

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.

Mesa V Mine AUM Site

Navajo AUM Northern 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: 103, 508

Map ID: #103- N208
#508- N209

CERCLIS: NNN000908849

Navajo Abandoned Mine Land Reclamation Program: #103 – NA-0302
#508 – NA-0317

Local name / Aliases: Tom Nakai Chee No. 1; Tom Naki Chee #1

Chapter and local area: #103 – Cove
#508 – Cove

County: Apache **State:** Arizona

Lat/Long: #103 - 36.5399148408 N / -109.249036738 W
#508 - 36.5380667228 N / -109.254889596 W

Nearby road and highway: Indian Route 33 **Local Post Office:** Cove, AZ

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

Tribal Trust Land	<input checked="" type="checkbox"/>	Public lands	<input type="checkbox"/>
Private	<input type="checkbox"/>	Tribal Fee Land	<input type="checkbox"/>
Bureau of Land Mgmt	<input type="checkbox"/>	Allotment	<input type="checkbox"/>
State	<input type="checkbox"/>	Fee land	<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 mine site surface land status is classified as Tribal Trust Land. Historical documents showed the operator of the mine as Kerr-McGee from 1960 to 1963, and Vanadium Corp. of America from 1963 to 1968. 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: #103 – 514 yd³
#508 – 2,083 yd³

Part II Summary of radiological readings

Mine ID # 103

Highest gamma radiation measurement:

18,135 counts per minute (cpm)

Describe any other radiological measurements:

A total of 253 gamma radiation measurements were collected from the mine site, ranging from 11,378 cpm to 18,135 cpm. The majority of the site was inaccessible due to steep grades. The measurements are represented in Figures 2 and 3.

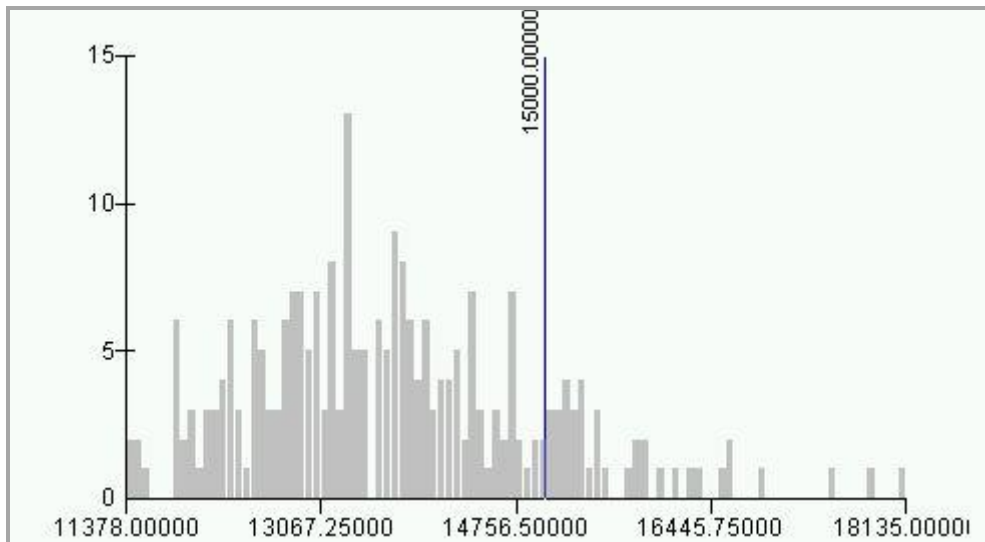
Background Locations

Average background = 15,200 cpm

#1 15,200 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:	253
Minimum:	11378.00000
Maximum:	18135.00000
Sum:	3462542.00000
Mean:	13685.93676
Median:	13580.00000
Standard Deviation:	1219.99262

Mine ID # 508

Highest gamma radiation measurement:

42,793 counts per minute (cpm)

Describe any other radiological measurements:

A total of 1,196 gamma radiation measurements were collected from the mine site, ranging from 12,225 cpm to 42,793 cpm. The measurements at the waste piles were found at levels of approximately 40,000 cpm. The measurements are represented in Figures 4 and 5.

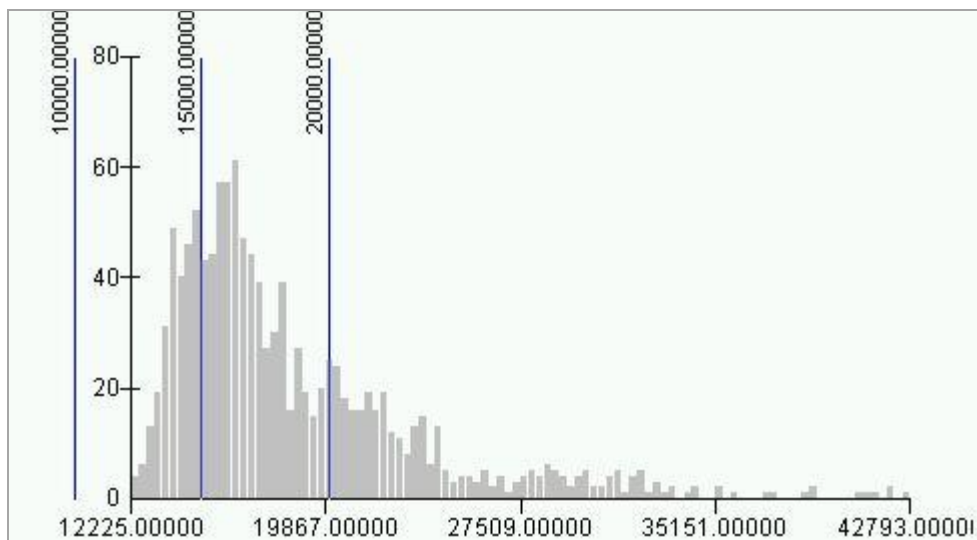
Background Locations

#1 16,800 cpm

Average background = 16,800 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:	1196
Minimum:	12225.00000
Maximum:	42793.00000
Sum:	22224262.00000
Mean:	18582.15886
Median:	17028.50000
Standard Deviation:	4896.24787

Part III Status of Reclamation and Mine Waste

Mine ID #103

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

NAMLRP Status of the mine site: Reclaimed : Yes Waste Pile onsite : Yes

NAMLRP Project Number: NA-0302

NAMLRP Mine features: 3 Portals, 1 Prospect

The following information was obtained from field observations collected during the 2009 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 debris extending down inaccessible cliff face, 75' x 75' x 75' triangle, with a total estimated volume of 514 yd³

Pits

None

Shafts

None

Other Debris and Mine Features

The majority of the site was inaccessible due to steep grades

Mine ID #508

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

NAMLRP Status of the mine site: Reclaimed : Yes Waste Pile onsite : Yes

NAMLRP Project Number: NA-0317

NAMLRP Mine features: 1 Portal

The following information was obtained from field observations collected during the 2009 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

2 waste debris piles: 100' long x 50 - 60' tall waste debris along cliff face to the N-NW direction; 250' long waste rock pile and soft sand/clay stretching 25' down SE side of slope, with a total estimated volume of 2,083 yd³

Pits

None

Shafts

None

Other Debris and Mine Features

Concrete pads along the cliff face

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.

Mesa V consists of 2 mine sites with a total area of 30,435.67 m² (#103 – 17,559.61 m², #508 – 19, 12,876.06 m²). The mine was identified as being operational from 1960 to 1968. Historical documents showed the operator of the mine as Kerr-McGee from 1960 to 1963, and Vanadium Corp. of America from 1963 to 1968. While operational, the mine had a total reported production volume of 55,599 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): Mesa V **Chapter:** Cove

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? None

Is the cap/seal functionally intact? None

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

Waste piles found at each site

Part VI Photos



Photo 1. Mine site #103 inaccessible waste pile



Photo 2. Mine site #103 inaccessible area



Photo 3. Mine site #103 steep grades



Photo 4. Mine site #508



Photo 5. Mine site #508 access road



Photo 6. Mine site #508 concretepads



Photo 7. Mine site #508 waste pile



Photo 8. Mine site #508 waste pile

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 _____

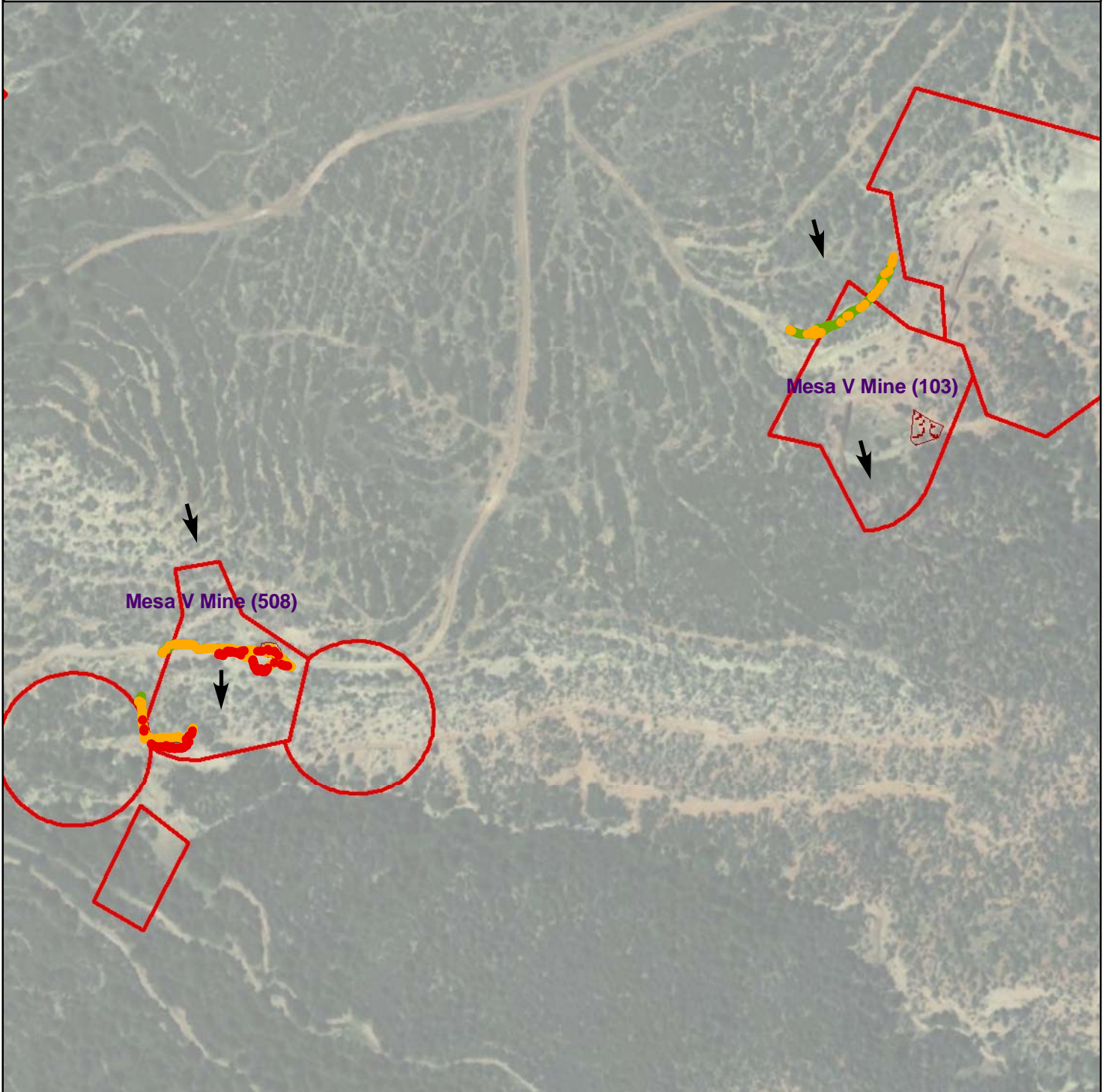
Name _____

Title or official role (if any) _____

Telephone number _____

Information provided _____

**Figure 1 - Gamma Radiation Measurements
Mesa V Mines (103, 508)
Cove Chapter, Navajo Nation, 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



Observed Waste Pile



General Direction Down-Slope

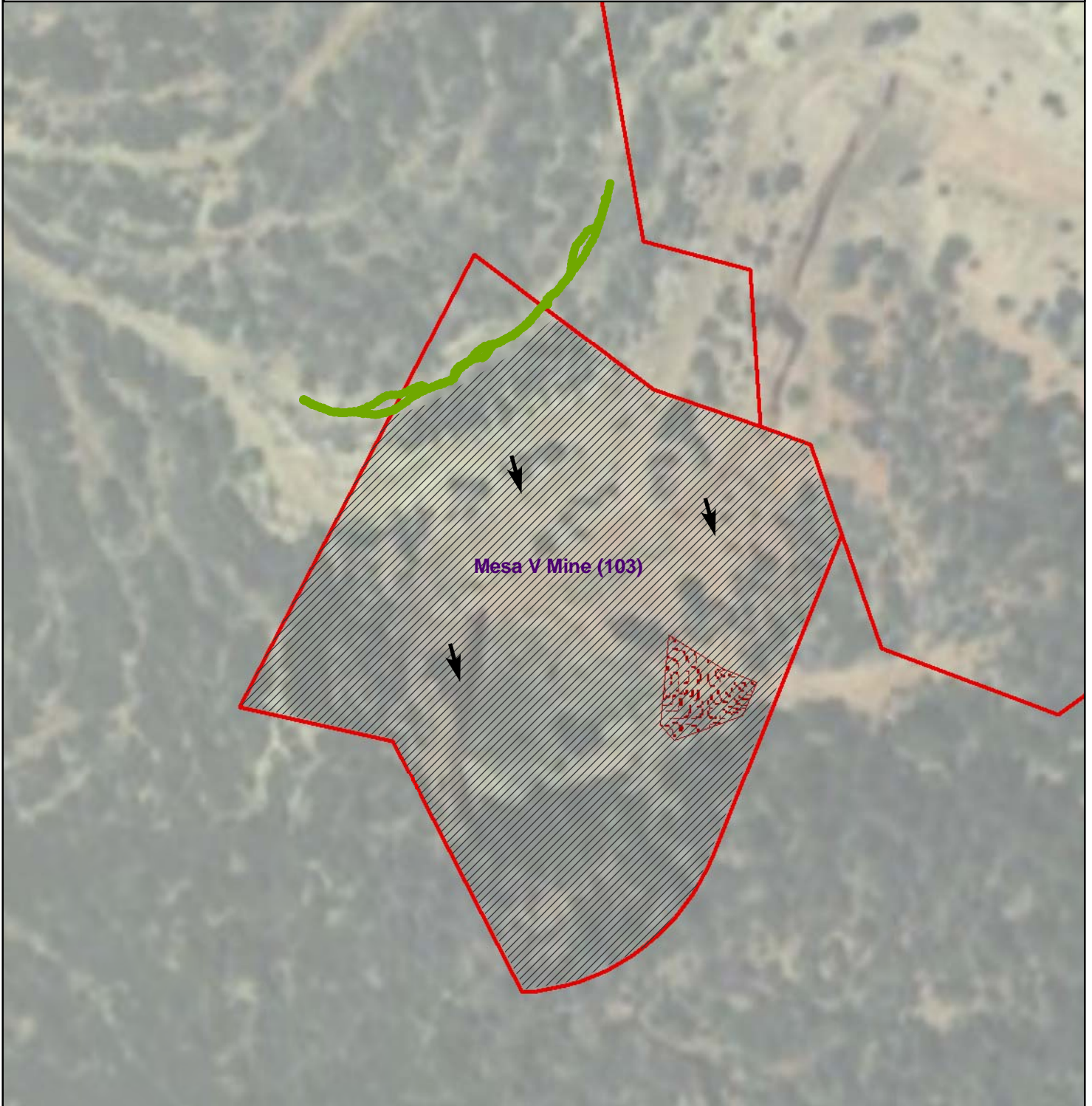


Mine Claim Boundaries

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



**Figure 2 - Gamma Radiation Measurements, Above Two Times Background
Mesa V Mine (103)
Cove Chapter, Navajo Nation, Arizona**



Legend

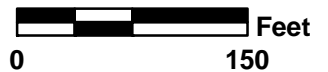
Gamma Radiation Measurements

- < 2X Background
- > 2X Background

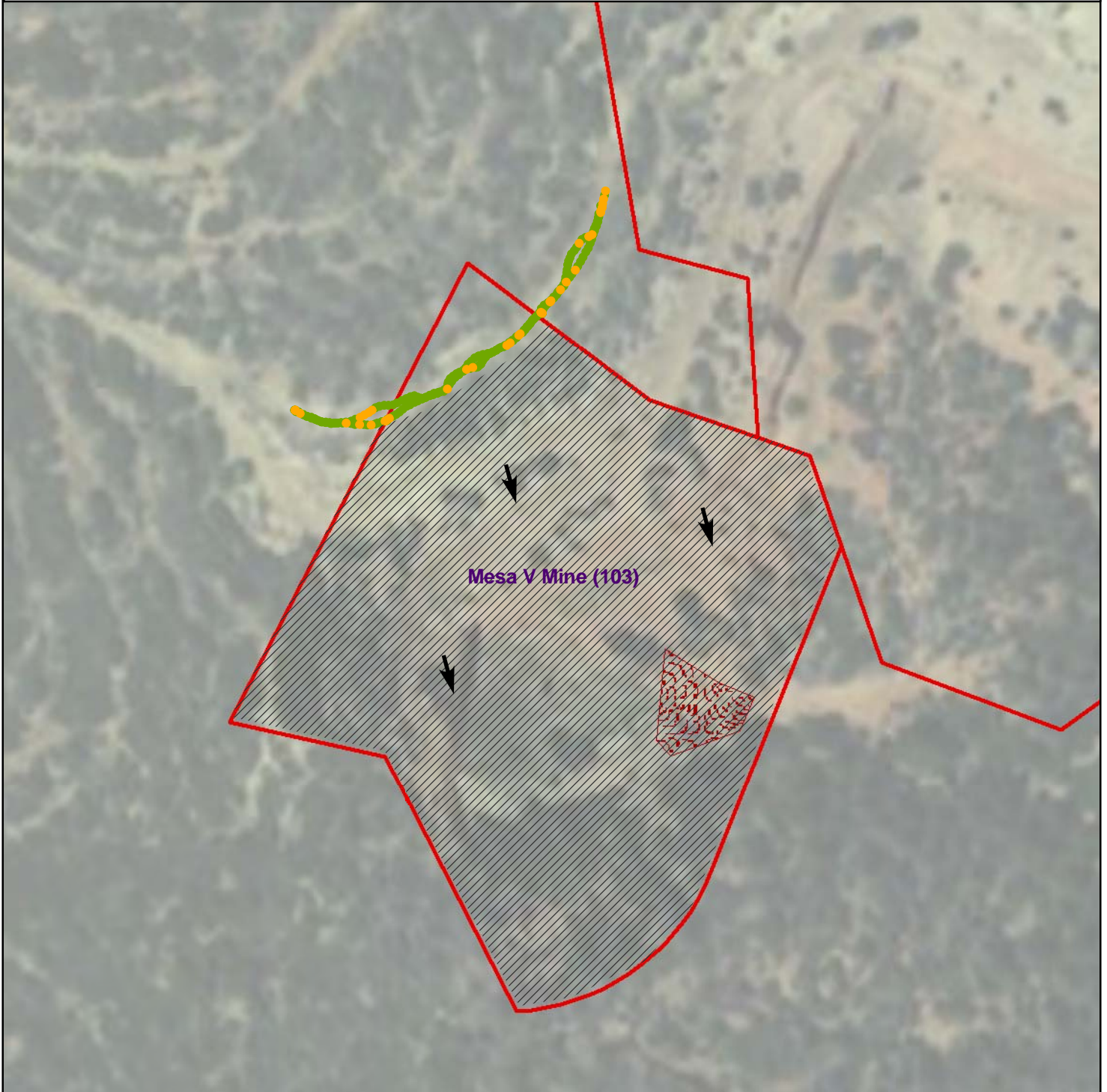
Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background =15,200 cpm

- Observed Waste Pile
- Inaccessible due to steep grades
- General Direction Down-Slope
- Mine Claim Boundaries



**Figure 3 - Gamma Radiation Measurements
Mesa V Mine (103)
Cove Chapter, Navajo Nation, 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



Observed Waste Pile



Inaccessible due to steep grades



General Direction Down-Slope



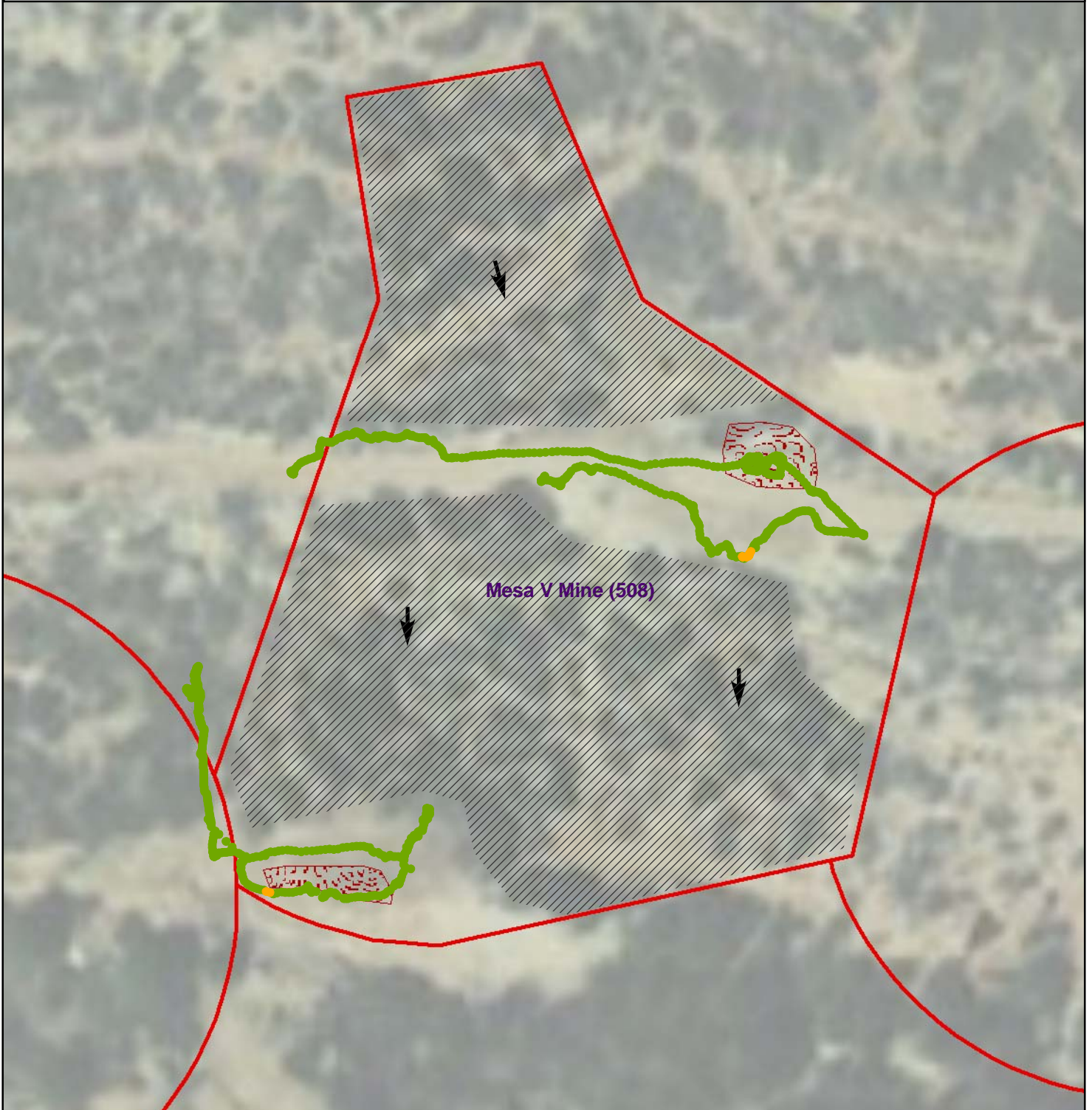
Mine Claim Boundaries

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

Average background = 15,200 cpm



**Figure 4 - Gamma Radiation Measurements, Above Two Times Background
Mesa V Mine (508)
Cove Chapter, Navajo Nation, Arizona**







Legend

Gamma Radiation Measurements

- < 2X Background
- > 2X Background

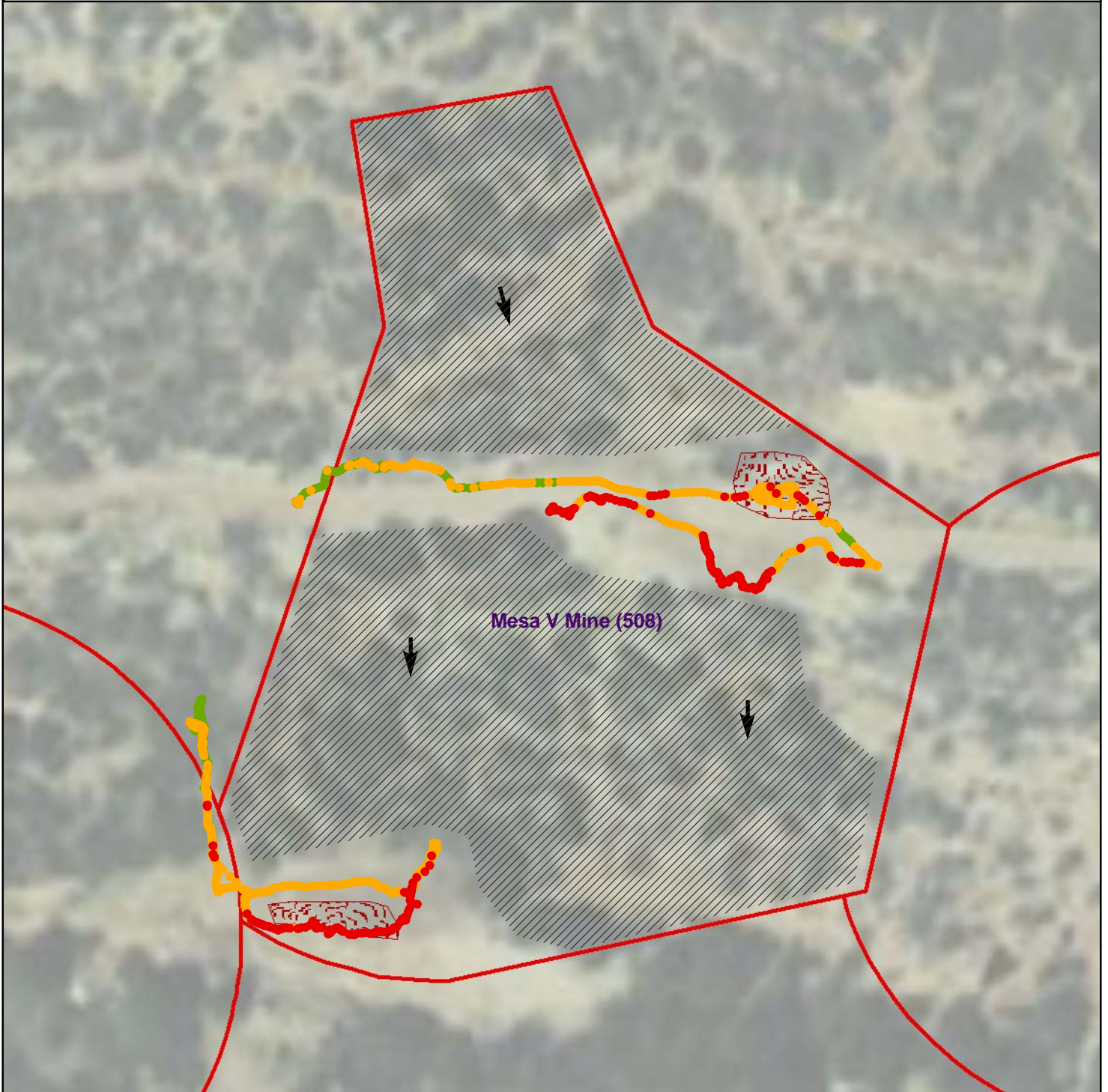
Gamma survey conducted 10/2009
Measured as counts per minute (cpm)

Average background = 16,800 cpm

-  Observed Waste Pile
-  Inaccessible due to steep grades
-  General Direction Down-Slope
-  Mine Claim Boundaries



**Figure 5 - Gamma Radiation Measurements
Mesa V Mine (508)
Cove Chapter, Navajo Nation, 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



Observed Waste Pile



Inaccessible due to steep grades



General Direction Down-Slope



Mine Claim Boundaries

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

Average background = 16,800 cpm

