

# 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.*

## Cove Mesa Mines (AEC Plot 7) 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:** 37, 38, 39, 430, 431, 434, 497, 498, 501

**Map ID:** #37 - N113  
#38 - N114  
#39 - N120  
#430 - N119  
#431 - N116  
#434 - N122  
#497 - N124  
#498 - N123  
#501 - N118

**CERCLIS:** NNN000908839

**Navajo Abandoned Mine Land Reclamation Program:**

#37 – NA-0308  
#38 – NA-0308  
#39 – NA-0306  
#430 – None  
#431 – None  
#434 – None  
#497 – NA-0340, NA-0304  
#498 – NA-0340, NA-0305  
#501 – NA-0303, NA-0307, NA-0309

**Local name / Aliases:** Cove Mesa; AEC Lease Plot 7; MP-558

**Chapter and local area:** #37 - Sweetwater Chapter  
#38 - Sweetwater Chapter  
#39 - Sweetwater Chapter  
#430 - Red Valley Chapter  
#431 - Red Valley Chapter  
#434 - Sweetwater /Red Valley Chapter  
#497 - Sweetwater /Red Valley Chapter  
#498 - Sweetwater Chapter  
#501 - Sweetwater /Red Valley Chapter

**County:** Apache

**State:** Arizona

**Lat/Long:** #37 - 36.6486555054 N / -109.281148544 W  
 #38 - 36.6478027234 N / -109.276385236 W  
 #39 - 36.6375536912 N / -109.277490595 W  
 #430 - 36.6393199949 N / -109.270484862 W  
 #431 - 36.6432843066 N / -109.269878202 W  
 #434 - 36.6371104611 N / -109.270925865 W  
  
 #497 - 36.6320816673 N / -109.269115369 W  
 #498 - 36.6315799260 N / -109.272836662 W  
 #501 - 36.6409865343 N / -109.273918583 W

**Nearby road and highway:** Indian Route 332, IR 1040    **Local Post Office:** Cove, AZ

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

<b>Tribal Trust Land</b>	<input checked="" 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 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 mine site surface land status is classified as Tribal Trust Land. Historical documents showed the operator of the mine as Vanadium Corp. of America, Leroy Pettigrew, and William Wittmeyer from 1948 to 1961, and Vanadium Corp. of America, C.H. Corey Jr, and William George from 1962 to 1965. 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:** #37 – 3,240 yd<sup>3</sup>  
 #38 – None  
 #39 – 11,629 yd<sup>3</sup>  
 #430 – 518 yd<sup>3</sup>  
 #431 – None  
 #434 – 37 yd<sup>3</sup>  
 #497 – 278 yd<sup>3</sup>  
 #498 – 463 yd<sup>3</sup>  
 #501 – 140 yd<sup>3</sup>

**Part II            Summary of radiological readings**

**Mine ID # 37**

**Highest gamma radiation measurement:**

19,578 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 1,525 gamma radiation measurements were collected from the mine site, ranging from 6,954 cpm to 19,578 cpm. Measurements in the drainage to the north were found at levels of approximately 23,000 cpm. The measurements are represented in Figures 2 and 3.

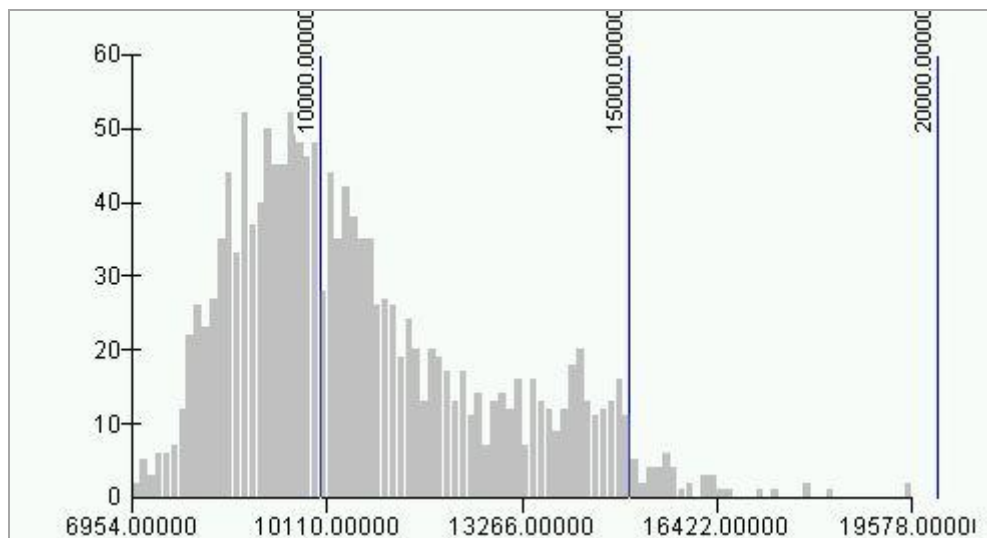
**Background Locations**

- #1 9,466 cpm
- #2 7,899 cpm

**Average background = 8,683 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:	1525
Minimum:	6954.00000
Maximum:	19578.00000
Sum:	16258431.00000
Mean:	10661.26623
Median:	10182.00000
Standard Deviation:	2099.28567



**Mine ID # 38**

**Highest gamma radiation measurement:**

12,972 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 397 gamma radiation measurements were collected from the mine site, ranging from 9,672 cpm to 12,972 cpm. The measurements are represented in Figures 4 and 5.

**Background Locations**

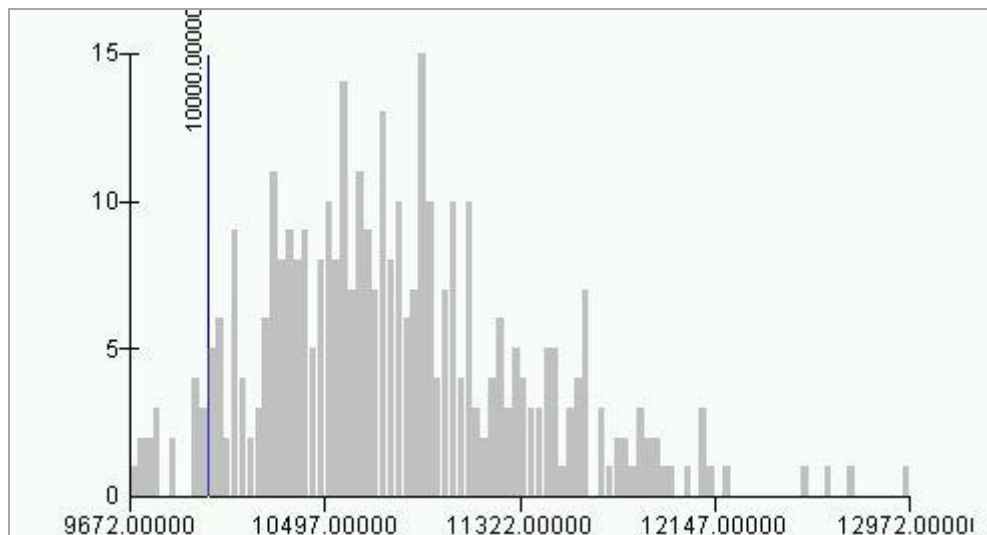
#1 10,921 cpm

#2 10,843 cpm

**Average background = 10,932 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:	368
Minimum:	9672.00000
Maximum:	12972.00000
Sum:	3975774.00000
Mean:	10803.73370
Median:	10743.50000
Standard Deviation:	553.97354

**Mine ID # 39**

**Highest gamma radiation measurement:**

65,739 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 1,663 gamma radiation measurements were collected from the mine site, ranging from 1,790 cpm to 65,739 cpm. Measurements in the vicinity of the waste debris were found at levels of approximately 60,000 cpm. The measurements are represented in Figures 6 and 7.

**Background Locations**

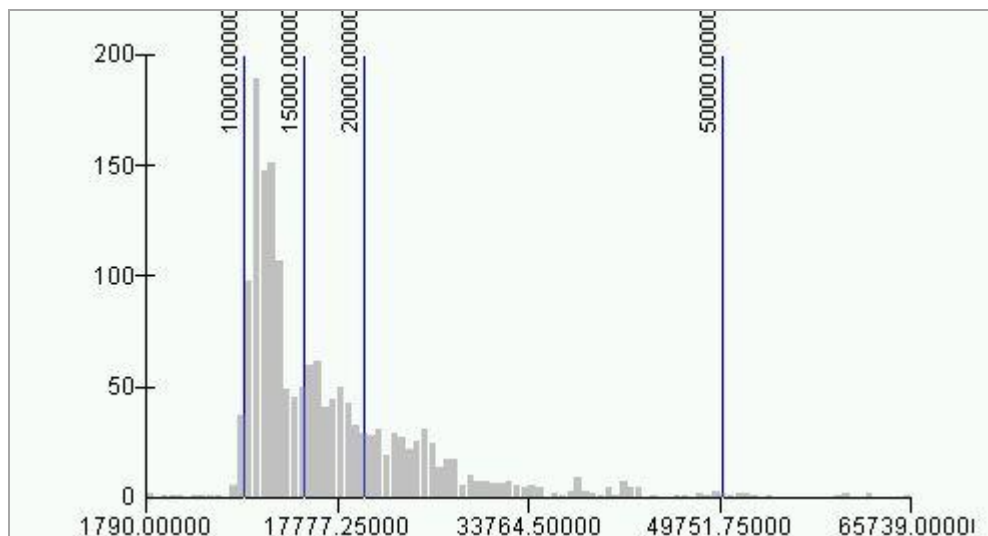
**Average background = 11,635 cpm**

#1 11,179 cpm

#2 12,090 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:	1662
Minimum:	1790.00000
Maximum:	65739.00000
Sum:	28619213.00000
Mean:	17219.74308
Median:	14480.00000
Standard Deviation:	8007.34012

**Mine ID # 430**

**Highest gamma radiation measurement:**

90,979 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 1,530 gamma radiation measurements were collected from the mine site, ranging from 7,297 cpm to 90,979 cpm. Measurements in the vicinity of the waste debris were found at levels of approximately 20,000 cpm. The measurements are represented in Figures 8 and 9.

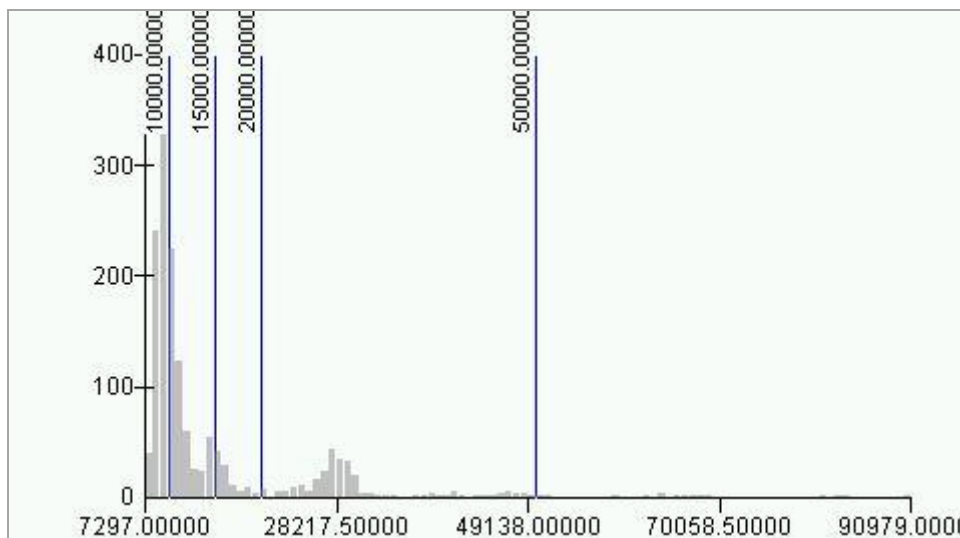
**Background Locations**

- #1 9,537 cpm
- #2 10,341 cpm

**Average background = 9,984 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:	1530
Minimum:	7297.00000
Maximum:	90979.00000
Sum:	22412514.00000
Mean:	14648.70196
Median:	10216.00000
Standard Deviation:	10240.93234

**Mine ID # 431**

**Highest gamma radiation measurement:**

14,085 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 1,564 gamma radiation measurements were collected from the mine site, ranging from 5,799 cpm to 14,085 cpm. The measurements are represented in Figures 10 and 11.

**Background Locations**

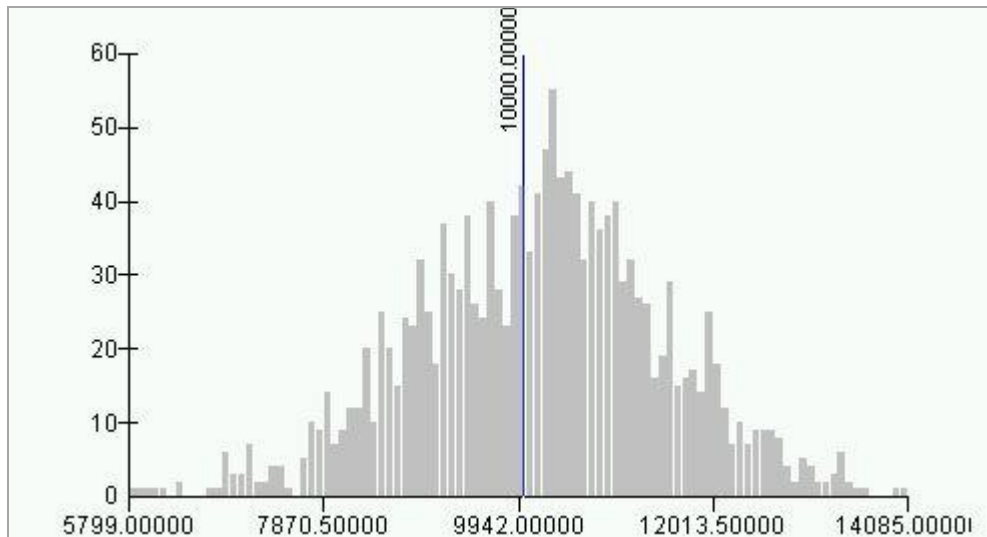
#1 10,843 cpm

#2 12,549 cpm

**Average background = 11,696 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:	1563
Minimum:	5799.00000
Maximum:	14085.00000
Sum:	15883019.00000
Mean:	10161.88036
Median:	10236.00000
Standard Deviation:	1321.55758

**Mine ID # 434**

**Highest gamma radiation measurement:**

15,489 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 3,090 gamma radiation measurements were collected from the mine site, ranging from 6,266 cpm to 15,489 cpm. The measurements are represented in Figures 12 and 13.

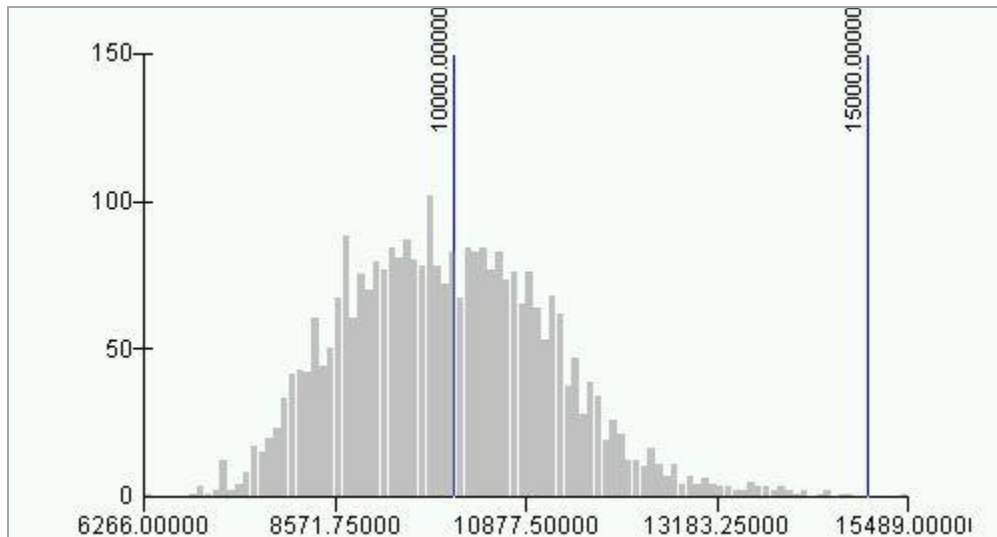
**Background Locations**

- #1 8,995 cpm
- #2 11,317 cpm

**Average background = 10,136 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:	3090
Minimum:	6266.00000
Maximum:	15489.00000
Sum:	30745379.00000
Mean:	9949.96084
Median:	9887.00000
Standard Deviation:	1255.80225

**Mine ID # 497**

**Highest gamma radiation measurement:**

113,207 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 3,667 gamma radiation measurements were collected from the mine site, ranging from 8,654 cpm to 113,207 cpm. Measurements in the vicinity of the waste debris were found at levels ranging from approximately 30,000 – 45,000 cpm. The measurements are represented in Figures 14 and 15.

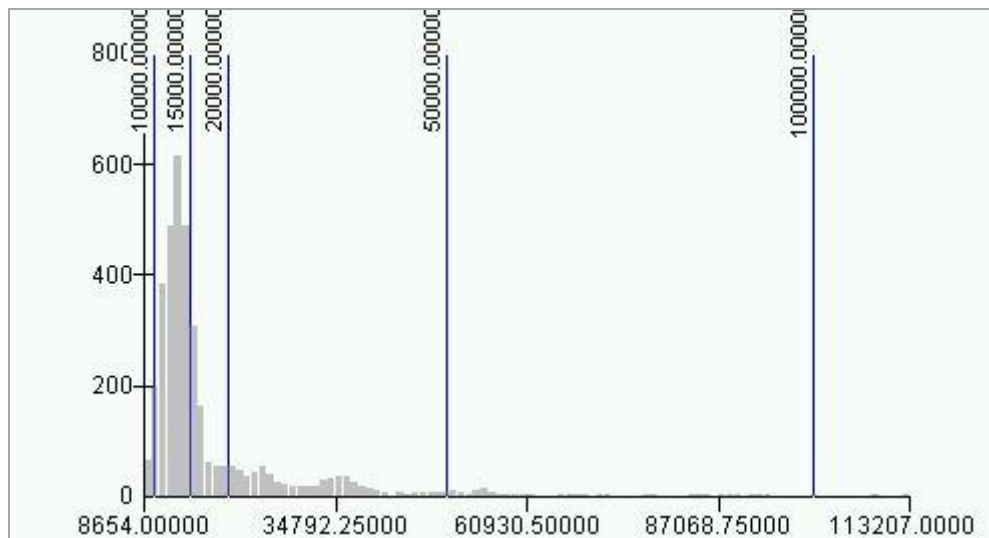
**Background Locations**

#1 12,670 cpm

**Average background = 12,670 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:	3667
Minimum:	8654.00000
Maximum:	113207.00000
Sum:	68508961.00000
Mean:	18682.56368
Median:	14063.00000
Standard Deviation:	13258.44404

**Mine ID # 498**

**Highest gamma radiation measurement:**

144,844 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 3,925 gamma radiation measurements were collected from the mine site, ranging from 8,056 cpm to 144,844 cpm. Measurements in the vicinity of the waste debris were found at levels of approximately 40,000 cpm. Measurements in the vicinity of the reclamation cap ranged from 80,000 cpm – 140,000 cpm. The measurements are represented in Figures 16 and 17.

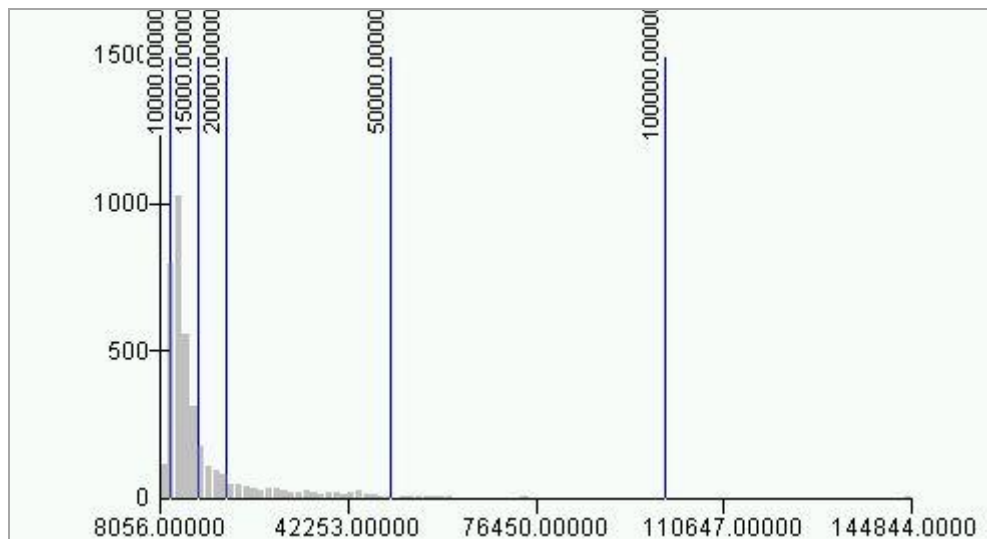
**Background Locations**

**Average background = 11,079 cpm**

- #1 10,511 cpm
- #2 11,965 cpm
- #3 10,760 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:	3925
Minimum:	8056.00000
Maximum:	144844.00000
Sum:	67751233.00000
Mean:	17261.46064
Median:	12220.00000
Standard Deviation:	14948.55606

**Mine ID # 501**

**Highest gamma radiation measurement:**

425,336 counts per minute (cpm)

**Describe any other radiological measurements:**

A total of 6,431 gamma radiation measurements were collected from the mine site, ranging from 8,697 cpm to 425,336 cpm. Measurements in the vicinity of the waste debris were found at levels ranging from approximately 30,000 – 425,000 cpm. The measurements are represented in Figures 18 and 19.

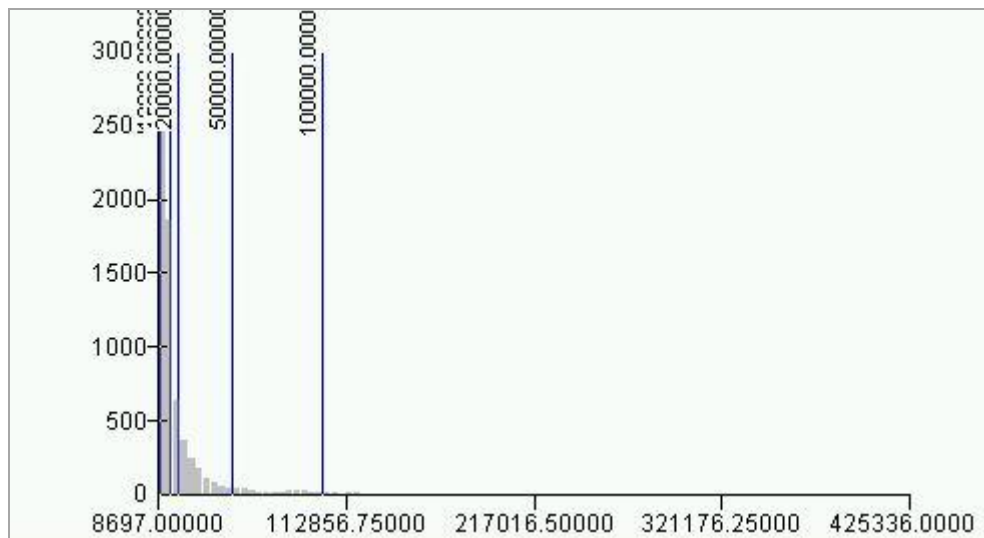
**Background Locations**

- #1 10,660 cpm
- #2 10,785 cpm

**Average background = 10,723 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:	6431
Minimum:	8697.00000
Maximum:	425336.00000
Sum:	138685511.00000
Mean:	21565.15487
Median:	14143.00000
Standard Deviation:	28926.85217



### **Part III Status of Reclamation and Mine Waste**

#### **Mine ID #37**

**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-0308**

**NAMLRP Mine features: 4 Rim Strip / Pits**

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**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**

Cliff appears littered with waste debris, 350' x 50' area, with a total estimated volume of 3,240 yd<sup>3</sup>

##### **Pits**

None

##### **Shafts**

None

##### **Other Debris and Mine Features**

None

**Mine ID #38**

**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 : No**

**NAMLRP Project Number: NA-0308**

**NAMLRP Mine features: 1 Portal**

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**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**

None

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

None

**Mine ID #39**

**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-0306**

**NAMLRP Mine features: 7 Rim Strip / Pits, 4 Portals, 1 Prospect**

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**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 pile found along edge at south of site, 10' x 15' x 10'; another down slope 500' x 125' area; with a total estimated volume of 11,629 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

None

**Mine ID #430**

**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: None**

**NAMLRP Mine features: 1 Rim Strip / Pit**

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**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 piles: 60' x 30'; 40' x 25'; with a total estimated volume of 518 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

None

**Mine ID #431**

**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: None**

**NAMLRP Mine features: 1 Rim Strip / Pit**

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**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**

None

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

None

**Mine ID #434**

**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: None**

**NAMLRP Mine features: 1 Rim Strip / Pit**

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**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 pile 10' x 20' wide extending down cliffs to the east, with a total estimated volume of 37 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

None

**Mine ID #497**

**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-0304, NA-0340**

**NAMLRP Mine features: 3 Rim Strip / Pits, 8 Portals**

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**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**

Possible adit caved in due to erosion; another possible adit found closed off due to erosive landslide

**Waste Piles**

Waste piles noted on the NE and NW corners, the SE area, and large debris 10' x 150' washed down cliffs about 250', with a total estimated volume of 278 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

None

**Mine ID #498**

**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-0305, NA-0340**

**NAMLRP Mine features: 4 Rim Strip/Pits, 6 Portals, 1 Prospect**

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**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**

Clay/waste mounds along cliffs, with a total estimated volume of 463yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

Small clay reclamation cap near edge of mesa



**Mine ID #501**

**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-0303, NA-0307, NA-0309**

**NAMLRP Mine features: 16 Rim Strip/Pits, 12 Portals**

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**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 piles on NW side: 15' x 20' ; 20' x 20' into side of mesa and steep cliffs; one 10' x 5' waste pile on SW side, with a total estimated volume of 140 yd<sup>3</sup>

**Pits**

None

**Shafts**

None

**Other Debris and Mine Features**

2 large clay reclamation caps at SE end of site; ventilation pipes and other metal debris

## 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.**

Cove Mesa Mines (AEC Plot 7) consists of 9 mine sites with a total area of 565,672.26 m<sup>2</sup> (#37 – 13,917.68 m<sup>2</sup>, #38 – 1,249.32 m<sup>2</sup>, #39 – 65,346.73 m<sup>2</sup>, #430 – 18,596.81 m<sup>2</sup>, #431 – 18,725.02 m<sup>2</sup>, #434 – 18,380.84 m<sup>2</sup>, #497 – 88,188.95 m<sup>2</sup>, #498 – 127,180.82 m<sup>2</sup>, #501 – 214,086.09 m<sup>2</sup>). Historical information showed that limited mining took place in 1943, from 1948-61 the site was mined as the AEC Lease, Plot 7. From 1961-64 the site was mined under William George's MP-558. Curran Brothers & Wade, VCA, John Woodrow, Harvey Young, Leroy Pettigrew, William Wittmeyer, C.H. Corey, Jr., and W.E. Gripe were also identified to have possible involvement in the mining activities. No additional ownership / lease information was identified in the EPA/AUM database.

**Part V Response Action Summary**

**Site Name(s):** Cove Mesa Mines (AEC Plot 7)      **Chapter:** Red Valley, Sweetwater.

**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?** Yes

**Is the cap/seal functionally intact?** Yes

**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 7 of the 9 mine sites; 2 possible closed adits were found at site #497; reclamation caps were found at sites #498 and #501

**Part VI      Photos**



Photo 1. Site #37 – Cliff area



Photo 2. Site #37 – Cliff area with waste rock



Photo 3. Site #37 – Cliff area



Photo 4. Site #38 – Mine site





Photo 5. Site #39 – Down slope area



Photo 6. Site #39 – Onsite drainage





Photo 7. Site #39 – Down slope area



Photo 8. Site #39 – Down slope area and waste rock





Photo 9. Site #430– Waste pile



Photo 10. Site #430– Cliff area





Photo 11. Site #430– Waste pile



Photo 12. Site #431– Mine site





Photo 13. Site #431– Mine site



Photo 14. Site #434– Down slope area





Photo 15. Site #434– Mine site



Photo 16. Site #434– Waste pile





Photo 17. Site #497– Down slope area



Photo 18. Site #497– Waste Rock





Photo 19. Site #497– Possible adit



Photo 20. Site #497– Additional possible adit





Photo 21. Site #497– Mine site



Photo 22. Site #497– Waste rock





Photo 23. Site #498– Cliff area and waste rock



Photo 24. Site #498– Cliff area and dirt pile





Photo 25. Site #498– Mining evidence



Photo 26. Site #498– Cliff area





Photo 27 Site #498– Mining evidence



Photo 28. Site #498– Mining evidence





Photo 29. Site #498– Possible reclamation cap



Photo 30. Site #498– Cliff area and waste rock





Photo 31. Site #498– Down slope area and waste rock



Photo 32. Site #501– Cliff area and waste rock





Photo 33. Site #501– Waste debris



Photo 34. Site #501– Reclamation cap





Photo 35. Site #501– Reclamation cap



Photo 36. Site #501– Reclamation cap





Photo 37. Site #501– Waste pile



Photo 38. Site #501– Cliff area and waste rock



Photo 39. Site #501– Down slope area

**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) \_\_\_\_\_

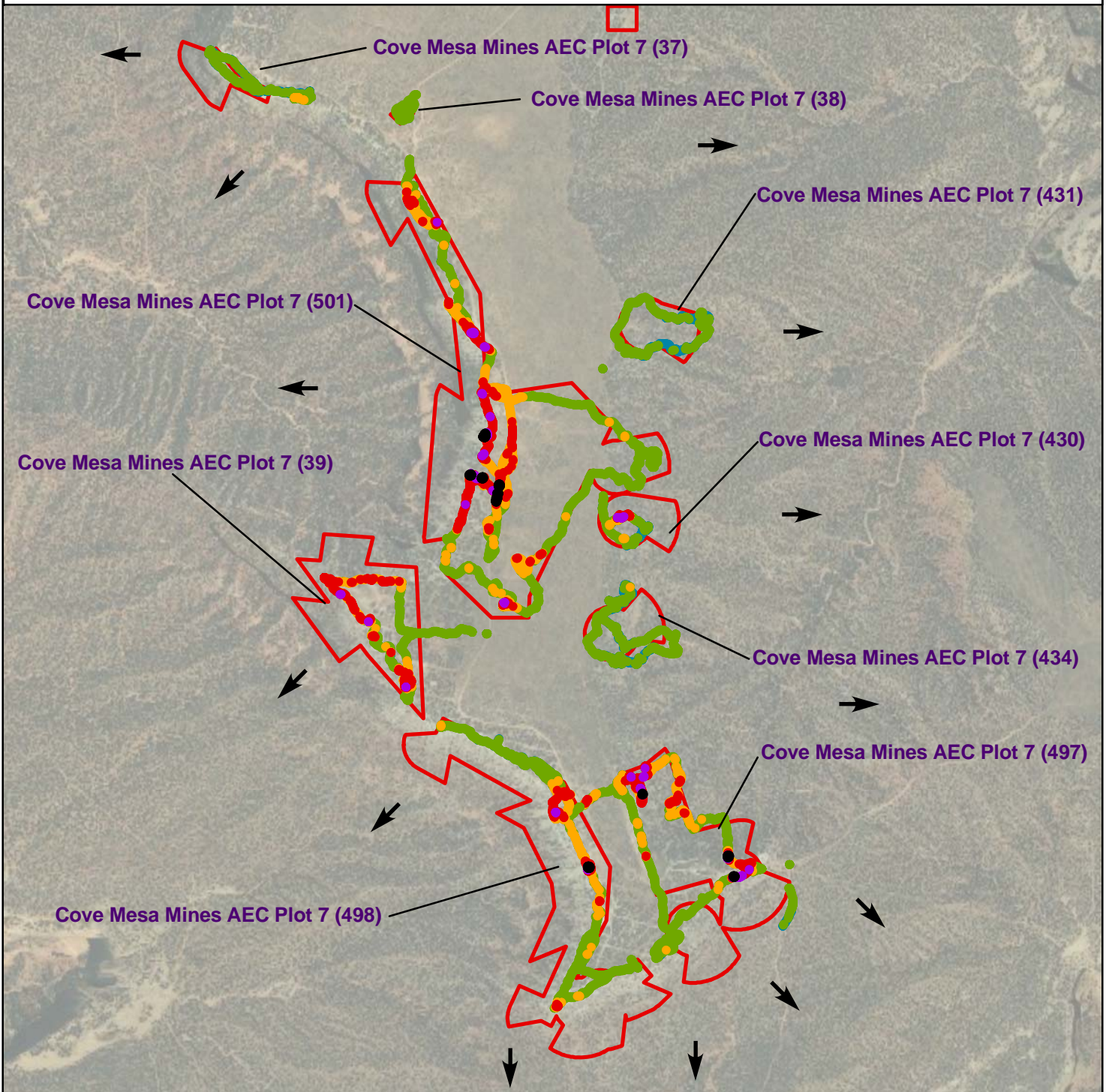
Telephone number \_\_\_\_\_

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

---



**Figure 1 - Gamma Radiation Measurements**  
**Cove Mesa Mines lot 7 (37, 38, 39, 430, 431, 434, 497, 498, 501)**  
**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

➔ **General Direction Down-Slope**

▭ **Mine Claim Boundaries**

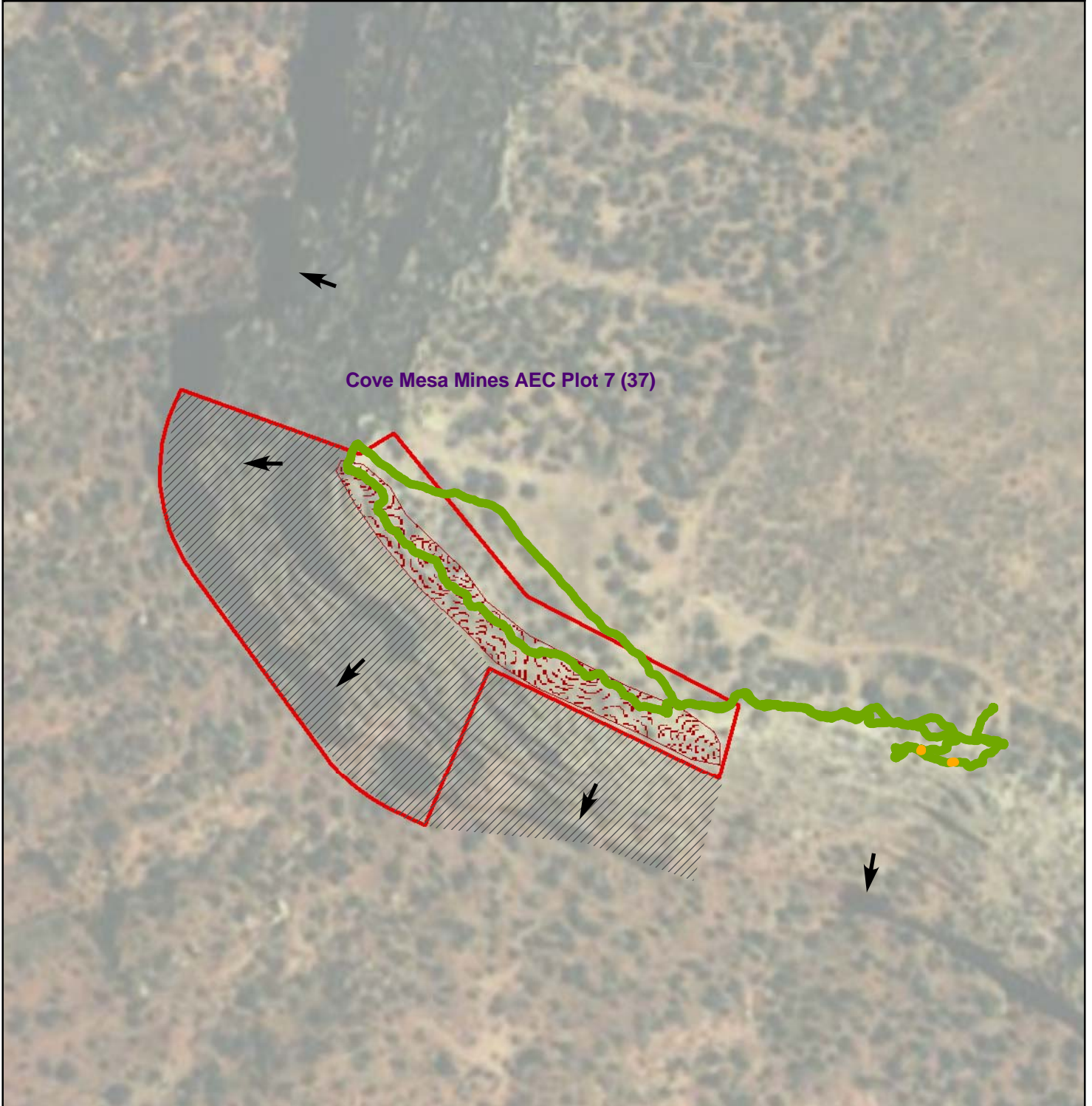
**Gamma survey conducted 10/2009**  
**Measured as counts per minute (cpm)**

  
  
 0 1,500 Feet  




**Figure 2 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mine AEC Plot 7 (37)  
Sweetwater Chapter, Navajo Nation, Arizona**







**Legend**

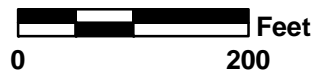
**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

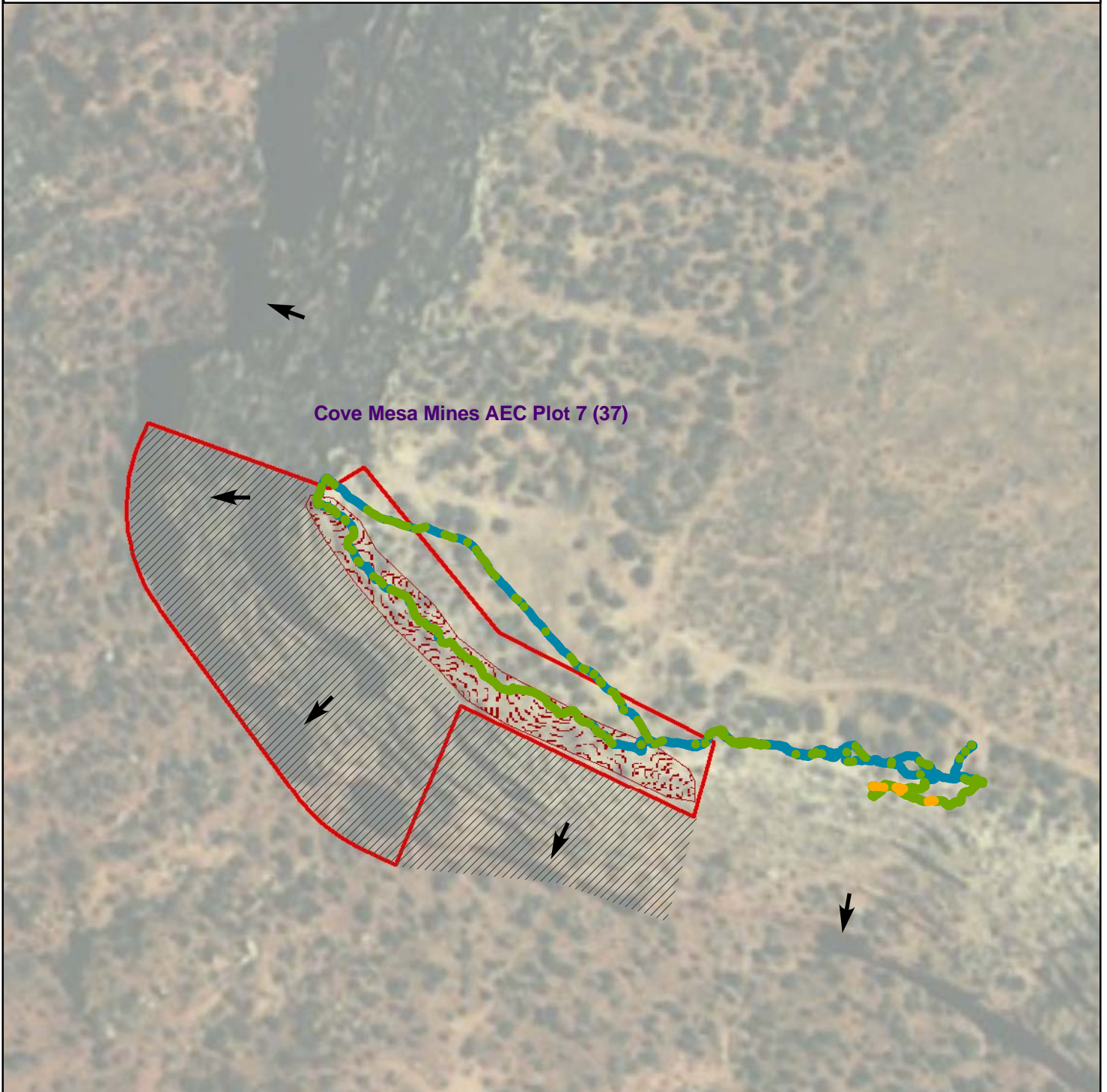
Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 8,683 cpm

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



**Figure 3 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (37)  
Sweetwater 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**



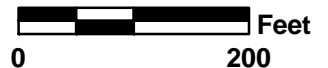
**General Direction Down-Slope**



**Mine Claim Boundaries**

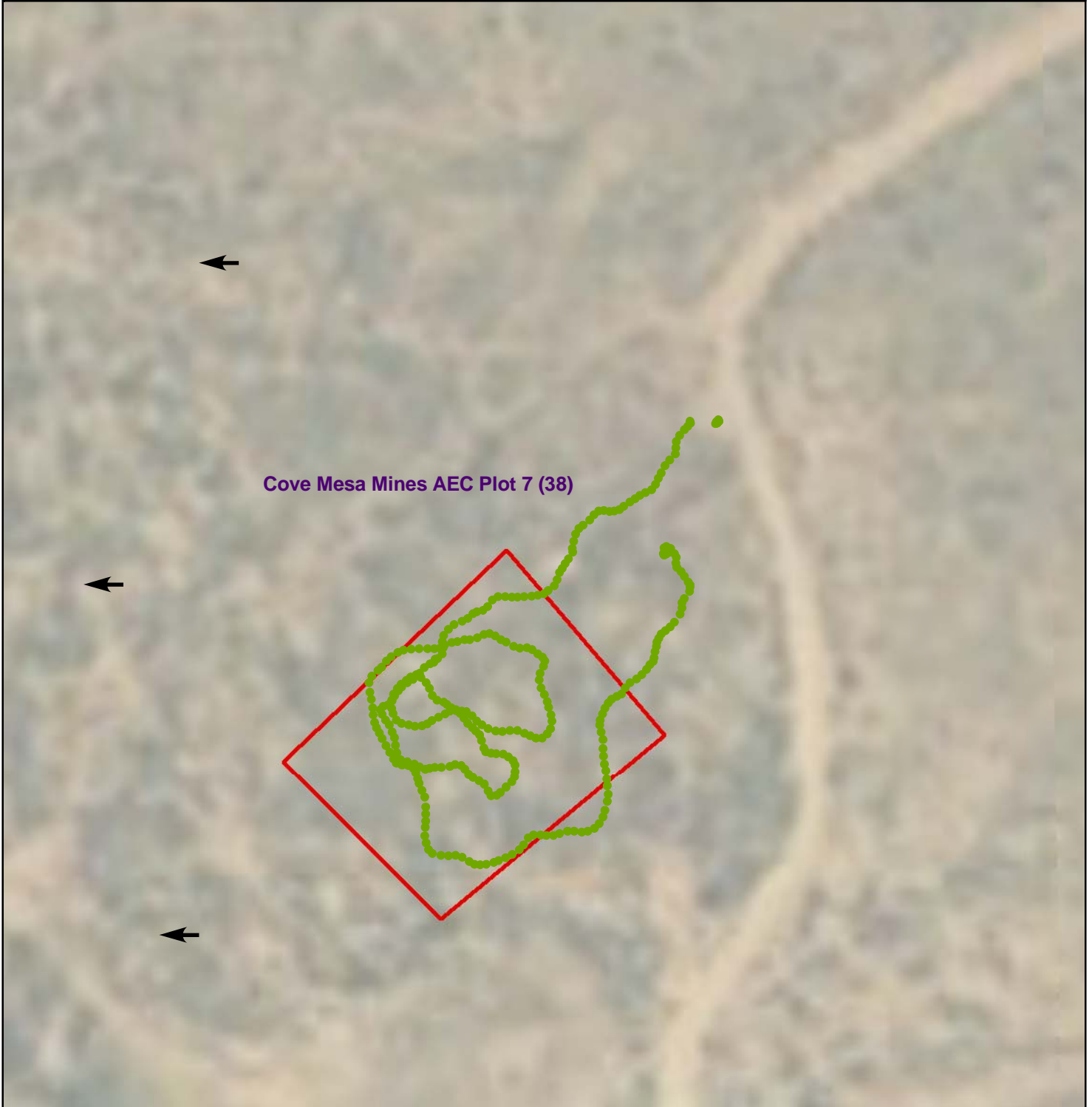
**Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)**

**Average background = 8,683 cpm**





**Figure 4 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mine AEC Plot 7 (38)  
Sweetwater Chapter, Navajo Nation, Arizona**



**Legend**

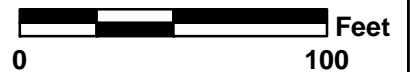
**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

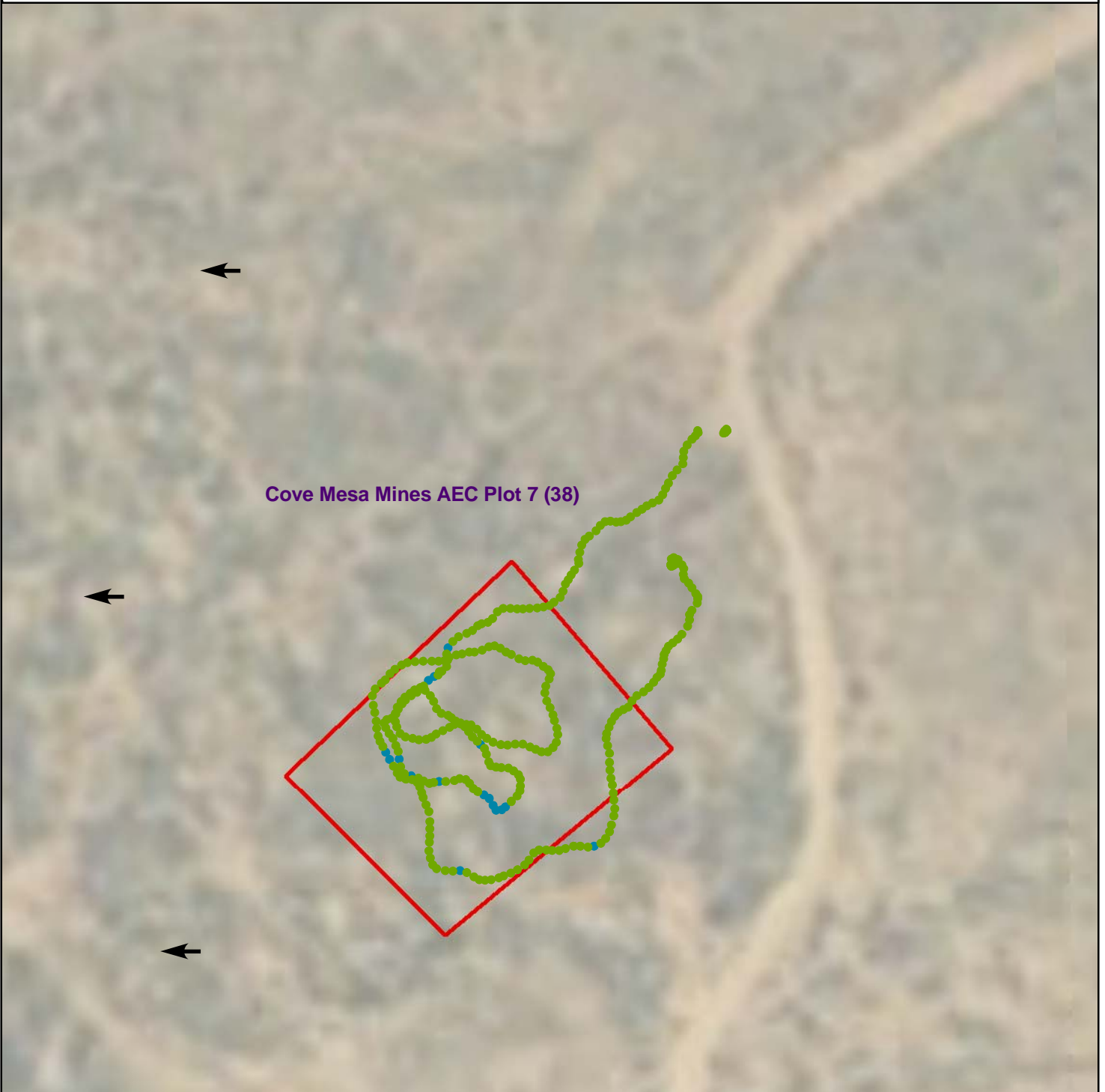
- General Direction Down-Slope
- Mine Claim Boundaries

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

Average background = 10,932 cpm



**Figure 5 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (38)  
Sweetwater 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

➔ General Direction Down-Slope

▭ Mine Claim Boundaries

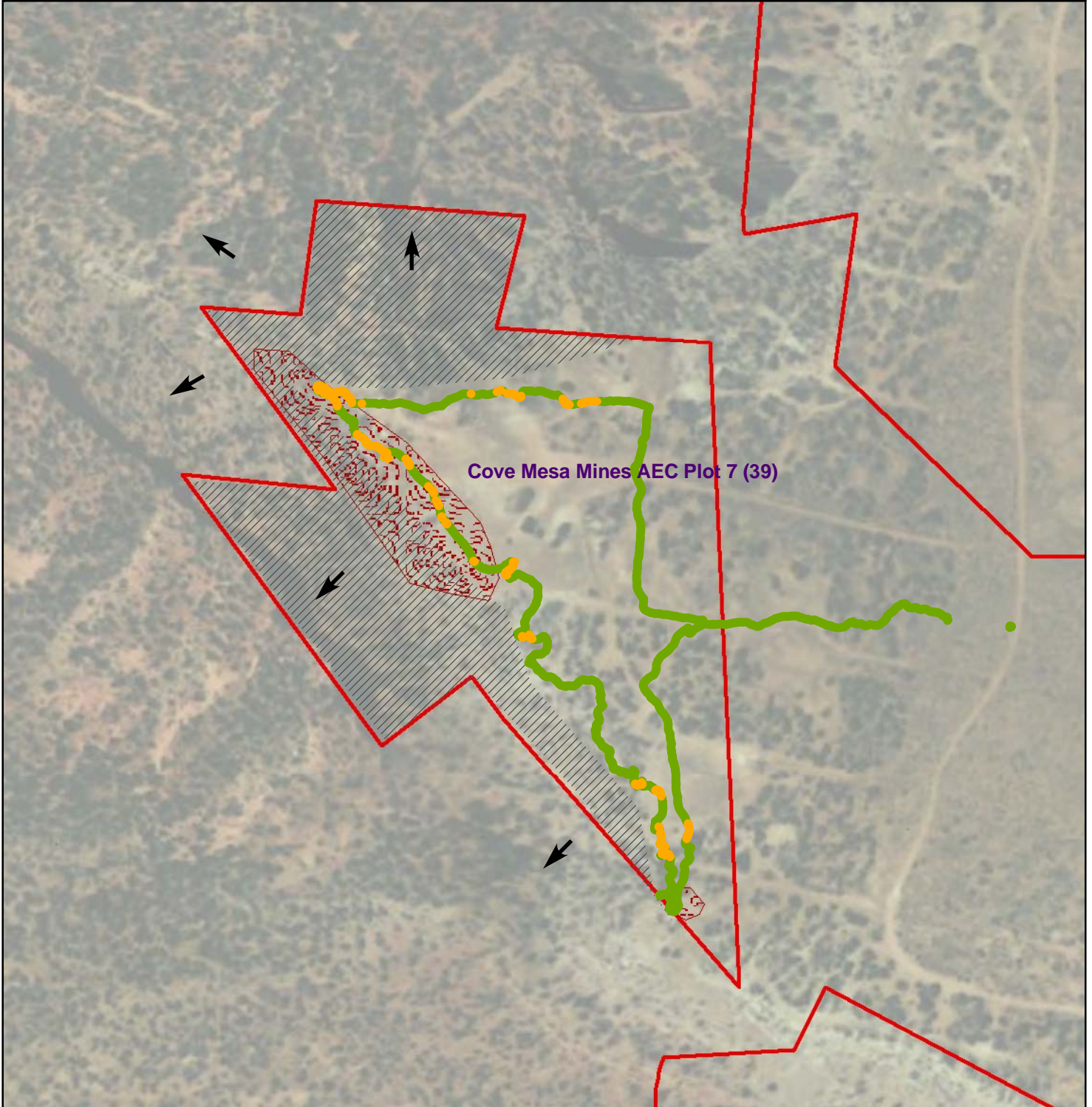
Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 10,932 cpm





**Figure 6 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mine AEC Plot 7 (39)  
Sweetwater Chapter, Navajo Nation, Arizona**







**Legend**

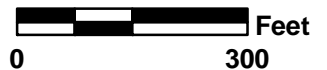
**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

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

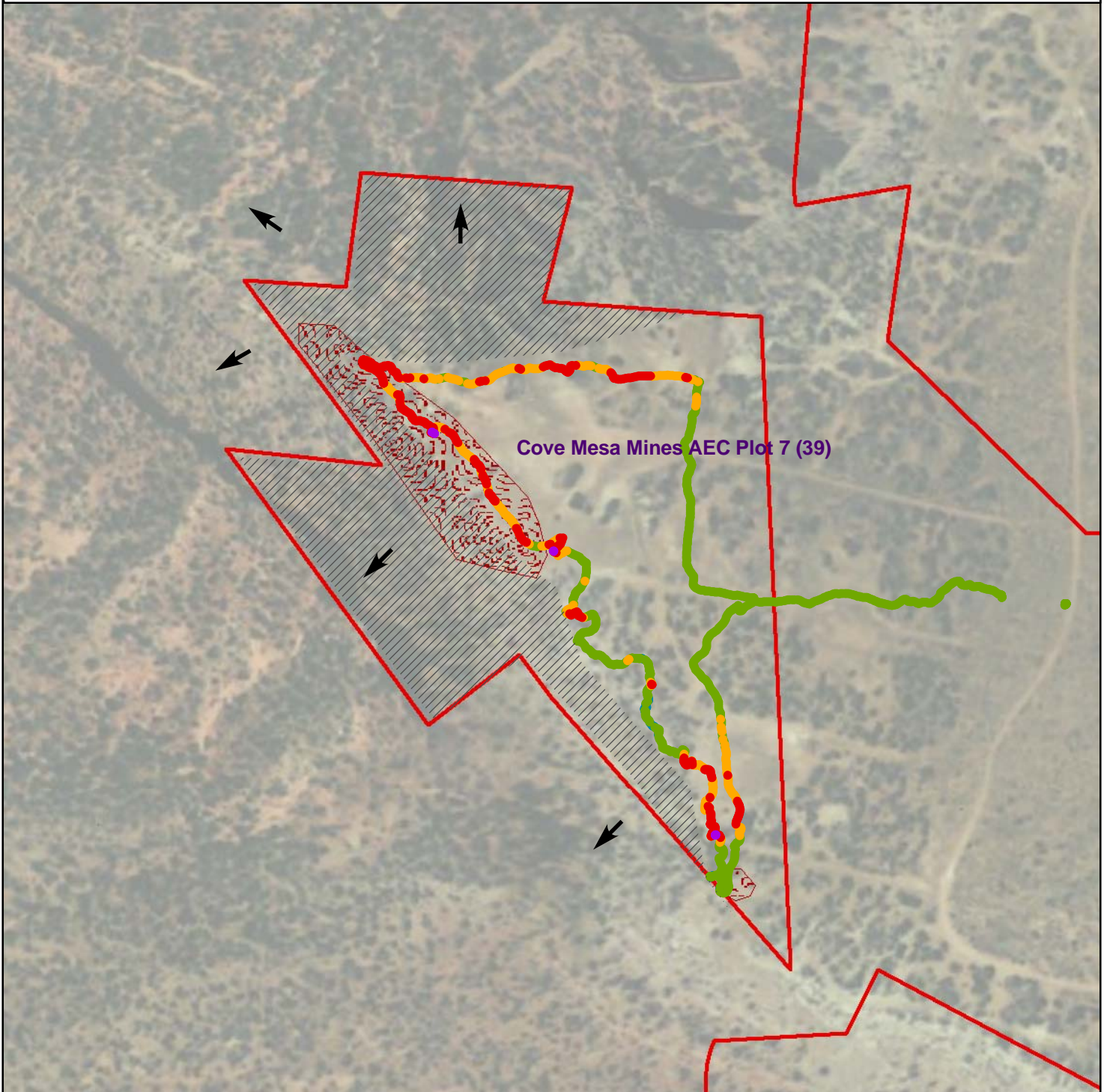
Average background = 11,635 cpm

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





**Figure 7 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (39)  
Sweetwater 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 = 11,635 cpm**



**Figure 8 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mine AEC Plot 7 (430)  
Red Valley Chapter, Navajo Nation, Arizona**







**Legend**

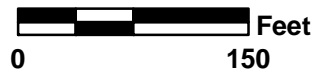
**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

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

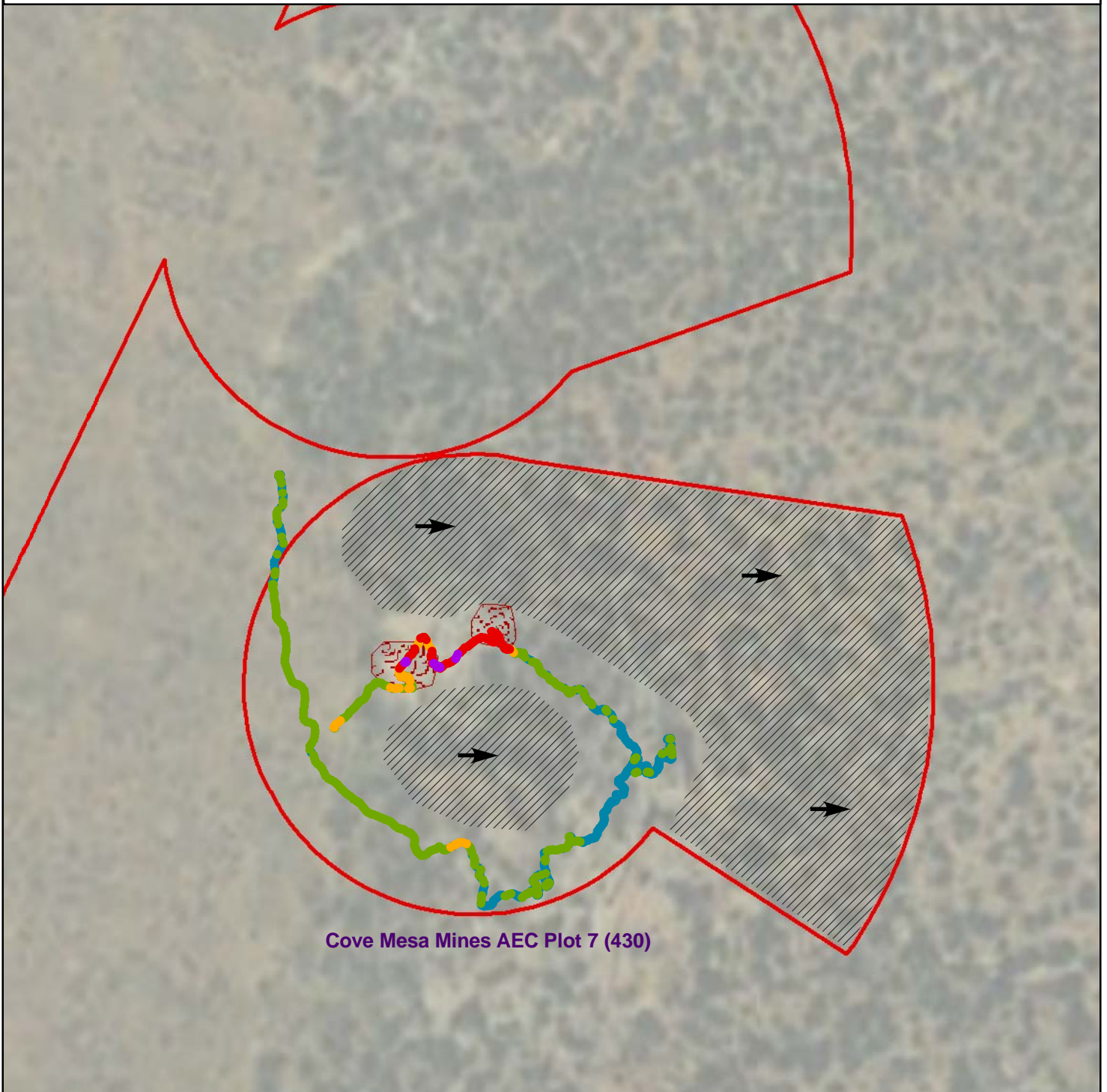
Average background = 9,984 cpm

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





**Figure 9 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (430)  
Red Valley Chapter, Navajo Nation, Arizona**



Cove Mesa Mines AEC Plot 7 (430)

**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**



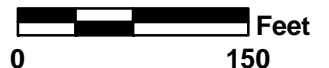
**General Direction Down-Slope**



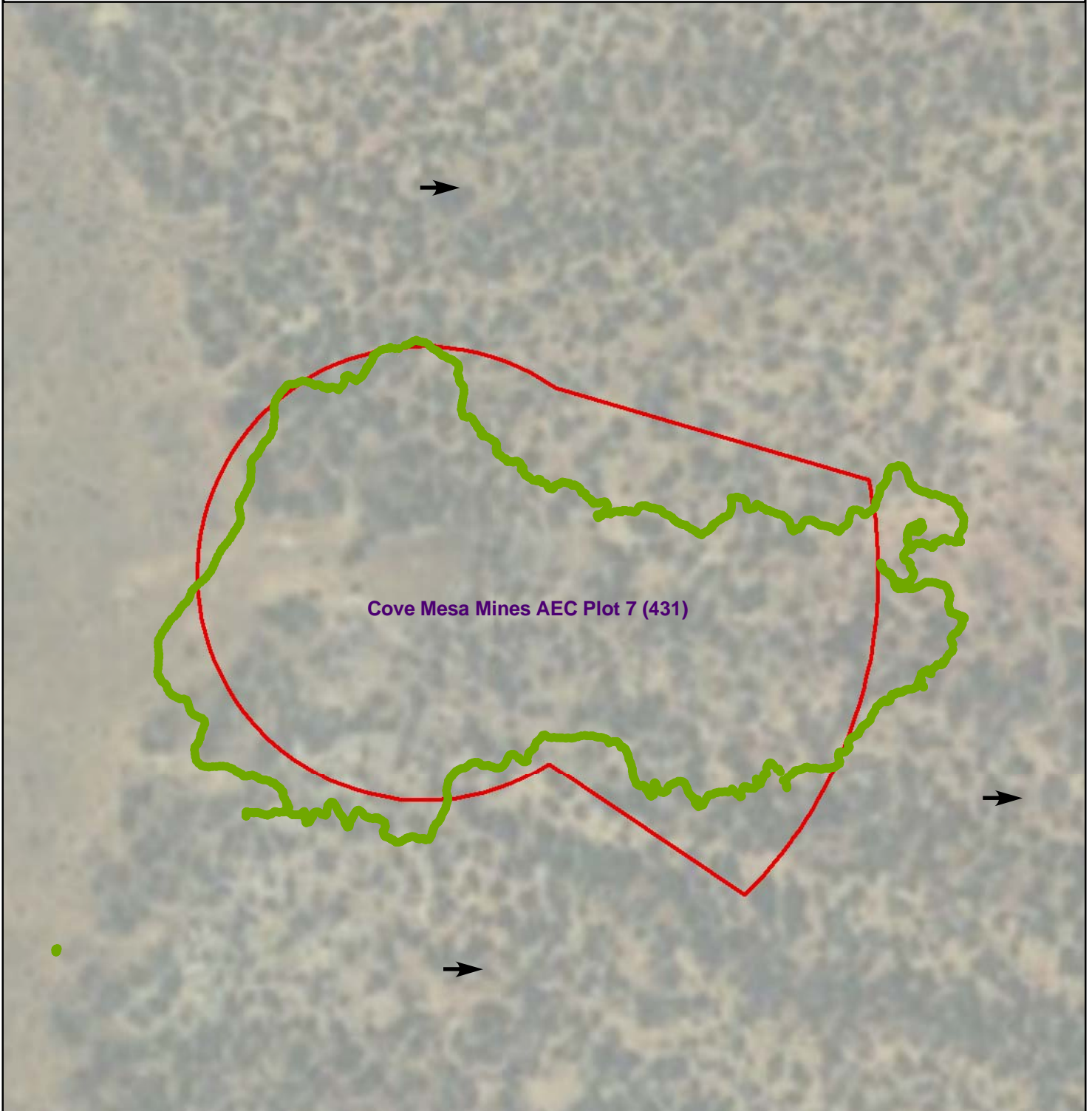
**Mine Claim Boundaries**

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

**Average background = 9,984 cpm**



**Figure 10 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mine AEC Plot 7 (431)  
Red Valley Chapter, Navajo Nation, Arizona**



**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

- ➔ General Direction Down-Slope
- Mine Claim Boundaries

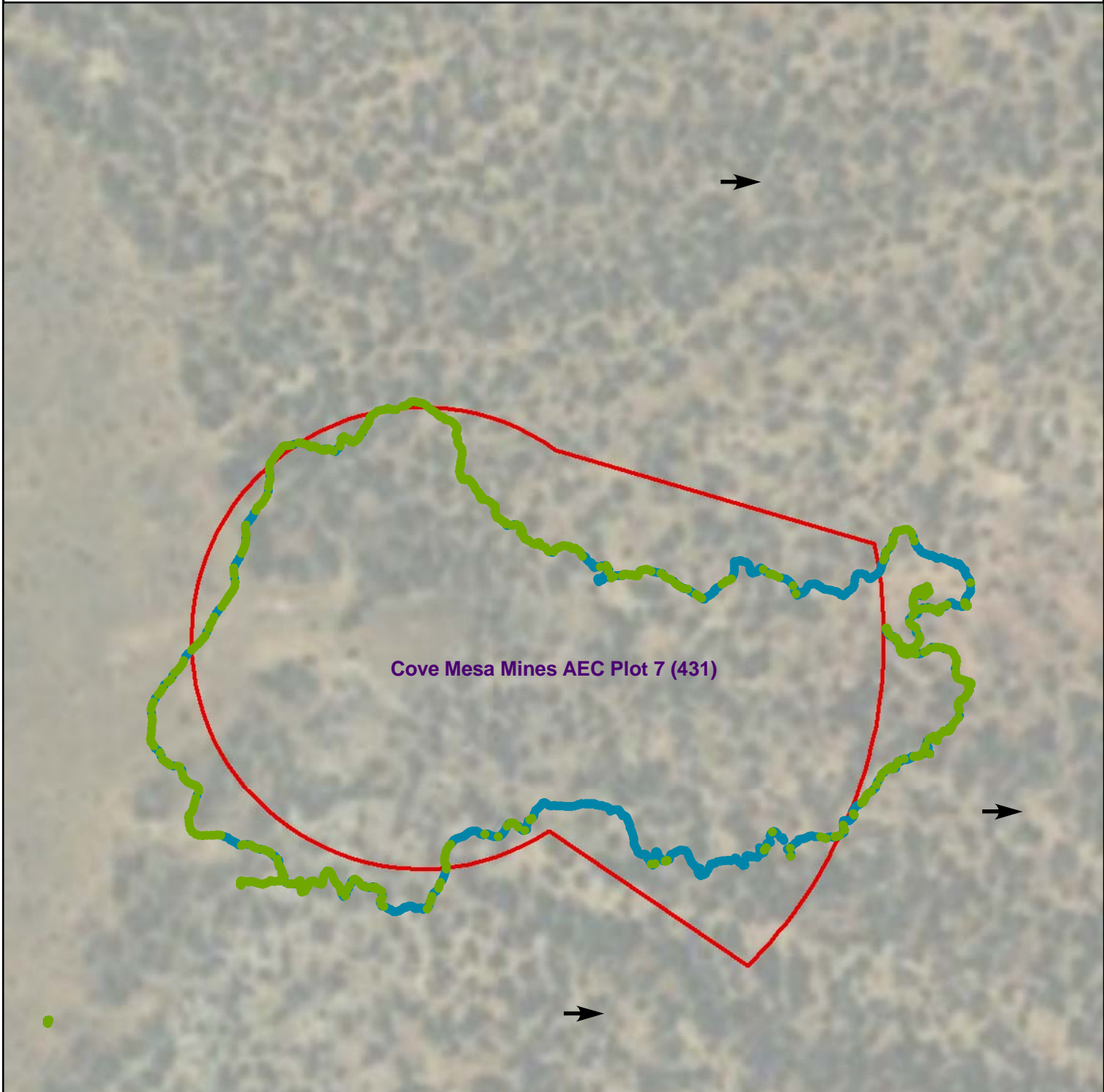
Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)

Average background = 11,696 cpm





**Figure 11 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (431)  
Red Valley Chapter, Navajo Nation, Arizona**



**Legend**

**Gamma Radiation Measurements**

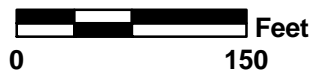
- 0 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- 20,000 - 50,000
- 50,000 - 100,000
- > 100,000

➔ General Direction Down-Slope

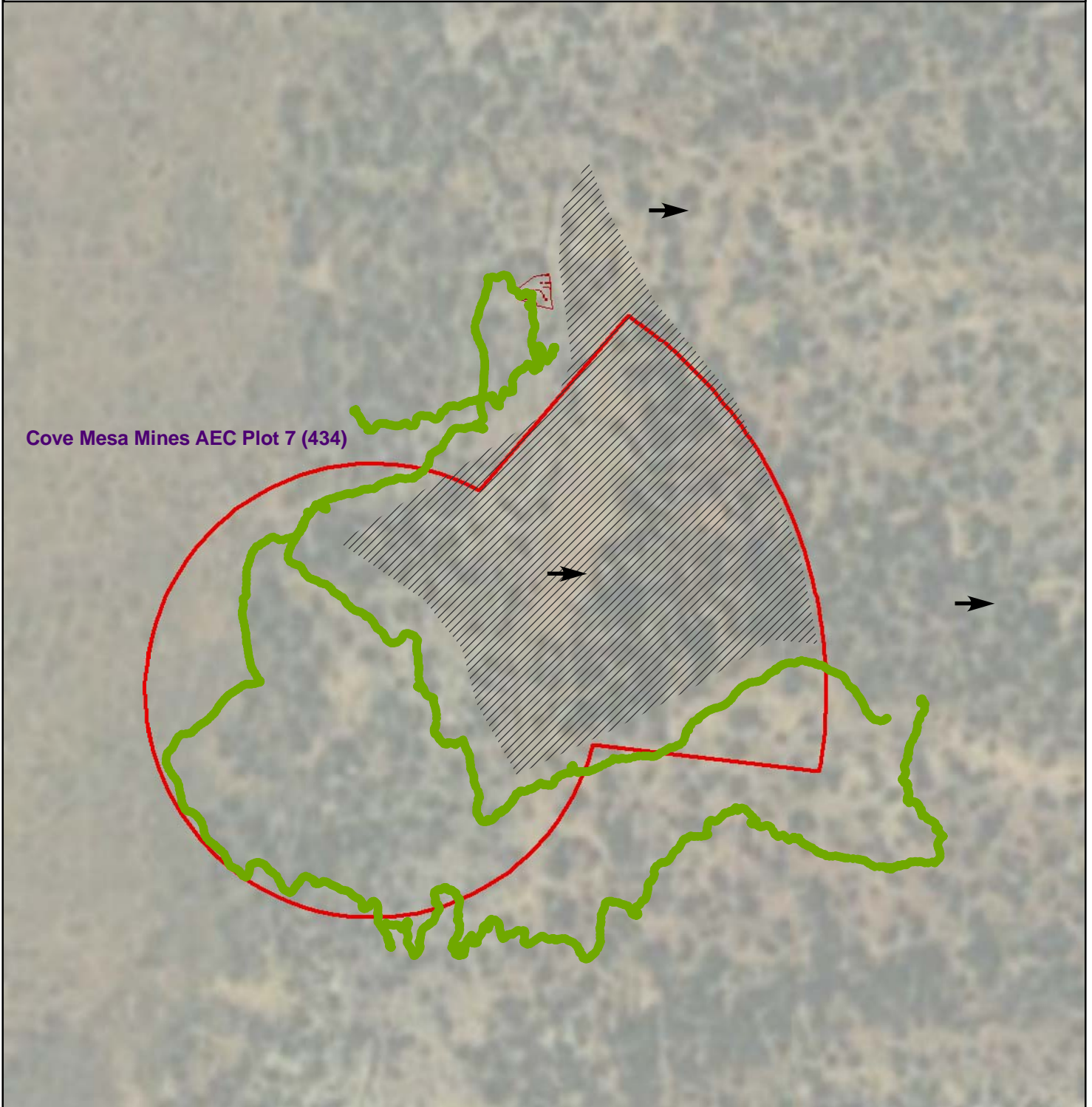
▭ Mine Claim Boundaries

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

Average background = 11,696 cpm



**Figure 12 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mine AEC Plot 7 (434)  
Red Valley/Sweetwater Chapter, Navajo Nation, Arizona**



Cove Mesa Mines AEC Plot 7 (434)





**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

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

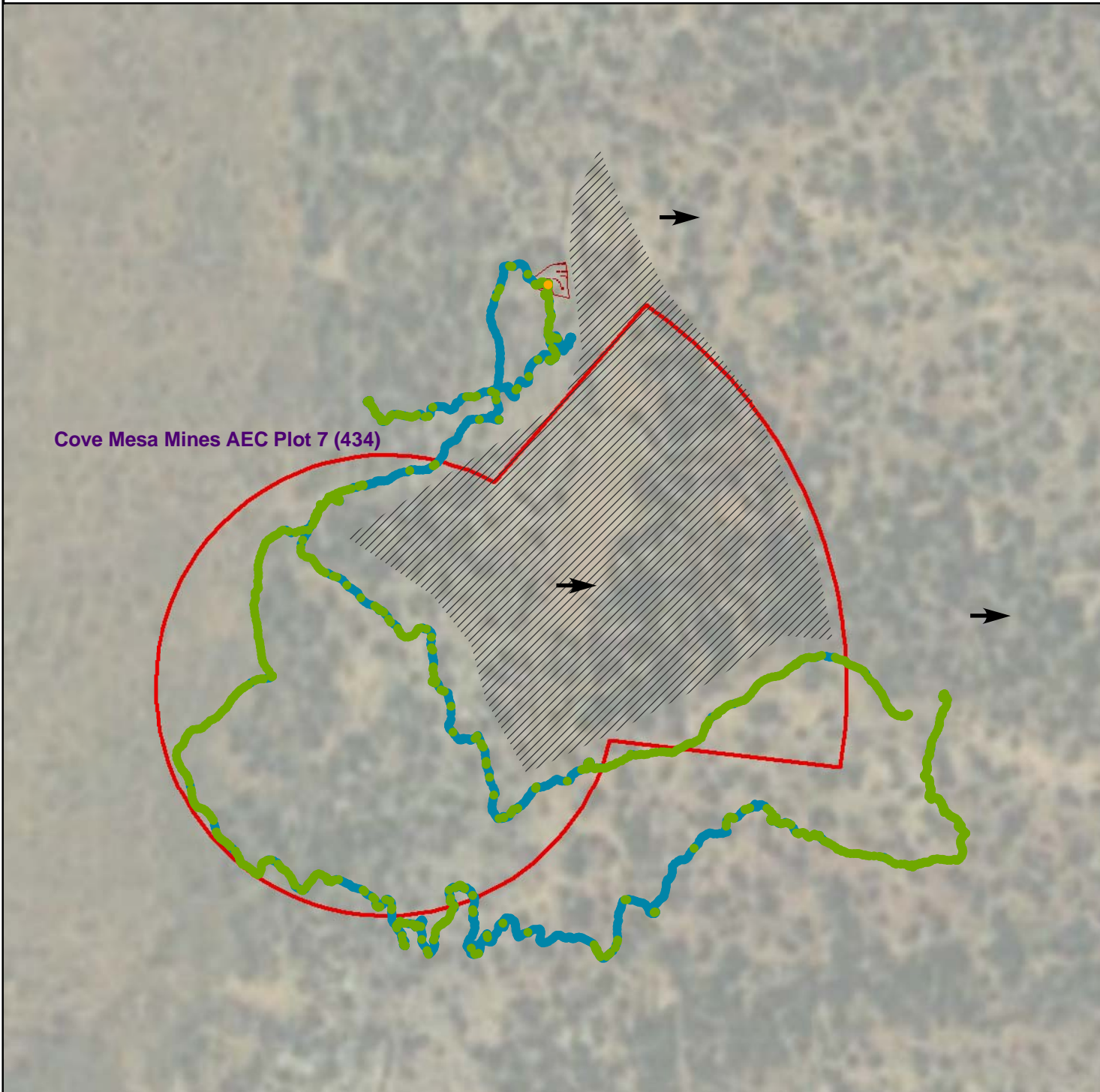
Average background = 10,136 cpm

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





**Figure 13 - Gamma Radiation Measurements**  
**Cove Mesa Mines AEC Plot 7 (434)**  
**Red Valley / Sweetwater 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**



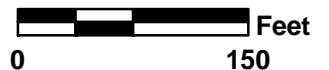
**General Direction Down-Slope**



**Mine Claim Boundaries**

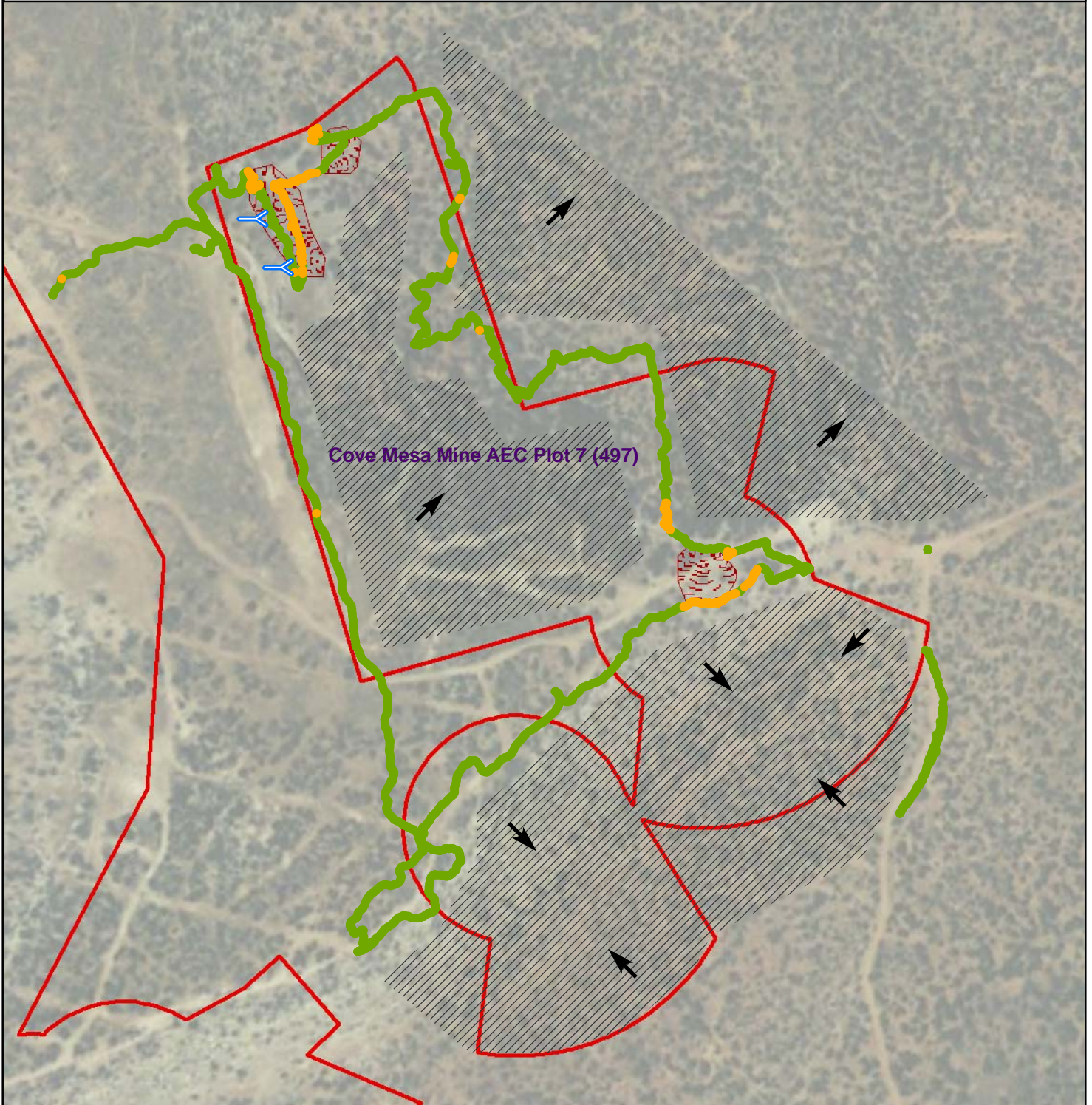
**Gamma survey conducted 10/2009**  
**Measured as counts per minute (cpm)**

**Average background = 10,136 cpm**





**Figure 14 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mines AEC Plot 7 (497)  
Sweetwater/Red Valley Chapter, Navajo Nation, Arizona**








**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

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

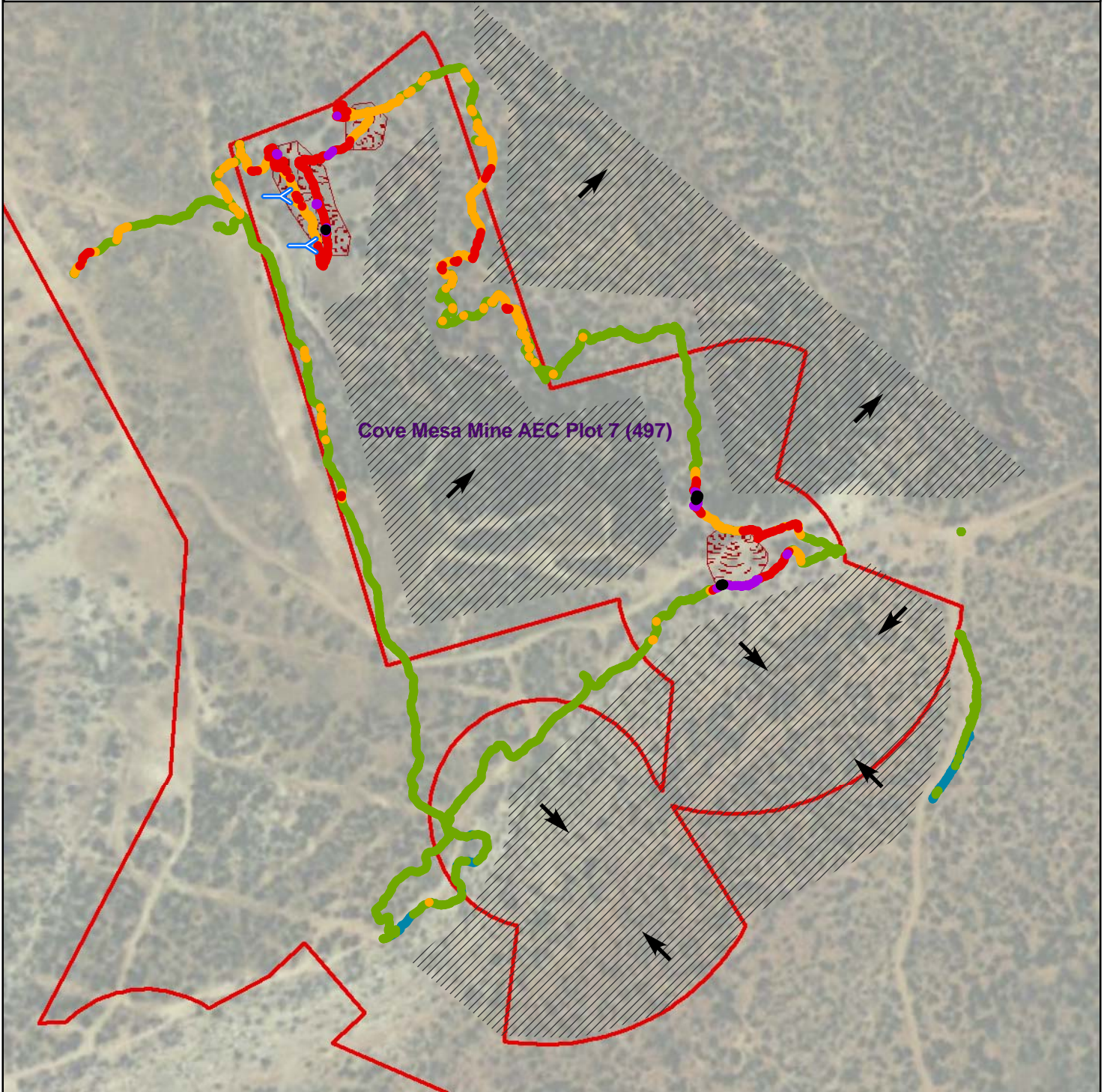
Average background = 12,670 cpm

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





**Figure 15 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (497)  
Sweetwater / Red Valley 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
- Observed Adit
- Inaccessible due to steep grades
- General Direction Down-Slope
- Mine Claim Boundaries

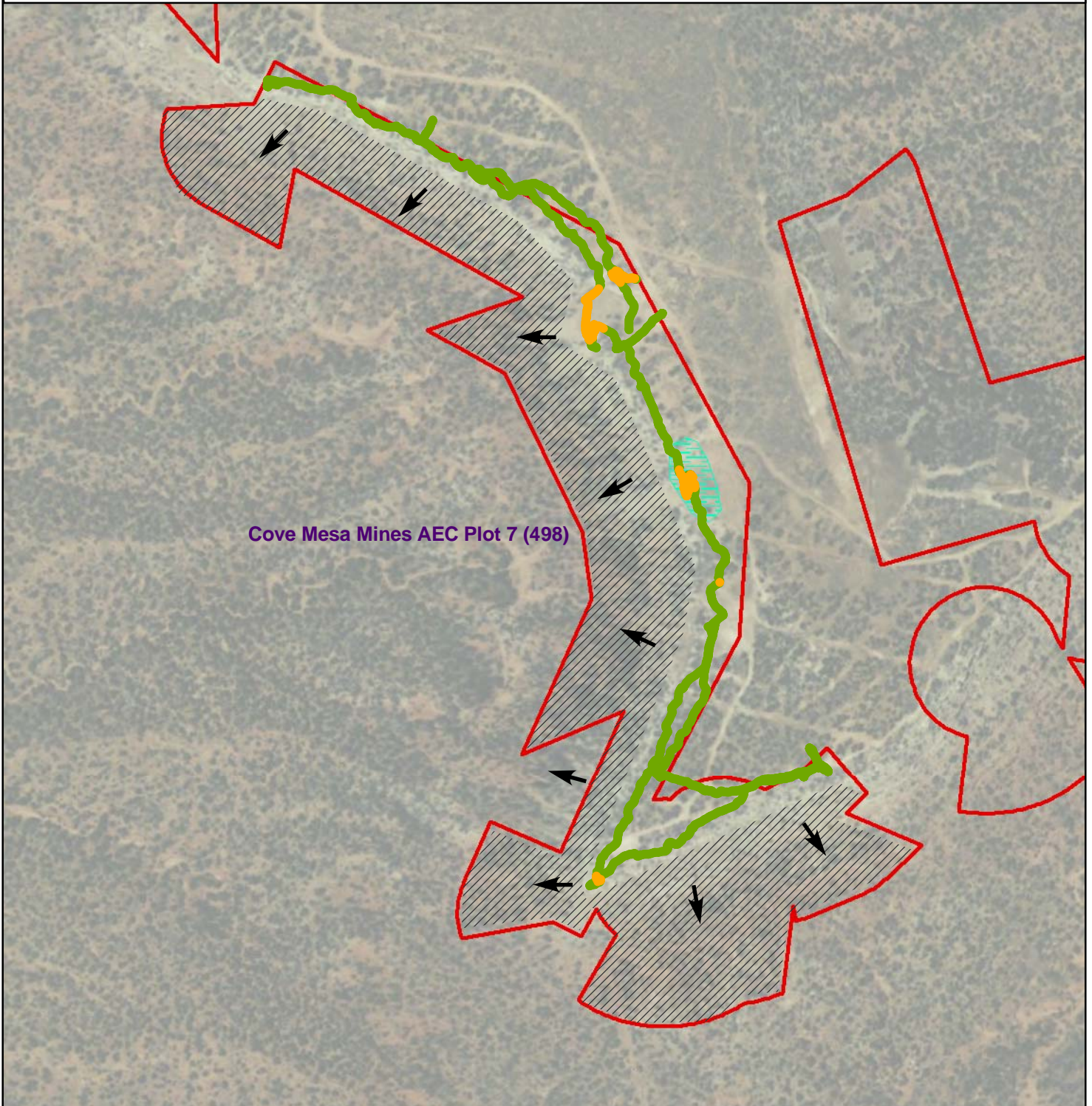
**Gamma survey conducted 10/2009  
Measured as counts per minute (cpm)**

**Average background = 12,670 cpm**

0                      300      Feet



**Figure 16 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mines AEC Plot 7 (498)  
Sweetwater Chapter, Navajo Nation, Arizona**







**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

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

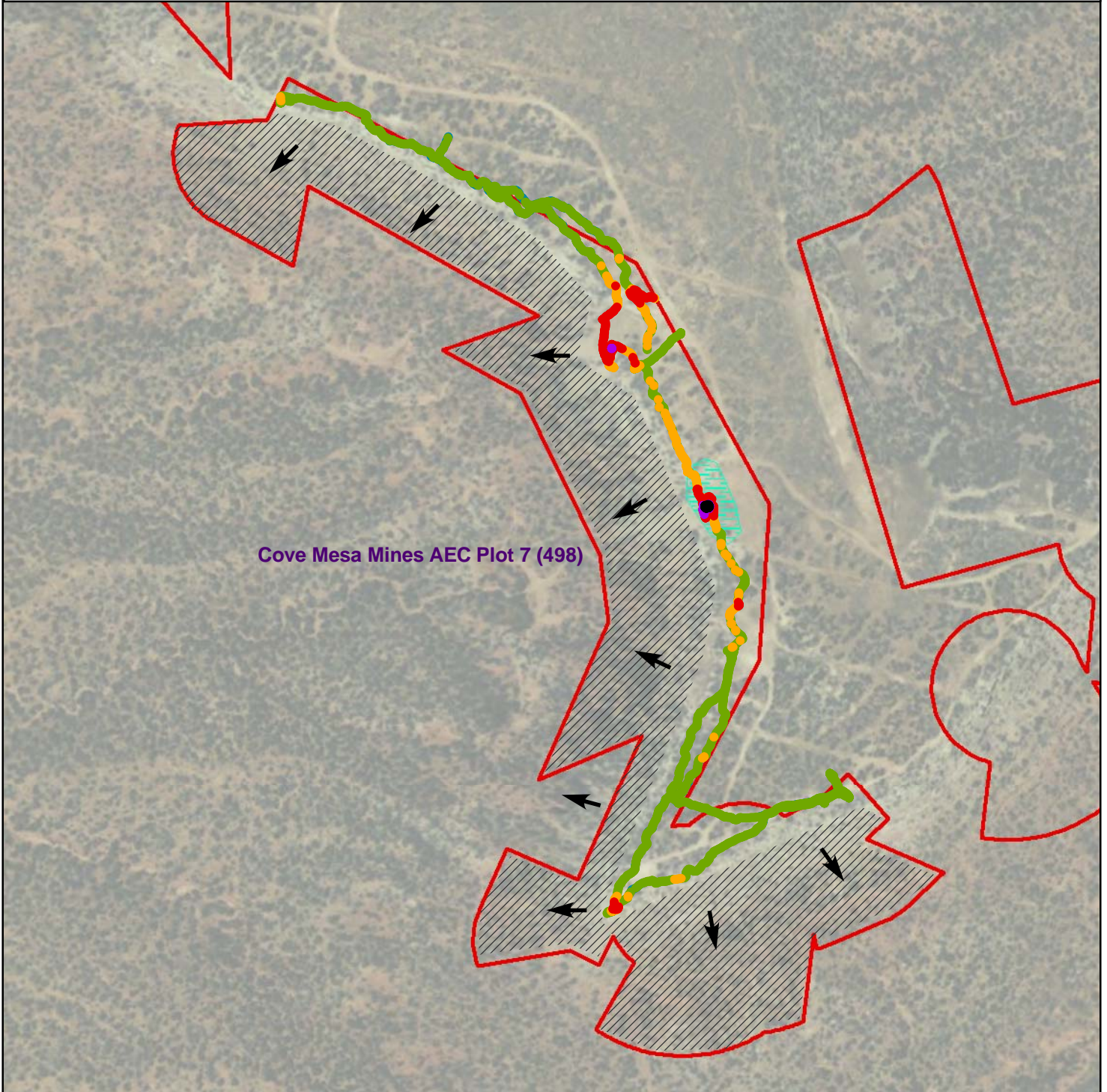
Average background = 11,079 cpm

-  Reclamation Cap
-  Inaccessible due to steep grades
-  General Direction Down-Slope
-  Mine Claim Boundaries





**Figure 17 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (498)  
Sweetwater 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

- Reclamation Cap
- Inaccessible due to steep grades
- General Direction Down-Slope
- Mine Claim Boundaries

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

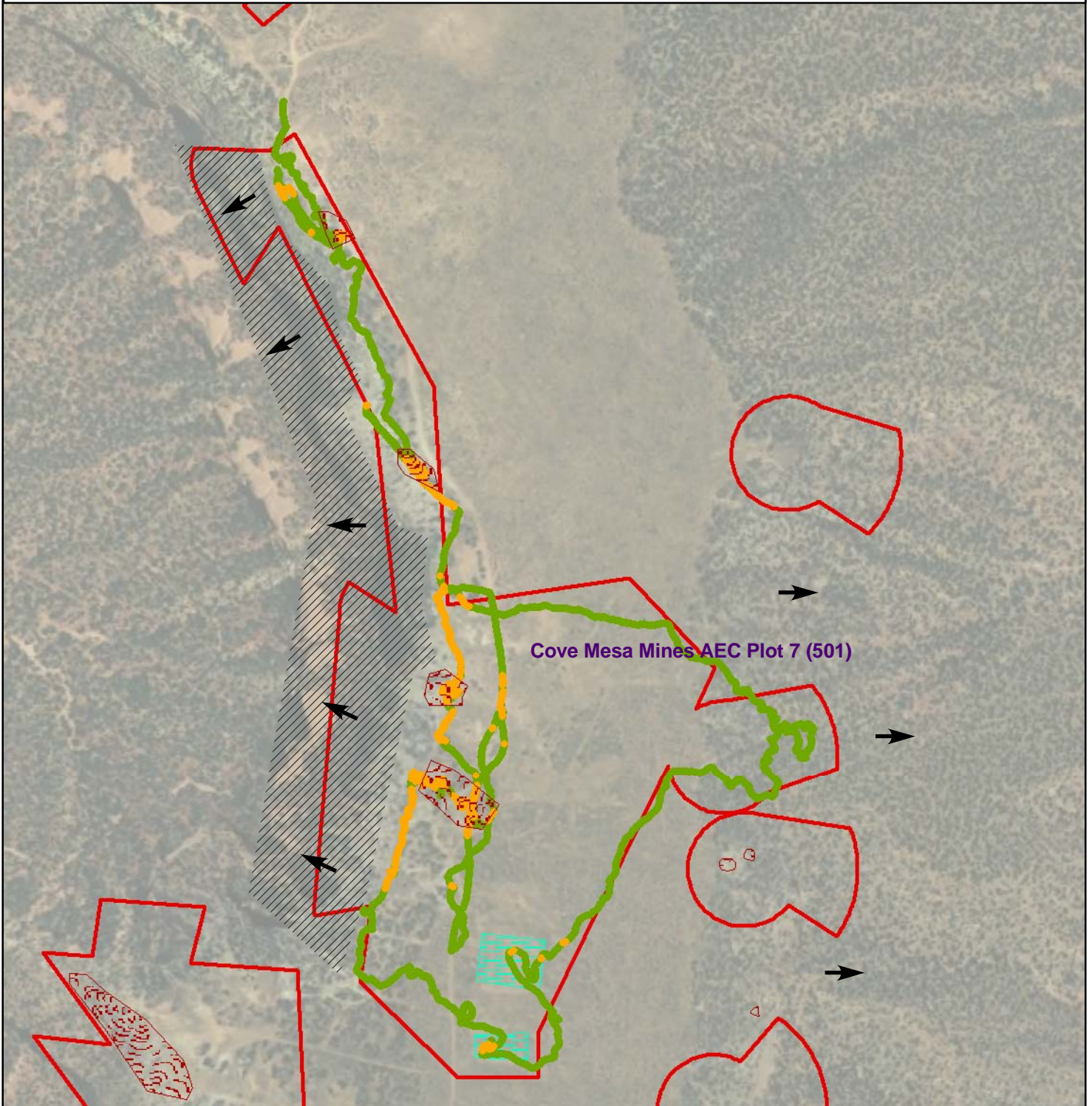
Average background = 11,079 cpm

0 500 Feet

**WESTON SOLUTIONS**



**Figure 18 - Gamma Radiation Measurements, Above Two Times Background  
Cove Mesa Mines AEC Plot 7 (501)  
Sweetwater Chapter, Navajo Nation, Arizona**








**Legend**

**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

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

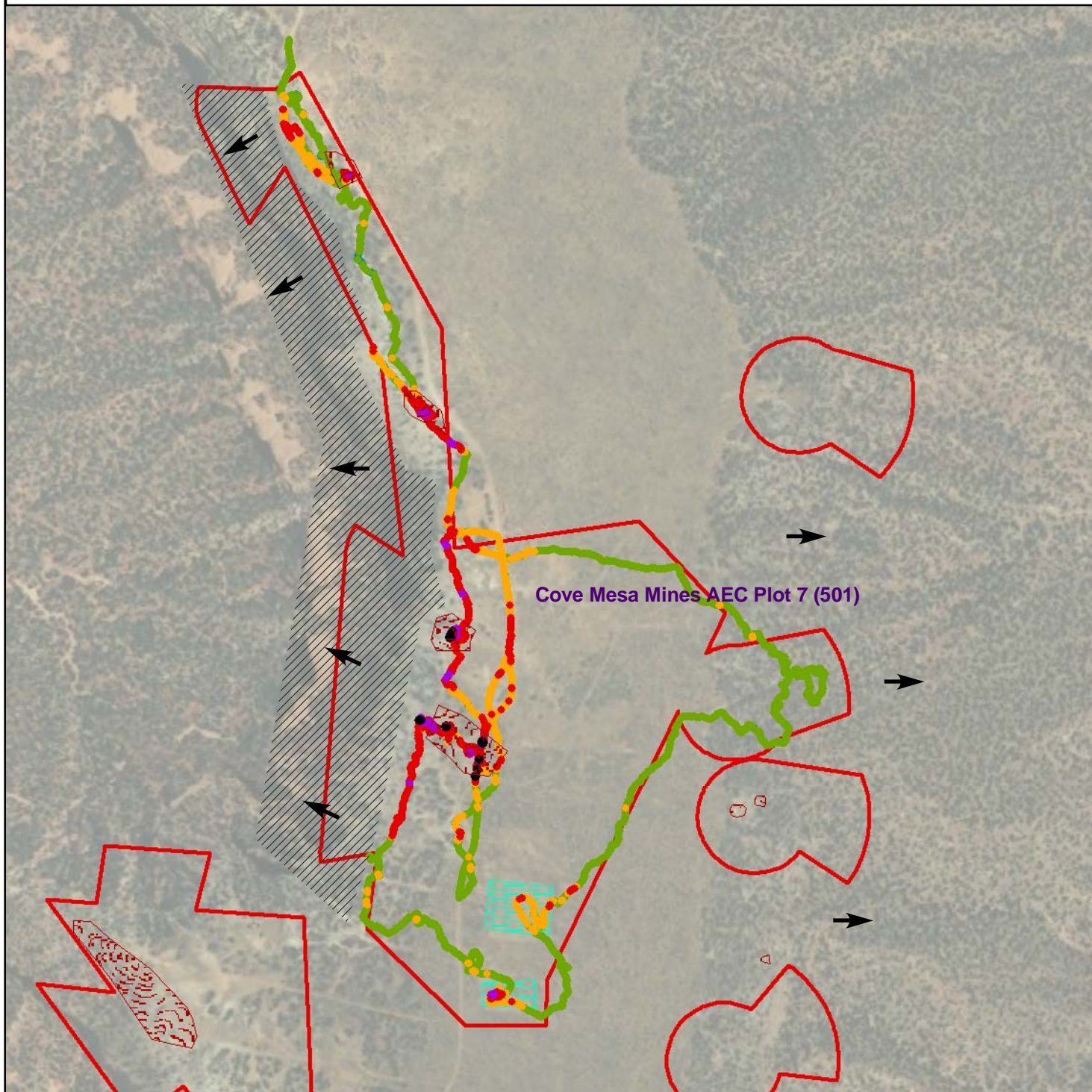
Average background = 10,723 cpm

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





**Figure 19 - Gamma Radiation Measurements  
Cove Mesa Mines AEC Plot 7 (501)  
Sweetwater 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
- Observed Reclamation Cap
- 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 = 10,723 cpm

0 600 Feet

WESTON SOLUTIONS