Navajo Abandoned Uranium Mine

Site Screen Report

This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.

The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.

Isabella AUM Site

Navajo AUM Eastern Region

Prepared by:

Weston Solutions, Inc.

Contract: W91238-06-F-0083

12767.063.496.1111

March 2010

Part I Site Identification, Location and Status

Site Names and ID numbers as applicable

Mine ID: Mine site not found in EPA/AUM Databsae

Map ID: Mine site not found in EPA/AUM Database

CERCLIS: NOT ASSIGNED

Navajo Abandoned Mine Land Reclamation Program: None

Local name / Aliases: None

Chapter and local area: None

County: McKinley **State:** New Mexico

Lat/Long: 35.379053000 N / -107.826905000 W

Nearby road and highway: 509 Ambrosia Lake Rd **Local Post Office:** Milan, NM

Surface Land Status: check one or more and provide ownership and contact information below

Tribal Trust Land	☐	**Public lands**	☐
Private	☐	**Tribal Fee Land**	☐
Bureau of Land Mgmt	☐	**Allotment**	☒
State	☐	**Fee land**	☐

Subsurface Mineral Rights:

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

Claim and operator information:

The mine site surface land status is classified as Indian Allotment Land. Historical documents showed the operator of the mine as Phillips Petroleum Co. from 1959 to 1961, and KSN Mining Co. from 1961 to 1962. No other historical ownership / lease information was identified in the EPA/AUM database.

Number of residential structures within 200 feet of mine:

None

Estimated volume of mine waste onsite:

200 yd^3

Part II Summary of radiological readings

Highest gamma radiation measurement: 304, 084 counts per minute (cpm)

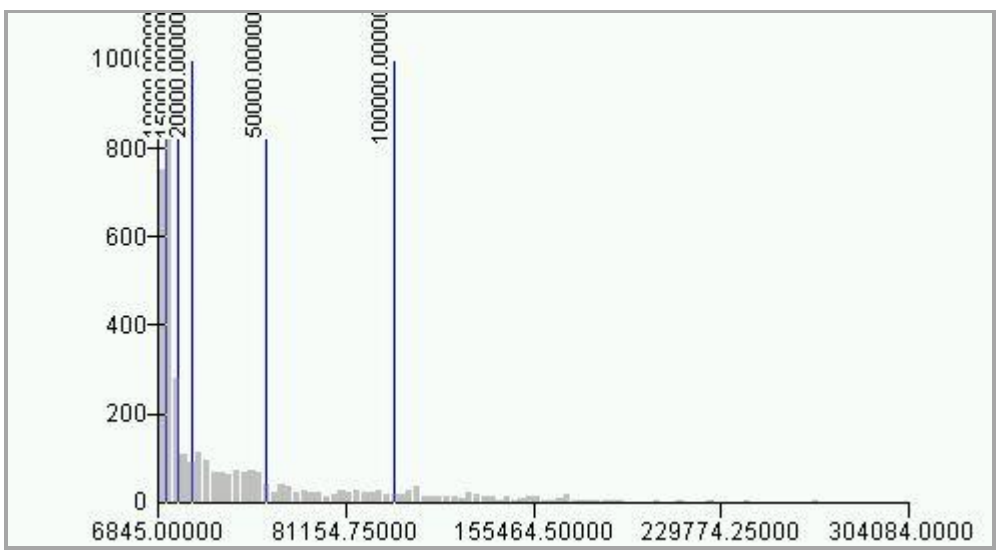
Describe any other radiological measurements:

A total of 3,737 gamma radiation measurements were collected from the mine site, ranging from 6,845 cpm to 304,084 cpm. Measurements in the vicinity of the waste debris were found at levels above 300,000 cpm atop the pile,approximately 85,000 cpm immediately downgradient, and 50,000 in the drainage below. Measurements in the vicinity of the vertical shaft were found at levels of approximately 60,000 cpm. Possibly due to poor satellite coverage, the GPS unit was unable to determine the locations of the collected readings, but the full list of reading is shown in the chart below. A site map represented in Figure 1. An additional mine area approximately 0.25 miles south Isabella was observed, off of Navajo land, measurements were collected with a maximum reading of approximately 275,000 cpm, and are represented in Figure 2.

Background Locations #1 10,421 cpm, #2 10,988 cpm **Average background =** 10,720 cpm

Distribution Chart and Statistics:

The following chart and statistics were generated by ESRI ArcGIS 9.3.1, and show the general distribution of the site gamma radiation measurements. The horizontal X axis represents the gamma radiation reading levels in cpm (lowest levels to the left). The vertical Y axis represents the frequency of each gamma radiation level.



Count:	3737
Minimum:	6845.00000
Maximum:	304084.00000
Sum:	136234152.00000
Mean:	36455.48622
Median:	13835.00000
Standard Deviation:	43677.08785

Part III Status of Reclamation and Mine Waste

The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:

Not found in NAMLRP Database

The following information was obtained from field observations collected during the 2010 site screening:

Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.

Observed reclamation work and status:

Adits
None

Waste Piles
30' x 30' x 6' pile next to drainage from rock mesa, with a total estimated volume of 200 yd^3

Pits
None

Shafts
1 vertical shaft, 8' x 8' x 30' deep, with wood walls

Other Debris and Mine Features
No other mine features were observed during the site visit. An additional mine area approximately 0.25 miles south Isabella was observed, off of Navajo land, measurements were collected with a maximum reading of approximately 275,000 cpm. This mine has been identified by the New Mexico Mining and Mineral Division as “Spencer Mine”.

Part IV

Site observations and Environs

Observed Structures: list number of and describe human habitation status of structures at the following distances from mine:

0 to 200 feet: None

200 feet to 0.25 mile: None

Observed Public or commercial structure: list and describe all schools, clinics, Chapter Houses, places of business and any other structure used by members of the community at the following distances:

0 to 200 feet: None

200 feet to 0.25 mile: None

Levels measured around the perimeter(s) of the identified structure(s):

None

Observed water sources: list the number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine:

0 to 0.25 miles: None

0.25 miles to 4 miles: None

Sensitive environments: note and describe all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation.

None observed

Known Site History: include information from interviews with Chapter officials and residents. Note information on mine ownership, type of mining operation, period of operation, known amount of production, and any other information as provided.

Isabella mine consists of an area of 13,475 square meters. The mine was identified as being operational from 1959 to 1962. Historical documents showed the operator of the mine as Phillips Petroleum Co. from 1959 to 1961, and KSN Mining Co. from 1961 to 1962. While operational, the mine had a total reported production volume of 76,748 tons. No other historical information or any additional ownership / lease information was identified in the EPA/AUM database.

Part V Response Action Summary

Site Name(s): Isabella **Chapter:** None

Decision Criteria

Is there an unreclaimed waste pile at the site? Yes

At what distance from the waste pile is the nearest residential structure located? None

At what distances from the waste pile are there potential drinking water sources? None

Is there a reclamation cap or sealed adit in place at the site? No

Is the cap/seal functionally intact? No

Is the cap/seal sufficiently degraded to create a concern about releases? No

At what distance from the cap/seal is the nearest domestic structure located? None

At what distance from the cap/seal is the nearest domestic drinking water source? None

Summary of emergency response factors

None

Summary hazard ranking system factors

None

Summary of reclamation factors

Open vertical shaft, unreclaimed waste pile, additional mine area approximately 0.25 miles south Isabella was observed, off of Navajo land, measurements were collected with a maximum reading of approximately 275,000 cpm. This mine has been identified by New Mexico Mining and Mineral Division as “Spencer Mine”.

Part VI Photos

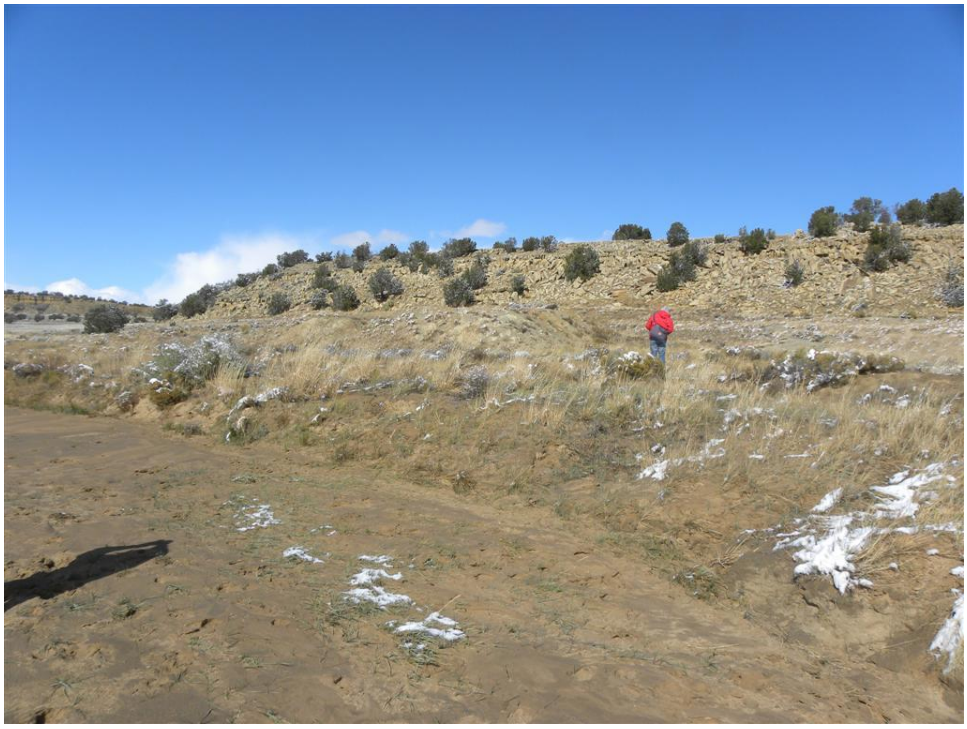


Photo 1. Isabella mine site

Photo 2. Isabella mine site drainage / pathway

Photo 3. Isabella mine site

Photo 4. Drainage near waste pil

Photo 5. Waste Pile

Photo 6. Open vertical shaft

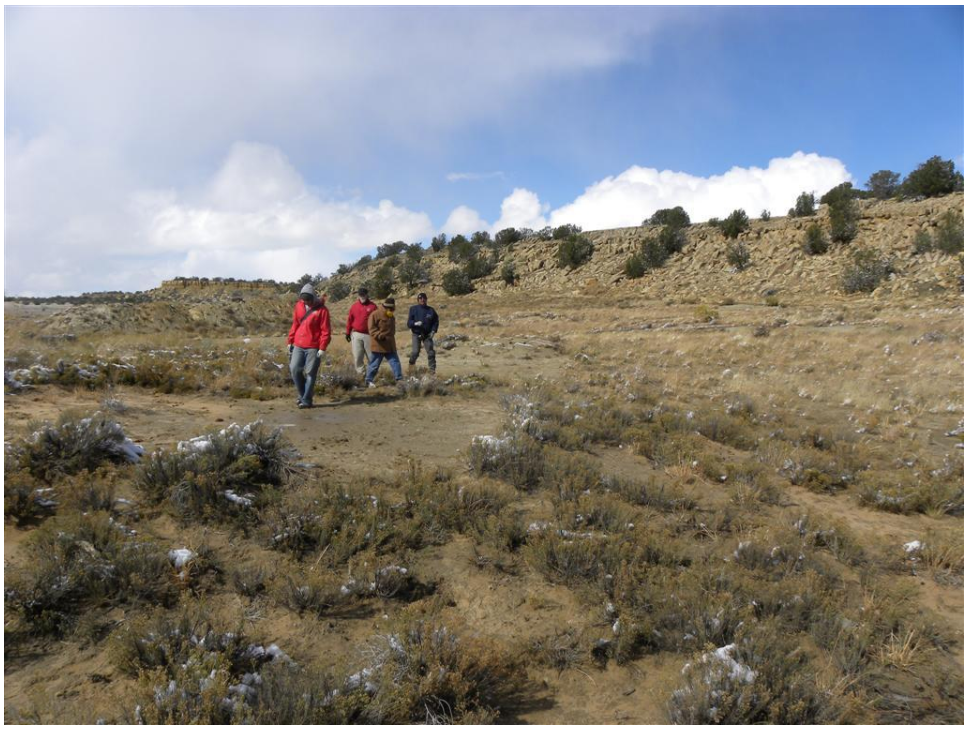


Photo 7. Area near shaft

Photo 8. Debris near mine site south of Isabella

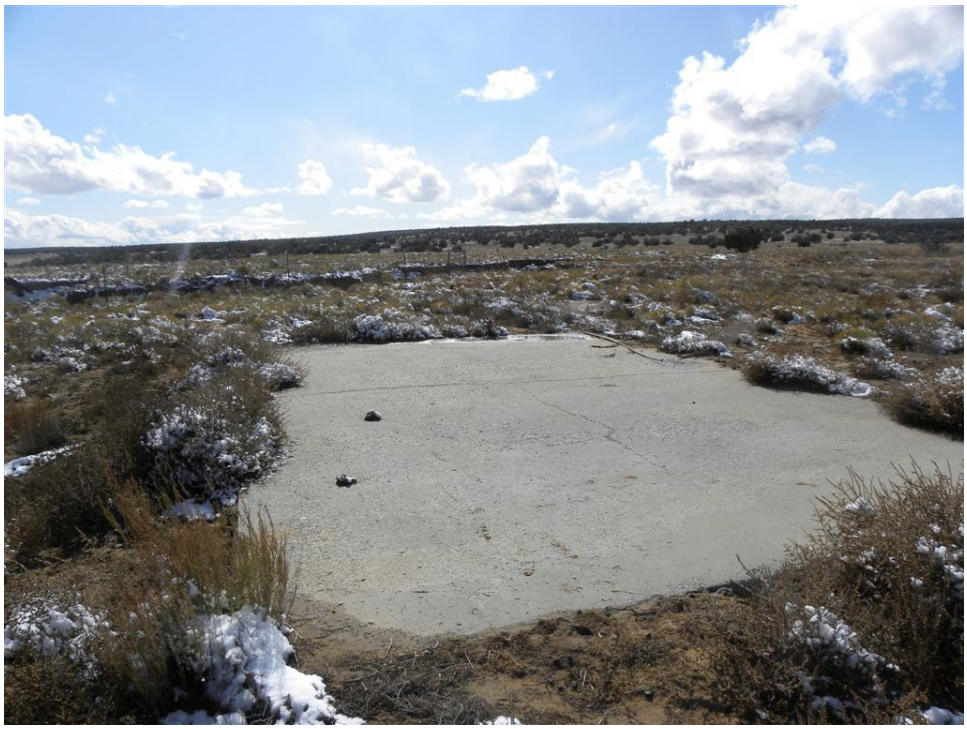


Photo 9. Concrete pad mine site south of Isabella

Photo 10. Fallen tower at mine site south of Isabella

Photo 11. Piles at mine site south of Isabella

Photo 12. Mine site south of Isabella

Part VII Contacts Reports and Information

Name: Stanley Edison (928) 871-6861

Eugene Esplain (928) 871-7331

Title or official role (if any) Navajo EPA Superfund Program

Address___PO Box 2946, Window Rock, AZ 86515

Information provided Lead Regulatory Agency

Name_____

Title or official role (if any) _____

Address_____

Telephone number_____

Information provided_____

Name_____

Title or official role (if any) _____

Telephone number_____

Information provided_____

Name_____

Title or official role (if any) _____

Telephone number_____

Information provided_____

Figure 1 - Gamma Radiation Measurements
Isabella
Navajo Nation, New Mexico

Note: Poor satellite coverage was encountered throughout the site.
Site readings were not located by the GPS, but are included in the screen report.

Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Observed Vertical Shaft

General Direction Down-Slope

Mine Claim Boundaries

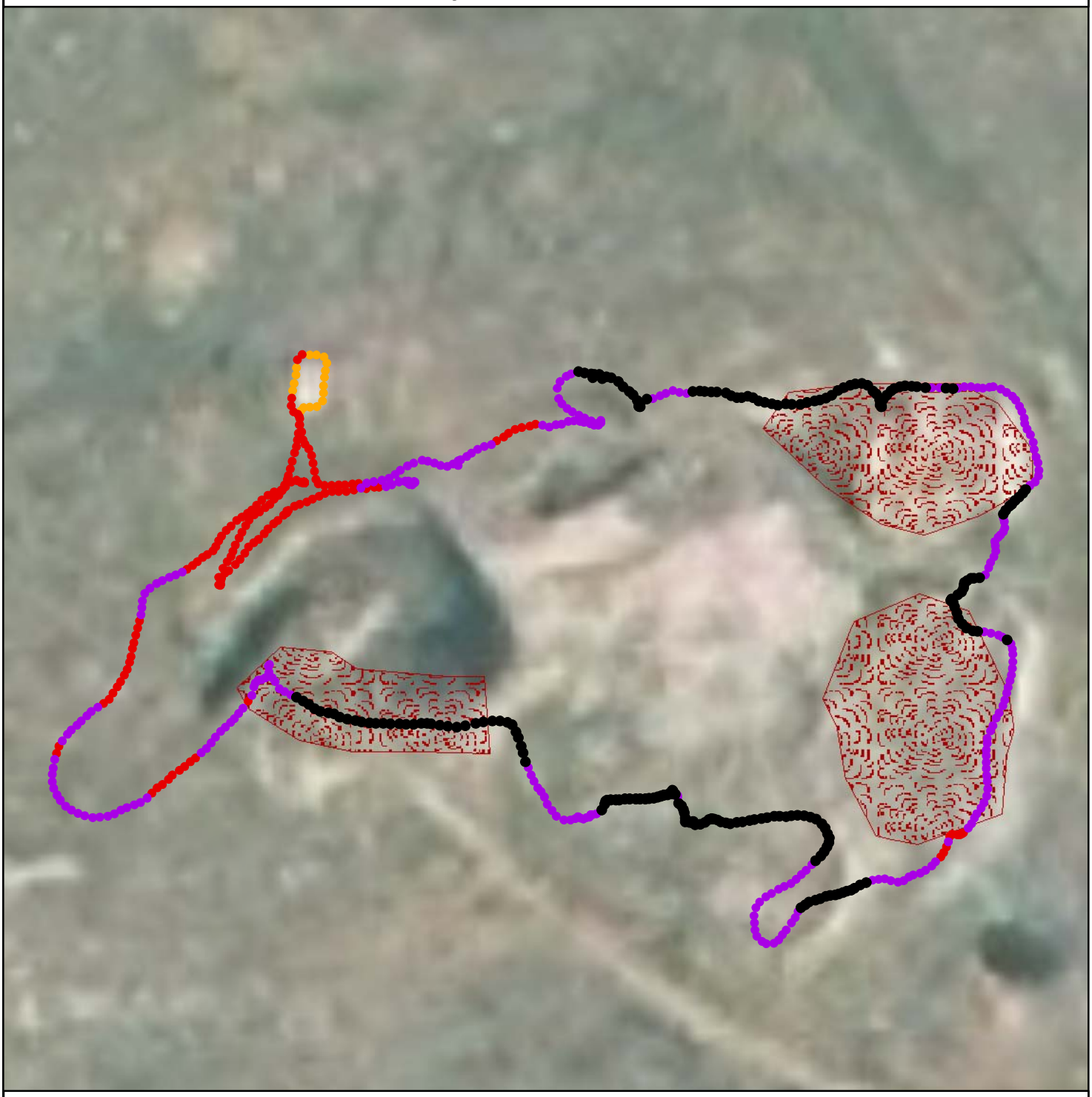
Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background 10,720 cpm

N

0 150 Feet

Figure 2 - Gamma Radiation Measurements
Mine Site South of Isabella (State ofNew Mexico Land)
Navajo Nation, New Mexico



Legend

Gamma Radiation Measurements

- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

Observed Waste Pile

Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background 10,720 cpm

N

Feet
0 **100**