

CO.0-09-1

CO.0-09

10/15/85

1.21.1

MEMORANDUM

TO: FILE

FROM: S. Jones

SUBJECT: ~~Elementary~~ report - Project Rio Blanco

SITE NAME: Project Rio Blanco

ALTERNATE NAME: CONOCO, CER <sup>Corp.</sup> Deonuclear

CITY: Rio Blanco County STATE: CO

OWNER(S)

Past: \_\_\_\_\_ Current: \_\_\_\_\_  
Owner contacted  yes  no; if yes, date contacted \_\_\_\_\_

TYPE OF OPERATION

- Research & Development
- Facility Type
- Production scale testing
- Manufacturing
- Pilot Scale
- University
- Bench Scale Process
- Research Organization
- Theoretical Studies
- Government Sponsored Facility
- Sample & Analysis
- Other Use of Nuclear \_\_\_\_\_  
explosives to recover natural gas
- Production
- Disposal/Storage

TYPE OF CONTRACT

- Prime
- Subcontractor
- Purchase Order
- Other information (i.e., cost + fixed fee, unit price, time & material, etc) \_\_\_\_\_

Contract/Purchase Order # (E-26-1)-589, (E-26-1)-655

CONTRACTING PERIOD: detonation - may 19, 1973

OWNERSHIP:

	AEC/MED OWNED	AEC/MED LEASED	GOVT OWNED	GOVT LEASED	CONTRACTOR OWNED	CONTRACTOR LEASED
LANDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BUILDINGS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EQUIPMENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ORE OR RAW MATL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FINAL PRODUCT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WASTE & RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CER + CONOCO + ERDA in joint effort

AEC/MED INVOLVEMENT AT SITE

Control:

- AEC/MED managed operations
  - AEC/MED responsible for accountability
  - AEC/MED overviewed operations
  - Contractor had total control
  - UNKNOWN
- Health Physics Protection
  - Little or None
  - AEC/MED responsibility
  - Contractor responsibility

MATERIALS HANDLED:

Type (on basis of records reviewed)

- No Radioactive
- Natural Radioactive from Feed Materials Production
  - Ore
  - Refined Source Material
  - Residue
- Natural Radioactive Material from Non-Nuclear Activities
- Man-Made
- Other \_\_\_\_\_
- Comment \_\_\_\_\_

Quantities (on the basis of records reviewed)

- None  Production Quantities
- Small Amounts
- Comment \_\_\_\_\_

OTHER PERTINENT FACTS:

- Facility was Licensed
  - During AEC/MED-Related Operations
  - For Similar Activities
  - For Other Activities
- Comment \_\_\_\_\_

Commercial Production Involving Radioactive Material during AEC/MED Operations

Facility was Decontaminated and Released *(long term hydrologic Nevada operations monitoring)*

Availability of Close Out Records

- None  Some  Sufficient

Radioactive Status:

	YES	MAYBE	PROBABLY NOT	NO
Contaminated Potential for Exposure (accessible)	---	---	---	X
	---	---	---	X

QUANTITY OF RECORDS AVAILABLE:

Very Little                       Some                       Sufficient

PROBABILITY OF FINDING ADDITIONAL RECORDS:

Low                       Possible                       High

RECOMMENDATIONS:

Eliminate  
 Consider for Remedial Action  
 Collect More Data

Comment \_\_\_\_\_

REFERENCES:

"Project Rio Blanco Site Cleanup + Restoration  
Plan", U.S. ERDA, NEVADA OPERATIONS, MAY 1976

Black, et al, On-site Environmental  
Monitoring Report Location Monitoring  
Area United States, Nuclear Test Area  
1982. EPA-600/4-83-DOE/DP/00539-1983.

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PROJECT RIO BLANCO  
Radiological Summary

INTRODUCTION

Project Rio Blanco was a cooperative research effort undertaken between CER Geonuclear Corporation, Continental Oil Company (Conoco), and the U.S. Energy Research and Development Administration Nevada Operations Office (ERDA/NV), to assess the commercial feasibility of using nuclear explosives to recover natural gas from low permeability formations in the Rocky Mountains. The Project Rio Blanco site is located in Rio Blanco County, Colorado, about 52 miles North of Grand Junction (see map in Figure 1). All work was performed under the terms of Contracts (E-26-1)-589 and (E-26-1)-655, as modified.

RADIOLOGICAL STATUS

The radiological condition of the Rio Blanco site is well known and documented. According to a report entitled "Project Rio Blanco Site Cleanup and Restoration Plan" dated May 1976 it was reported that except for wireline equipment and temperature-pressure bombs, the external surfaces of material and equipment on the site was not contaminated. The internal surfaces of the entire Surface Production Test Facility have been exposed to  $^3\text{H}$ ,  $^{90}\text{Sr}$ , and  $^{137}\text{Cs}$ . Production tubing in the three wells (E-01, AR-2, and Fawn Creek No. 1) have been exposed to  $^3\text{H}$ . The production tubing in AR-2 and the injection tubing in Fawn Creek No. 1 have been, in addition, exposed to  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$ . The Fawn Creek No. 1 well gas was not contaminated, but water introduced to the gas-producing zone during packer repair contained an average concentration of  $^3\text{H}$  of about 5000 pCi/ml (maximum injected concentration -100,000 pCi/ml  $^3\text{H}$  and 200-300 pCi/ml  $^{137}\text{Cs}$ ). The three water wells on the site were not contaminated.

Fallout occurred from the production test flares. No  $^{137}\text{Cs}$  was detected (above world-wide fallout) from this fallout. The highest concentration of  $^3\text{H}$  in soil moisture in the vicinity of the flare stack was 300 pCi/ml.

Upon completion of the well plugging and abandonment procedures, and surface cleanup and restoration activities at the Rio Blanco site, certain radiological surveillance programs became effective. These include:

- o A long-term hydrologic monitoring program for selected wells, springs, and creeks on the perimeter of the Rio Blanco site.
- o A short-term hydrologic monitoring program associated with injection of water containing radioactivity into the Fawn Creek Government #1 Well.
- o A long-term gas and water monitoring program associated with injection of water containing radioactivity into the Fawn Creek Government #1 Well.

Long term hydrological monitoring results reported (ref. 2) in 1982 indicate tritium concentrations in wells and creeks in the vicinity of Project Rio Blanco range in value from 50 to 130 pCi/l.

#### CURRENT USE

At the present time, there are no known projects planned or underway at the Rio Blanco test site. It appears the only currently active projects underway at the test site involve environmental monitoring.

## Bibliography

1. "Project Rio Blanco Site Cleanup and Restoration Plan", U.S. Energy Research and Development Administration, Nevada Operations Office, May 1976
2. Black, S.A., et. al., Offsite Environmental Monitoring Report Radiation Monitoring Around United States Nuclear Test Areas, Calendar Year 1982, EPA-600/4-83-DOE/DP/00539-1983.