0021

Div. of Oil, Gas, + Mining
File ACT/007/009
Route to Wayne & Lee
OCT 8 1981
LCS
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EUREKA ENERGY COMPANY
A SUBSIDIARY OF PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

October 2, 1981

RECEIVED
OCT 5 1981
DIVISION OF
OIL, GAS & MINING

Mr. Roger L. Williams
Regional Administrator Region VIII
Environmental Protection Agency
1860 Lincoln Street, Suite 900
Denver, Colorado 80203

Attention: Mr. Robert J. Burm, Permits Branch

Re: Sage Point-Dugout Canyon Project
NPDES Permit

Dear Mr. Williams:

Eureka Energy Company, a wholly owned subsidiary of Pacific Gas and Electric Company, hereby submits its National Pollutant Discharge Elimination System (NPDES) application for a permit to discharge at our proposed underground coal mining facilities (Sage Point-Dugout Canyon Project) to be located in Carbon County, Utah. The Applicant has also answered as completely as possible all the questions in Parts A and B of the New Source Environmental Questionnaire for Potential New Sources of Waste Water Discharge. Eureka anticipates that construction will start in Spring of 1982.

Utah's Division of Oil, Gas and Mining and the federal Office of Surface Mining in Denver have recently finished the completeness review of our mine permit application for the project. Submitted in December 1980, this mining and reclamation plan contains the information required by the Utah Act Relating to the Regulation of Coal Mining and Reclamation Operations, the Federal Surface Mining Control and Reclamation Act of 1977, the Permanent Regulatory Program Regulations for Surface Coal Mining and Reclamation Operations of the Department of Interior, and the Regulations of the State of Utah Department of Oil, Gas and Mining.

An interagency task force under the leadership of the U. S. Geological Survey (USGS) prepared in 1979 a Final Environmental Impact Statement (EIS) on Development of Coal Resources in Central Utah. Other participating agencies included the Forest Service, Department of Agriculture, Bureau of Mines, Fish and Wildlife Service, National Park Service, Department of the Interior, and the Interstate Commerce Commission. This EIS analyzed the individual and cumulative impacts of mines, coal-burning power plants, and ancillary facilities located on Federal land. In their Site

Specific Analysis of the Sage Point-Dugout Canyon Project, the USGS et. al., concluded that this area is suitable for mining.

The proposed Sage Point-Dugout Canyon project will consist of four independent underground mines and associated portal and central facilities. Two of the mines will be located in Fish Creek Canyon and two in Dugout Canyon; portal facilities will be constructed in each of these canyons to service the mines. The central facilities will include offices, a coal preparation plant, and a train loadout. No discharge of pollutants to water courses is anticipated. Therefore, Eureka's proposed new mine development will not significantly affect the quality of the environment. Sedimentation ponds will collect run-off from the surface facilities and prevent sediment from entering streams. The ponds will be designed to contain the runoff from a 10-year, 24-hour precipitation event. The waste resulting from washing of the coal will be transported to the preparation plant waste disposal site. The coal preparation plant water system has been designed as a total recycling system without wastewater discharges. Sewage and wastewater will be piped to a sewage lagoon for treatment and total containment. No pollution of water courses from mine drainage is expected because all mine water will be used inside the mine.

Utah's State Engineer has completed the review of the water impounding structures associated with Eureka's proposed project. On January 5, 1981, he issued an approval order for the small sedimentation structures associated with the portal areas, the central facilities, and the disposal sites. Since the sewage lagoon does not have any drainage areas and it will not threaten life or property, an approval order is not required.

We appreciate your assistance with this permit application and look forward to working with you and your staff.

Sincerely,

Nicolas Temnikov

NICOLAS K. TEMNIKOV
Regulatory Coordinator

NKT:mg

cc: Utah Division of Health
Division of Oil, Gas and Mining (J. Smith) ✓

Enclosure

Form Approved
OMB No. 158-R0096

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE - SHORT FORM C

FOR AGENCY USE

APPLICATION NUMBER								
DATE RECEIVED								
YEAR		MO.		DAY				

To be filed only by persons engaged in manufacturing and mining

Do not attempt to complete this form before reading accompanying instructions

Please print or type

1. Name, address, location, and telephone number of facility producing discharge

A. Name Sage Point-Dugout Canyon Project

B. Mailing address

1. Street address Eureka Energy Company 215 Market Street
2. City San Francisco
3. State California
4. County
5. ZIP 94106

C. Location:

1. Street See Attachment A
2. City
3. County Carbon
4. State Utah

D. Telephone No. 415 781-4211
(Area Code)

2. SIC [ ][ ][ ][ ]
(Leave blank)

3. Number of employees 18

If all your waste is discharged into a publicly owned waste treatment facility and to the best of your knowledge you are not required to obtain a discharge permit, proceed to item 4. Otherwise proceed directly to item 5.

4. If you meet the condition stated above, check here ☐ and supply the information asked for below. After completing these items, please complete the date, title, and signature blocks below and return this form to the proper reviewing office without completing the remainder of the form.

A. Name of organization responsible for receiving waste

B. Facility receiving waste:

1. Name
2. Street address
3. City
4. County
5. State
6. ZIP

5. ☒ Principal product, ☐ raw material (Check one) Coal

6. Principal process Underground Mining & Coal Cleaning

7. Maximum amount of principal product produced or raw material consumed per (Check one)

Basis	Amount							
	1-99 (1)	100-199 (2)	200-499 (3)	500-999 (4)	1000-4999 (5)	5000-9999 (6)	10,000-49,999 (7)	50,000 or more (8)
A. Day							23,636	
B. Month								
C. Year								

PREVIOUS EDITION MAY BE USED UNTIL SUPPLY IS EXHAUSTED

8. Maximum amount of principal product produced or raw material consumed, reported in item 7, above, is measured in (Check one):

A.☐ pounds B.☒ tons C.☐ barrels D.☐ bushels E.☐ square feet

F.☐ gallons G.☐ pieces or units H.☐ other, specify _____

9. (a) Check here if discharge occurs all year ☒, or Some of the discharge is intermittent or non-existent. Discharge into the sewage lagoon (total containment) is continuous.

(b) Check the month(s) discharge occurs:

1.☐ January 2.☐ February 3.☐ March 4.☐ April 5.☐ May 6.☐ June

7.☐ July 8.☐ August 9.☐ September 10.☐ October 11.☐ November 12.☐ December

(c) Check how many days per week: 1.☐ 1 2.☐ 2-3 3.☐ 4-5 4.☒ 6-7

10. Types of waste water discharged to surface waters only (check as applicable)

Discharge per operating day	Flow, gallons per operating day					Volume treated before discharging (percent)				
	0.1-999 (1)	1000-4999 (2)	5000-9999 (3)	10,000-49,999 (4)	50,000- or more (5)	None (6)	0.1-29.9 (7)	30-64.9 (8)	65-94.9 (9)	95-100 (10)
A. Sanitary, daily average	NOTE:	Not applicable to the sewage lagoon or to								
B. Cooling water, etc. daily average		mine water since there will be no discharge								
C. Process water, daily average		to surface waters.								
D. Maximum per operating day for total discharge (all types)										

11. If any of the three types of waste identified in item 10, either treated or untreated, are discharged to places other than surface waters, check below as applicable.

Waste water is discharged to:	Average flow, gallons per operating day				
	0.1-999 (1)	1000-4999 (2)	5000-9999 (3)	10,000-49,999 (4)	50,000 or more (5)
A. Municipal sewer system					
B. Underground well					
C. Septic tank					
D. Evaporation lagoon or pond				58,000 (sanitary)	815,000 (industrial)
E. Other, specify					

12. Number of separate discharge points: A.☐ 1 B.☐ 2-3 C.☐ 4-5 D.☒ 6 or more (sedimentation ponds)

13. Name of receiving water or waters Pace, Soldier, Fish, and Dugout Creeks-

NOTE: The only discharge into such receiving waters would be due to overflow from sedimentation ponds.

14. Does your discharge contain or is it possible for your discharge to contain one or more of the following substances added as a result of your operations, activities, or processes: ammonia, cyanide, aluminum, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease, and chlorine (residual). A.☒ yes B.☐ no

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate.

DAVID W. HESS
Printed Name of Person Signing

Vice President and General Manager
Title

Oct 2, 1981
Date Application Signed

Signature of Applicant

18 U.S.C. Section 1001 provides that:

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious, or fraudulent statements or representations; or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years, or both.

NEW SOURCE QUESTIONNAIRE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

Part A - New Source Information. Complete the items in Part A.

I. Identification

1. Applicant's name: Eureka Energy Company

2. Mailing Address: 215 Market Street

San Francisco, CA Zip 94106

3. Location of proposed source:

a) Street address Location of Sage Point-Dugout Canyon Project is shown in Attachment A

b) City or town (Borough) _____

c) County (Parish) Carbon County

d) State Utah

e) Range and township, if grid system is used See Attachment B

f) Assessor's parcel number, if known _____

g) Other _____

4. Person to be contacted by EPA if necessary to discuss any of the information provided on this form:

a) Name Alex Stillo or Nicolas Temnikov

b) Telephone 415/781-4211

5. Standard Industrial Classification (SIC) codes(s) - - - - (If unknown, consult SIC Manual, U.S. Dept. of Commerce 1972 edition, or contact the appropriate EPA Regional Office. If more than one code applies to the potential new source, give all applicable codes.)

a) Description of product and process COAL -UNDERGROUND MINING AND COAL CLEANING

b) Do you know of any applicable Federal effluent guideline? yes [x] no [ ] If yes, provide name of applicable industrial category See Page 3a.

6. Will there be a discharge of wastewater? yes [x] no [ ] If yes, date discharge is expected to begin See Page 3a.

Part A: I. (5b)

Proposed regulations to limit effluent discharges to use waters from coal mining and coal preparation facilities (1/13/81) Federal Register). Also, the Office of Surface Mining Reclamation and Enforcement proposed rules for effluent limitations and sedimentation pond design criteria (7/2/81, Federal Register)..

Part A: I. (6)

No pollution of water courses from three potential sources (sedimentation ponds, mine, sewage lagoon) is anticipated.

Wastewater will be discharged into the sewage lagoon (total containment) beginning in June 1984. No pollution of water courses from mine drainage is expected because all mine water will be used inside the mine. The floor of the mine will slope downward from the portals at an angle of five to seven degrees. Thus, the mine will essentially become a large reservoir into which all of the water draining into the mine will be collected. The water will remain there even after mining ceases, with no discharge occurring to the outside through the mine entries. However, if a discharge did occur, its quality would be as good, or better than, the water now being discharged at springs, because it will have traveled a shorter distance from the recharge to the discharge areas. There is a possibility of water discharge from the Dugout mines in March 1983. Supplementary material will be provided when and if it appears as though a discharge will occur. Discharge from sedimentation ponds (designed to contain the run off from a 10-year, 24-hour precipitation event) can take place at any time after they are constructed. Incidentally, the coal preparation plant water system has been designed as a total recycling system without wastewater discharges.

If no, do not complete this questionnaire. Return it to the EPA Regional Office.
If yes, check appropriate box or boxes.

a) Type of facility

[ ] 1) Manufacturing or materials processing plant.
Production capacity? _____

[ ] 2) Animal feedlot. Number & type of animal _____

[ ] 3) Irrigation project. Number of acres _____

[ ] 4) Fish farm. Pounds fish produced per year _____

[x] 5) Other (explain) Underground coal mine (An overview of proposed facilities and operations is presented in Attachment C

b) Specific source or sources of wastewater (check one or more blocks, as appropriate)

[ ] 1) Construction of the facility

[ ] 2) Manufacturing or processing operation

[x] 3) Sanitary facility (human)
sewage lagoon (total containment)

[x] 4) Storm discharge (subject to the NPDES program)
sedimentation ponds

[x] 5) Other (explain) See Page 4a

c) Give the name of the waterway to which proposed source will discharge Pace, Fish, Soldier and Dugout Creeks

NOTE: The only discharge into such receiving waters would be due periodic overflow from sedimentation ponds.

7. Is the potential new source an addition or alteration to
an existing facility? yes [ ] no [x]
a completely new facility? yes [x] no [ ]

a) If an addition or alteration to an existing facility,

1) Will there be an increase in the present productive capacity? yes [ ] no [ ]
If yes, approximate the percentage increase _____%

2) Will there be a change in product or process?
yes [ ] no [ ]
If yes, from what to what? _____
_____

3) Does facility hold an NPDES Permit? yes [ ] no [ ]
If yes, give permit number _____

Part A: I. (6b5)

No mine water discharge is expected. If there will be water discharged from the Dugout mines, supplementary information will be provided when and if it appears as though a discharge will occur.

II. Status of Construction

Briefly answer each of the following questions concerning the progress that has been made in the construction of the potential new source. Be sure to supply the dates that are requested. You may be required to provide documentation to support these answers.

1. Has land been purchased or leased as a site for the potential new source? yes [x] no [ ]
If yes, on what date? See Page 5a

2. Have significant contractual obligations been made for purchas of facilities or equipment for the potential new source?
yes [ ] no [x]
If yes, for each significant obligation give a) the facility or equipment that is the object of the approximate percent of money relative to the total cost of the facility which has irrevocably obligated to date under the contract b) the terms by which any such obligation is irrevocable (e.g., penalty clause, payment schedule, etc.) c) the one which such obligati becomes irrevocable

3. Have any of the following activities taken place on the potenti site (check the appropriate box or boxes). If yes, give date c commencement.

[ ] Clearing of land

[x] Excavation

[ ] Erection of buildings or structures

[ ] Site preparation work

[x] Other, explain Road surveys have been conducted and some outcrop exposed for exploration. Eureka has drilled numerous exploration holes.

Part A: II. (1)

Eureka bases its right to enter and begin underground mining activities on a number of documents pertaining to coal leases and surface ownership on the permit area (see Attachment B for more details). Eureka is the lessee or owner on fee of all the coal to be mined.

Part B - Environmental Information. Do not complete Part B unless the applicant is so notified by the EPA Regional office or the applicant determines the proposed facility to be a new source. (Such a determination is not to be considered binding upon the applicant).

Applicant's Name Eureka Energy Company

Mailing Address 215 Market Street, San Francisco, CA 94106

Location of Source Carbon County, Utah (See Attachment A)

I. Facility Description

1. Location

a) Please supply a map showing the location of the proposed source. A U.S. Geological Survey map is preferred, however a roadmap will suffice.

See Attachment D.

b) Check the boxes which best describes the development in the area in which the proposed source will be located.

[ ] 1) Urban
[ ] 2) Suburban
[ ] 3) Small town
[x] 4) Rural
[ ] 5) Shopping center
[ ] 6) Commercial strip
[ ] 7) Housing development
[ ] 8) Industrial Park
[ ] 9) Other (explain)

c) If other than U.S. Geological Survey map is used in (a), briefly describe the natural features of the area in which the proposed source will be located, such as: level ground, valley, mountainous, desert, wooded, flood plain, etc. (Include an aerial photograph of the site if available).

See Attachment D.

d) Is the proposed source located on or sufficiently close to impact any government designated park, recreational or wildlife area or any historical or archeological site listed or known to be eligible for listing in the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966 and Executive Order No. 11593?

If yes, explain. Based on Title 36CFR60.6 guidelines on cultural resources significance, mine cultural resource sites are considered eligible for nomination to the NRHP. Please refer to Attachment E for details.

2. Size

a) Give the size of the site in acres or square feet, whichever is more appropriate. The construction of surface facilities necessary for the proposed project will disturb only about 446 acres.

b) Give the approximate size of any buildings or structure (e.g., number of stories, and square feet per story). Please refer to Attachment C.

c) Give the expected number of employees when operating at capacity. 1800

3. Cost

a) What is the expected total cost of constructing the source?

[ ] 0 - $100,000 [ ] $100,000 - $5 million
[ ] $5 million - $50 million [X] $50 million or greater

II. Impacts

1. Water

a) Give an estimate of the volume of wastewater that will be discharged per day. 813,000 gallons per day. (sanitary and industrial wastewater)

b) Give the frequency of discharge, or if continuous, indicate "continuous." Continuous. Eureka doesn't anticipate discharge into any streams.

c) Give an estimate of the contents of the discharge after treatment, using the most specific name available. If chemical compounds are unknown, use a more general description.

Natural water and sediment.

d) How do you expect to treat the direct discharge from the facility? (Check appropriate box or boxes)

[ ] Discharge into an existing treatment facility at the site
Give existing permit number _____

[X] Discharge into a new treatment plant
Give level and type of treatment Please see response to Part A: I. (6)

c) Will the proposed source withdraw water from a river, stream, ground water aquifer, etc.? [ ] yes [ ] no

1) If yes, give the name of the waterway or source

Soldier and Dugout Creeks

Give the volume to be withdrawn per day _____ gpd

f) Do you expect any water discharge from non-point (indirect) sources such as:

[ ] Construction activities
[ ] Storm water drainage
[ ] Potential over-flow from on-site lagoon storage of liquid wastes
[ ] Exposed storage of raw materials for the manufacturing process
[x] Other Fill slopes from surface facilities associated with coal mining activities.

How do you propose to reduce or eliminate adverse impacts upon water quality for any of the non-point sources checked above?

Please refer to Page 8a.

2. Air

a) Will construction or operation of the source result in any emissions to the air from any of the following? (Check appropriate box or boxes)

[x] a. manufacturing or materials processing
[ ] b. heating facility
[ ] c. cooling facility
[ ] d. waste treatment on incineration
[x] e. other (explain) The only significant air pollutant to be produced by the project will be particulates due to vehicular traffic and earthmoving equipment incident to construction.

b) Are existing road networks sufficient to handle increased traffic generated by the new source? [ ] yes [x] no

If no, what steps are planned to correct problems of traffic congestion (eg. carpooling, mass transportation connections, etc.)? A number of roads will provide transportation for men and vehicles to and from different areas within the project area. These roads will include existing roads, one of which will be upgraded, and new roads. Bus service will be provided for those employees desiring to use it.

MEASURES TO REDUCE OR ELIMINATE
ADVERSE IMPACTS UPON WATER QUALITY

Construction Activities Roads will be the first items built. Before any additional facilities are constructed, sediment ponds will be provided to catch all runoff from construction.

Storm Water Drainage Diversion ditches will bypass all storm runoff from outside the immediate area, around the disturbed area. Sediment ponds will be provided to hold the runoff from the disturbed area. Sediment ponds will be provided to hold the runoff from the disturbed area for a 10-year 24-hour storm.

Potential Over-flow The sediment ponds will over-flow thru a spillway when the storm exceeds a 10-year 24-hour storm.

Exposed Storage Coal will be stored in outdoor stock piles. Any runoff from these areas will be diverted to the sediment ponds.

c) Are any of these emissions subject to federal, state or local regulations? [x] yes [ ] no
If yes, explain, indicating what control measures will be taken as a result of such regulation.

Please refer to Attachment F.

d) Give type and quantity of uncontrolled emissions from each source, using the most exact names and data available.

Please refer to Attachment G.

e) Are any of the emissions known to you to have an offensive odor? [ ] yes [x] no

If yes, explain, indicating what steps will be taken to reduce or eliminate potential offense to the public.

f) Are any of the emissions described in (d) adversely affect human or plant or animal health? [ ] yes [x] no

If yes, indicate what steps will be taken to mitigate this impact.

3. Noise

a) Is construction or operation of the new source expected to result in noise likely to disturb residential areas (excess of 60db) beyond the property line of the applicant? [ ] yes [x] no

If yes, explain, indicating what steps will be taken to reduce or eliminate any potential annoyance or injury.

4. Solid Waste

a) Briefly describe any plans made for disposal of solid wastes resulting from construction of the source, such as cleared trees, excavated soil, left-over construction materials, sanitary wastes.

There will be two rock waste areas for the mine development waste. There will be one area for waste from the coal prep plant. Other wastes will be trucked to an off-site landfill. The waste disposal areas will be constructed and operated in accordance with State and Federal regulations.

b) Will operation of the source generate any of the following types of waste? (Check appropriate box or boxes)

[ ] a. Residuals from manufacturing or processing
[ ] b. Containers from raw materials or supplies
[x] c. Garbage or waste paper
[x] d. Sanitary or sewage wastes
[ ] e. Radioactive materials
[x] f. Other (explain) coal processing waste

c) If you answered "yes" to any part of b above, briefly answer the following questions for each type of waste that will be generated: See Attachment H

1) How will these wastes be collected?

2) How will these wastes be stored, and for how long?

3) How will these wastes be disposed of, and how often?

5. Land Use

a) Briefly describe any anticipated significant effect for construction or operation of the source on the surrounding area, including, but not limited to: any changes in residential or commercial development; any change in land use; any possible changes in future uses of the land.

There will be minimal impact upon lands in the immediate surrounding area. Socioeconomic impacts resulting from housing needs will be felt in the communities of Price and Wellington, which are some distance from the proposed mining operation.

III. Miscellaneous

1. Have you considered any alternative sites for this proposed source? [ ] yes [x] no

   a) If yes, briefly explain why the chosen site was selected and others abandoned.

   This is where the coal is located.

2. Are you aware of any significant public objections to the construction or operation of the proposed source?
   [ ] yes [x] no

   a. If yes, explain, indicating what steps will be taken to eliminate or reduce such public objections.

3. List all other environmentally related permits, licenses and approvals that will be required to construct and operate this source, giving the name of the issuing or approving authority (e.g., U.S. Army Corp of Engineers, State Coastal Zone Management Authority) and the status (e.g., applied for, issued, etc.) of such licenses, permits or approvals. Indicate if any environmental impact statements or reports were prepared.

TYPE OF LICENSE	ISSUING AUTHORITY	STATUS
a) Federal:		
b) State:	Please refer to Attachment I.	
c) Local:		

Date:

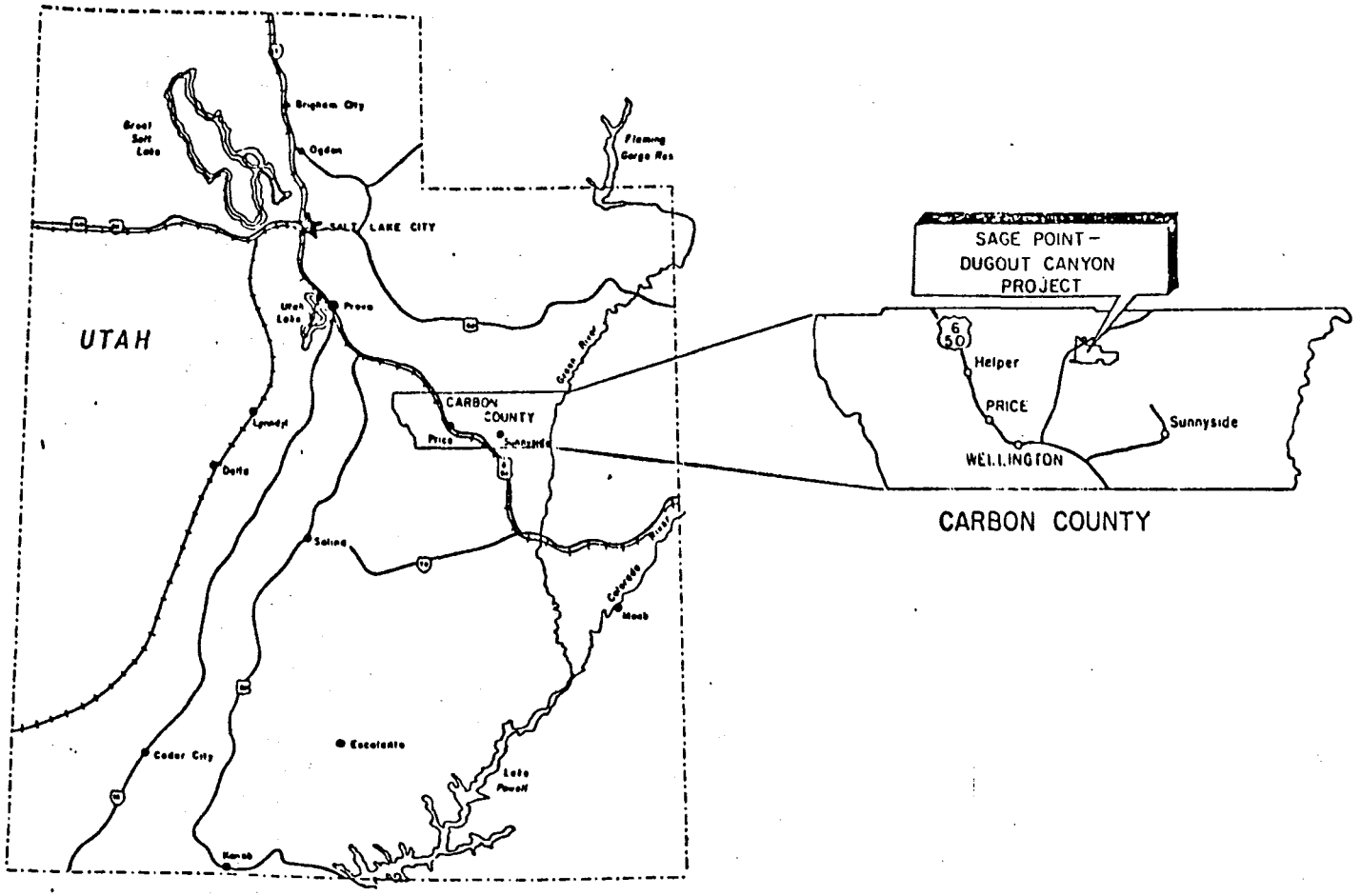
Signature:

Title:

Address:

LIST OF ATTACHMENTS

Attachment A.	Project Location.
Attachment B.	Right of Entry and Operation Information.
Attachment C.	Overview of Facilities and Operations. Also, location of surface facilities associated with the proposed SP-DC Project (9 drawings).
Attachment D.	6.5 Map. Sage Point-Dugout Canyon Project.
Attachment E.	Revised archeology section from SMCRA permit application.
Attachment F.	Response to Item 11.2(c). (Federal and State air quality permits.)
Attachment G.	Summary of Potential Particulate Emissions from the Sage Point-Dugout Canyon Project.
Attachment H.	Response to II.4(c).
Attachment I.	List of Federal, State, and Local Agencies Whose Substantive Standards, Ordinances and Laws are Applicable to Sage Point-Dugout Canyon Project.



Attachment A

NO.	DATE	DESCRIPTION	GM	DWN.	CHKD.	SUPV.	APVD.
1	7-22-80	For Approval		K.D.			

REVISIONS

APPROVED BY

GM
SUPV.
DSGN.
DWN. MDS
CHKD. JRO
O.K. JR
DATE 7-22-80
SCALES N/A

PROJECT LOCATION

EUREKA ENERGY COMPANY

SAN FRANCISCO, CALIFORNIA

MICROFILM
BILL OF MATL
DWG LIST
SUPSDS
SUPSD BY
SHEET NO. 1 OF 1 SHEET
REV. 1

ATTACHMENT B

RIGHT OF ENTRY AND OPERATION INFORMATION

RIGHT OF ENTRY AND OPERATION INFORMATION

Eureka bases its right to enter and begin underground mining activities on a number of documents pertaining to coal leases and surface ownership in the permit area. Eureka is the lessee or owner in fee of all the coal to be mined. All surface facilities will be constructed on lands in the following categories:

Fee Ownership

Bureau of Land Management Rights-of-Way

State of Utah Long-Term Leases

The coal leases, supporting documents, warranty deeds, and a surface consent agreement to conduct underground mining are summarized below.

FEDERAL COAL LEASES

- Lease No. U-07746

  Lands covered by Lease:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 10: S½

  Sec. 11: S½

Sec. 14: All

Sec. 15: All

Sec. 22: N½, N½S½

Sec. 23: W½NW¼

Containing: 2,480.00 acres

- Lease No. U-089096

  Lands covered by Lease:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 8: E½

  Sec. 17: NE¼

  Containing: 480.00 acres

- Lease No. U-092147

  Lands covered by Lease:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 17: E½SW¼, SE¼

  Sec. 20: E½NW¼, SW¼NW¼, N½NE¼

  Sec. 21: N½NW¼, NE¼

  Containing: 680.00 acres

- Lease No. U-0144820

  Lands covered by Lease:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 3: Lots 1,2,3,4, S½ (All)

  Sec. 4: Lots 1,2,3,4, S½ (All)

  Sec. 5: Lots 1,2, SE¼

  Sec. 9: All

  Sec. 10: N½

  Sec. 11: N½

  Containing: 2,212.00 acres

- Lease No. U-07064-027821

  Lands covered by Lease:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 13: S½

  Sec. 23: E½E½, W½SE¼, NE¼SW¼

  Sec. 24: All

  Sec. 25: N½N½

  Sec. 26: N½NE¼

  T. 13 S., R. 13 E., Carbon County, Utah

  Sec. 18: Lots 3,4, E½SW¼, SE¼

  Sec. 19: Lots 1,2,3,4, E½W½, NE¼, NW¼SE¼

  Sec. 30: Lot 1

  Containing: 2,416.14 acres

STATE OF UTAH COAL LEASES

Lease No. ML-22590

Lands covered by Lease:

T. 13 S., R. 12 E., Carbon County, Utah

Sec. 2: Lots 1,2,3,4, S½ (All)

Containing: 375.52 acres

- Lease No. ML-22675

  Lands covered by Lease:

  T. 12 S., R. 12 E., Carbon County, Utah

  Sec. 32: NE¼NE¼, S½NE¼, NW¼

  Containing: 280.00 acres

- Lease No. ML-21994

  Lands covered by Lease:

  T. 12 S., R. 12 E., Carbon County, Utah

  Sec. 32: S½

  Containing: 320.00 acres

FEE COAL

- Parcel 1 - Known as "Fish Creek Canyon" Fee Coal

  Lands covered:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 16: All

  Containing: 640.00 acres

- Parcel 2 - Known as "Dugout Canyon" Fee Coal

  Lands covered:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 23: W½NE¼, E½NW¼

  Containing: 160.00 acres

SURFACE OWNERSHIP (within the proposed permit area only)

- Lands covered:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 23: W½NE¼, E½NW¼

- T. 13 S., R. 11 E., Carbon County, Utah

  Sec. 36: SE¼NW¼, N½SW¼

- Area 6 (Map D03-0004)

  T. 13 S., R. 11 E., Carbon County, Utah

  Sec. 36: W½NE¼, E½SE¼

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 31: NW¼SE¼, SW¼NW¼, W½NW¼

- T. 13 S., R. 12 E. Carbon County, Utah

  Sec. 2: Lots 1, 2, 3, and 4 and S½

- Area 8 (Map D03-0004)

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 3: Lots 1, 2, 3, and 4 and S½

  Sec. 10: All

  Sec. 11: All

  Sec. 14: All

  Sec. 15: All

- Area 9 (Map D03-0004)

  Lands covered:

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 16: All

- T. 13 S., R. 11 E., Carbon County, Utah

  Sec. 25: E½SE¼

  T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 30: W½SW¼

- T. 13 S., R. 12 E., Carbon County, Utah

  Sec. 4: Lots 1, 2, 3, and 4 and S½

  Sec. 5: Lots 1, 2, 3, and 4 and S½

  Sec. 8: All

  Sec. 9: All

  Sec. 17: All

  Sec. 20: NE¼

SURFACE CONSENT AGREEMENT

The Applicant has received a consent agreement to conduct coal mining operations as described below.

Consentor: George Milton Thayn

Consentee: Eureka Energy Company

Term: perpetual

Lands covered:

T. 13 S., R. 12 E., Carbon County, Utah

Sec. 13: NW¼SW¼, E½SW¼, SE¼

Sec. 24: All

Sec. 25: NW¼

T. 13 S., R. 13 E., Carbon County, Utah

Sec. 18: S½

Sec. 19: NW¼SE¼, SW¼, N½

ATTACHMENT C

OVERVIEW OF FACILITIES AND OPERATIONS

OVERVIEW OF FACILITIES AND OPERATIONS

The Sage Point-Dugout Canyon Project will consist of four independent underground mines and their associated portal facilities and central facilities. Two of the mines will be located in Fish Creek Canyon and two in Dugout Canyon; portal facilities will be constructed in each of these canyons to service the mines. The central facilities will include offices, a coal preparation plant, and a train loadout.

Mining of the coal begins at the face. Deep underground, coal will be extracted using both room and pillar and longwall methods; site-specific conditions will determine which method will be used. The freshly-mined coal will then be transported by shuttle car or conveyor belt to the underground conveyor for transport to the portals. These operations require support facilities, including a power supply, communications system, roof bolting equipment, ventilation system, and others. The safety of these underground operations will be ensured through safety training, provision of safety equipment, and compliance with the regulations established by the Mine Safety and Health Administration.

Mine portals will be driven into each side of the two canyons containing the portal areas. Upon emerging from the portals, coal from two mines will be combined and dumped into a surge bin. Surge bins and a stockpile will provide

flexibility as coal production at the faces varies; any excess coal will be temporarily set aside in a stockpile, for transport later as production at the face declines. An overland conveyor will receive coal from the surge bin for transport to a coal washing and preparation plant.

The portal areas will contain numerous facilities required to support the mining operations, to provide for the needs of the miners, and to protect the environment. Areas and buildings will provide storage and maintenance for mining equipment. Sanitary facilities, a change house, and parking facilities will be provided for miners. Sedimentation ponds will collect run-off from the surface facilities and prevent sediment from entering streams. Adequate water for both the mining operations and portal facilities will be piped from Anderson and Dugout Reservoirs.

An overland conveyor will exit from both Fish Creek and Dugout Canyons. The two will join and continue to the central facilities area, located to the southwest of the portal areas. The coal will be transported to a raw coal stockpile via the overland conveyor, whence it will be conveyed to the preparation plant. The conveyor will be enclosed to reduce dust emissions and noise and will be elevated along the majority of its route to enable deer to cross under it easily. Until the overland conveyor is completed, coal will be trucked from the portals to the preparation plant.

Rock waste resulting from mine development will be trucked to disposal sites in Fish Creek and Dugout Canyons. The sites have been designed for high flexibility and low environmental impact. Engineering principles and geotechnical investigations were used to ensure the stability of the disposal sites. Sedimentation ponds will protect local streams.

Raw coal in the stockpile at the preparation plant will be conveyed to the plant for washing. Following removal of impurities, the coal will be dried using a horizontal centrifuge and disc filters; this method was chosen to minimize emisson of air pollutants. This dewatered clean coal will then be conveyed to a clean coal stockpile, whence it will be loaded onto unit trains for transport out of the region.

The waste resulting from washing the coal will be transported to the preparation plant waste disposal site. This site has been engineered to ensure stability and contains sedimentation ponds to collect run-off from the site.

A number of associated facilities will complete the operation. Paved roads will be constructed for easy access to the Fish Creek and Dugout Canyon portal areas and central facilities area. Maintenance roads will provide access for repair and maintenance of conveyor belt transfer stations, ventilation fans, and other facilities. Water from Dugout Reservoir and Anderson Reservoir - the first will be newly constructed and the second reconstructed - will be supplied

to the portal areas, the preparation plant, personnel facilities, and other areas. Water will be used for drinking, sanitation, dust suppression (in the mines and in the conveyor system), coal washing, and fire protection. Sewage and wastewater will be piped to a sewage lagoon for evaporation. Run-off will be collected in sedimentation ponds. Electricity will be provided by Utah Power and Light, the local utility, while Mountain Bell will install a telephone system.

The planned operations have been designed for efficient production, maximum use of the coal reserves, and best application of the energy stored in the coal. The combination of room and pillar and longwall mining will provide the flexibility to adapt to a range of mining conditions and maximize coal extraction. The coal will be washed on-site and loaded directly onto unit trains. Compliance with MSHA, Office of Surface Mining, and Utah Division of Oil, Gas, and Mining regulations will ensure safe operation of the mines and protection of environmental resources.

Following the conclusion of mining operations, a reclamation plan will begin. Dugout Canyon will be reclaimed to approximate its former natural condition, while recontouring and revegetation will enhance wildlife habitat and recreation opportunities in Fish Creek Canyon. The waste disposal sites, sewage lagoons, and other areas will be covered with topsoil and revegetated. Subsidence control measures will

be implemented during operations to protect the surface overlying the mines from harmful effects. In sum, the land will be restored to the extent that former uses will once again be possible; indeed, grazing will continue throughout much of the permit area during mining.

ATTACHMENT E

Section IV-I

CULTURAL AND HISTORICAL RESOURCES

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List of Tables

1. INTRODUCTION

Between late summer 1979 and early summer 1980, Archeological-Environmental Research Corporation (AERC) conducted a cultural resource inventory for the proposed Sage Point-Dugout Canyon Project. A total of about 4.5 square miles and 30 miles of corridors for the mine portals, central facilities, and communication and transportation routes was intensively examined. In addition, a biased set of sample areas totalling 180 acres was examined in the potential subsidence zone.

A total of 38 cultural resource sites, was located and evaluated. Of the 38 sites, 33 sites which are within the permit area are discussed in this report (see Figure IV-I.1). The 33 sites include nine historic structures, 23 prehistoric sites, and one combination historic and prehistoric artifact scatter. The majority of the datable prehistoric sites belong to the Post-Archaic/Fremont period with less common evidence of occupation during the Archaic and Shoshonean periods. The historic sites are primarily homesteads or mine portals. All of the cultural resource sites, regardless of age, tend to cluster along the Soldier Creek drainage within the Pinyon-Juniper vegetation community.

All field notes and site data are filed at AERC headquarters in Bountiful, Utah (Hauck, 1980, 1981). Artifacts

collected during the surveys are being curated at the Museum of Archaeology and Ethnology at Brigham Young University.

1.1 GUIDELINES

The material on cultural and historical resources has been prepared in accordance with draft guidelines issued September 18, 1979 by the Office of Surface Mining (OSM) and additional correspondence between the Applicant and OSM.

The cultural resources inventory was designed to locate, identify, describe, and evaluate all prehistoric and historic cultural resources within the area of impact. The survey, conducted by qualified archeologists, included intensive coverage of 100% of areas to be impacted by surface facilities. In addition, an intensive survey was conducted for 20% of the area to be affected by subsidence; the amount of coverage in this partial survey is in accordance with discussions with OSM.

The analysis of all sites recorded in the survey discusses the significance of the cultural resources. The resources are examined in terms of local and regional cultural history. After gathering available cultural information and combining it with field work data from the sites, National Register eligibility recommendations were made pursuant to the criteria defined under title 36 CFR 60.6.

In addition, the impact of the proposed mining operations on the cultural resources in the permit area has been evaluated. Potential impacts are identified and categorized

as direct or indirect, and measures have been proposed to mitigate or prevent any potential adverse impacts.

1.2 METHODOLOGY

1.2.1 FIELD RESEARCH

Between July 23 and November 28, 1979, and between April 17 and July 3, 1980, a cultural resource inventory of various areas and corridors was conducted in the Sage Point-Dugout Canyon Project area of the Soldier Creek locality of Carbon County, Utah.

The cultural resource inventory included a sample survey of 180 acres in the uplands and an intensive examination of one large parcel (approximately 4.5 square miles) surrounding the central facilities area, mine portals, fan portals, reservoirs, diversion canals, telephone lines, power lines, conveyor belts, access roads, and a railroad spur. In all, a total of 3,428 acres and 30 linear miles of corridor was examined.

Locations of the sample units and their land ownership and acreage are shown on Table IV-I.1 (see Figure IV-I.1 for specific locations).

Table IV-I.1

Sample Unit	Acreage	Location	Ownership
1	10	T12S., R12E., Sec. 32	Private, State
2	10	T13S., R12E., Sec. 15	Private
		" " " 16	"
3	10	T13S., R12E., Sec. 16	Private
		" " " 21	BLM
4	30	T13S., R12E., Sec. 15	Private
5	10	T13S., R12E., Sec. 22	BLM
6	10	T13S., R12E., Sec. 14	Private
7	10	T13S., R12E., Sec. 14	"
8	20	T13S., R12E., Sec. 23	BLM
		" " " 24	Private
		" " " 25	"
		26	BLM
9	10	T13S., R12E., Sec. 24	Private
10	40	T13S., R12E., Sec. 24	"
11	10	T13S., R12E., Sec. 24	"
12	10	T13S., R12E., Sec. 19	"

The purpose of the sample survey was to assess the nature of historic and prehistoric activity in the upland region where future subsidence potential could threaten any significant cultural resource sites. 12 sample units ranging from 10 to 40 acres in size were established for these subsidence zones (see Figure IV-I.1). These units were situated to cover 180 acres of the surface in the subsidence zones where prehistoric or historic activities were most probably concentrated. The extremely rugged nature of the upland area precluded much of the surface area from being

considered in this sample survey; the majority of the zones lie on steep terrain which is inaccessible. Sample unit #1 was located at the junction of Soldier Creek and a side canyon about one-third of a mile north of the mouth of Pine Canyon. The remaining 11 units were placed along the upland portion of the Book Cliffs.

Methodology utilized to evaluate the sample units was identical to the intensive survey techniques used in the lower elevations. Inventoried areas at both the lower and higher elevations were examined by examining parallel transects with the survey personnel spaced approximately 15 meters (50 feet) apart. An exception to this procedure was utilized during the examination of the proposed portal areas. Because of the steepness of the terrain and the narrowness of the canyons at the portal areas, these areas were examined by checking all benches and all cliff faces for rock art or overhangs.

All corridors were examined by surveying parallel transects spaced approximately 15 meters apart. With the exception of the utility corridor between Pace Canyon and Dugout Creek, for which a corridor width of 15 meters was inventoried, all corridors were examined at a width of at least 30 meters, centered on the surveyed flagging. The railroad spur had not been flagged; a corridor width of 90 meters was examined in order to ensure that the corridor was adequately covered. Most of the railroad spur lies outside the permit area and is not covered in this report.

All cultural resource sites, regardless of surface ownership, were recorded on Bureau of Land Management site forms, photographed, and sketched. Their location was marked on a topographic map.

1.2.2 HISTORICAL RESEARCH

In researching the past of the historical sites, four areas of inquiry were pursued:

1. Local government records were checked. Abstracts of Title, mortgages, deeds, and other legal documents on file in the Carbon County Recorder's Office were reviewed to determine land history. Also, current plats and Bureau of Land Management plats were checked.
2. Archival materials were consulted. The Price City Library, College of Eastern Utah Library, University of Utah Library, and State Division of History Library were checked for pertinent information.
3. Local inhabitants were interviewed regarding local historical activities.
4. Some of the sites were revisited so that the field and historical data could be integrated.

Once the data were compiled, they were reviewed and summarized by a qualified archeologist, who also did the research, for presentation in this application.

1.2.3 LABORATORY RESEARCH

The analyses performed in the laboratory concerned the evaluation of projectile points, miscellaneous lithics, and ceramic fragments.

Projectile point analyses included identification of manufacturing techniques, such as heat treatment, blank and preform preparation, edge grinding, edge reworking, and use wear analyses. Arrow and atlatl points were catalogued according to type.

The evaluation of miscellaneous lithics involved obsidian trace element analysis and the identification of various tool styles and manufacturing techniques.

Ceramics collected during the field survey were examined to determine manufacturing technique, paste and temper composition, and surface preparation. Sherds were later catalogued according to type and variety.

1.2.4 ARTIFACT INVENTORY AND ANALYSIS

Chronological evaluations of prehistoric sites were accomplished through artifact correlation with established types and varieties. The various projectile point types collected from the field were generally identifiable with

similar Great Basin, Eastern Great Basin, Colorado Plateau, and Western Plains types. Ceramics were evaluated for type and, thus, correlated with the types and varieties of local Utah wares.

Table IV-I.2 contains a list of sites and a description of artifacts collected during the various phases of the Sage Point-Dugout Canyon project. Only diagnostic artifacts were collected.

1.2.5 NATIONAL REGISTER OF HISTORIC PLACES

Each of the cultural resource sites was evaluated with respect to the criteria for listing on the National Register, according to the following criteria set forth in 30 CFR 60.6:

> The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) that have yielded, or may be likely to yield, information important in prehistory or history.

Cultural sites are defined as sites whose significance lies wholly or partly in the archeological data they contain. These data are embodied in material remains, such as artifacts, structures, and refuse, which were utilized purposely or accidentally by human beings in history and prehistory. Where such sites contained artifacts potentially having archeological significance, diagnostic artifacts were collected for use in determining National Register eligibility. In order to distinguish these sites from archeological properties, determinations of National Register eligibility were made. Testing for this eligibility included a preliminary assessment of subsurface materials, of the nature of archeological materials present, and of the type of information that might be obtained from the sites. Only those sites eligible for and potentially eligible for listing on the National Register were defined as archeological properties.

Subsequent sub-sections of this section present the reasons why each particular site is not eligible for, is potentially eligible for, or is eligible for listing on the National Register.

The National Register of Historic Places was checked, and none of the 33 cultural resource sites was found on the Register.

Table IV-I.2

AERC No.	Permanent Site No.	Artifact
----	42Cb92	Not collected
292N/1	42Cb134	Not collected
292/N2	42Cb135	1 knife, 1 arrow point, 2 dart points
356A/1	42Cb167	Not collected
356A/2	42Cb168	Not collected
356N/1	42Cb170	1 unfinished arrow point
356N/2	42Cb171	Not collected
356N/3	42Cb172	Not collected
356N/4	42Cb173	1 tin can
356Y/5	42Cb174	1 cartridge casing - 50 caliber
356Y/6	42Cb175	1 dart point/knife, 2 sherds
356A/2	42Cb190	Not collected
356A/4	42Cb192	1 arrow point base
356A/5	42Cb193	Not collected
356A/6	42Cb194	1 obsidian flake
356A/7	42Cb195	Not collected
356A/8	42Cb196	Not collected
356A/9	42Cb197	1 arrow point
356A/10	42Cb198	1 dart point
356A/11	42Cb199	Not collected
356A/12	42Cb200	1 preform
356A/13	42Cb201	1 obsidian flake
356A/14	$2Cb202	1 arrow point
356N/1	42Cb183	2 metal forks, 1 shell button
356N/2	42Cb184	Not collected
356N/3	42Cb185	1 arrow point, 1 eccentric, 5 sherds, 1 scraper
356N/4	42Cb186	1 sherd

Table IV-I.2 (cont.)

AERC No.	Permanent Site No.	Artifact
356N/5	42Cb187	1 point preform, 2 arrow points
356N/6	42Cb188	1 tiger chert flake
456N/1	42Cb204	Not collected
456N/2	42Cb205	1 fragmented bottle
456N/3	42Cb206	Not collected
456N/4	42Cb207	2 projectile points

AERC No.	Isolated Artifact	Artifact
292N/X1	"	1 dart point
356A/X3	"	1 bottle neck
356A/X4	"	1 polished stone
356A/X10	"	1 dart point
356A/X12	"	1 dart point
356A/X13A	"	1 dart point fragment
356A/X13B	"	1 dart point
356A/X14	"	1 sherd
356A/X15	"	1 dart point fragment
356A/X21	"	1 dart point
356A/X23	"	1 scraper
356A/X26	"	1 dart point - reworked
356A/X27	"	1 metal comb
356A/X28	"	1 obsidian nodule
356N/X1	"	1 projectile point
356N/X2	"	1 projectile point

Fifty-two artifacts were collected in the permit area during the various surveys related to the Sage Point-Dugout Canyon Project. Of the 52 artifacts, 44

were of prehistoric origin, including 35 lithic articles and 9 ceramic sherds. Eight artifacts are of the historic period.

All artifacts came from the portal, central facilities area, and corridor surveys (AERC 292 and 356) except for the lithics from 42Cb207 and isolates 456N/X1 and 2. These lithics were collected during the sample survey of the potential subsidence zones upon the Book Cliffs.

1.3 CONTRIBUTORS

The material on cultural and historical resources was prepared by AERC. This consulting firm has prepared similar reports for other coal mines and similar projects. The principal investigator for the project was F. R. Hauck, Ph.D. The AERC personnel involved in the field work varied, but the following people contributed to the performance of the field inventory: Allan Carpenter, Jim Hampson, Tim McEneny, Bunny Melendez, Dan Schenck, Michael Sloan, Karen Wise and Denise Yearsley. Either Dennis Weder or V. Garth Norman was in charge of the field crew.

2. CULTURAL AND HISTORICAL RESOURCES [783.12(b)]

Land-use techniques employed in the project area have ranged from hunting-gathering activities, which began during the Pleistocene, to primitive farming technology practiced along the river bottoms by the Fremont peoples as early as 1500 B.P. With the introduction of the Euro-American settlers in the 19th century, modern farming technology, including horticulture and livestock production, became established in the Price River Basin. During the historic period until the present, the general project area has been primarily utilized as rangeland for livestock grazing. Some horticulture related to the livestock industry has developed along the alluvial creek bottoms that extend between the cliffs and the Price River. In addition to agriculture, some coal mining has occurred during the 20th century in Dugout, Pace, and Soldier Canyons which are all situated in the project area (see Section IV-H, Land Use and Socio-economics).

2.1 PUBLIC PARKS [784.17]

There are no public parks within the permit and adjacent areas.

2.2 PREHISTORY AND HISTORY OF THE REGION

The prehistoric human activities in the Price River Basin-Book Cliffs region of east-central Utah consist of four main phases. The first phase was the Paleo-Indian

culture, which was characterized by a big game hunting subsistence base, augmented by gathering activities. This phase, which existed ca. 12,000 to 7000 B.P., has been sequentially divided into the Llano, Folsom, and Plano cultures based upon diagnostic projectile points recovered in the western United States. Clovis, Folsom, and Plano sites have been recorded in central and western Utah, but no Paleo-Indian sites or artifacts have been discovered in the project area. Isolated artifacts from the Plano sub-phase (ca. 9000 to 7000 B.P.) occur in a higher frequency in the Price River and Muddy Creek regions than artifacts related to the earlier subphases. This concentration indicates that population densities were probably increasing in central Utah during the Plano, which roughly corresponds with the gradual dying trend of Antev's Anathermal phase.

The reduction of large game herds in the West, possibly affected by the aridity of the Altithermal climatic phase, and the increase in population gradually shifted the subsistence base from big game exploitation to a gathering economy. This economy characterizes the Archaic cultural phase.

The Fremont culture of Utah extended over the greater part of the state from the Salt Lake and Uintah Basins on the north to the Henry Mountains and the Virgin River headwaters on the south. The Fremont variants of the Uintah Basin and the San Rafael-Price River regions have been dated between 1500 and 700 B.P. This culture utilized an economic

base including both hunting-gathering subsistence and horticulture. In addition to their dependence on the bow and arrow, these people maintained village settlements and developed technologies in ceramics and stone architecture, undoubtedly influenced by the Anasazi cultures of southern Utah. Movement between the Uintah Basin and the Price River Basin was accomplished through Nine Mile Canyon, where numerous Fremont sites have been recorded. Since Soldier Creek, which lies in the project area, leads east directly to the headwaters of Minnie Maud Creek in Nine Mile Canyon, there is a probability of Fremont activity along Soldier Creek.

The Shoshonean phase extended from ca. 650 B.P. into the Historic period. Their subsistence base was primarily oriented to seasonal hunting and gathering activities; however, there is ethnographic evidence of horticulture being practiced by Utes in the Fremont River valleys of southern Utah. Small Shoshonean familial bonds (Ute, Paiute, and Shoshone peoples) utilized the bow and arrow for hunting and warfare, constructed brush surface shelters, and manufactured distinctive gray to tan ceramic vessels. The Desert Side Notch point and thick sand-tempered grayware are distinctive artifacts from the Shoshonean phase in central Utah.

The Historic period in east-central Utah is divided into three phases: Early Historic, Agricultural Settlement, and Mining Developments.

The Early Historic period is characterized by the introduction of Euro-American trading, exploration, and fur trapping, which affected the aboriginal populations in Utah beginning in the 17th century. The Dominguez-Escalante expedition of 1776-1777 brought the first known Spanish contact in central Utah; however, their expedition map is quite accurate concerning the Price River Basin, suggesting previous Spanish activity in the basin. By the early 1800s, and until 1840, the fur trade was active in Utah. Trappers, traders, and explorers included the Arza-Garcian expedition of 1813, Antoine Robidoux, Jedediah Smith, William Ashley, and Peter Skeen Ogden. The fur trade began its decline after 1840 as a result of changes in European and eastern American fashions. In addition, the fur industry had a serious socio-economic impact on the Ute bands in Utah (Hauck, 1979).

The settlement of Utah by Mormon pioneers beginning in 1847 gradually brought widespread agricultural development into Utah. Mormon settlement of the Price River Basin was not accomplished initially, because hostile Ute Bands resided on the east of the Wasatch Range (O'Neill, 1973). The establishment of military control over the Utes and their relocation to the Uintah Reservation in 1877 brought the first settlements in Castle Valley. By 1880, Emery County, which included all of present-day Carbon County, was created by the Territorial Legislature (Lever, 1898).

Coal mining in the area was first begun in 1853 with the Gunnison Expedition's discovery of coal deposits situated three miles east of the modern town of Emery. The first attempt to exploit the coal resources occurred in 1875 at Connellsville in Huntington Canyon on the east slopes of the Wasatch. Various mining activities were initiated along the Wasatch after that date, including Pleasant Valley, Winter Quarters Canyon, and the Mud Creek mine (from 1875 through 1882). By 1888, the Castle Gate Mine was operational and in 1899, a mine at Sunnyside, just east of the project area, had begun production (Hauck, 1979).

Prospecting in the Sage Point-Dugout Canyon area was well advanced by that date, resulting in some coal production out of the Dugout Canyon, Fish Creek Canyon, and Pace Canyon mines by 1906. Mines in these canyons were the Knight-Ideal, the Spring Canyon, and the Snow Mine, respectively. Their most active production periods were from 1920 until 1963 (Knight-Ideal Mine) and from 1932 until 1940 (the Snow Mine). The Spring Canyon Mine on Fish Creek apparently was active only from 1906 until 1910. Coal production in Soldier Creek Canyon, initiated by the Premium mine in 1931, has continued up to the present time (Doelling, 1972). With the exception of the Spring Canyon Mine, mining activity in the project area began in the Historic period but has been most active since 1930. Modern activity at those three mines during the intervening 50 years has resulted in extensive modification of the mines' historic structures.

2.3 CULTURAL RESOURCES

38 previously unrecorded cultural resource sites were located during the general inventory; 33 sites are situated in the permit area. A brief summary of the pertinent site characteristics is shown in Table IV-I.3. Not included in Table IV-I.3 are five sites situated outside the mine plan permit area (42Cb169, 182, 189, 191, and 203).

Table IV-I.3

Cultural Resource Site Summary

AERC Site No..	Permanent Site No.	Site Type	Culture	Land Ownership
---	42Cb92	Pictographs	Unknown Prehistoric	BLM
292N/1	42Cb134	Dugout	Euro-American	State
292N/2	42Cb135	Temporary camp	Middle Archaic & Post-Archaic	Private
356A/1	42Cb167	Petroglyphs	Euro-American	BLM
356A/2	42Cb168	Lithic scatter	Unknown	BLM
356N/1	42Cb170	Lithic scatter	Post-Archaic	Private
356N/2	42Cb171	Temporary camp	Fremont and Euro-American	Private
356N/3	42Cb172	Homestead	Euro-American	Private
356N/4	42Cb173	Homestead	Euro-American	Private
356Y/5	42Cb174	Homestead and historic scatter	Unknown Prehistoric and Euro-American	Private
356Y/6	42Cb175	Lithic and ceramic scatter	Fremont	BLM
356N/1	42Cb183	Homestead	Euro-American	Private
356N/2	42Cb184	Lithic scatter	Unknown	Private
356N/3	42Cb185	Lithic and ceramic scatter	Shoshonean and Fremont	Private
356N/4	42Cb186	Rock shelter	Fremont	Private
356N/5	42Cb187	Lithic scatter	Post-Archaic	Private
356N/6	42Cb188	Lithic scatter	Unknown	Private
356A/2	42Cb190	Lithic scatter	Unknown	BLM

Table IV-I.3 (cont.)

AERC Site No..	Permanent Site No.	Site Type	Culture	Land Ownership
356A/4	42Cb192	Lithic scatter	Post-Archaic	BLM
356A/5	42Cb193	Temporary camp	Unknown	BLM
356A/6	42Cb194	Temporary camp	Shoshonean	State
356A/7	42Cb195	Lithic scatter	Unknown	Private
356A/8	42Cb196	Homestead	Euro-American	Private
356A/9	42Cb197	Temporary camp	Fremont	Private
356A/10	42Cb198	Lithic scatter	Post-Archaic	Private
356A/11	42Cb199	Cist	Unknown	BLM
356A/12	42Cb200	Lithic scatter	Post-Archaic	BLM
356A/13	42Cb201	Lithic scatter	Post-Archaic	Private
356A/14	42Cb202	Lithic scatter	Fremont	BLM
456N/1	42Cb204	Mine service & portal area	Historic-Modern	BLM
456N/2	42Cb205	Mine service & portal area	Historic-Modern	Private
456N/3	42Cb206	Mine service & portal area	Historic-Modern	BLM
456N/4	42Cb207	Lithic scatter	Middle-Late Archaic Shoshonean?	Private

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Of the 33 sites situated in the permit area, five (15%) are habitation sites--all historic. Three sites (10%) are mine service portal sites, again all historic. An additional five sites (15%) are prehistoric temporary campsites. 13 sites (39%) are lithic scatters; two sites (6%) are petroglyph-pictograph sites; the petroglyphs on site 42Cb167 are historic. One rock shelter habitation site, one combination lithic-historic material scatter site, and one storage cist complete the analysis.

Nine of the sites (27%) are historic origin, while 23 sites (69%) are of prehistoric origin. The remaining one site (3%) has both historic and prehistoric components.

Cultural resource site density is highest along the creeks and tributaries in the project area. 22 (66%) of the 33 sites are situated adjacent to various streams and intermittent creek beds; seven sites (21%) are located more than .10 miles from a water source. Twelve sites (36%) are situated adjacent to Soldier Creek, with six sites (18%) on intermittent and secondary creeks. Four sites (12%) are on Dugout Creek, one site (3%) is on Fish Creek, and one site (3%) is on Pace Creek. These statistics demonstrate that prehistoric and historic activity and land utilization were heavily concentrated adjacent to presently active water resources. The site density on Soldier Creek and its tributaries demonstrate a definite prehistoric preference for that area.

There is also a definite clustering of prehistoric cultural resources within the Pinyon-Juniper ecozone of the lower foothills. Only two isolated projectile points and sites 42Cb92 and 42Cb207 were recorded in the Montane zone. The predominant clustering of sites between the 6000 and 7000-foot elevations further demonstrates the primary utilization of the foothills by prehistoric peoples.

Two sites demonstrate Archaic phase activity; they were identified through diagnostic artifacts. Post Archaic sites, all temporally distinguishable by surface remains, included seven sites. Fremont culture materials were recovered at six sites, while Shoshonean artifacts were found in association with two sites. Nine prehistoric sites were classified as unknown.

The cultural resource evaluations within the general area, and specifically within the permit area, substantiate the hypothesis that extensive movement between Nine Mile Canyon and Price River Basin occurred along Soldier Creek in the prehistoric period. Diagnostic artifacts demonstrate an Archaic through Shoshonean presence along this corridor. No Paleo-Indian activity has been identified to date.

Site types and densities show that prehistoric activity was of a limited, transitory nature, for no extended campsites or habitation sites were found. During the historic period, activity in the project area centered on occupation and agricultural activities along the creek bottoms and coal mining in the major canyons along the Book Cliffs. There is

no indication of early historic activity in the area, such as fur trapping, although site 42Cb134, a historic dugout, could have been constructed at that time.

Artifacts from various prehistoric sites demonstrate a movement of new materials through the corridor from areas as far apart as Wyoming, western Utah, and Colorado. Southwestern Wyoming is the source of the Tiger chert found at two sites, while western Utah materials were verified by trace element analysis of several obsidian samples. The source of a third obsidian sample could not be positively identified through trace element analysis, but similarities with Colorado obsidian sources suggest an origin in that state. Translucent brown chert found at one site (42Cb201) is very similar to a chert common around Rock Springs, Wyoming.

Projectile point types from the project area also demonstrate relationships between north-central Utah with the eastern Great Basin, the Colorado Plateau, and western Plains. Middle Plains Archaic Duncan points were recovered from one site, 42Cb135, and from an isolated position (356A/X25). A possible Wapiti point (292N/X1) also shows Plains influence.

Artifacts which show eastern Great Basin influence in the study area include the range of Rose Spring arrow points, the Elko styled points and the Gypsum point.

The majority of ceramic fragments collected from the project area is of the San Rafael variant of the Fremont culture, such as

Emery Gray wares. Site 42Cb185 demonstrated the greatest range of ceramic variation; it contains Emery Gray, Snake Valley Black-on-gray, and Sevier gray materials.

Table IV-I.4 summarizes the condition of the sites and indicates particular characteristics relating to the quality of the sites.

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Table IV-I.4

Site Significance

Site	Quality*	Condition
42Cb92	a	Good
42Cb134	c-f	Good
42Cb135	a-b-c-d-g	Good
42Cb167	a-e-g	Excellent
42Cb168	d	Good
42Cb170	g	Poor
42Cb171	c-d	Good
42Cb172	c-f-g	Poor
42Cb173	c-f-g	Good
42Cb174	g	Poor
42Cb175	g	Poor
42Cb183	g	Poor
42Cb184	---	Poor
42Cb185	a-c-d-f-g	Good
42Cb186	a-c-d-f-g	Good
42Cb187	g	Good
42Cb188	b-c-g	Good
42Cb190	---	Good
42Cb192	g	Good
42Cb193	c	Good
42Cb194	a-c-g	Good
42Cb195	d	Good
42Cb196	c-g	Poor
42Cb197	c-g	Good
42Cb198	b-g	Good
42Cb199	a	Fair
42Cb200	g	Good
42Cb201	g	Excellent
42Cb202	a-g	Good
42Cb204	---	Poor

Table IV-I.4 (cont.)

Site	Quality*	Condition
42Cb205	g	Poor
42Cb206	g	Good
42Cb207	a-b-d-g	Good

*Quality indicators are the following:

a) size or layout is unique

b) quantity or quality of artifacts is unique

c) indication of depth

d) environmental location is unique

e) existence of unique artifacts, architecture, art, or structure

f) condition is excellent for preservation of materials or data

g) site contains specific cultural data relevant to temporal and spatial identifications

h) site is scene of an important event

i) site is associated with an important person

2.4 NATIONAL REGISTER ELIGIBILITY

Application of the National Register Criteria of Eligibility, defined under 36 CFR 60.6, to each of the 33 sites that are situated in the permit area provides the following results:

a) Four of the 33 sites (42Cb 172, 173, 183, and 196) are associated with events that have made a significant contribution to the broad patterns of our history; or

b) Three of the 33 sites (42Cb 173, 183, and 196) are associated with the lives of persons significant in our past; or

c) Four of the 33 sites (42Cb 172, 173, 183, and 196) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; and,

d) Fourteen sites (42Cb134, 135, 172, 173, 183, 185, 186, 188, 194, 196, 197, 198, 202, and 207) have "yielded or may be likely to yield information important in the prehistory or history" of the region. Under this criterion, the sites do not warrant in-place preservation. However, potential impacts to these sites will be mitigated through other techniques, as described in sub-section 3.2.

Eleven sites (42Cb92, 168, 170, 175, 187, 192, 193,195, 199, 200, and 201) require additional field research before a determination of eligibility can be made. Seven of these sites (42Cb170, 175, 187, 193, 195, 200, and 201) will not be directly impacted by construction or other project-related activities (see Table IV-1.5). Consequently, no further evaluation will be performed for these sites. For the other four sites (42Cb92, 168, 192, and 199), eligibility will be determined through additional fieldwork. If any of these four sites proves eligible or potentially eligible for listing, an impact mitigaton plan for those sites will be submitted to DOGM for approval at least six months prior to any disturbance of those sites.

Sites 42Cb167, 171, 174, 184, 190, 204, 205, and 206 are not considered eligible for nomination to the National Register, since they do not meet criteria a, b, or c, and they do not have the potential to yield any information important to the understanding of the prehistory and history of the region.

The following site-specific analyses discuss the reasons behind each determination of non-eligibility, potential eligibility, and eligibility.

2.4.1 SITES THAT WILL NOT BE DIRECTLY IMPACTED BY CONSTRUCTION OR OTHER PROJECT-RELATED ACTIVITIES

42Cb134	42Cb194
42Cb170	42Cb195
42Cb175	42Cb198
42Cb183	42Cb200
42Cb187	42Cb201
42Cb193	42Cb207

Determinations of eligibility have not been made for all of the twelve sites listed above. Because these sites will not be directly impacted as a result of the project, the Applicant assumes no further obligation to conduct further research regarding these sites. As described in sub-section 3, Potential Impacts, the only impact potential for these sites is vandalism, and that potential is assessed as "low" by a professional archeologist. Further investigation of these sites is not cost-effective with respect to the goal of providing good protection to archeological resources in the permit area.

2.4.2 NON-ELIGIBLE SITES

42Cb167

Site 42Cb167 is a relatively simple petroglyph composed almost totally of names and dates that are of no particular value in terms of the four eligibility criteria.

42Cb171

Site 42Cb171 is a non-descript prehistoric-historic artifact scatter containing a few typical historic artifacts. Oral historical research with a former property owner, John Mahleres, indicates that no significant structures stood in the area. This information concurs with the observed historical remains; one tin bucket and a prehistoric or historic rock alignment were all that were found. The site has no significant historic period history and is not eligible for the Register under any of the listed criteria.

42Cb174

Site 42Cb174 is a prehistoric-historic artifact scatter of negligible depth potential and of typical artifact inventory. Material remains were not substantial.

42Cb174 was placed by field crews in the NE¼ NW¼ SW¼ of Section 30. Land records show that William Snooks of Emery owned a log house, attached shed, and a corral in the NE¼ of the SW¼ of Section 30, which he sold in 1884. Site 42Cb174 could be the remnants of Snooks' dwellings, or at least some of his trash, as no other archeological materials were found in this area of the section.

Unfortunately, the location of this early homestead cannot be definitely identified from historical sources. Furthermore, the material remains of 174 are too paltry to argue a firm relationship. Both field work and historic research indicate that the site does not qualify for the Register under any of the four criteria.

42Cb184

Site 42Cb184 is a small lithic scatter situated on the west terrace above Soldier Creek. The site has little research value and does not meet any of the criteria pertaining to National Register eligibility.

42Cb190

This site is a moderate size lithic scatter situated on the west of Soldier Creek on the east slope of a narrow bench which overlooks the drainage. The site contains both core reduction materials and biface manufacture flakes of a variety of chert types, but lacks diagnostic artifacts and depth potential. It does not appear to have been a locus for camping or habitation.

Site 42Cb190 has marginal research value and does not meet any of the four criteria related to eligibility for inclusion in the National Register.

42Cb204

Site 42Cb204 is a mine portal site located on BLM acreage. Basically, the portal constitutes the site. County land records recorded only oil, gas, and coal leases dating from 1972, so contained nothing which would suggest National Register significant. Similarly, a discussion with the Surface Protection Officer for the Price Resource Area and a review of their plats revealed no historically significant information. A search of the annual reports of the state mine inspector reveal no unusually important mine to be located in this area. Site 42Cb204 does not qualify for the Register under any of the four criteria.

42Cb205

42Cb205 is a privately owned mining camp and portals site which, at the time of the field evaluation, had several surface structures. Since that evaluation, work crews have removed those structures as part of a mine clean-up effort. Only a few concrete pad remnants remain. Historical sources indicate that the mine was not particularly important or a major producer as was the famous Sunnyside properties to the east.

In 1907, the state mine inspector reported that the Dugout Creek area had good coal equal to that of other Book Cliff fields, but he listed no mines by name (Coal Mine Inspector 1907:121). Important mines

were typically mentioned by name. Due to the present lack of physical remains and of no important historicity, the mine does not qualify as a Register property under any of the four criteria.

42Cb206

42Cb206 is also a privately owned mining camp portal site. The field crews found the physical remains of the site to be not as extensive as those of 42Cb205. Historical information gathered by field crews at the time of survey indicated that the mine had been active in 1906, with primary production occurring from 1932 to 1940 (unknown informant, June, 1980). Pertinent land records for the area begin in 1917, in which year J. C. Kakebeeke acquired the section and other land, totaling over 22,000 acres. While the acreage would have been used for grazing, no information relevant to the use of the mine was contained in land records until recently, when energy firms acquired the mineral leases.

Reports of the state mining inspector indicate that there was no major mine in this area, Rather, this mine, like the previous two, was probably a modest local producer.

The physical remains on the site consist of a timer coal chute and a collapse log cabin typical of the 1900s. Site 42Cb206 does not qualify as a Register property under any of the outlined criteria.

2.4.3 POTENTIALLY ELIGIBLE OR ELIGIBLE SITES

42Cb92

This site consists of several pictograph panels on the sandstone face of a cliff situated in the bottom of Dugout Canyon. The site is on the north side of the canyon and situated above the creek near the cliff point which is northeast of the junction in the creek. This site was recorded by Dale Berge of BYU in 1977, who states in the site report, "The pictographs depict outlined trapizoidal figures, dots, elongated figures, bird-like figures and some unknown objects. The largest figures are the trapizoidal figures which are about one foot tall." Colors used in the paintings include red, white, and blue-gray.

Site 42Cb92 requires a comparative study with other known pictographs and petroglyphs in Utah to determine its significance relative to National Register criteria c or d.

42Cb135

This large prehistoric site contains diagnostic projectile points and a hearth indicating its use as a temporary campsite. Both Early Archaic (Pinto) and Fremont (Rose Springs stemmed) points were found on the site as were three flat, sandstone metates. Detritus is quite dispersed within the site area.

Site 42Cb135 is situated along the west rim of the terrace above Soldier Creek.

This site has National Register potential under criteria d of 36 CFR 60.6. Its depth potential is limited, but careful excavation could provide important informaton on its various prehistoric occupations.

42Cb168

This site is small sparse lithic scatter situated on the first terrace directly to the east of Dugout Creek. The detritus indicates that biface manufacturing was conducted on the site although one awl was also observed. The devitage consists of a wide variety of lithic material types including two flakes of obsidian, a lithic material which is rarely found in the region.

This site requires additional research before determining its eligibility under 36 CFR 60.6.

42Cb172

Site 42Cb172 is located on private land belonging to LaRue Layne et al. and was described by field crews as a homestead site. The site's cabin had burned to the ground, but a shed remained and an artifact scatter and depth were apparent.

Historically, the site appears in both the county land records and oral history. Record entries for this section of land begin in 1942 when Melvin Edwards sold a parcel to Harry Mahleres. As fire insurance was required, the presence of wood structures is indicated. Subsequently, the property changed hands. Probate records for one of the later owners, Neils Olsen, indicate that he used the land as grazing acreage.

John Mahleres, a son of Harry Mahleres, identified the site as having been Archie Edwards' homestead. Edwards was the son of an earlier homesteader of the region and, apparently, a brother to Melvin Edwards. The property was evidently really Melvin's homestead. As he was undoubtedly involved with it before the 1942 sale, the property is old enough for Register consideration.

The site is judged to have National Register potential under criteria a, c, and d. Being a homestead, the site was part of a significant, broad pattern in western history. As a late period homestead, the site offers information about the architecture, material culture, and other aspects of the period. As the site is a multi-component site with stratagraphic depth, it certainly can yield historical information.

42Cb173

Site 42Cb173 is located on private land belonging to LaRue Layne et al. AERC field crews described a cabin, root cellar, and outhouse and indicated the existence of another collapsed structure and woodpile. They concluded the site had Register potential. When the site was revisited, a series of photographs showing the important components of the site was taken.

Land records indicate that Caleb E. Edwards filed a 159-acre homestead action on June 16, 1916, for the E½ of the SE¼ of Section 25 (R11E.) and the W½ of the SW¼ of Section 30 (R12E.). This suggests that 42Cb173 was his homestead. Conversations with John Mahleres, whose father acquired the Section 25 ground in 1939, confirmed this hypothesis. While field crews placed the site in the NE¼ and land records located the homestead in the SE¼, in whichever quarter it might actually be, the informant and the available material remains both suggest this site as Caleb's 1916 homestead.

42Cb173 is judged to have National Register potential under all four criteria. Like 42Cb172, 42Cb173 is part of the homestead movement and of the agrarian development of Carbon County (criterion a). It represents a given period (criterion c), and it is a sizeable multi-component site with depth, the strata of which

offers historical information (criterion d). Additionally, Caleb Edwards is a significant person as one of the earliest settlers in the area (criterion b).

42Cb185

This site is a large lithic scatter and shallow rock shelter complex situated upon the terrace which flanks Soldier Creek on the west. It is a linking site between 42Cb135 to the north and 42Cb186 to the south. Ceramics and a diagnostic projectile point demonstrate the site's occupation by Fremont and Shoshonean peoples. Some of the shallow shelters on the site have been recently vandalized but can still yield important information concerning the prehistoric occupation of the site.

Site 42Cb185 has National Register potential based upon criteria d of 36 CFR 60.6.

42Cb186

Site 42Cb186 is situated upon the west terrace at the junction of Soldier Creek and an old, dry creek channel which extends to the northwest. The site contains two small rock shelters which have been vandalized, a lithic scatter, and a historic rock alignment. Its position, flanked by Soldier Creek on the east and an extinct creek channel on the west, could further

increase the research potential for this site. Emery Gray ware was found on the site indicating a Fremont occupation; however, the sandy soil in the center of the terrace and its topographic location suggest it was probably occupied during the Archaic period, a hypothesis which could be substantiated by careful excavation.

This site meets criteria d as eligible for nomination to the National Register based upon application of criteria outlined in 36 CFR 60.6.

42Cb188

This site consists of a limited detritus scatter situated in the flat juniper-pinyon zone. The site has some depth potential and consists of a core reduction center which also contains several lithic tools. Several tiger chert flakes were found on the site, demonstrating its inhabitants had some contact with a chert resource zone which is common in southwestern Wyoming.

Careful surface excavation of the site can provide the archeologist with cultural, temporal, and spatial information; hence, this site meets criteria d based upon 36 CFR 60.6.

42Cb192

This site is a moderate size prehistoric lithic scatter containing a sparse scatter of core reduction and biface manufacture flakes in association with a post-Archaic Cottonwood triangular point base. The site has marginal depth potential and its location on the edge of the terrace to the west of Soldier Creek indicates it has some research potential relative to criteria d of 36 CFR 60.6.

42Cb196

Site 42Cb196 is located in Section 31 (R12E.). County plats show that the property is owned by LaRue Layne et al. Field crews examining this homestead site identified the location of the cabin on the basis of remaining foundation stones and a chimney. A trash midden, historic scatter, and depth potential were noted.

Land records for the section show that Caleb Edwards patented Lots 1, 2, and 3 (W½ of the NW¼, the NW¼ of the SW¼, and the SE¼ of the NW¼) in 1921. The acreage then passed to Harry Mahleres in 1939. John Mahleres recalled that Archie Edwards had built the cabin before his father's purchase of the land. The erection of the cabin would probably have been associated with the homesteading action later patented in 1921.

42Cb196 is judged to have National Register potential under all four criteria for the same reasons site 42Cb173 was so judged. The fact that this land was patented by Caleb in 1921, a number of years after his 1916 patent, reflects his desire to strengthen his family's position in the area.

42Cb197

This site consists of a small prehistoric camp site which contains diagnostic Fremont ceramic and lithic artifacts in association with a hearth. The aolian deposits on the site may seal off a larger amount of site area than was observed during the survey. The site is situated on the east run of the western terrace overlooking Soldier Creek.

Careful surface excavation of the site could yield important scientific information of the Fremont occupation patterns of the region. This site is eligible for National Register inclusion under application of criteria d of 36 CFR 60.6.

42Cb199

Site 199 consists of a rectangular slab construction which could have been a prehistoric sandstone slab storage pit of the type frequently used by Archaic and Fremont peoples. The site is situated

on top of a low knoll overlooking the Soldier Creek flats, a location with excellent prehistoric occupational potential.

The site should be test excavated to determine its cultural significance before establishing its potential for National Register eligibility based upon 36 CFR 60.6.

42Cb202

Site 202 is a large, possible Fremont core reduction loci where biface manufacturing also occurred. A Rose Springs arrow point was collected from this site during the survey. The site has marginal depth potential and is a relatively sparse concentration of detritus; however, the range of cherts and the type of flakes available on the site demonstrates its potential for yielding some information important to the understanding of lithic technology being practiced in the Dugout Creek locality and Price River region. This site, therefore, under criteria d of 36 CFR 60.6, has the potential for yielding important information in the prehistoric occupation of the region.

3. PROTECTION OF CULTURAL AND HISTORICAL RESOURCES (784.17)

3.1 IMPACT POTENTIAL

Adverse impact potential was examined on two levels. Direct impact concerns adverse effects occurring as a direct consequence of project development and operation. Indirect impact stems from adverse effects relative to activities which are not part of the project design and planning.

The probability of adverse impact on the cultural resource sites of the permit area is presented in Table IV-I.5.

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Table IV-I.5. Cultural resource impact potential.

Site	Direct Impact	Indirect Impact	Impact Agent	National Register Eligibility*
42Cb92	Low	Low	Road Construction	1, 2
42Cb134	---	Low	Vandalism	4
42Cb135	High	---	Central Facilities Construction	1
42Cb167	Low	Low	Road Construction	3
42Cb168	Low	Low	Road Construction/ Vandalism	1, 2
42Cb170	---	Low	Vandalism	4
42Cb171	High	---	Railroad Construction	3
42Cb172	High	---	Road Construction	1
42Cb173	Moderate	High	Central Facilities Construction/Vandalism	1
42Cb174	High	---	Central Facilities Construction	3
42Cb175	---	Low	Vandalism	4
42Cb183	---	Low	Vandalism	4
42Cb184	Low	Low	Central Facilities Construction/Vandalism	3
42Cb185	High	---	Central Facilities Construction	1
42Cb186	High	---	Central Facilities Construction	1
42Cb187	---	Low	Vandalism	4
42Cb188	Low	High	Vandalism	1
42Cb190	Low	Low	Road Construction	3
42Cb192	Low	Low	Road Construction	1, 2
42Cb193	---	Low	Vandalism	4
42Cb194	---	Low	Vandalism	4
42Cb195	---	Low	Vandalism	4
42Cb196	High	---	Railroad Construction	1
42Cb197	Low	Low	Vandalism	1

Table IV-I.5. (cont.)

42Cb198	---	Low	Vandalism	4
42Cb199	Low	Low	Road Construction	1, 2
42Cb200	---	Low	Vandalism	4
42Cb201	---	Low	Vandalism	4
42Cb202	High	Low	Road Construction	1
42Cb204	High	---	Portal Area Construction	3
42Cb205	High	---	Portal Area Construction	3
42Cb206	High	---	Portal Area Construction	3
42Cb207	---	Low	Subsidence caused by mining	4

* - National Register Eligibility:

1. Potentially or definitely eligible for listing
2. Further research is required
3. Not eligible for listing
4. No direct impact, thus a determination of eligibility is unnecessary (see page II-500A(3))

In summary, a total of eight sites eligible for National Register listing situated in the mine plan permit area have a high potential for receiving adverse impact, either as a result of project development and operation (direct impact) or as a result of non-project related activities, usually vandalism (indirect impact). These sites include three historic habitations (42Cb172, 173, and 196), a prehistoric temporary campsite (42Cb135), three prehistoric lithic scatters (42Cb185, 188, and 202), and one prehistoric rock shelter site (42Cb186). The four sites for which additional fieldwork is required (42Cb92, 168, 192, and 199) all have a low potential for direct and indirect impact associated with road construction.

No sites have a moderate potential for receiving adverse impact of either a direct or indirect nature. The remaining sites have a low potential for receiving either direct or indirect adverse impact.

3.2 MITIGATION OF ADVERSE IMPACTS

A variety of archeological and historic techniques have been evaluated and proposed for use in avoiding or mitigating potential adverse impacts to those cultural sites eligible or potentially eligible for listing on the National Register. A more comprehensive and final testing and mitigation package will be submitted in the future. The impact mitigation discussion will be expanded to show compliance with the "Treatment of Archeological Properties: A Handbook", issued by the Council's Archeology Task Force.

Avoidance procedures are the most appropriate means of preserving those sites that will not be endangered by the development and operational phases of the project and that have a potential for disturbance through vandalism. These sites are 42Cb188 and 197.

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Site 42Cb188, a prehistoric lithic scatter, will be collected prior to construction, using both vertical and horizontal controls. This site contains Tiger chert fragments which originated in Wyoming, and buried artifacts on the site could provide valuable information on cultural movement between the western Plains and eastern Great Basin. The potential for vandalism on this site is high; collection through test excavation and screening will be conducted to mitigate the impacts of construction.

The remaining seven eligible sites all have high potential for disturbance during project initiation. Sites 42Cb135, 185, and 186 are prehistoric habitation sites with rock

shelters situated in 42Cb185 and 186. These three sites are associated with the central facilities area and all have potential for complete disruption either from construction or vandalism. All three sites also contain depth and could have buried artifact deposits of importance to understanding the prehistoric movement of peoples along the Soldier Creek corridor.

Each of these sites (42Cb135, 185, and 186) will be carefully collected utilizing appropriate surface controls prior to field staking for construction. Each site will be tested for subsurface depth utilizing a permanent datum on each location and appropriate vertical and horizontal controls. Hearth areas, depressions, soil accumulations, and rock shelters will be further evaluated through test excavations. Should subsurface artifact deposits or structures be uncovered, these remains will be salvaged, if possible, and if the value of the deposit or structure warrants salvage excavation.

Site 42Cb202 is a prehistoric lithic scatter. This site has high potential for destruction during construction. A collection of valuable artifacts should be conducted on the surface; several small test excavations should be conducted at appropriate places on these site to assess the presence of subsurface cultural remains. Should valuable subsurface structures or archeological deposits be uncovered, such materials should be salvaged by careful excavation.

Three historic homestead sites, 42Cb172, 173, and 196, all have moderate to high potential for disruption during the development period either from construction activities or from vandalism. Impacts for all three sites should be mitigated through photographic documentation of architectural details prior to disturbance. Valuable historic or prehistoric artifacts on these sites should be collected for preservation.

The mitigation and avoidance measures should provide a high level of protection to the 33 cultural resource sites which are situated within the permit area.

As indicated earlier in the Section, four sites (42Cb92, 168, 192, and 199) require additional fieldwork to determine National Register eligibility. These sites will be further examined and mitigation plans will be submitted to DOGM for any eligible sites of the four at least six months prior to construction.

4. REFERENCES

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ATTACHMENT F

PSD PERMIT

PREVENTION OF SIGNIFICANT DETERIORATION PERMIT

In August, 1978, the Applicant filed an applicant with EPA, Region VIII, for a PSD permit to conduct the proposed mining activities and construct the associated facilities. The permit was granted on December 19, 1979 following a period of public comment and a review by EPA. The permit was approved subject to the following conditions:

1) The company shall notify the Denver Regional Office of the U. S. Environmental Protection Agency (Attention: Mr. Norman A. Huey, Chief, Technical Support Section, 8AH-A) in writing, when construction and operation of the mine commences. Such notification shall be submitted within ten days of the commencement of construction and within ten days of the commencement of operation.

2) The Applicant shall construct and operate the source in accordance with the application and all materials submitted in support of the application.

3) The Sage Point - Dugout Canyon mines shall not process more than 5,220,000 tons of coal per year.

4) The Applicant shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system, gases which exhibit twenty percent opacity or greater.

5) The control technologies and management practices proposed by the Applicant are incorporated into the permit by reference.

6) No condition therein shall excuse the Applicant from complying with the provisions of the Utah State Implementation Plan, 40 CFR, Part 52, Subpart II, or the responsibility for complying with all other applicable federal, state, or local regulations.

In addition, EPA stipulated that the following steps be taken by the Applicant in order to comply with the conditions set forth in the PSD permit.

Roadway Traffic

Major roads will be hard surfaced - EPA has suggested bituminous mix (asphalt) product - to reduce fugitive emissions. In addition, bus service will be provided for those employees desiring to use it. It is estimated from past experience that half of the employees will use the bus

and the remaining will travel at an average of three employees per car. EPA will consider other measures at a later time when additional cost data are available.

Ventilation Exhaust Shafts

No controls are necessary on this source.

Coal Conveyors

All coal conveyors will be enclosed. In addition, emissions from conveyor transfer points wll be controlled with water sprays augmented with a wetting agent added at a ratio of 1:2500. Good operating practice will be used to minimize fall distance for load-in to the raw and clean storage piles.

Coal Storage

Coal storage at mine portals will be in 300-500 ton steel bins. Emergency piles may be established for short periods at the portals when conveyor mechanical problems force this action. EPA Region VIII will be notified when emergency piles are established and when they are removed. Raw and clean coal storage at the central facilities will contain earth berms to reduce wind-blown emissions. Load-out from coal storage will be by gravity or vibrating feed located beneath the piles.

Coal Preparation

The dust generated during crushing and screening will be controlled by the use of water sprays with air vented to several baghouses. Baghouse specifications including the air to cloth ratio will be submitted to EPA for approval when they are available.

Train Load-Out

An enclosed bin will control emissions during bin load-out and a telescopic chute will control emissions during railcar load-out.

Truck Dump

The truck dump will be enclosed on three sides and on top to minimize emissions.

As of April 14, 1981, Eureka is not required to obtain a Prevention of Significant Deterioration permit because our proposed emissions are less than 250 tons per year.

State of Utah Permit

On December 11, 1979 Utah issued an air quality approval order for construction and operation of the Sage Point-Dugout Canyon mine project. Within the past months, our proposed plans and specifications have been reevaluated and have been found to be consistent with the requirements of the Utah Air

Conservation Regulations and the Utah Air Conservation Act. A State of Utah air quality approval order was granted on May 18, 1981.

1. All emission control equipment shall be maintained in good operating condition and control procedures shall be performed as proposed.

2. Visible emissions from point sources shall not exceed 20% opacity as per Section 4.1.2, Utah Air Conservation Regulations (UACR). Emissions from diesel engines shall not exceed 20% opacity except for starting motion no farther than 100 yards or for stationary operation not exceeding 3 minutes in any hour as per Section 4.1.4, UACR.

4. All conveyors shall be enclosed and water sprays shall be operated at all transfer points including transfers to other conveyors, storage piles and into a surge bin. The spray system shall utilize a wetting agent to the water for minimizing fugitive emissions as proposed.

5. The unpaved sections of roadway shall be water sprayed to minimize fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary. A record/log of treatments to include date, amount and treatment location shall be kept and made available to the Executive Secretary upon request.

6. The stack from each baghouse controlling emissions from the crusher, centrifuges and preparation plant conveyors shall be stack tested using EPA test methods 1-5 within 180 days after startup. The exhaust from each stack shall not exceed .02 grains/dscf. The Executive Secretary shall be contacted for technical input at least thirty days prior to the test(s) and State personnel shall be present for the test(s).

7. The rotary breaker in the preparation plant shall be controlled with water sprays with additives to minimize fugitive emissions.

8. The Executive Secretary shall be notified when start-up occurs as an initial compliance inspection is required.

TABLE 1

Summary of Potential* Particulate Emissions
from the Sage Point - Dugout Canyon Project

Fugitive Dust Sources	Annual Emission Rate (ton/yr)	Maximum 24-hr Emission Rate (lb/hr)
Roadway traffic	4970	1840
Coal Handling and Preparation Sources		
Ventilation exhaust shafts	8.8	3.3
Conveyor belt transfer points	110	40.7
Conveyor belt transfers to coal storage pile	152	56.3
Wind erosion from open coal storage piles	182	41.6
Coal preparation (crushing and cleaning)	156	57.8
Trail loading	52.0	12.4
Unit train emissions	2.2	0.5
TOTAL	5633	2053

*Emissions do not include controls.

Central Facilities

1) Sanitary daily use will be 10,000 gpd.

2) Industrial use will be 180,000 gpd. Part of the water will be consumed by remaining on the coal and coal waste. This water will eventually evaporate into the atmosphere. Part of the water will be piped to a reclaim pond where the clean water will be recirculated back through the washing plant.

Fish Creek Portal Facilities

1) Sanitary daily use will be 21,000 gpd. The sewage will be piped continuously to a sewage lagoon for treatment and containment.

2) Industrial use will be 370,000 gpd. Part of the water will be consumed by remaining on the coal and will eventually evaporate. The rest of the water will be recirculated back through the mining operation. There will be no direct discharge from the mines.

Dugout Canyon Portal Facilities

The use and treatment of the water here will be the same as Fish Creek Portal Facilities. The amounts are as follows:

Sanitary	-	27,000 gpd
Industrial	-	265,000 gpd

Additional Comments

Coal processing waste will be moved continuously to the waste disposal site. Garbage and waste paper will be picked-up by a garbage collector from Price. These wastes will be sent to the municipal dump on a regular basis.

Attachment I

List of Federal, State and Local Agencies
Whose Substantive Standards, Ordinances, and Laws
Are Applicable to Sage Point-Dugout
Canyon Project [1]

Agency	Permit/License	Reference	Date of Application	Date of Issuance
Utah Div. of Oil, Gas & Mining Office of Surface Mining	Surface Mining Control and Reclamation Permit	Surface Mining Control and Reclamation Act	12/80	pending
U.S. Environmental Protection Agency (Denver, CO)	Prevention of Significant Deterioration Permit (PSD)	Clean Air Act Amendments of 1977	8/78	12/79
U. S. Environmental Protection Agency (Denver, CO)	National Pollutant Discharge Elimination System (NPDES)	Federal Water Pollution Control Act (as amended - Clean Water Act)	10/81	
U.S. Environmental Protection Agency (Denver, CO)	Spill Prevention Control and Countermeasure Plan (SPCC)	Federal Water Pollution Control Act	SPCC plan must be prepared and operational. Approval is not required.	
Federal Task Force (USGS - Lead Agency)	Environmental Impact Statement	National Environmental Protection Act of 1969	10/76	7/79
U.S. Bureau of Land Management (Price, Utah)	Tramroads Right-of-Way (ROW) U-35688	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Electric Power Line (ROW) U-35686	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Reservoirs and Ponds (ROW) U-35682	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Water Pipeline (ROW) U-35683	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Slurry-Sanitation Pipelines (ROW) U-35684	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Conveyor (ROW) U-35687	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Railroad (ROW) U-35681	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Telephone (ROW) U-35685	Federal Land Policy and Management Act of 1976	11/76	pending
U.S. Bureau of Land Management (Price, Utah)	Surface Facilities	"	3/81	"
State Engineer (Utah)	Dam Design Review	Section 73-5-5 of the Utah Water Code	6/82	
State Engineer (Utah)	Approval Order (Small Sedimentation Structures). No approval order required for sewage lagoon.	Section 73-5-5 of the Utah Water Code	12/80	1/81
Division of Environmental Health (Utah)	Approval Order (Air Quality)	Utah Air Conservation Act	8/78	12/78 and 5/81
Division of Environmental Health (Utah)	Approval Order (Culinary Water, Waste-Water & Solid Waste Disposal Site Facilities)	Utah Water Pollution Control Act	6/82	
Division of Environmental Health (Utah)	Construction Permit for Sedimentation Ponds		6/82	
Carbon County (Utah)	Drive-Way Permit for each location where a project road intersects a county road		1/82	

1. This list is not to be interpreted as final and all-inclusive.