properties of Soils

The 1982 Co-Op field investigations provided information on the physical and chemical properties of soils in the permit area and is discussed in Appendix A. A rating for topsoil is included on the forms included as are some chemical properties. Soils found on-site are listed in the Soils Legend and shown on Plate 8-1. In studies during the 1984 field season on site sampling was analyzed

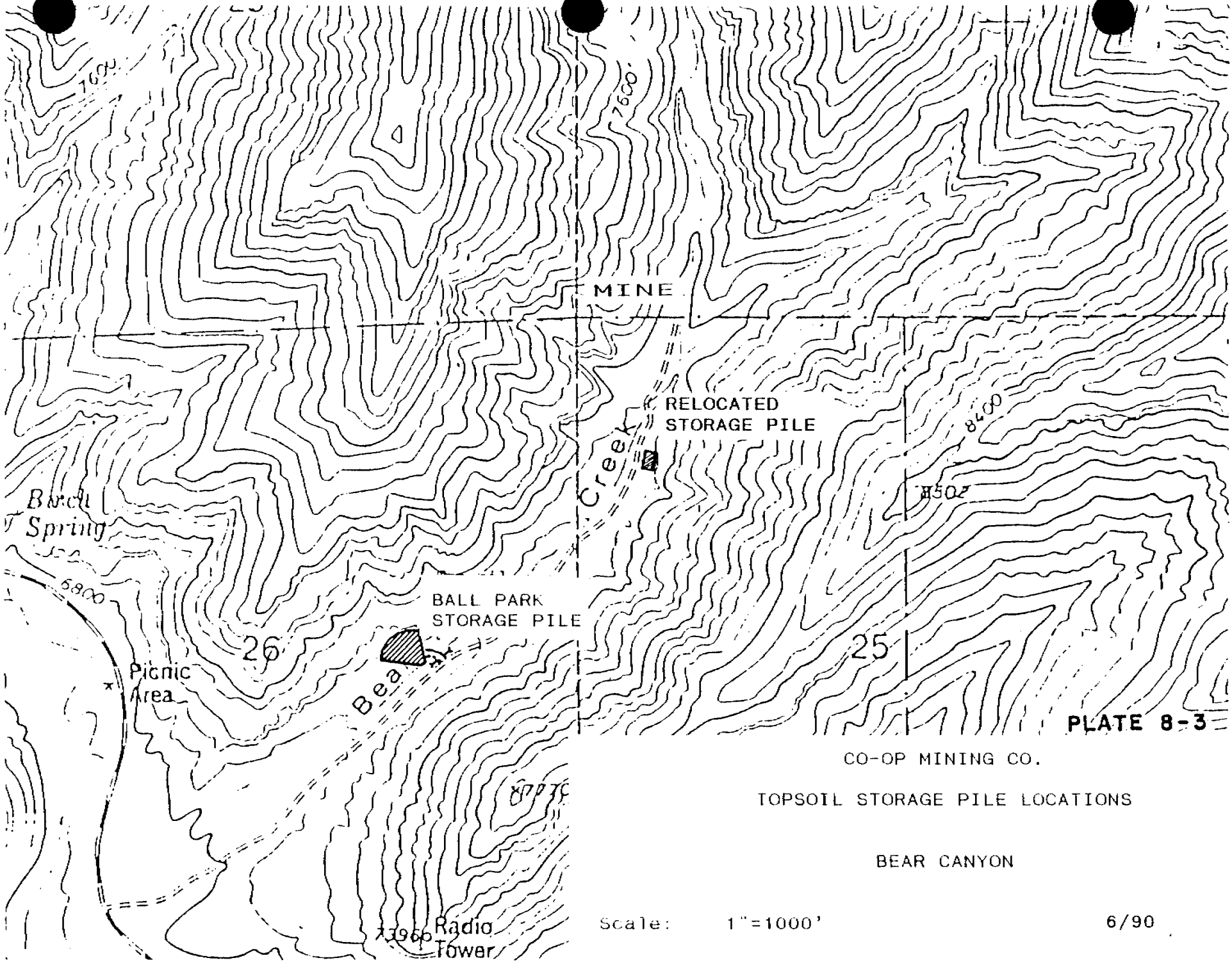


PLATE 8-3

CO-OP MINING CO.

TOPSOIL STORAGE PILE LOCATIONS

BEAR CANYON

Scale: 1"=1000'

6/90

RAPTOR SURVEYS

A survey of the Co-Op Mine properties was made in cooperation with the Utah Division of Wildlife Resources (UDWR) in the spring of 1987. The results were submitted to DOGM along with a request to suspend future raptor surveys until such time that a survey was warranted. This request was based on Appendix R-1, correspondence from UDWR and R-2, DOGM Guidelines for Raptor Surveys. Suspension was granted, with exception of clearance surveys warranted by new disturbances, in April 1988 (See letter Appendix R-2).

In 1990 DOGM requested that a raptor survey be conducted to ensure that no disturbance or threats to nesting raptors existed in the area of proposed portals in the middle seam at Blind Canyon. A survey was conducted by Environmental Industrial Services (E.I.S.), in June 1990, and a copy of the letter discussing the survey can be found in this Appendix following Appendix R-2.

The latest survey conducted by the UDWR is also included in this Appendix, and it will be updated when available. Co-Op will conduct additional clearance surveys when warranted by any new disturbances.

E I S
ENVIRONMENTAL INDUSTRIAL SERVICES
P.O. Box 358 - Desert Lake Road - Elmo, Utah 84521 - Telephone (801) 653-2606
Mel Coonrod - Vice-President

July 17, 1990

Mr. Kimly C. Mangum, P.E.
388 East Boynton Road
Maysville, Utah 84037

Re: Raptor Survey

Dear Mr. Mangum:

Personnel from E.I.S. implemented a ground survey along the top of the escarpment along Blind Canyon and Bear Canyon. No evidence of nests were observed. The survey was conducted during the last week of June 1990.

Sincerely,

Melvin A. Coonrod

This survey was conducted to verify that no disturbance or threat to nesting raptors existed in the area of new portals proposed in Blind Canyon, near the existing portals.

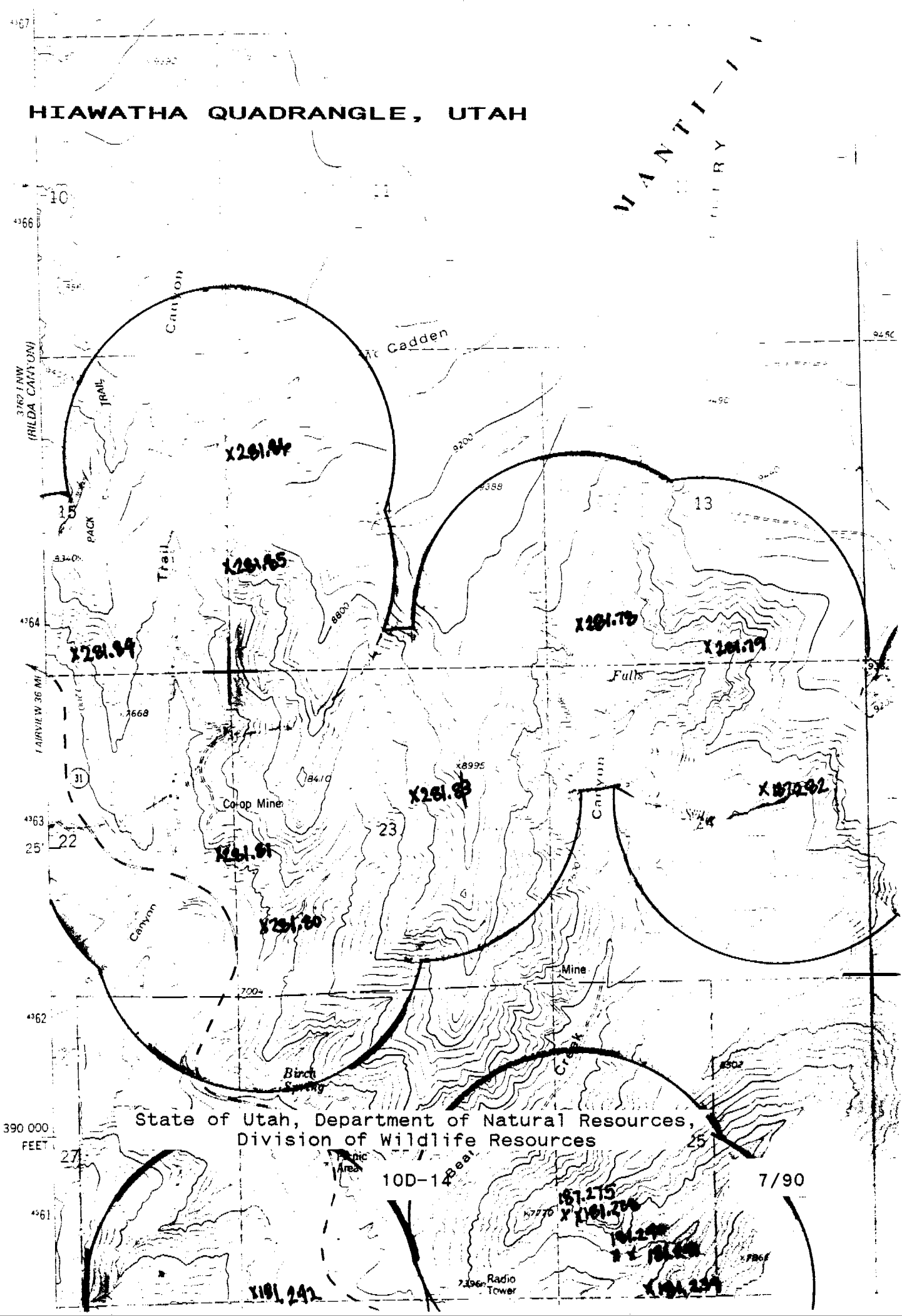
RAPTOR NEST LOCATIONS

Nest No.	Species	Status
181-168	Golden Eagle	1981 - active; 1982 - inactive; 1986 - inactive 1987 - tended; 1988 - active
181-169		1981 - active; 1982 - active; 1986 - inactive; 1987 - inactive; 1988 - inactive
181-170		1981 - inactive; 1982 - inactive; 1986 - inactive; 1987 - inactive; 1988- tended
181-171		1981 - inactive; 1982 - inactive; 1986 - inactive; 1987 - inactive; 1988 - tended
181-172		1981 - inactive; 1986 - not found; 1988 - not found; (nest is gone)
181-173		1981 - inactive; 1982 - inactive; 1986 - inactive;
183-193		1983 - active; 1987 - inactive; 1988 - tended; 1989 - active
181-238		1981 - tended; 1982 - active; 1986 - inactive; 1987 - tended; 1988 - tended
181-239		1981 - tended; 1982 - inactive; 1986 - inactive 1987 - inactive; 1988 - inactive
187-271		1987 - inactive; 1988 - inactive; 1989 - tended
187-272		1987 - inactive; 1988 - inactive; 1989 - tended
187-275		1987 - tended
187-282		1987 - inactive; 1988 - inactive;
181-290		1987 - inactive; 1988 - inactive
181-291		1987 - inactive; 1988 - inactive
181-292		1987 - tended; 1988 - inactive
281-78	Unknown Buteo	1981 - inactive; 1982 - inactive; 1987 - inactive
281-79		1981 - inactive; 1982 - inactive; 1983 - active; 1987 - inactive; 1988 - inactive

State of Utah, Department of Natural Resources,
Division of Wildlife Resources

Raptor Nest Locations (cont.)

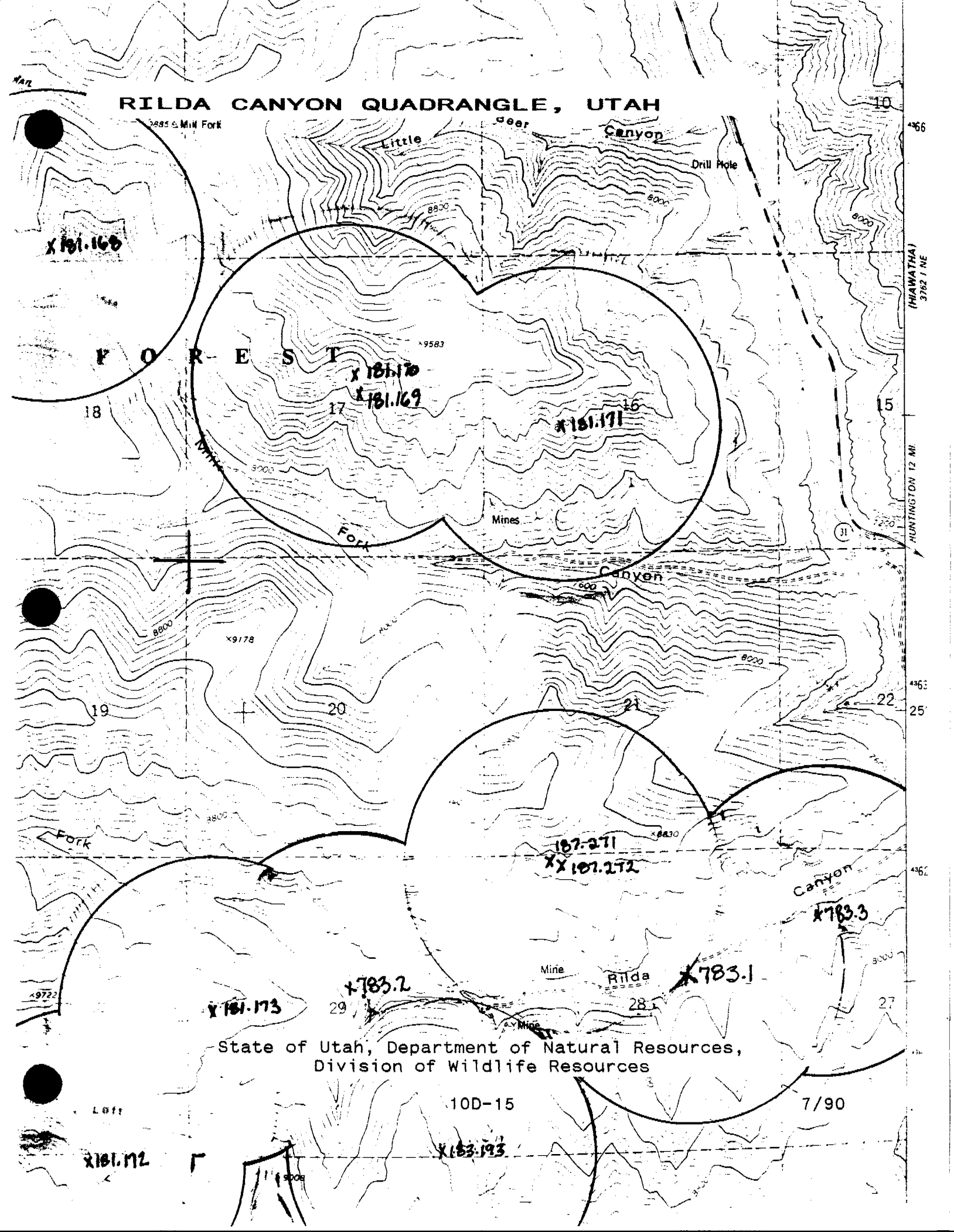
Nest No.	Species	Status
281-80		1981 - inactive; 1988 - inactive
281-81		1981 - inactive; 1987 - inactive
281-83		1881 - inactive; 1987 - inactive; 1988 - inactive
281-84		1981 - inactive; 1987 - inactive; 1988 - inactive
281-85		1981 - inactive; 1982 - inactive; 1987 - inactive; 1988 - inactive
281-86		1981 - inactive; 1982 - inactive; 1987 - inactive; 1988 - active
783-1	Cooper's Hawk	1983 - active
783-2		1983 - inactive
783-3		1983 - active



State of Utah, Department of Natural Resources,
Division of Wildlife Resources

10D-14

7/90


RILDA CANYON QUADRANGLE, UTAH
Little
Canyon
Drill Hole
Mill Fork
F O R E S T
Mines
Fork
Canyon
Fork
Canyon
Mine
Rilda
Mine
(HIAWATHA)
3762 I NE
HUNTINGTON 12 MI.
X181.168
X181.170
X181.169
X181.171
X181.271
X X181.272
X783.3
X783.2
X783.1
X181.173
X181.172
X183.193
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