#### APPENDIX A

#### U.S. NUCLEAR REGULATORY COMMISSION REGION IV

### URANIUM RECOVERY FIELD OFFICE

NRC Inspection Report: 40-8902/89-01

License No.: SUA-1470

Docket No.: 40-8902

Licensee:

ARCO Coal Company

P.O. Box 638

Grants, New Mexico 87020

Facility: Bluewater Mill

Inspection At: Valencia County, New Mexico

Inspection Conducted: September 27, 1989

Inspector:

Approved:

Ramon E. Hall, Director

Uranium Recovery Field Office

Region IV

Inspection Summary

Inspection conducted on September 27, 1989 (Report 40-8902/89-01).

Areas Inspected: Routine unannounced inspection of uranium mill decommissioning activities and radiation safety program including: Management, Organization and Controls/Operations Review; Operator Training and Retraining; Radiation Protection; Radioactive Waste Management; Emergency Preparedness; and Environmental Protection.

The inspection involved a total of eight inspector hours onsite by the NRC inspector.

Results: Within the six areas inspected, no violations or deviations were identified.

The inspector observed that mill decommissioning activities had commenced at the site. The onsite radiation safety staff has been expanded to provide adequate coverage of ongoing activities. No areas of concern were noted.

#### DETAILS

#### 1. Persons Contacted

Ron Ziegler - Project Manager
\*Chris Sanchez - Environmental Engineer
\*Natver Patel - Radiation Safety Officer

\*Denotes those present at the exit interview.

### 2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (40-8902/87-001-01) - This item concerned the need to provide a written examination for employees following radiation safety training. The inspector observed that the licensee has instituted a written testing program for workers following training. This item is considered closed.

(Closed) Open Item (40-8902/88-01-01) - This item concerned the need to address the disposal of barrels containing ion exchanged resins. The inspector noted that the disposal of the barrels has been addressed in a submittal to URFO. This item is considered closed.

### 3. Management, Organization and Controls/Operations Review

The Project Manager of the Bluewater Mill reports to the ARCO Coal Company Corporate Office in Denver, Colorado. ARCO Coal Company is a subsidiary of the Atlantic Richfield Company. Reporting directly to the Project Manager are both the Environmental Engineer and the Radiation Safety Officer (RSO). The Environmental Engineer serves as acting RSO during the RSO's absence.

There are currently a total of seven ARCO employees unsite. In addition, contractor employees were onsite to perform mill demolition activities. The actual number of contractor employees onsite varies depending on demolition activities being performed. The facility RSO is being assisted by a staff of four radiation safety technicians provided by vendor Chem Nuclear. The radiation safety staff appears adequate to monitor site demolition activities.

Several major demolition activities have been completed since the last inspection. The solvent extraction circuit was decommissioned between April and June 1989, and the counter-current decantation circuit was decommissioned between July and September 1989. Specific jobs involved in the decommissioning activities were conducted under Radiation Work Permits (RWP) issued by the RSO.

The RSO performs daily inspections of existing facilities. In addition, the RSO prepares quarterly summaries of site exposure data which are provided to the Project Manager. An annual ALARA audit is performed by an audit team consisting of the Environmental Engineer and a representative

from ARCO's corporate office. Documentation for the above activities was reviewed and found to be acceptable.

License Condition No. 20 requires written procedures for the nonoperational activities associated with environmental monitoring, bioassay, and instrument calibration. This condition also requires the RSO to review all procedures annually and document the date of review. All the procedures were available onsite and included in an environmental and radiation safety manual. Written documentation of the annual review of the procedures by the RSO was adequate.

Title 10 CFR 19.11 requires the licensee to post copies of several documents or indicate in a posting where the documents can be reviewed by employees. Title 10 CFR Parts 19 and 20, the most recent copy of the license, the operating procedures, and NRC form 3 were properly posted.

No apparent violations or deviations were identified by the inspector.

### 4. Operator Training/Retraining

All site personnel are provided with initial radiation safety training and annual refresher training, including contractor personnel. The training is conducted by the RSO. The inspector reviewed the outline used for the training and determined that the material covered was appropriate and met license requirements. Workers must pass a written test before they are cleared for work in the restricted area. Documentation of the written testing was reviewed and found to be adequate.

No apparent violations or deviations were identified by the inspector.

# Maintenance, Surveillance and Testing

Access to the mill and restricted area is controlled by an outer perimeter restricted area fence. The inspector toured the perimeter fence and noted that it was in good repair and appropriately posted. All mill buildings and associated support buildings were properly locked and secured. Only the main administration building, the change room, and the guard shack remain open.

Entrance to the facility was limited to a single controlled gate which was monitored by a guard after normal working hours and on weekends. The entrance was properly posted in compliance with current license conditions.

No apparent violations or deviations were identified by the inspector.

### 6. Radiation Protection

### a. Internal Exposure Control

The licensee's air sampling program includes 15 area samples which are taken quarterly. The samples are taken with samplers which are calibrated before use to draw 35-40 lpm. In addition, lapel breathing zone samples are taken for all jobs performed under an RWP. The samplers are calibrated to draw approximately 2.5 lpm. A review of the data indicates that results were generally well below 25 percent of MPC, although an occasional lapel sample exceeded 25 percent of MPC.

Employee exposures are calculated weekly using time card data and the results of lapel and area sampling. Half mask respirators are used during certain RWP jobs, but no credit is taken for their use. A review of internal exposure data indicated all values were less than 10 percent of the maximum permissible exposure.

The lapel samplers are currently run for an entire shift. The inspector recommended that the licensee evaluate the use of lapel samplers for future jobs in yellowcake areas for which respiratory protection credit may be necessary. The licensee will need to conservatively estimate the airborne concentrations which will exist for high exposure jobs, and the current practice of using the air sampling volume for the entire shift to determine airborne concentrations could result in the dilution of elevated concentrations.

The licensee performs urinalysis testing of all workers prior to and following employment within the restricted area, and at least semiannually for permanent employees. In addition, workers involved in jobs in soluble uranium areas such as the solvent extraction circuit are tested every two weeks. The samples are analyzed by an outside vendor. The vendor analyzes internally prepared spiked samples for quality control purposes and reports the analysis results to the licensee. The inspector noted, however, that the licensee does not provide spiked samples as an independent verification of laboratory accuracy. The inspector suggested that the licensee include unidentified spiked samples with regular samples shipped to the vendor on a periodic basis. This was identified as an open item (40-8902/8901-01).

# b. External Exposure and Contamination Control

The licensee monitors external exposure of employees by the use of thermoluminescent dosimeters (TLDs) which are issued to all workers. A review of data indicates that all exposures were less than 15 mRem/quarter.

Instrument surveys for external radiation are conducted annually at about 50 locations. In addition, surveys are performed in areas where RWP jobs will be performed. A review of data indicates results were less than 2.5 mR/hour.

Employees who leave the restricted area either shower or are monitored by a member of the radiation safety staff. In addition, equipment leaving the site for unrestricted use is surveyed twice to assure that contamination levels are below those specified in the license. The licensee also performs weekly contamination surveys in the change room and eating areas. A review of representative documentation indicated no areas of concern.

No apparent violations or deviations were identified by the inspector.

### 7. Radioactive Waste Management

The inspector reviewed the daily and weekly tailings inspection logs and quarterly reports on dam stability prepared by a certified engineer. Inspections were in accordance with the recommendations of Regulatory Guide 3.11.1. The annual geotechnical evaluation is performed by a qualified consultant. Piezometers are read monthly, and surveys to monitor embankment settlement are performed quarterly.

License Condition No. 16 requires written operating procedures on the methodology applied to minimizing the windblown dispersal of tailings and documentation of a weekly inspection of the effectiveness of the control methods and corrective actions implemented. The licensee has established written procedures for all aspects of tailings management. The licensee has placed an interim cover over the tailings exclusive of the slimes area. A check list from the daily tailings inspection ensures repairs or comments are addressed, progress reported, and a final inspection completed.

No apparent violations or deviations were identified by the inspector.

# 8. Environmental Protection

The inspector toured the mill property. Two of the three environmental monitoring stations were observed and found to be operating and in good repair. The stations were observed to be equipped with a low volume particulate air sampler, a continuous radon monitor, and an environmental TLD. Filters are collected weekly and composited for quarterly analysis Radon results are composited monthly and TLDs analyzed quarterly. Air samplers are calibrated monthly utilizing a bubble tube.

There are several monitoring wells, from which ground water samples are collected and analyzed on a quarterly basis in accordance with the ground water monitoring plan. Quarterly chemical and radiological analysis of

decant solution in the evaporation ponds and samples from seepage detection wells, as well as monthly water level measurements for tailings pond wells, are performed.

Soil samples are collected annually at the same three locations as the air samplers and submitted to a contractor laboratory for analysis. Vegetation samples are collected quarterly from the air sampling locations and are also sent to a contractor laboratory for analysis.

No apparent violations or deviations were identified by the inspector.

### 9. Emergency Preparedness

Fire extinguishers located on the mill site are inspected monthly and tested by a contractor annually. All extinguishers are tagged with the latest inspection date and a separate log maintained for each inspection cycle. Fire-fighting policy dictates that only very minor fires are to be handled by employees. The local Bluewater Fire Department will be notified in the event of a major fire. Quarterly fire drills are conducted by site personnel.

A comprehensive emergency procedures manual has been prepared. The manual contains emergency fire exit procedures, guidelines on fighting minor fires, hydrant and extinguisher locations, phone numbers, and general safety procedures to follow in emergencies. Sprinkler systems in the administrative offices are tested monthly.

No apparent violations or deviations were identified by the inspector.

### 10. Exit Interview

The inspector conducted an exit briefing with licensee personnel to discuss inspection findings. The inspector summarized the scope and findings of the inspection.

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