

# **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**

**January 2011**

**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:** NNN000909109

**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**

<b>Tribal Trust Land</b>	<input type="checkbox"/>	<b>Public lands</b>	<input type="checkbox"/>
<b>Private</b>	<input type="checkbox"/>	<b>Tribal Fee Land</b>	<input type="checkbox"/>
<b>Bureau of Land Mgmt</b>	<input type="checkbox"/>	<b>Allotment</b>	<input type="checkbox"/>
<b>State</b>	<input checked="" type="checkbox"/>	<b>Fee land</b>	<input type="checkbox"/>

**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<sup>3</sup>  
 522: 185,185 yd<sup>3</sup>

**Part II Summary of radiological readings**

**Mine ID:** 456

**Highest gamma radiation measurement:**

266,839 counts per minute (cpm)

**Describe any other radiological measurements:**

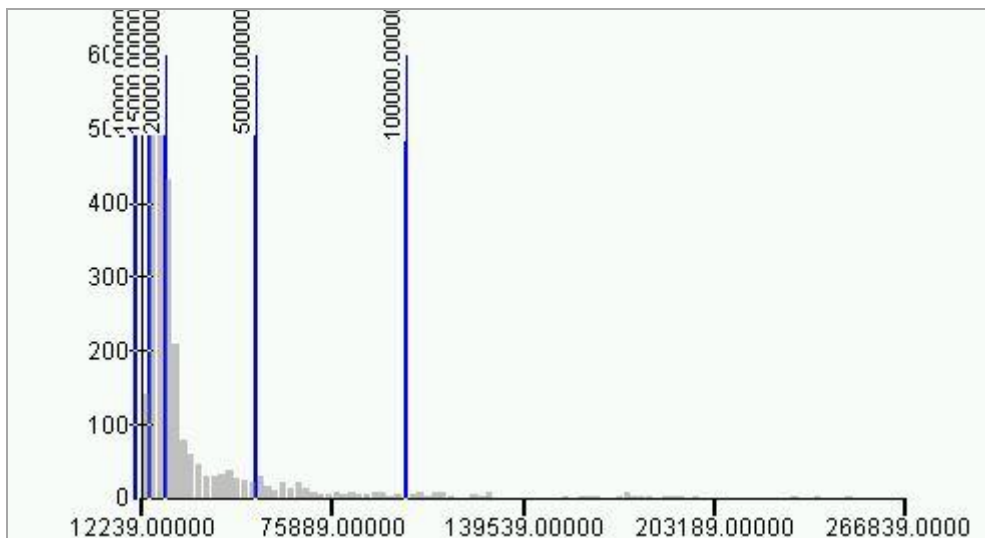
A total of 2,549 gamma radiation measurements were collected from the mine site, ranging from 12,239 cpm to 266,839 cpm. The measurements collected inside the open pit were found at levels ranging from approximately 30,000 cpm to 200,000 cpm, and at the waste piles surrounding the pit at a maximum level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



Count:	2549
Minimum:	12239.00000
Maximum:	266839.00000
Sum:	80851762.00000
Mean:	31719.01216
Median:	20268.00000
Standard Deviation:	32842.48816

**Mine ID: 522**

**Highest gamma radiation measurement:**

999,960 counts per minute (cpm)

**Describe any other radiological measurements:**

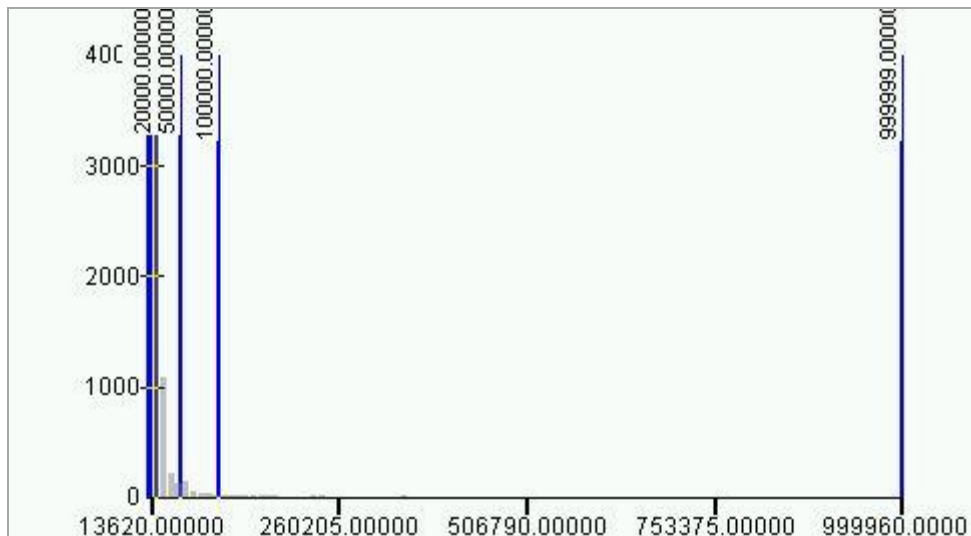
A total of 5,756 gamma radiation measurements were collected from the mine site, ranging from 13,620 cpm to 999,960 cpm. The measurements collected throughout the waste rock area were found at levels ranging from approximately 40,000 cpm to 1,000,000 cpm, at the exposed ore at a maximum level of approximately 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

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**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

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**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; various 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<sup>2</sup>. 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

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Name \_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

Information provided \_\_\_\_\_

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Name \_\_\_\_\_

Title or official role (if any) \_\_\_\_\_

Telephone number \_\_\_\_\_

Information provided \_\_\_\_\_

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Name \_\_\_\_\_

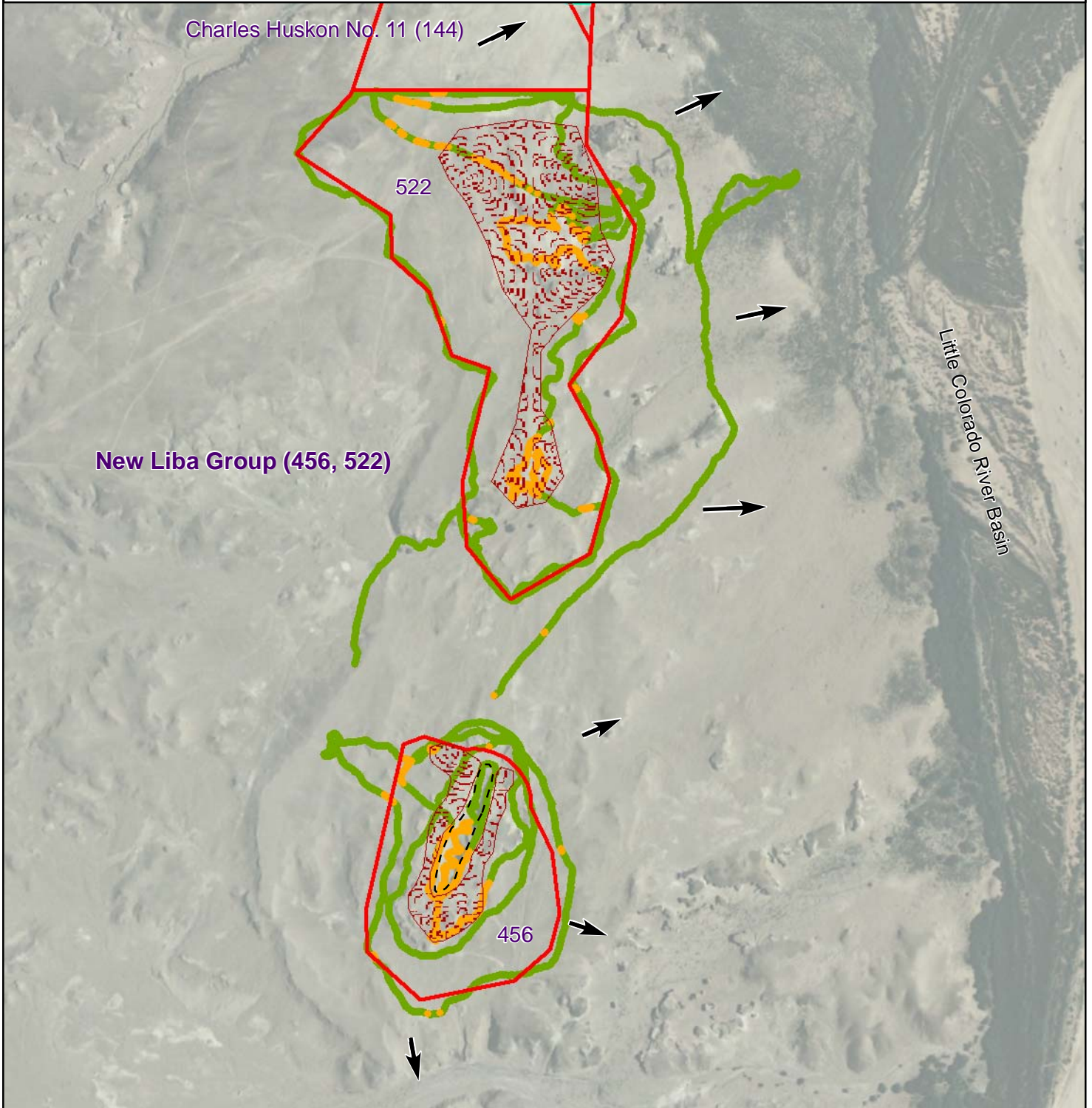
Title or official role (if any) \_\_\_\_\_

Telephone number \_\_\_\_\_

Information provided \_\_\_\_\_

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**Figure 1 - Gamma Radiation Measurements, Above Two Times Background  
New Liba Group (456, 522)  
Coconino County, Arizona**



**Legend**

**Gamma Radiation Measurements**

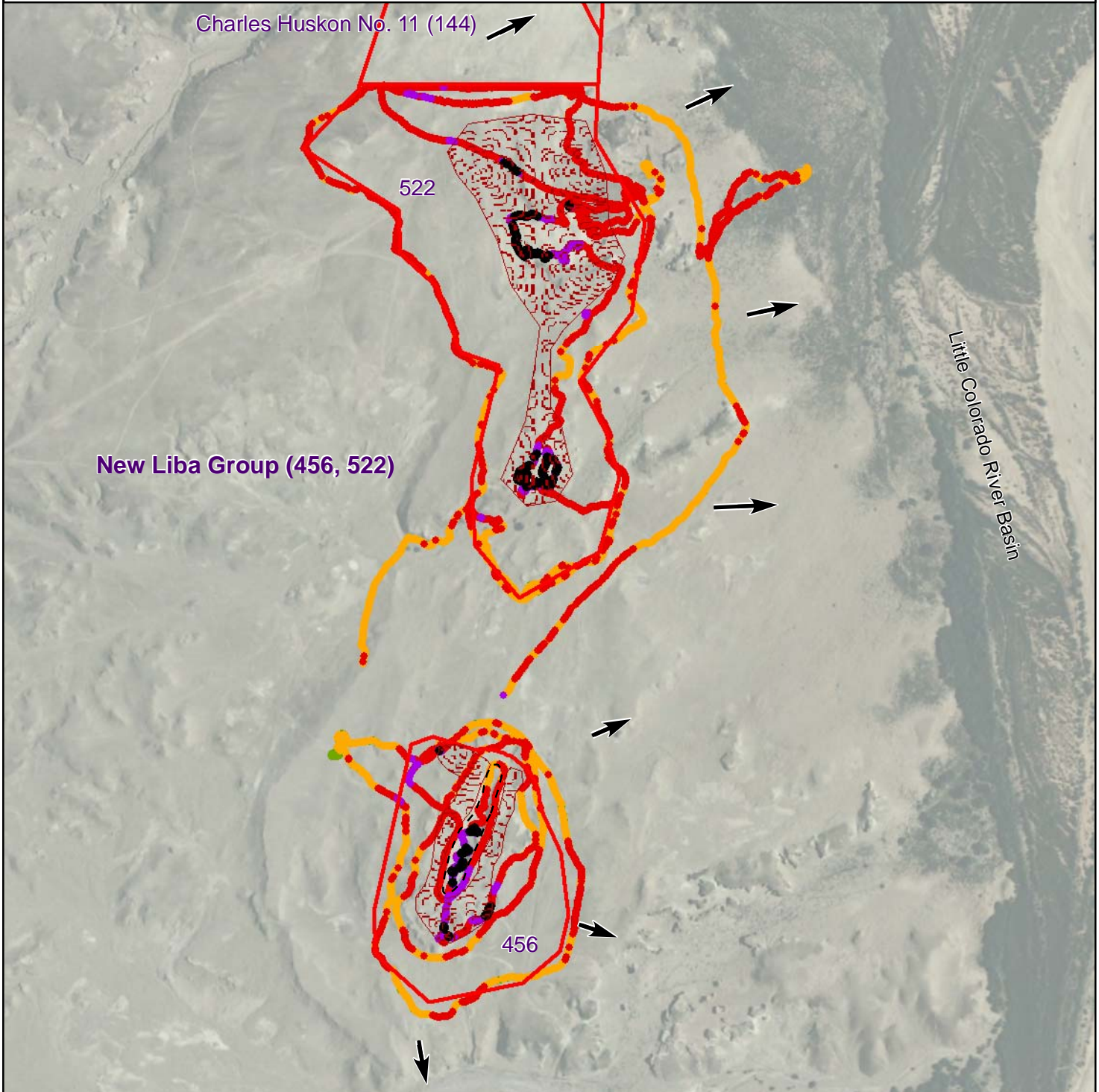
- < 2X Background
- > 2X Background

- 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

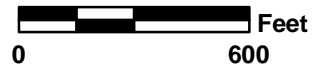
Average background 15,821 cpm

➔ General Slope Direction

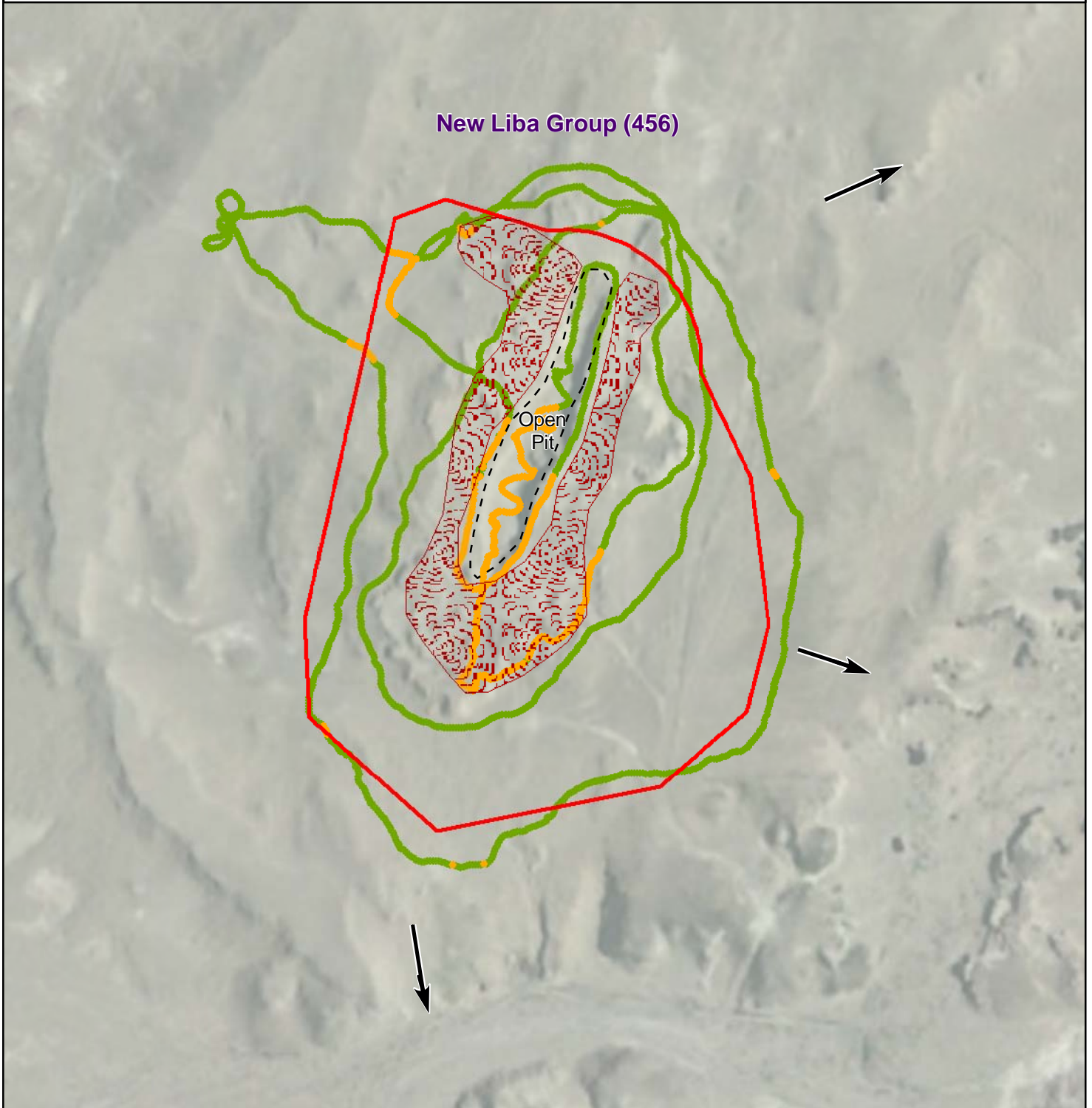
▨ Observed Waste Pile

▭ Mine Site Boundary

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**





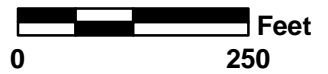
**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

→ General Slope Direction

-  Observed Waste Pile
-  Mine Site Boundary

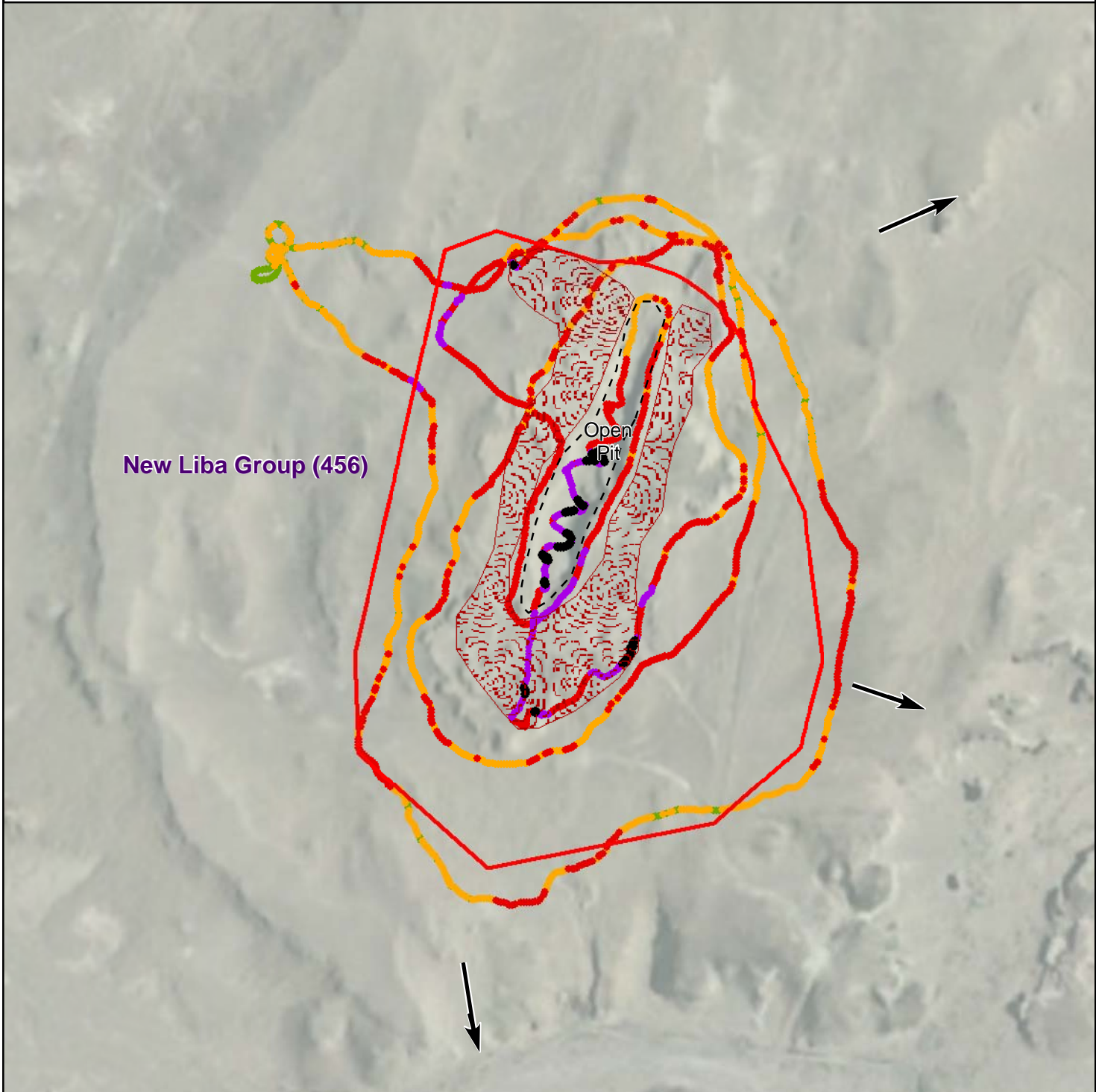


Gamma survey conducted 11/2010  
Measured as counts per minute (cpm)

Average background 15,821 cpm



**Figure 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

Average background 15,821 cpm

➔ General Slope Direction

 Observed Waste Pile

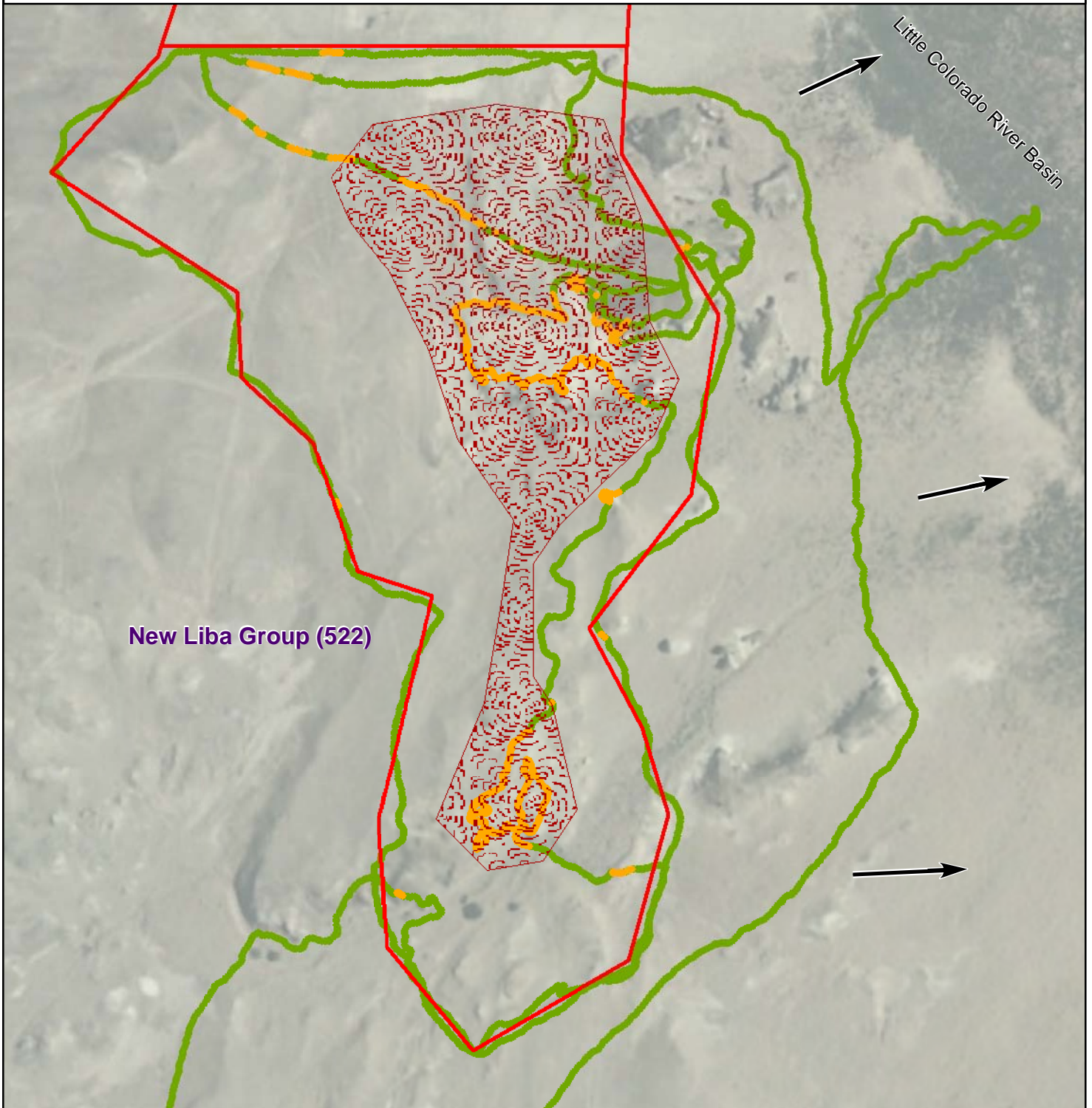
 Mine Site Boundary



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



**Figure 5 - Gamma Radiation Measurements, Above Two Times Background  
New Liba Group (522)  
Coconino County, Arizona**





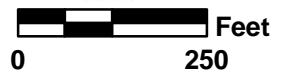
**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

→ General Slope Direction

-  Observed Waste Pile
-  Mine Site Boundary

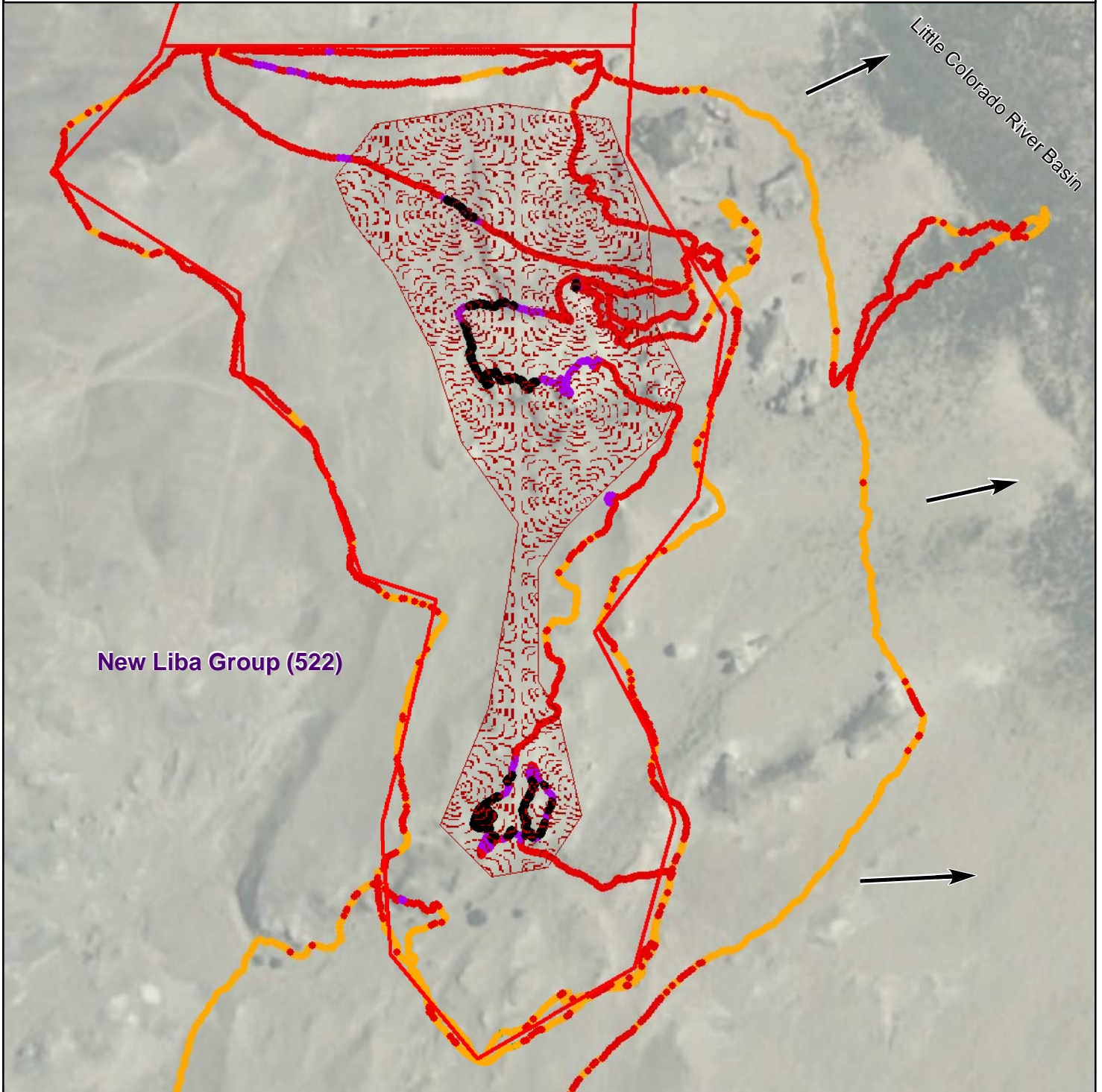


Gamma survey conducted 11/2010  
Measured as counts per minute (cpm)

Average background 15,821 cpm



**Figure 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

Average background 15,821 cpm

→ General Slope Direction

 Observed Waste Pile

 Mine Site Boundary



0  250 Feet



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