

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Quivira Mines - Red Water Pond Road - Removal Polrep
Final Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IX

Subject: **POLREP #2**
Final
Quivira Mines - Red Water Pond Road
NNSFN0905492/ QM
Coyote Canyon, NM
Latitude: 35.6660000 Longitude: -108.5025000

To:
From: Andrew Bain
Date: 2/24/2012
Reporting Period: 11/19/10 - 8/31/11

1. Introduction

1.1 Background

Site Number:	09QM	Contract Number:	
D.O. Number:		Action Memo Date:	8/24/2010
Response Authority:	CERCLA	Response Type:	PRP Oversight
Response Lead:	PRP	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	10/5/2010	Start Date:	10/5/2010
Demob Date:		Completion Date:	
CERCLIS ID:	NNSFN0905492	RCRIS ID:	
ERNS No.:		State Notification:	Navajo Nation
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

Time Critical Removal Action - Interim Actions

1.1.2 Site Description

The Quivira Church Rock Mines 1 (CR1) and 1 East (CR1E) are located approximately 16 miles northeast of Gallup, New Mexico, in McKinley County. The reclaimed and closed uranium mine sites are located within the Navajo Nation.

The mine sites were operated by Kerr-McGee and Quivira Mining Company. Rio Algom Mining LLC (RAML) is responsible for conducting the removal action. Operations included exploration and development of two underground mines. Ore was transported to the Quivira Ambrosia Lake facility for milling approximately 43 miles southeast of CR1 and CR1E. Production operations ceased in 1983, and all surface structures were subsequently demolished and removed. Sediment from on-site ponds was excavated and disposed in mine shafts and ventilation raises. Waste piles at each site were covered with a minimum of 1 foot of soil and seeded with a local seed mix recommended by BIA.

Under an EPA administrative order on consent (AOC), Rio Algom initiated an interim removal action to secure the two mine sites and prevent migration of contaminants off site on October 5, 2010.

1.1.2.1 Location

Church Rock, NM on Navajo Nation Reservation – EPA Region IX

1.1.2.2 Description of Threat

During the past 20 years, lack of site maintenance, intrusion by livestock, and local resident trespassing has led to overgrazing and a need for maintenance at the site. The poor coverage of vegetation at the CR1 site has contributed to the formation of deep erosion rills in the soil cap. Existing storm water control structures at both sites were identified as needing maintenance during the April 2010 inspection, and a need for additional storm water BMPs was identified. At the initiation of this interim remedial action, exposed soil material with elevated gamma activity was present at both sites and along RWPR north, south, and east of the bridge over the unnamed arroyo that borders the southern perimeter of the CR1 site. It is likely that some discharge of impacted material has also occurred to the adjacent unnamed arroyo.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Recent characterization work associated with the nearby former North East Church Rock Mine suggests

that the former mine access road and portions of the adjacent Red Water Pond Road (RWPR) were originally constructed using mine waste and or soils with elevated concentrations of radium -226 (Ra-226). Additional site characterization work performed by Weston Solutions Inc (Weston) in 2008 and 2009 on behalf of USEPA Region 6, and gamma activity levels measured during a site inspection in April 2010, suggest that the clean soil caps on the CR1 and CR1E waste piles are either failing or were constructed using material that does not meet the current USEPA action levels for Ra-226. Gamma readings ranging from below background to more than six times background were observed in the project area, with the west and southwest portions of CR1 along Red Water Pond Road being generally the most elevated.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

Since the last field work, RAML completed the following:

- Finalized the Phase II Work Plan, 7 December 2010
- Submitted to EPA a draft report (February 2010) for Phase I IRA activities undertaken through December 2010
- Submitted to EPA a draft Stormwater Pollution Prevention Plan (SWPPP) (February 2011)
- Submitted to EPA an evaluation of drilling alternatives for planned subsurface soil and waste pile characterization investigations.
- Scheduled fieldwork to complete static and scanning gamma surveys, scheduled to begin March 14, 2011. Earlier attempts were made during February to conduct this work; however, winter weather and wet soil conditions forced a rescheduling of this work.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

Under a USEPA administrative order on consent (AOC), Rio Algom initiated Phase 1 of an interim removal action to secure the two mine sites and prevent migration of contaminants off site on October 5, 2010. The work included: characterizing impacts to soil in and near RWPR: chip sealing the portion of the road south of the bridge; applying a tackifier to the road and shoulders north of the bridge; installing two sediment basins; rerouting runoff from upgradient areas so it is less likely to contact impacted materials; and, installing erosion and sediment control measures in accordance with a Storm Water Pollutant Prevention Plan currently being prepared for the site. A cultural resources inventory of the site was conducted by Dinétahdóó Cultural Resources Management (Dinétahdóó CRM) October 26 and 27, 2010.

As part of the AOC, the USEPA directed RAML to characterize the nature and extent of contaminants at and near the CR1 and CR1E sites. RAML and their consultant, Senes, Inc., submitted a work plan for additional characterization work that was subsequently approved by the USEPA. Proposed work included collecting surface and subsurface soil samples and performing gamma activity scans at various locations at and near the two sites and in the nearby arroyos. The first part of the Phase 2 field characterization work was initiated on December 8, 2010 and continued through December 15, 2010. This characterization work included gamma activity scans and soil sample collection within and adjacent to CR1 and CR1E. Gamma surveys were only partially completed and will be completed in the spring 2011. During this time, additional cultural investigative work was conducted by Dinétahdóó CRM along the exterior perimeter of the boundary fence.

2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>
uranium mine waste	road	1,800 ft		chip seal	n/a
uranium mine waste	cover			tackifier	n/a

2.2 Planning Section

2.2.1 Anticipated Activities

Characterization - Removal Site Evaluation to determine nature and extent. CR1 and CR1 E, drainages and adjacent land.

2.2.1.1 Planned Response Activities

Additional Characterization Work: Phase 2 Removal Assessment work is tentatively scheduled to resume in March 14, 2011 and last through the spring of 2011. The work is intended to characterize the lateral and vertical extent of selected potential contaminants of concern, including radioisotopes, petroleum hydrocarbons, and dioxins and PCBs. Additional characterization work will occur at the CR1 and CR1E sites, and in areas adjacent to and downgradient from the sites, including in arroyos where process mine water and/or impacted sediments may have been discharged and/or wind-blown deposition of impacted

dusts may have occurred.

RAML is expected to prepare and submit to EPA a technical memorandum that discusses the specific equipment, methods, and procedures to be employed for subsurface investigative work.

Sediment and erosion controls: Additional storm water BMPs are considered necessary. RAML now has a SWPPP. RAML acknowledges that erosion control measures must be applied to the drainage along the shoulders of RWPR, and sediment basins and other BMPs need to be installed or modified during the spring and summer of 2011.

2.2.1.2 Next Steps

Phase II site characterization investigation is expected to be completed and a report of the work submitted by September 30, 2011. Pending the results of the characterization work USEPA expects that RAML will need to excavate at least some impacted areas at and near the CR1 and CR1E sites and consolidate them into existing waste piles. USEPA expects that clean fill material will be required to re-cap the existing waste piles. Regrading, additional erosion controls, and reseedling will likely be necessary to stabilize the sites.

2.2.2 Issues

1. USEPA expects that the measures discussed herein are interim in nature and that, pursuant to requests from the Navajo Nation Tribal Government, all mine wastes will eventually need to be removed from Navajo tribal lands.
2. The structural integrity of the RWPR Bridge remains a key issue. This is the shortest and easiest route for heavy equipment to enter the CR1 site.
3. Implementation of a SWPPP BMP installation, inspection, and maintenance plan is a key issue at the site.
4. RAML must still determine how they will conduct subsurface investigation of the unnamed arroyo. EPA and RAML are unclear about how RAML will determine when they encounter native soil or to determine in the field when Ra-226 concentrations are below the action level of 2.24 pCi/g.
5. RAML still needs to investigate background sampling options and prepare technical memorandum that discusses it.
6. Excavation, removal, and consolidation of impacted soils from offsite areas, and recapping of existing soils as part of an interim remedial action to stabilize the waste pile and prevent continued discharge of impacted materials to the environment is considered necessary if final removal actions will not occur in 2011.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

3.1 Unified Command

3.2 Cooperating Agencies

NNEPA
BIA
NHPO

4. Personnel On Site

EPA 1, NNEPA – 0, START – 1, RAML/BHPB – 1 to 5, Senes – 4, BHP-Billiton – 1 to 2

5. Definition of Terms

NNEPA - Navajo Nation Environmental Protection Agency
RAML - Rio Algom Mining Llp
BHPB - BHP Billiton
BIA - Bureau of Indian Affairs
NHPO - Navajo Historic Preservation Office

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.