



**THE
TRONOX NAVAJO AREA URANIUM
MINES QUARTERLY REPORT:
Q3 FY 2015**



U.S. Environmental Protection Agency
Navajo Area Uranium Mines | September 2015



Contents

p. 5

1.0 Introduction

pp. 6–9

2.0 Report on Individual Mine Area Response Actions

pp. 6–7

2.1 Region 6

pp. 7–8

2.2 Region 9

p. 9

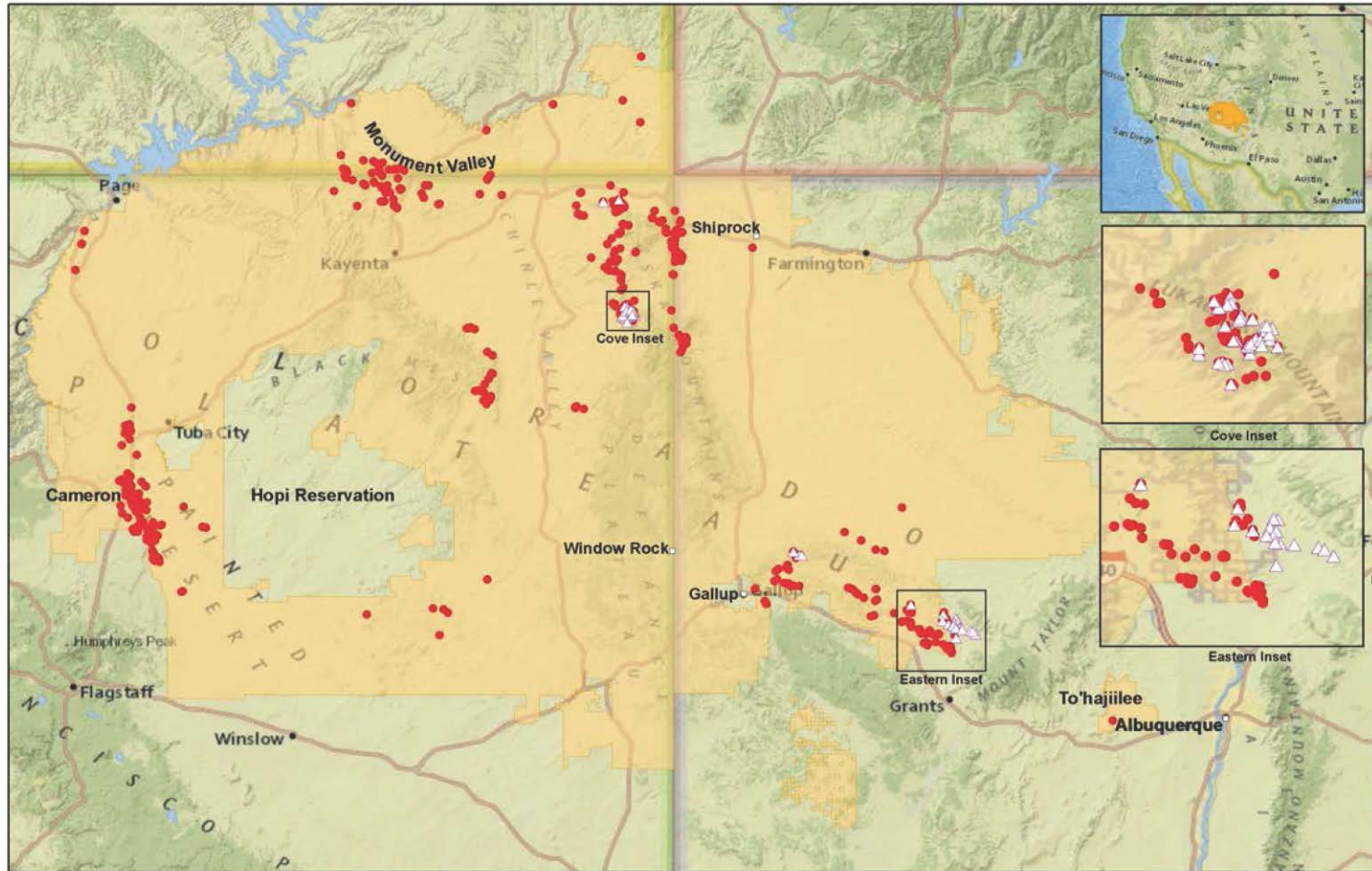
2.3 Northeast Church Rock Quivira Mines




pp. 10–11

3.0 Numbers Overview

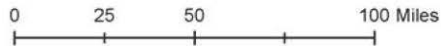


Cove Watershed June 2015 Sampling Effort



-  Tronox Abandoned Uranium Mine
-  Abandoned Uranium Mine
-  Navajo Nation Boundary

Tronox Mines on or Affecting Navajo Nation Lands



SFD/1502257.1 August 5, 2015

1.0

Introduction

On January 23, 2015, a historic settlement was reached with Anadarko Petroleum Corporation and Kerr-McGee Corporation in a lawsuit brought by the U.S. Department of Justice. The settlement followed a determination by the U.S. Bankruptcy Court that Kerr-McGee had fraudulently conveyed billions of dollars in assets to a subsidiary of Anadarko Petroleum named Tronox Limited, in an attempt to avoid environmental liabilities.

The \$5.15 billion Tronox settlement provides substantial funding (more than \$4.4 billion) for environmental cleanup and for environmental claims throughout the United States, including the Ship Rock uranium mill site on the Navajo Nation. The settlement provides almost \$1 billion to the U.S. EPA Superfund Division to clean up 50 abandoned uranium mines located on or impacting Navajo Nation lands.

Working closely with Navajo Nation governmental bodies and communities, and with the State of New Mexico, U.S. EPA Regions 6 and 9 have begun assessing Uranium related Sites in the Cove, Quivira, and Ambrosia Lake areas. This is the first critical step to the evaluation and clean-up of sites that pose a threat to human health and the environment on or that impact the Navajo Nation.

A highlight of this quarter affecting Tronox mines in the Cove area were gamma radiation surveys conducted using U.S. EPA's ASPECT system, which consists of a low-flying aircraft equipped with sophisticated radiation measurement equipment. The intent of using ASPECT was to be able to more rapidly characterize large areas with potential contamination, and to reach areas that otherwise would be nearly impossible to access.

As U.S. EPA assesses the mines, one of our top priorities will be to engage tribally-owned companies wherever possible. We have already contracted with Navajo-owned companies to conduct cultural resource surveys and serve as community liaisons. In conjunction with the Small Business Administration, U.S. EPA hosted Industry Days in Albuquerque and Window Rock, giving small businesses a forum in which to hear about upcoming contracting opportunities and ask questions about qualifying and applying for them. This is just one example of U.S. EPA's efforts to increase awareness and encourage tribally-owned businesses to participate in future procurements.

It is also our intent to conduct Superfund activities in a way that will promote Navajo community involvement and education. This quarter, we partnered with community members and organizations to deliver 24-hour Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training to members of the community, so that they were able to assist us in conducting sampling of the wash within the Cove Chapter. Community members Robertson Tsosie, Tom Begay, Jr., and Tina Ulrich assisted with access, community involvement, organizing local emergency response staff coverage, and general logistics. Chapter officials and staff arranged for a field laboratory to be housed in a community trailer. Geobotanist Arnold Clifford assisted during surveys with identifying geology and endangered species habitat, providing knowledge about traditional uses of plants, and sharing other cultural information. Perry Charley, former lead for abandoned uranium mine reclamation efforts throughout the Navajo Nation, provided critical technical and cultural guidance and support throughout the planning and implementation stages. Among those who were trained and helped to conduct sampling were students from Diné College.

2.0 Report on Individual Mine Area Response Actions

Through informal and formal consultation, the U.S. EPA and Navajo Nation EPA continues their ongoing process of prioritizing response actions for the Tronox NAUM sites and will determine lead responsibility for response action(s) at each site. As a result, this section is broken out by U.S. EPA Region 6 for activities conducted in New Mexico that may have an impact on the Navajo Nation and U.S. EPA Region 9 for activities conducted on the Navajo Nation.

2.1 Region 6



Region 6 collecting gamma readings at Section 35/36.

Tronox NAUM Section 35/36

Mining activities began at the Section 35 and 36 mines in 1958 and ceased in 2005, with approximately 2.5 million tons of uranium ore produced. Since the uranium-containing ore body is approximately 700 feet below ground surface, millions of gallons of groundwater were pumped from the mine shafts and discharged to arroyos and streams, thus increasing the acreage affected by mining activities. The total affected area impacted at the Section 35 and 36 mine sites is approximately 600 acres, and radiation has been measured at more than 100 times background levels.

U.S. EPA awarded two task orders to the Superfund Technical Assessment and Response Team (START) contractor for Section 35 and 36 mines. The task orders covers logistics/general support for field operations related to Tronox Navajo Area Uranium Mines (NAUM) within the Region 6 area of jurisdiction and for the assessment and EE/CA for the aforementioned mines. Field staff began the radiological assessment of Section 35 and 36 mines in preparation for conducting an EE/CA on these mines. The EE/CA will evaluate the radiological assessment and provide recommendations and cost analysis of potential removal options to abate the actual or potential threats of discharge of hazardous materials from the aforementioned mines.

2.2 Region 9

2.1 Region 6 (cont'd)



U.S. EPA conducting drilling activities in the Grant Mining District.

Tronox NAUM San Mateo Creek Basin

U.S. EPA awarded a task order to the START contractor for the San Mateo Creek Basin to fill in data gaps in the groundwater systems with a focus on attribution to the former Kerr McGee Uranium Mine operations. The basin is approximately 321 square miles. Rural residents use groundwater for domestic and agricultural purposes. Installation and sampling of up to 22 new monitoring wells is currently underway. Additionally, existing private water wells will be sampled during this effort. Field work is expected to conclude in late 2015.

Abandoned Uranium Mines on the Navajo Nation

Tronox Data Management Portal

U.S. EPA recognizes that data management is a critical element for implementing the Tronox work, given the multiple jurisdictions involved (U.S. EPA Regions 6 and 9, the Navajo Nation, the New Mexico Environment Department, the New Mexico Mining and Minerals Division, the Navajo Abandoned Mine Lands Department, non-governmental organizations, and others).

As a result, U.S. EPA tasked the START contractor with providing a user needs assessment and developing use cases, ultimately creating a data management portal for the Tronox sites. To date, the contractor has conducted technical and data discovery interviews to develop these use cases. They have drafted a site-wide data management plan and a requirements document to provide a uniform data management approach for all involved parties and stakeholders. Once the requirements document is approved by U.S. EPA, the data management portal will be developed.

ASPECT Northern Agency Navajo Nation Surveys

U.S. EPA used the ASPECT system to conduct a 110-square mile gamma radiological survey and generate radiological data that will be used to locate and assess areas of radiological contamination. The system consists of an aircraft capable of taking photographic imagery and collecting radiological measurements. In addition, a field team on the ground collected soil samples to compare with the ASPECT results. These activities covered mining sites in and around Cove, Sweetwater, and Tse Tah, as well as the Lukachukai and Carrizo Mountains.

The purpose of these surveys was to document uranium surface soil uranium concentrations and to collect overhead and oblique photographs of mine features.



ASPECT aircraft provides infrared and photographic images with geospatial chemical and radiological information to the customer within minutes to hours, depending on the mission.

Cove Transfer Station

No activity to report this quarter.

Mesa 1 Mines

No activity to report this quarter.

Section 32 Site

No activity to report this quarter.

Section 33 Site

No activity to report this quarter.

Tronox Cove Wash

In coordination with the community and Navajo Nation Environmental Protection Agency, U.S. EPA conducted sampling in June 2015 to determine which areas have elevated gamma radiation activity within drainages; identify mining waste boundaries; and assess levels of contaminants of potential concern in surface waters and sediments. Additionally, U.S. EPA completed preliminary ecological risk assessment surveys, identifying threatened and endangered species and wetland habitats.

Tronox Navajo Area Uranium Mines

Other activities this quarter included a quarterly meeting with Navajo Nation EPA in May 2015; settlement implementation planning; accounting and contracting; community involvement; and grants.



Diné College interns Kishala Hayes, Maronica Begaye, and DeRon White help conduct Cove Wash sampling.

2.3 Northeast Church Rock Quivira Mines

U.S. EPA completed field work to evaluate the soil within and surrounding three vent openings, which are located in the community near the Quivira mine site. Vent openings are surface mine features left over from historical mining activities that provided a flow of air to the underground workings of the mine. U.S. EPA also wrote scopes of work outlining technical support needed for the removal action at the vent openings and for the removal work itself; for an engineering design for repair of the bridge on Red Water Pond Road (to provide access for removal); and for annual maintenance of the main waste pile.



Quivira mine main waste pile.

Looking Ahead

- Discuss removal options with Navajo Nation, community, and other Stakeholders;
- Repair roads and bridges to allow access to removal sites;
- Interim action to move 6,000 cubic yards of mine waste from areas in the community to the mine waste pile.

Erosion around a community bridge near the Quivira mine site.

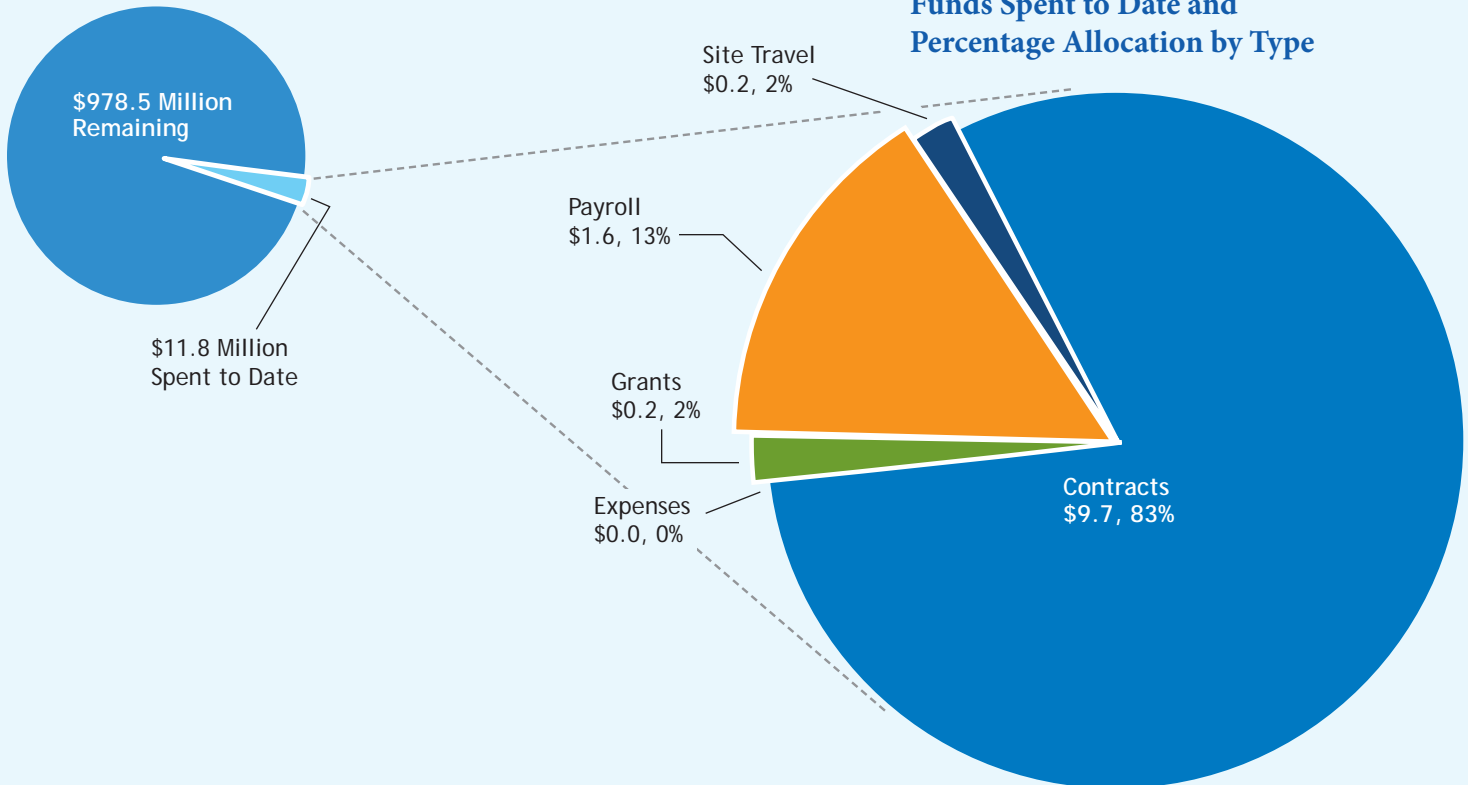


Safety barriers being placed along the community bridge.

3.0 Numbers Overview

U.S. EPA Tronox/Anadarko Settlement Funds for Navajo Area Uranium Mines (NAUM) and Quivira Mine Site as of 3rd Quarter FY 2015

Total Settlement Funds: \$990.3 Million
(Received to Date)



All \$ in millions as of 7/1/15

FY 2015 Special Account Activity for Tronox/Anadarko Funds for NAUM and Quivira Mine Sites

Special Account	Special Account Name	Total Budget (Rec'd 2011-15)	FY 2014	FY 2015 Spent (Rounded in Millions)				Available to Spend (as of 7/1/15)
			Spent (Rounded in Millions)	1st Quarter	2nd Quarter	3rd Quarter	Total FY 2015	
Region 6 NAUM Special Accounts								
A6FK	Tronox NAUM SEC 35/36	\$2.1	0.0	\$0.0	\$0.0	\$1.0	\$1.0	\$1.1
A6KZ	Tronox NAUM	\$1.9	0.0	\$0.0	\$0.0	\$1.1	\$1.1	\$0.8
	Subtotal Region 6 NAUM Special Accounts	\$4.0	0.0	\$0.0	\$0.0	\$2.1	\$2.1	\$1.9
Region 9 NAUM Special Accounts								
099R	Abandoned Uranium Mines on the Navajo Nation	\$127.4	2.5	\$0.2	\$0.1	\$0.6	\$0.9	\$123.9
09XL	Cove Transfer Station - Tronox	\$3.6	2.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.6
09XM	Mesa I Mines - Tronox	\$0.0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
09XN	Section 32 AUM Site - Tronox	\$2.0	2.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
09XP	Section 33 AUM Site - Tronox	\$0.2	0.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
A979	Tronox Cove Wash	\$1.0	0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0
A982	Tronox Navajo Area Uranium Mines	\$762.3	0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$762.2
	Subtotal Region 9 NAUM Special Accounts	\$896.5	7.6	\$0.2	\$0.1	\$0.8	\$1.1	\$887.8
	Subtotal All NAUM Special Accounts	\$900.5	7.6	\$0.2	\$0.1	\$2.9	\$3.2	\$889.6
Quivira Mine Special Account (Region 9)								
09QM	NE ChurchRock Quivira Mines	\$89.7	0.6	\$0.1	\$0.0	\$0.2	\$0.4	\$88.9
Total All Special Accounts		\$990.3	8.2	\$0.3	\$0.1	\$3.2	\$3.6	\$978.5

All \$ in millions as of 7/1/15 from EPA's Compass Business Objects Reporting.

Spending includes commitments, unliquidated obligations, and disbursements in U.S. EPA's financial system.

For More Information (EPA Contacts)

U.S. EPA Region 6

Lisa Price
Tronox NAUM Coordinator
U.S. EPA, Region 6, 6SF-TR
1445 Ross Avenue
Dallas, TX 75202-2733
ph: (214) 665-6744
f: (214) 665-6660
price.lisa@epa.gov

EPA Region 9

Chip Poalinelli
Tronox NAUM Coordinator
USEPA, Region 9, SFD 6-2
75 Hawthorne Street
San Francisco, CA 94105
p: (415) 972-3390
f: (415) 947-3526
poalinelli.edwin@epa.gov

