

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Skyline Abandoned Uranium Mine (AUM) - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IX

Subject: POLREP #6
Excavation of Arroyo area complete
Skyline Abandoned Uranium Mine (AUM)
09SY
Monument Valley, UT
Latitude: 37.0205530 Longitude: -110.2308250

To:
From: Jason Musante, OSC
Date: 7/5/2011
Reporting Period: 06/20/11 – 07/5/11

1. Introduction

1.1 Background

Site Number:	09SY	Contract Number:	EP-W-07-022
D.O. Number:	022-9075	Action Memo Date:	9/27/2010
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	3/28/2011	Start Date:	11/1/2010
Demob Date:		Completion Date:	
CERCLIS ID:		RCRIS ID:	
ERNS No.:		State Notification:	
FPN#:		Reimbursable Account #:	

Portions of the Navajo Nation are on geologic formations rich in radioactive uranium ores. Beginning in the 1940s, widespread mining and milling of uranium ore for national defense and energy purposes on Navajo tribal lands led to a legacy of abandoned uranium mines. The Site is one of approximately 520 abandoned uranium mines (AUM) located on the Navajo Nation. Nearby residents have expressed concern to the Navajo Nation Environmental Protection Agency (NN EPA) regarding the potential for wind-blown and water-borne radioactive particles to migrate from the Site and impact their health as well as the health of their livestock and the environment. During a site inspection performed by the NN EPA in July 2005, gamma radiation activity greater than two times the background level was detected in approximately 80 locations at the Site. NN EPA requested assistance from the EPA in performing an investigation to determine the nature and extent of the contamination and to mitigate any potential impacts to human health and/or the environment.

1.1.1 Incident Category

CERCLA incident category: Inactive production facility (abandoned uranium mine)
Time-Critical removal action

1.1.2 Site Description

The Site encompasses the former Skyline Mine on top of Oljato Mesa (the Mesa), mine wastes on the eastern edge of the Mesa directly below the mine, mine wastes in the Skyline AUM Waste Piles (SMWP), and associated residential and pastoral areas east and down gradient from the foot of the Mesa. The SMWP are located approximately 700 feet below the former mine at the eastern base of the Mesa and are characterized by talus slopes covered with waste rock and/or waste ore that was pushed over or fell from the top of the Mesa where the mine was located. Portions of the cliff directly below the mine are visibly stained a grey-green color from this activity. As part of regular mine operations, a gondola was used to transport ore down to the foot of the Mesa where it was loaded into trucks for transport to an offsite mill. Portions of the gondola, including steel cables, remain at the foot of the Mesa.

Approximately five home sites with residential structures are located between 1,490 and 1,800 feet east and northeast of the SMWP. Land use in the project area is characterized by low density of single-family residences surrounded by open grazing land. The top of the Mesa and the SMWP area are used seasonally during the spring, summer, and fall by local residents as pastureland for grazing sheep and cattle and for gathering traditional herbs and plants. The road to the top of the Mesa is in extremely poor condition and therefore access to the top of the Mesa is limited to 4-wheel drive vehicles, all terrain vehicles, or foot traffic. There is no known permanent infrastructure on the top of the Mesa.

1.1.2.1 Location

The Site is located in the Oljato Chapter on the Navajo Nation Indian Reservation, Township 43 South, Range 15 East, Section 26, NW ¼ (Latitude: 37.0205530°, Longitude: -110.2308250°), near Monument Valley, San Juan County, Utah. See Figure 1 for a Site Location Map.

1.1.2.2 Description of Threat

Current Site conditions pose ongoing releases and the threat of future releases of hazardous substances, namely: uranium and its progeny (*i.e.*, radium-226 and radon) and ionizing gamma and alpha radiation associated with those progeny. The likelihood of direct human exposure, via ingestion and/or inhalation of hazardous substances, and the threat of future releases and migration of those substances, pose an imminent and substantial endangerment to the public health or welfare or the environment based on the factors set forth in the NCP, 40 CFR § 300.415(b)(2).

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

In November 2008, EPA and the START Contractor conducted radiation assessments at the Site in coordination with NN EPA. A background area was established 1.35 miles east-southeast of the SMWP in an area with no suspected impacts from mining. First, 1-second total gamma radiation activity measurements using a GPS integrated ratemeter were collected in the background and SMWP areas. Two areas were identified as having elevated gamma activity, and designated the talus slope decision area (TSDA) and the trans-loading decision area (TLDA). Next, sampling grids were established that encompassed the TSDA, TLDA, and the background area respectively. The grid size and number of samples to be collected within each grid were determined using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) version of Visual Sample Plan software and were the same relative number, orientation, and spacing in each case. A total of 42 surface soil samples were collected as grab samples and analyzed by GEL Laboratories, LLC for Ra-226 (Gamma Spec with In-growth) by EML HASL 300.4.5.2.3.

From July 2009 to March 2010, additional soil sampling and total gamma activity surveys were conducted to further delineate the lateral and vertical extent of contamination in the TLDA, the TSDA, and the unnamed arroyo that receives runoff from the Skyline AUM and the north side of the TSDA. See Figure 2 for a Site Features Map. Based on the assessment results EPA determined that a removal action was necessary.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.1.1 Current Situation

During this period the ERRS contractor completed excavation in the Arroyo area. The Arroyo area starts at the foot of the Mesa, just below the TSDA. Mine waste from the upper slope below the mine opening fell onto the TSDA and water erosion carried mine waste out into the Arroyo area. The largest volume of contaminated soils at the Site, approximately 14,000 cubic yards, were located in the Arroyo area.

The skyline cable yarding system in use at the Site consists of a mainline cable strung between a bottom anchor and a top tower. A carriage runs along the cable and its movement is controlled by a haulback cable. The top tower controls tension of the mainline, and thus its height, as well as the movement of the carriage with the haulback cable. Accessories such as a bucket are attached to the carriage. This system is being used at the Site to move stockpiled mine waste from the valley floor to the top of the Mesa. The waste is then loaded into a haul truck and transported a short distance to the on-site repository. The yarder is also being used with a dredge bucket attached to the carriage to excavate steep sections of the slope below the mine opening on the edge of the Mesa that were inaccessible with an excavator.

June 20 – 25, 2011

OSC Stilman (R4) onsite this week.

This week ERRS:

- Continued water conveyance system operations.
- Continued site-wide road improvements and maintenance.
- Continued dust control program using water for dust suppression.
- Continued excavation of contaminated soils in the Arroyo area. Excavated soils were stockpiled and coated with soil sealant to prevent migration, pending transport via skyline yarder to repository on top of the Mesa.
- Continued transport of stockpiled mine waste materials to top of Mesa via the skyline cable yarder.
- Began preparing the dredge bucket for excavation on lower portion of upper slope area below mine.

START delineated excavation extent in the TSDA area, performed air sampling around work zones as part of the effluent dust sampling program, and performed radiation surveys as needed.

June 27 – 30, 2011

OSC Musante onsite this week.

This week ERRS:

- Completed excavation of contaminated soils in the Arroyo area.
- Continued water conveyance system operations.
- Continued site-wide road improvements and maintenance.
- Continued dust control program using water for dust suppression.
- Continued transport of stockpiled mine waste materials to top of Mesa via the skyline cable yarder.
- Began excavation on lower portion of upper slope area below the mine opening using the skyline with a dredge bucket.

START delineated excavation extent in the TSDA area, performed air sampling around work zones as part of the effluent dust sampling program, and performed radiation surveys as needed.

July 1 – 5, 2011

Site operations suspended to give personnel a break for the July 4th Holiday. The skyline yarder subcontractor will remain onsite to inspect and repair the system (see section 2.5 Safety Officer for information related to malfunction incident).

2.1.2 Response Actions to Date

Mobilization for removal activities and site setup began the week of March 28, 2011. Construction of the repository began the week of April 4, 2011, and was completed at the end of May. Excavation of mine waste from the upper slope below the mine opening and valley floor areas on the north side of Oljato Mesa began in early June and continues.

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

EPA to date has been unable to identify any existing PRPs. EPA will continue to analyze the voluminous responses to the information requests it sent to numerous parties associated with mining in general on the Navajo Reservation. Because of the urgency of this removal, EPA is proceeding with a fund-lead action. EPA will continue to review the information referenced above to determine whether viable and liable parties may be identified, and will pursue recovery of the removal costs if appropriate.

2.1.4 Progress Metrics

There are no progress metrics to report at this time. Off-site disposal is not planned for this removal. Uranium mine wastes at the Site will be transferred to the on-site repository. Total volumes of waste moved into the repository may be reported in future POLREPs.

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

- 1) Archeological clearance of all areas impacted by removal activities;
- 2) Construction/improvement of limited access road on southern side of Oljato Mesa;
- 3) Secure a water supply for dust suppression activities, including the potential development of a groundwater well near the Site;
- 4) Development and implementation of an effluent dust monitoring program to prevent offsite release of contaminated particulate;
- 5) Construction of a subsurface repository on top of Oljato Mesa near the Skyline AUM;
- 6) Relocation of contaminated soils from the existing NN AML Skyline AUM repository to allow access to mine tailings on the edge of Oljato Mesa;
- 7) Excavation and internment of contaminated soils from the TLDA, TSDA, and unnamed arroyo in the onsite repository;
- 8) Development and implementation of a confirmation survey and sampling plan.

2.2.1.2 Next Steps

- Uranium mine waste from the slope below the mine and the foot of the mesa will continue to be moved into the repository. A skyline yarder, like the old Skyline, will be used to transport the mine waste up to the top of the mesa. Water will be used to control dust and make sure the mine waste doesn't spread from the site. Air sampling will be conducted around the work areas to check for any radioactive dust.
- Once all the tailings have been placed in the repository, another plastic liner will be installed over the top. Then a soil cap will be placed over the top liner to protect it from sun and wind.
- Areas impacted by removal activities will be seeded with native plant species to help restore the land.

2.2.2 Issues

- Repository excavation was slowed due to hard rock formations underlying surface soils. This delay has resulted in an extended project schedule and additional project costs.
- A cable on the skyline yarder system failed, necessitating a complete replacement of all cable rigging.

2.3 Logistics Section

N/A

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

2.5.1 Safety Officer

On Thursday 6/30, the yarder was excavating the upper slope with a dredge bucket when the haulback cable broke and the carriage and dredge bucket ran down the mainline uncontrolled. The radio operated manual brake mechanism failed to engage when activated by the top tower operator, the automatic runaway alarm failed, and the automatic emergency brake was not effective in stopping the carriage. The carriage traveled from the top of the mesa to the bottom anchor where it hit a turnbuckle, broke loose from the mainline, and flew approximately 80 feet before coming to rest. There were no injuries due to all personnel

being clear of previously identified exclusion zones around the yarder system. An investigation as to why the haulback cable broke and the carriage brake failed is ongoing. The entire yarder system will be re-rigged with all new cables, a new carriage procured, and a thorough inspection of the system completed before yarder operation resumes.

2.6 Liaison Officer

On 6/29, OSC Musante gave a tour of the site to staff from the Navajo Abandoned Mine Lands (AML) Reclamation Program and their partners from the New Mexico AML program.

2.7 Information Officer

2.7.1 Public Information Officer

N/A

2.7.2 Community Involvement Coordinator

OSC Musante will attend the Ojato Chapter meeting on 7/10 to provide updates on project progress/schedule and answer question from the community.

OSC Musante is also working with CIC Brian Davidson to develop a written CIP that documents community outreach to date.

3. Participating Entities

3.1 Unified Command

N/A

3.2 Cooperating Agencies

Navajo Nation EPA Superfund (NN EPA)

Navajo Nation Abandoned Mine Lands Reclamation Program (AML)

Navajo Nation Department of Water Resources

4. Personnel On Site

1 EPA OSC

1 USCG PST

2 START – E&E

25 ERRS – EQM and H2O, Skyline subcontractor

5. Definition of Terms

No information available at this time.

6. Additional sources of information

6.1 Internet location of additional information/report

website: www.epaosc.org/SkylineAUM

6.2 Reporting Schedule

The next POLREP will be submitted on 7/18/11.

7. Situational Reference Materials

-maps: Skyline Fig 1 Site Location, Skyline Fig 2 Site Features