

... to determine the extent and degree of contamination (radiological and trace metals constituents) of the Rio Puerco and immediate areas from the mill site down into Arizona. Because of the difficulties encountered by the State in obtaining radiological analyses of samples, WMUR arranged for BPNL (under a SOW-FIN No. B-2214-9) to provide a portable analytical laboratory at the mill site to complete rapid gamma spectra analyses of soil, sediments and water samples. The BPNL laboratory arrived in Gallup, New Mexico on September 21, 1979 and was set-up at the United Nuclear Corporation (UNC) mill site at Church Rock on September 22, 1979.

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OCT 4 1979

**MEMORANDUM FOR:** Ross Scarano, Chief  
Uranium Recovery Licensing Branch  
Division of Waste Management

**FROM:** Gregory G. Eadie  
Jeffrey L. Kotsch  
Uranium Recovery Licensing Branch  
Division of Waste Management

**SUBJECT:** TRIP REPORT

POOR ORIGINAL

**Place and Date:** Gallup, New Mexico  
September 21 through 24, 1979

**Attendees:** Gregory Eadie and Jeffrey Kotsch (WMUR)  
Thomas Buhl (EID, State of New Mexico)  
Walter Weimer, James Reeves, Michael Walker (BPNL)

**Discussion:** The main purpose of this trip was to coordinate support activities between the WMUR staff, contractor personnel from Battelle-Pacific Northwest Laboratories (BPNL) and the State of New Mexico Environmental Improvement Division (NMEID). The concern of the WMUR staff was for the prompt evaluation of the environmental and public health impacts resulting from the Church Rock Uranium Mill Tailings dam failure near Gallup, New Mexico on July 16, 1979. Since the dam failure, several Federal and State agencies have been involved in trying to identify the extent and degree of contaminations (radiological and trace metals constituents) of the Rio Puerco and immediate areas from the mill site down into Arizona. Because of the difficulties encountered by the State in obtaining radiological analyses of samples, WMUR arranged for BPNL (under a SOW-FIN No. B-2214-9) to provide a portable analytical laboratory at the mill site to complete rapid gamma spectra analyses of soil, sediments and water samples. The BPNL laboratory arrived in Gallup, New Mexico on September 21, 1979 and was set-up at the United Nuclear Corporation (UNC) mill site at Church Rock on September 22, 1979.

The analytical capabilities of the BPNL lab are two each intrinsic germanium-lithium (GeLi) diode systems for low-energy gamma photon spectral analysis for thorium-230, natural uranium, and lead-210 contents in solid samples. A 500 ml sodium iodide (NaI) well crystal for radium-226 analysis of water or solid samples is also operational. Due to the cooperation of UNC in providing laboratory space and some support equipment, the BPNL lab is capable of analyzing about 100 samples per day. The BPNL laboratory was operational and calibrated on September 24, 1979, and actual samples were already being analyzed.

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Ross Scarano

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Clean-up efforts of the UNC work crew which were observed on September 22 and 23 appeared to be unorganized and consisted of merely taking the top 2 to 4 inches of soil from areas where the yellowish-crystalline materials were deposited on the terrace area of the arroyo near the Pinedale bridge. Conditions of the arroyo from the mine discharge points, past the UNC dam failure point, along the Pipeline arroyo and down the main Rio Puerco into East Gallup were directly observed. Soil samples were collected on September 23 near the Pinedale bridge and soil profile samples were also obtained using the 2-inch diameter PVC pipe core sample device as well as the 3 foot deep trench and standard soil scoop techniques. About 150 soil samples were identified and submitted to the BPNL.

On September 23, 1979, Ms. Helen George and Mr. Jim Olguin, representatives of the Churchrock Chapter - The Navajo Nation, were briefed on the status of the radiological assessment of the Rio Puerco area and they also toured the BPNL laboratory. Mr. C. N. Ofelt, UNC Churchrock mill manager, was also briefed and toured the BPNL lab.

A draft letter was prepared to be issued by the State to UNC describing a more formalized soil sampling program to be conducted from the point of dam failure down the Rio Puerco for 40 miles, with supplemental sampling into Arizona. This proposed soil sampling program is to be conducted by UNC personnel under the direct supervision of State/NRC personnel and will result in about 700 total samples of both surface (to 5 cm depth) and soil profiles (surface to 91 cm depth) to define the extent and depth of radiological contamination of the Rio Puerco. This program should be completed about October 4, 1979 with radiological analyses to be completed daily at the BPNL lab. The resultant environmental impact assessment should be completed by State/NRC by October 19, 1979; at which time a work plan will be developed to provide a more systematic clean-up of contaminated areas of the Rio Puerco. The clean-up operations shall be completed by UNC under the monitoring and surveillance efforts of State/NRC personnel. Areas of the Rio Puerco which are determined to have acceptable levels of contaminants, as verified by a re-sampling program for both radiological and trace metal contents, by State/NRC personnel, shall be returned to unrestricted use as soon as practical.

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Gregory G. Eadie  
Uranium Recovery Licensing Branch  
Division of Waste Management

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Jeffrey L. Kotsch  
Uranium Recovery Licensing Branch  
Division of Waste Management

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