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.

New Liba Group AUM Site

Navajo AUM Western Region

Prepared by:

Weston Solutions, Inc.

Contract: W91238-06-F-0083

12767.063.599.1111

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Part I  Site Identification, Location and Status

Site Names and ID numbers as applicable

Mine ID:  456; 522

Map ID:  456: W91; 522: W90

CERCLIS:  NNN0909109

Navajo Abandoned Mine Land Reclamation Program:  456: None; 522: NA-0166

Local name / Aliases:  New Liba; Liba Group; Pretty Girl; Liba No 2 and 17

Chapter and local area:  State of Arizona

County:  Coconino       State:  Arizona

Lat/Long:  456:  35.7494450282 N / -111.326843401 W
          522:  35.7550917753 N / -111.326358029 W

Nearby road and highway:  Highway 89      Local Post Office:  Cameron, AZ

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 New Liba Group mine claim consists of 2 separate mine sites (#’s 456, 522). The mine claim surface land status is classified as State of Arizona land. Historical documents showed the operator of the mine as Shooting Star Uranium in 1955, C.S. Black in 1956, and L.L. Travis from 1959 to 1960. No additional 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:  456: 93,000 yd$^3$
                                      522: 185,185 yd$^3$
Part II  Summary of radiological readings

Mine ID: 456

Highest gamma radiation measurement:

266,839 counts per minute (cpm)

Describe any other radiological measurements:

A total of 2,549 gamma radiation measurements were collected from the mine site, ranging from 12,239 cpm to 266,839 cpm. The measurements collected inside the open pit were found at levels ranging from approximately 30,000 cpm to 200,000 cpm, and at the waste piles surrounding the pit at a maximum level of approximately 265,000 cpm. The measurements are represented in Figures 1, 2, 3, and 4.

Background Readings: 14,540 cpm; 17,102 cpm

Background Average: 15,821 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.
Mine ID: 522

Highest gamma radiation measurement:

999,960 counts per minute (cpm)

Describe any other radiological measurements:

A total of 5,756 gamma radiation measurements were collected from the mine site, ranging from 13,620 cpm to 999,960 cpm. The measurements collected throughout the waste rock area were found at levels ranging from approximately 40,000 cpm to 1,000,000 cpm, at the exposed ore at a maximum level of approximately 250,000 cpm, and in the downstream drainages at a maximum level of approximately 25,000 cpm. The measurements are represented in Figures 1, 2, 5, and 6.

Background Readings: 14,540 cpm; 17,102 cpm

Background Average: 15,821 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: 5756 |
| Minimum: 13620.00000 |
| Maximum: 999960.00000 |
| Sum: 236972511.00000 |
| Mean: 41169.65097 |
| Median: 21071.50000 |
| Standard Deviation: 77676.95550 |
Part III Status of Reclamation and Mine Waste

Mine ID: 456

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

NAMLRP Status of the mine site: Reclaimed: Partially Waste Pile onsite: No

NAMLRP Project Number: None

NAMLRP Mine features: 1 Rim Strip / Pit

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
Waste piles throughout site, surrounding open pit, estimated 720' x 360' x 10'

Pits
Open pit area in center of site, approximately 30' x 320' x 30' deep

Shafts
None

Other Debris and Mine Features
None
Mine ID: 522

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

NAMLRP Status of the mine site: Reclaimed: Partially  Waste Pile onsite: No

NAMLRP Project Number: NA-0166

NAMLRP Mine features: 1 Rim Strip / Pit

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
Majority of site is one large waste/workings pile, possible rim strip operation, estimated size 500' x 2,000' x 5'

Pits
None

Shafts
None

Other Debris and Mine Features
Possible rim strip operation; varies wood markers and metal boundary markers labeled "Western Nuclear" surrounded with black casings; several 6” metal casings around 4” PVC pipes south and west of site; large exposed ore rock
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: Little Colorado River Basin approximately 0.25 mi E of the sites

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.

Little Colorado River Basin approximately 0.25 mi E of the sites, possible wetlands

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.

New Liba Group mine claim consists of 2 separate mine sites (#'s 456, 522) with a total combined area of 146,153.91 m$^2$. Historical documents showed the operator of the mine as Shooting Star Uranium in 1955, C.S. Black in 1956, and L.L. Travis from 1959 to 1960. The mine claim was identified as being operational from 1955 to 1960. While operational, the mine had a total production volume of 1,845 tons. No other historical information or any additional ownership / lease information was identified in the EPA/AUM database.
Part V  Response Action Summary

Summary of Evaluation Factors:

Accessibility:

Was the mine easily accessible to potential human activity?
Yes

Radiological Measurements:

Were any gamma radiation measurements collected at the mine greater than two times the site-specific background levels?
Yes

Waste Piles:

Were any unreclaimed waste piles observed at the mine with gamma radiation measurements greater than two times the site-specific background levels?
Yes

Structures:

Were any structures observed within 200 feet of the mine?
No

Potential Drinking Water Sources:

Were any potential drinking water sources observed within 4 miles of the mine?
Yes

Reclamation:

Was the mine reported to be previously reclaimed, or did the mine appear to be reclaimed?
Partially
Part VI Photos

Photo 1. New Liba Group, Site #456

Photo 2. New Liba Group, Site #456, open pit
Photo 3. New Liba Group, Site #456, edge of open pit

Photo 4. New Liba Group, Site #456, open pit and waste piles
Photo 5. New Liba Group, Site #456, waste piles surrounding open pit

Photo 6. New Liba Group, Site #456, waste piles surrounding open pit
Photo 7. New Liba Group, Site #522

Photo 8. New Liba Group, Site #522, metal casing
Photo 9. New Liba Group, Site #522, PVC tube inside metal casing

Photo 10. New Liba Group, Site #522, boundary marker
Photo 11. New Liba Group, Site #522, boundary marker

Photo 12. New Liba Group, Site #522, waste pile and mining debris
Photo 13. New Liba Group, Site #522, waste area

Photo 14. New Liba Group, Site #522, waste area
Photo 15. New Liba Group, Site #522, waste area

Photo 16. New Liba Group, Site #522, waste area
Photo 15. New Liba Group, Site #522, waste area

Photo 18. New Liba Group, Site #522, graded western area
Photo 19. New Liba Group, Site #522, eastern area along Little Colorado River basin

Photo 20. New Liba Group, Site #522, eastern area along Little Colorado River basin
Photo 21. New Liba Group, Site #522, eastern area along Little Colorado River basin
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, Above Two Times Background
New Liba Group (456, 522)
Coconino County, Arizona

Legend
Gamma Radiation Measurements
- < 2X Background
- > 2X Background

General Slope Direction
Observed Waste Pile
Mine Site Boundary

Gamma survey conducted 11/2010
Measured as counts per minute (cpm)
Average background 15,821 cpm
Figure 2 - Gamma Radiation Measurements
New Liba Group (456, 522)
Coconino County, Arizona

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

General Slope Direction
Observed Waste Pile
Mine Site Boundary

Average background 15,821 cpm
Gamma survey conducted 11/2010
Measured as counts per minute (cpm)
Figure 3 - Gamma Radiation Measurements, Above Two Times Background
New Liba Group (456)
Coconino County, Arizona

Legend
Gamma Radiation Measurements
- < 2X Background
- > 2X Background

- Observed Waste Pile
- General Slope Direction
- Mine Site Boundary

Gamma survey conducted 11/2010
Measured as counts per minute (cpm)
Average background 15,821 cpm
Figure 4 - Gamma Radiation Measurements
New Liba Group (456)
Coconino County, Arizona

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

General Slope Direction
Observed Waste Pile
Mine Site Boundary

Average background 15,821 cpm
Measured as counts per minute (cpm)

Gamma survey conducted 11/2010
Figure 5 - Gamma Radiation Measurements, Above Two Times Background
New Liba Group (522)
Coconino County, Arizona

Legend

Gamma Radiation Measurements
- Green circle: < 2X Background
- Orange circle: > 2X Background

General Slope Direction

Observed Waste Pile

Mine Site Boundary

Gamma survey conducted 11/2010
Measured as counts per minute (cpm)

Average background 15,821 cpm
Figure 6 - Gamma Radiation Measurements
New Liba Group (522)
Coconino County, Arizona

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

General Slope Direction
Observed Waste Pile
Mine Site Boundary

Gamma survey conducted 11/2010
Measured as counts per minute (cpm)