

US EPA ARCHIVE DOCUMENT

Decolonizing the Navajo Nation: Using Grassroots Driven Development & Activism to Secure Environmental Justice



Uranium Contamination Stakeholder Workshop
Community Involvement Session

Moenkopi Legacy Inn & Suites, Tuba City (Navajo Nation), AZ
Wednesday, 15 September 2010

Don Yellowman (Director, Forgotten People), Marsha Monestersky (Forgotten People)
Dr. Lee Greer (Department of Biology, La Sierra University, Riverside, CA)
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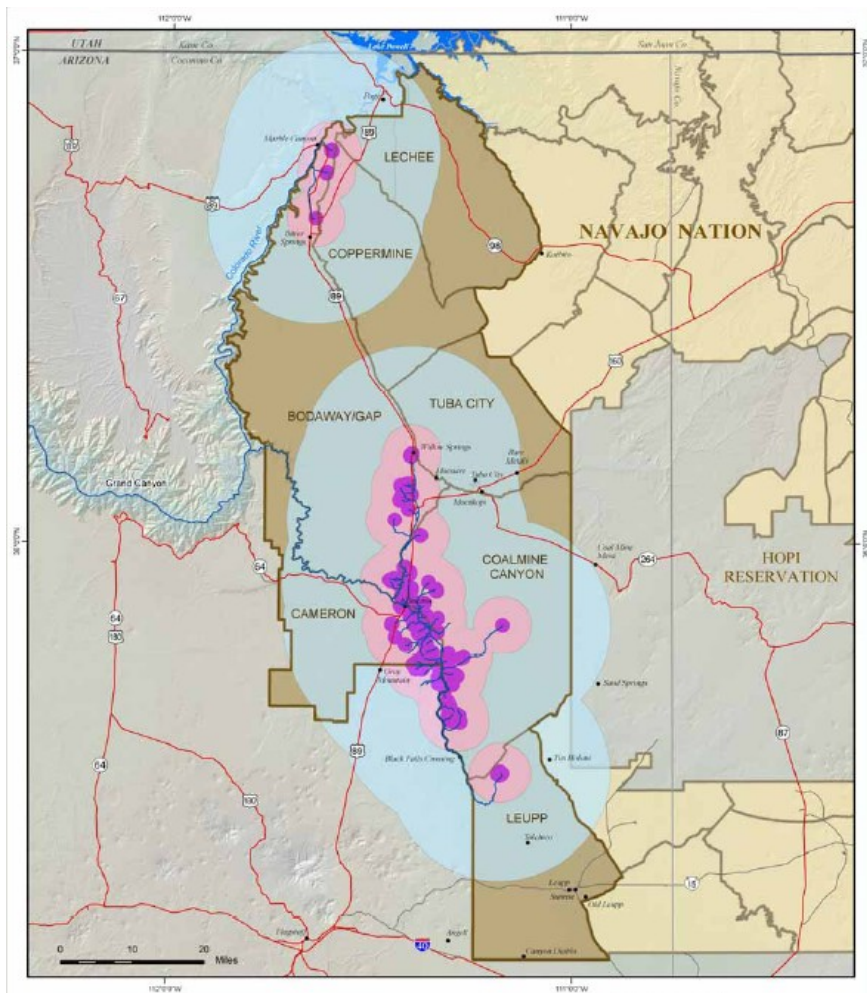
Road map

- The Challenges
 - Uranium mining, milling, contamination, health and environmental effects
 - The Bennett Freeze (1966-2009)
- Forgotten People overview
- Internal participatory problem solving
- External partnerships & problem solving
- “Radioactive colonization”—GPS, field sampling, gamma ray spectra—the situation today
- *In memoriam*
- Call to action



Challenges: Abandoned Uranium Mines & Mills

U.S. EPA Published Findings Combined Pathways Western AUM Region



Legend



Western AUM Region



Uranium Mine

Mine Buffers



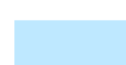
1/4 Mile



1 Mile



4 Miles



15 Miles



Populated Places

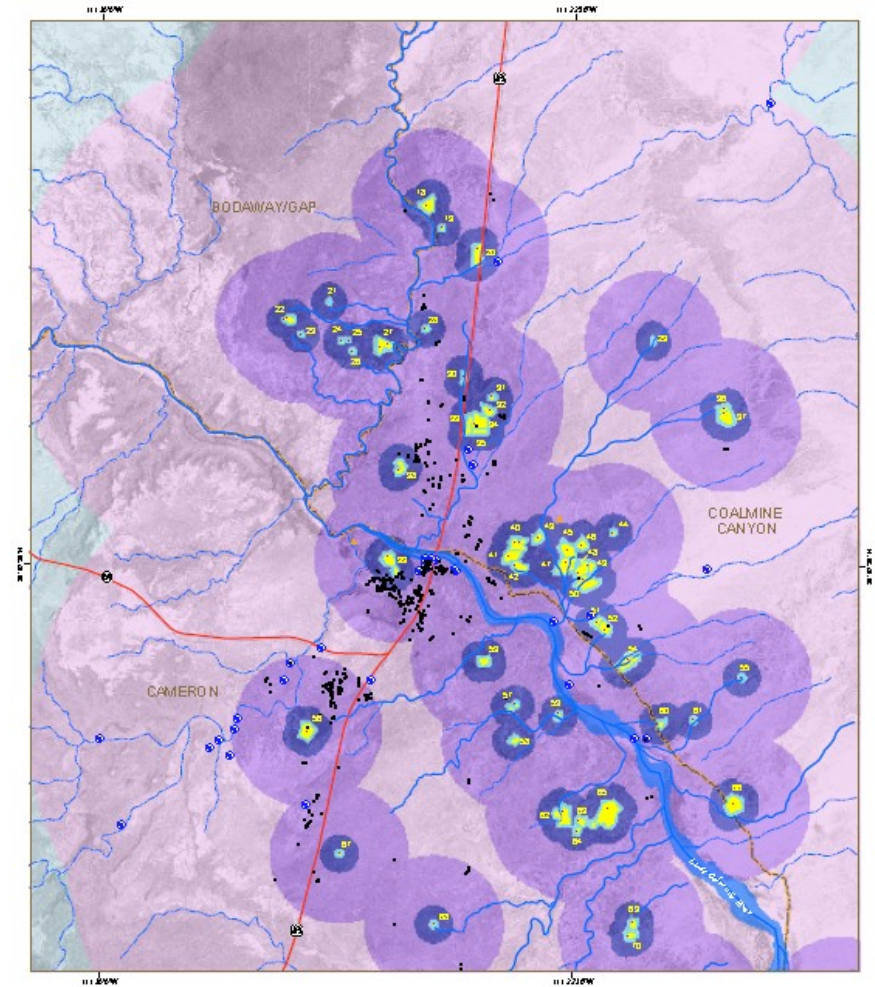
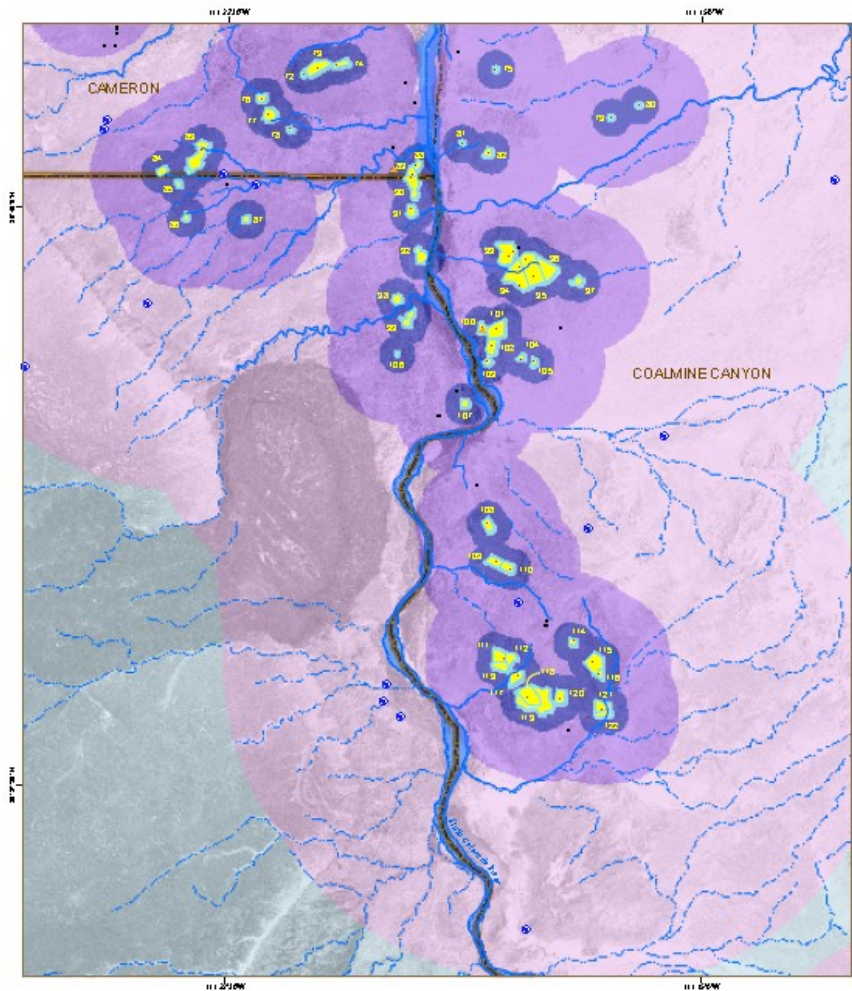


Highway



Paved Road

U.S. EPA Published Findings Combined AUM pathways Cameron and Coalmine Canyon





The Bennett Freeze

- The communities Forgotten People serves in the western portion of the Navajo Nation have been impacted by the 43-year (1966-2009) US government imposed Bennett Freeze and are spread over 1.6 million acres of remote desert terrain in the western portion of Arizona.
- Only 3 percent of the families in these communities have electricity and only 10 percent have running water (HR5168, 2004).



Challenges: The Bennett Freeze—43 Years of Enforced Third World Conditions





Challenges: The Bennett Freeze



**Challenges: Unsafe Transportation
and Storage of Water**



Challenges:

The Government Response

- EPA pressured by Congress to address uranium contamination of water supplies in Navajo Nation
- The EPA has made the provision of safe drinking water one of the three priorities for Indian Country for 2008-2010 (EPA 03, 2007).
- At the UN World Summit on Sustainable Development in Johannesburg, 2004, the EPA signed the agreement and set as its targets the reduction of American Indian and Native Alaskan households without access by 50% by 2015 (Ferguson, 2008).
- To achieve these goals, an interagency task force was created that included the US EPA, IHS, HUD, and USDA.

Forgotten People: The Grass Roots Participatory Approach



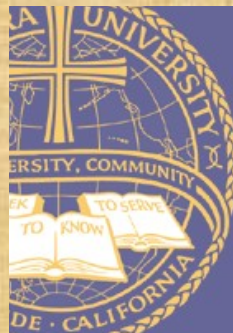
Dependency → Agency



Participation



A Collaborative Model to Achieve Environmental Justice





Project Pueblo university
work site; and with land
Rena Babbitt Lane



Environmental Justice

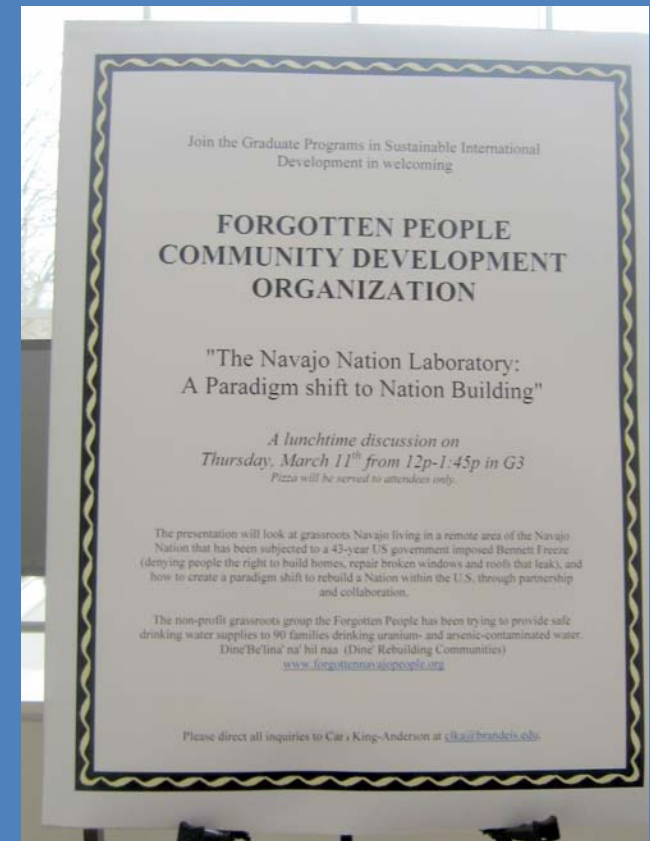
- Since the communities without access to safe drinking water are largely poor and minority, Environmental Justice (EJ) became a framework for understanding the problem, and this elevated its priority in the federal government. The national drinking water safety program was explicitly directed to identify and improve EJ issues (Grumbles, 2006).
- Both the citing of mines in a minority community and the failure of the government to take remedial action follow the patterns of discrimination, which gave rise to the EJ movement. (Pasternak, *Los Angeles Times*, 2006, A9)
- A GAO report in 2007 found that the EPA had done little to address the issue and identified the problem as a failure to provide environmental justice as required under law. In Congressional hearings, Chairman Henry Waxman, D-Calif., decried the lack of work on restoring the land on the Navajo reservation.

Uranium & Achieving Environmental Justice

“If a fraction of the deadly contamination the Navajos live with every day had been in Beverly Hills or any wealthy community, it would have been cleaned up immediately. But there's a different standard applied to the Navajo land... while time passes, people get sick, people die, people develop kidney disease, children, babies are born with birth defects, bone cancer develops and gets worse, lung cancer, leukemia, while we wait”

US Representative Henry Waxman, 2007

Forgotten People Presents at Brandeis University, Heller School for Social Policy and Development



Forgotten People Meets With Center For Disease Control, Washington DC



Don Yellowman, President, Forgotten People Nominated to US EPA Health Disparities Board, Oakland, CA



Grassroots contribution: Reach the Target Population





**Meeting with US EPA, Black Falls (Navajo Nation),
AZ - Access to Information & Expertise**

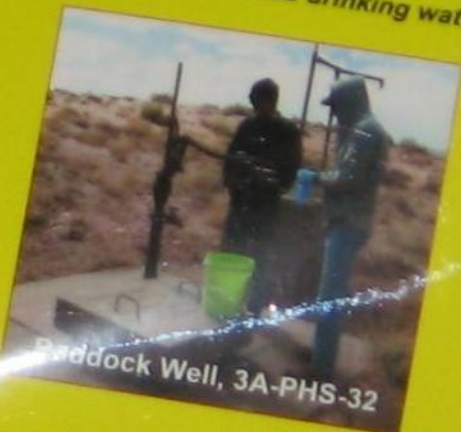
Participation & Partnership with Total Transparency



Dif tó baa' ákonosin!

Water from Paddock Well (3A-PHS-32)* in Cameron Chapter is NOT safe to drink

**Uranium and arsenic exceed drinking water standards*




Paddock Well, 3A-PHS-32

Advisory issued May 2008 by

- Navajo Nation Environmental Protection Agency
- U.S. Environmental Protection Agency Region-9
- Navajo Nation Division of Health
- Navajo Nation Veterinary & Livestock Program
- Diné Network for Environmental Health (DINEH) Project

Call 928-871-7755 or visit www.navajopublicwater.org



Navajo Nation policy is that livestock-use-only wells are not to be used for human drinking water.

US EPA Contamination Signs and Navajo Resources Committee in Box Springs



Addressing Health Concerns



Medical Screen

What to Expect:

- Essential Information
 - Type of work
 - Places you lived
 - Health Insurance
- Medical History
 - Current and Past Health History
 - Medications
- Physical Exam
 - Vitals
- Labs/Radiology
 - Urine/yea
 - Blood Work
 - Chest X-ray
 - Fear Count

...have had any of these done
...year, please bring a
...results with you to
...appointment.

Providing Tangible results





Providing tangible results: Kitchen sinks w hauled water systems



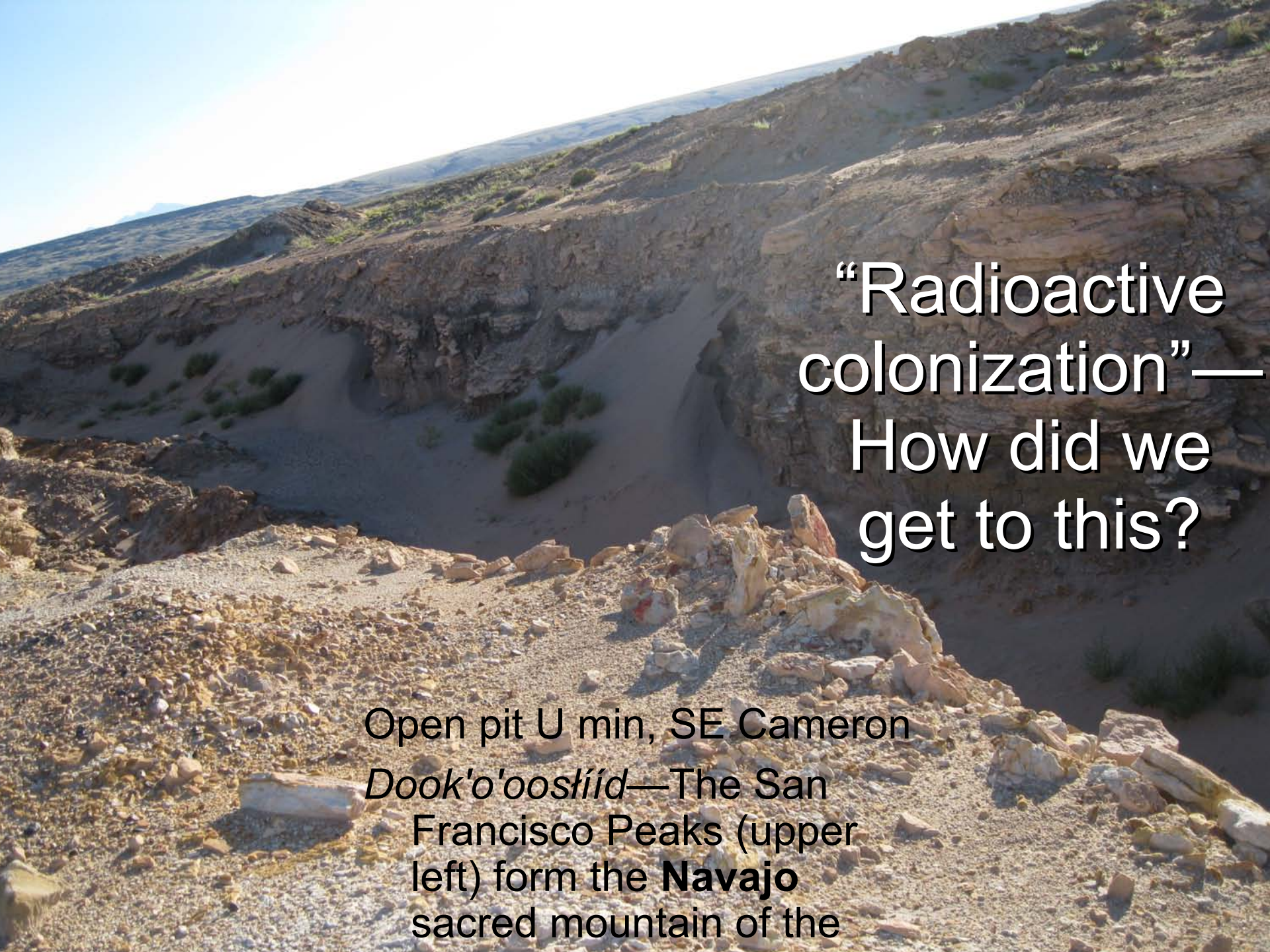
Projects: Building Bathrooms

Internal Participation: Sweat equity



Health Disparities

- Gastric cancer rates up 50% during the 1990s among Navajo people in two New Mexico counties with uranium sites. Uranium has been linked to reproductive cancers, and a sharp increase in breast, ovarian, and other cancers among teenage girls.
- Today, cancer rates many times the national average have been found (Cole, *Arizona Daily Sun*, 3-29-08; A1, A8). Cancer rates among Navajo teenagers living near mine tailings are 17 times the national average (Smith, 2008).
- Reproductive-organ cancers in teenage Navajo girls average 17 times higher than the average of girls in the United States (Raloff, 2004).
- Navajo Neuropathy and other severe health issues are associated with drinking uranium contaminated water. In spite of high rates of cancer, diabetes, autoimmune disease, kidney failure and birth defects, there has been no comprehensive study of public health in uranium and coal mine communities.
- North Americans have the highest rate of infant mortality (7.5 X the national average), highest death rates from malnutrition, plague, exposure, highest rate of teen suicide, and low life expectancies—male 44.6 y, and female <47 y (U.S. Bureau of the Census, *A Statistical Profile of the American Indian Population* (Washington, DC: U.S. Government Printing Office, 1984).



“Radioactive
colonization”—
How did we
get to this?

Open pit U min, SE Cameron

Dook'o'oostííd—The San
Francisco Peaks (upper
left) form the **Navajo**
sacred mountain of the

“Radioactive colonization”—How did we get to this?

Historical backdrop (after centuries of genocidal warfare, introduced disease, loss of homelands, “the Long Walk” etc.)

- **1887 General Allotment Act** – using a restrictive “blood quantum” formula on Indian populations (~160 acres “alloted” *per capita*), “legally” reduced reservations from ~150 million acres to ~50 million acres without consent of native peoples.
- **1901 US Supreme Court, *Lone Wolf v. Hitchcock*** (187 US 553) – remaining reservations subject to US “plenary power” and “permanent trusteeship” with “absolute and unchallengeable authority” over American Indian lives and lands.

“Radioactive colonization”—How did we get to this?

Historical backdrop

- **1934 Indian Reorganization Act** – replaced traditional indigenous governance with US federally-controlled “tribal councils” serving as rubber stamp sign-offs for “development” and resource extraction.
- **1948-1979 Indian Claims Commission** – mandated to examine all indigenous claims regarding land grabs by coercion or fraud, to pay compensation at original estimated values (without interest or return of property), & found that ~750 million acres (~1/3 of lower 48 states) stolen without agreement, not even a unilateral act of Congress.

“Radioactive colonization”—How did we get to this?

Historical backdrop

- **1930s-'40s' US gov't Navajo Livestock Reduction** – forced loss of >80% of Nation's livestock & establishment of the quota system under pretext of over-grazing—ironic given the corporate permits for strip-mining & open-pit mining —> Navajo people left in deeper poverty & vulnerable to exploitation by mineral extraction companies
- **1942-45 Manhattan Project** - >11,000 tons of U ore mined & milled in Monument Valley & Carrizo Mt regions of Navajo

“Radioactive colonization”—How did we get to this?

Historical backdrop

- **1946-1968** – >13 million tons of U ore mined in Navajo lands; 2.5 million tons from Shiprock (Kulentz, *Geographies of Sacrifice*, op. cit., p. 31; Reno, *Navajo Resources*, op. cit., p. 138).
- Bureau of Indian Affairs (BIA) by **1976** had approved 303 leases to corporate mining and milling interests, “encumbering” ~250,000 acres of Navajo lands (M. Ambler, 1990. *Breaking the Iron Bonds: Indian Control over Energy Development*. Lawrence, KA: University of Kansas Press) and of course contaminating much more.

“Radioactive colonization”—How did we get to this?

Historical backdrop

- **1950s-Present** – The manufactured Hopi-Navajo land dispute, trumped up by deceptive deals, involving a couple prominent Arizona senators, and other political colleagues, to grant land leases to Peabody Western Coal, resulted in the forced removal of 14,000 Navajo from disputed lands (1974), ongoing forced removal efforts, bitterness between sister native peoples, and heartache, sickness, and death for many exiled, displaced, and resisters. Some of these ended up on U radiation-contaminated lands.
- **(1960s-)1970(s)** – US funded Indian Health Service (IHS) the forced sterilization of thousands of Indian women, which was exposed in the 1970s. Part of a broader and older background of eugenics-inspired sterilization of Native Americans, African-Americans, and people with various illnesses and disabilities.

“Radioactive colonization”—How did we get to this?

- **Numbers of abandoned U mines?** – >1300 unreclaimed AUMs (McSwain, 2007), but now the claim is that there are 520 AUMs (cit. Navajo EPA).
- “Over 1300 mines remain unreclaimed and the leaching of uranium from the slag piles into drinking water supplies was damaging [those] water supplies” (R. McSwain, 2007, Testimony before House Committee on Government Oversight and Reform, US House of Representatives. *The Health and Environmental Impact of Uranium Mining on the Navajo Nation*. Director of IHS, US Department of Health and Human Services).

“Radioactive colonization”—How did we get to this?

- “The [US] EPA and Indian Health Service prioritized the regions of Black Falls and Dennehotso, where local sources were uranium contaminated and safe water was not available within 10 miles” (*EPA 01, 2008. Addressing Uranium Contamination in the Navajo Nation: Contaminated Water Sources, US EPA Region 9 Superfund*).
- “Up to 25% of the unregulated sources in the western Navajo reservation exceed drinking water standards for kidney toxicants including uranium” (Jamie de Lemos, 2007. “Takes on Toxins on the Navajo Nation,” *Tufts E-News*).
 - **1979** – Church Rock spill of U-contaminated effluents of millions of gallons – one of the worst spills

“Radioactive colonization”—How did we get to this?



Communities Hauling and Using Uranium and Arsenic Contaminated Water

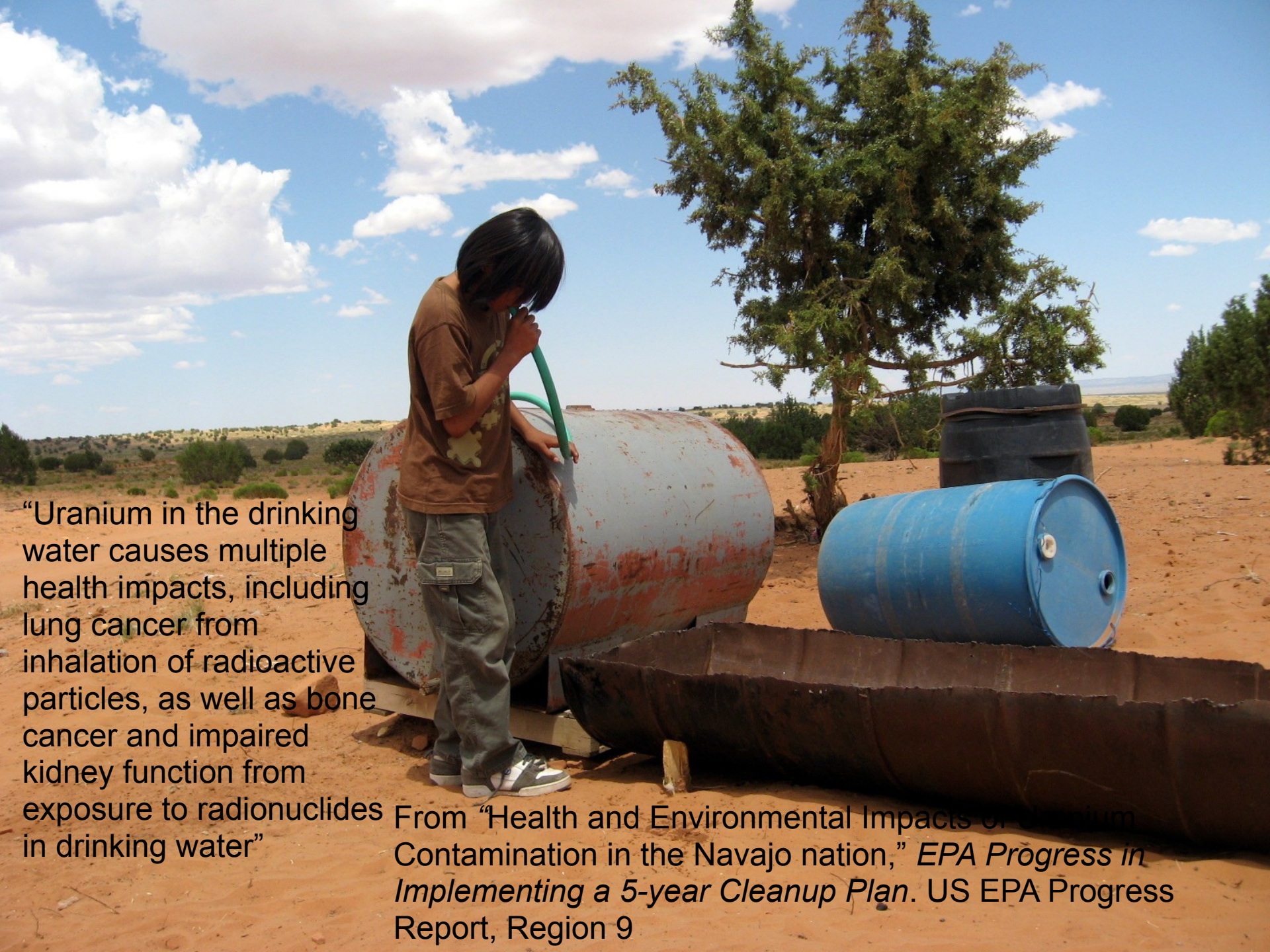
“Radioactive colonization”—How did we get to this?



Hauling Superfund water even after funding end



Using Uranium and Arsenic Contaminated Water out of substandard containers



“Uranium in the drinking water causes multiple health impacts, including lung cancer from inhalation of radioactive particles, as well as bone cancer and impaired kidney function from exposure to radionuclides in drinking water”

From “Health and Environmental Impacts of Uranium Contamination in the Navajo nation,” *EPA Progress in Implementing a 5-year Cleanup Plan*. US EPA Progress Report, Region 9



**WATER FROM
THIS WELL
IS NOT SAFE
TO DRINK**

This water has been tested and found to exceed Navajo EPA and U.S.EPA human drinking water standards for uranium or other contaminants.

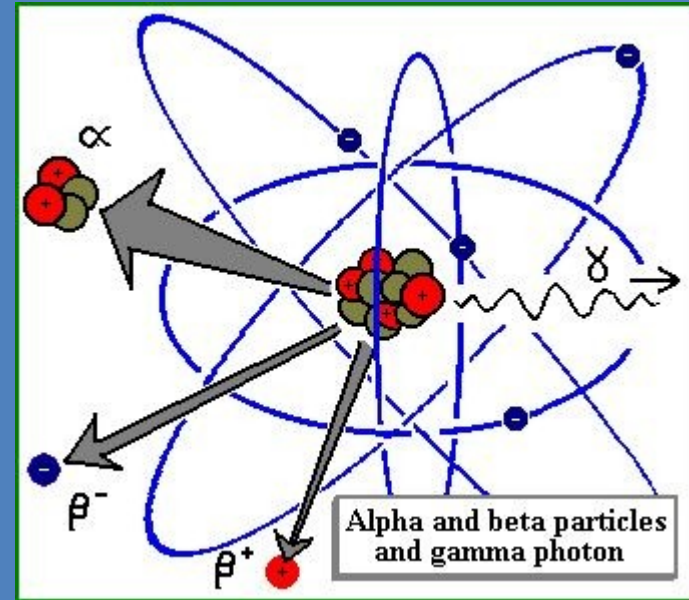
Navajo Nation policy is that livestock-use-only wells are not to be used for human drinking water.

Box Springs—people drank from this well for >40 years before the warning sign was installed in 2007

Radioactivity

**URANIUM 238 (U238)
RADIOACTIVE DECAY**

type of radiation	nuclide	half-life
	uranium—238	4.5×10^9 years
α	thorium—234	24.5 days
β	protactinium—234	1.14 minutes
β	uranium—234	2.33×10^5 years
α	thorium—230	8.3×10^4 years
α	radium—226	1590 years
α	radon—222	3.825 days
α	polonium—218	3.05 minutes
α	lead—214	26.8 minutes
β	bismuth—214	19.7 minutes
β	polonium—214	1.5×10^{-4} seconds
α	lead—210	22 years
β	bismuth—210	5 days
β	polonium—210	140 days
α	lead—206	stable



Interestingly, 10 half-lives are necessary for a nuclide's radioactivity to reduce to background

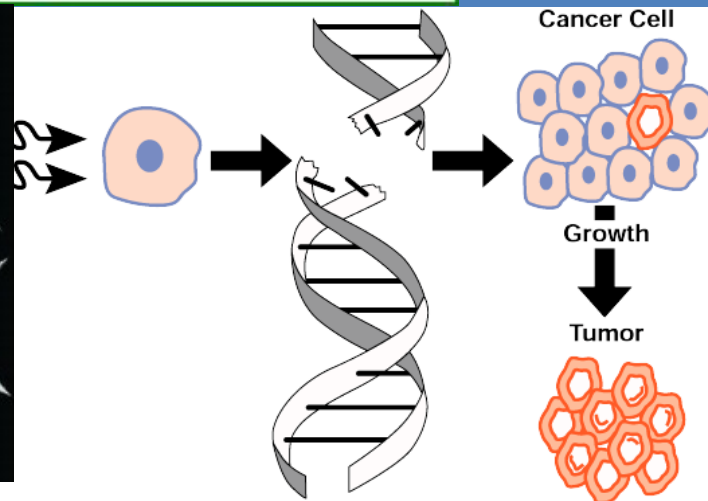
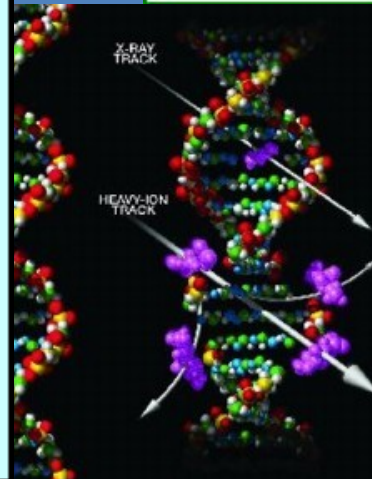
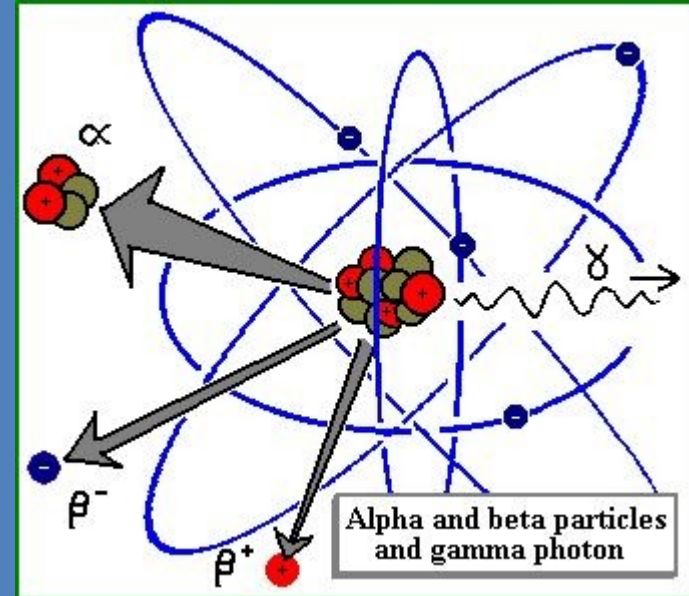
So for ^{238}U , there will be no problem if we only wait for 45 billion years (i.e., 4.5×10^{10} y)

Uranium decay chain

Radioactivity & its biological effects

URANIUM 238 (U238) RADIOACTIVE DECAY

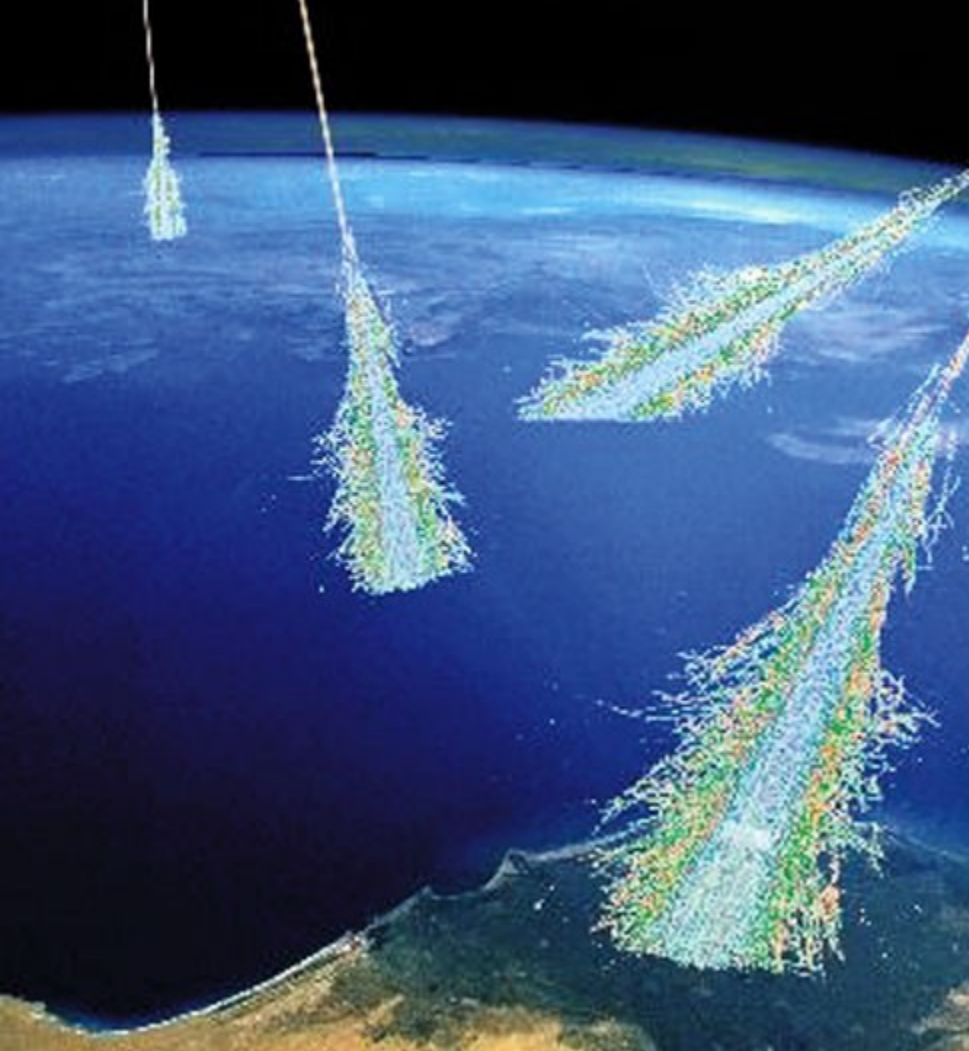
type of radiation	nuclide	half-life
	uranium—238	4.5×10^9 years
α	thorium—234	24.5 days
β	protactinium—234	1.14 minutes
β	uranium—234	2.33×10^5 years
α	thorium—230	8.3×10^4 years
α	radium—226	1590 years
α	radon—222	3.825 days
α	polonium—218	3.05 minutes
α	lead—214	26.8 minutes
β	bismuth—214	19.7 minutes
β	polonium—214	1.5×10^{-4} seconds
α	lead—210	22 years
β	bismuth—210	5 days
β	polonium—210	140 days
α	lead—206	stable



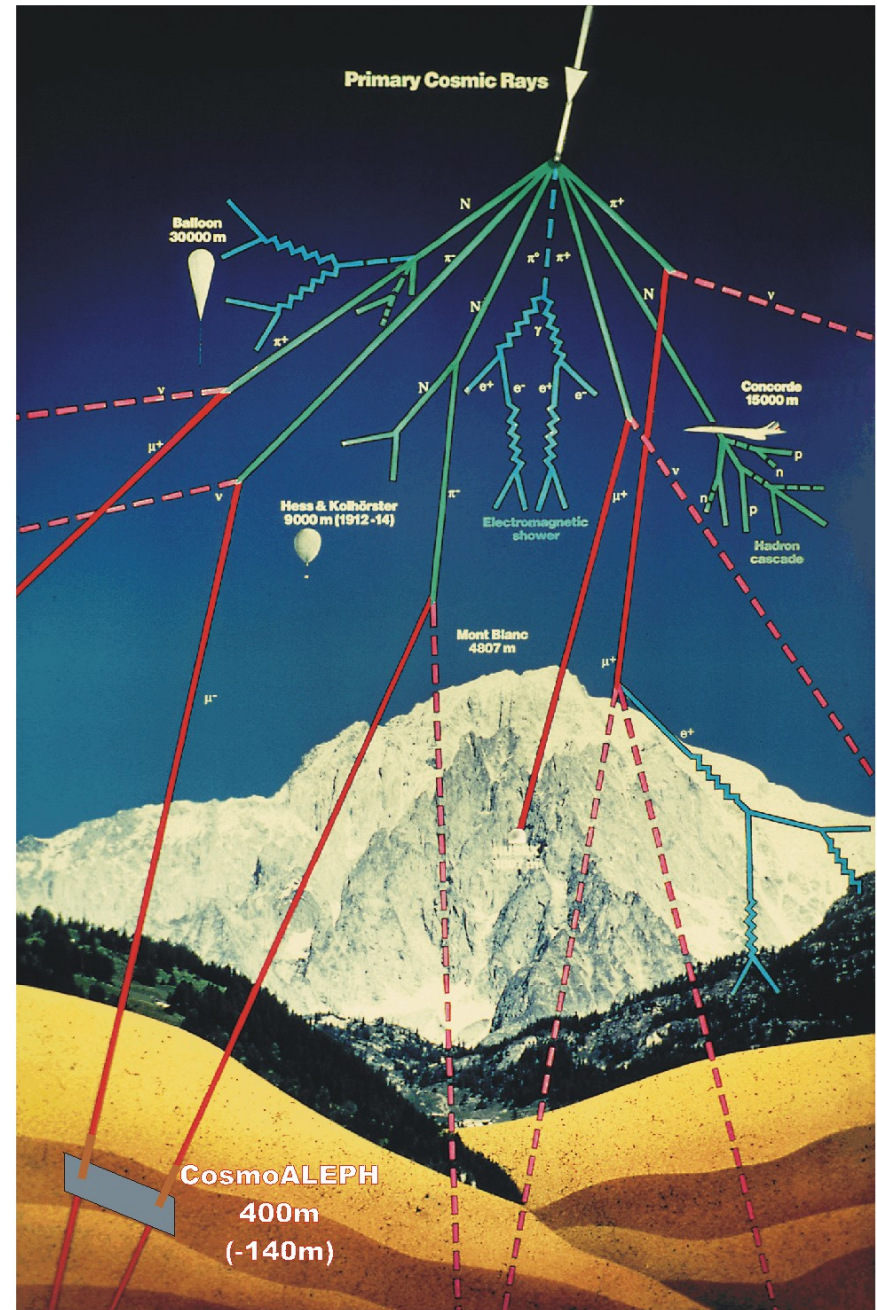
Uranium decay chain

Figure 1. Development of cancer from mutation produced by ionizing radiation.

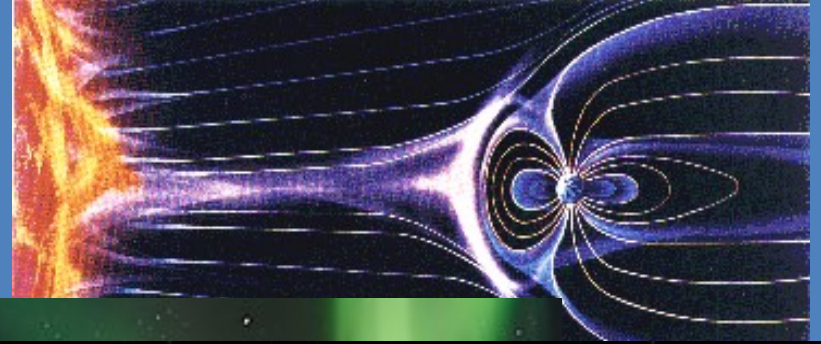
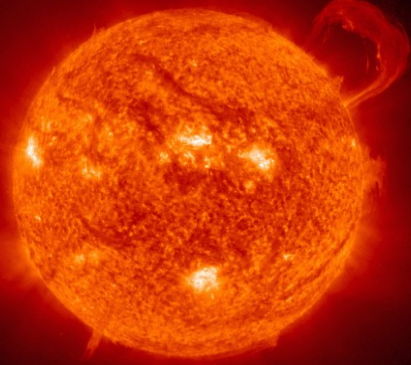
Background radiation



Cosmic Rays



Background radiation



Taking Samples for radiation testing



Collecting Geiger Counter Readings and Samples in Abandoned Uranium Sites



Taking Geiger Counter Readings in the Field



Collecting a water sample at a water impoundment dam in the midst of several abandoned uranium mines



Geiger counter, GPS Field Sampling Data

<u>Time</u>	<u>Date</u>	<u>GIS nomenclature</u>	<u>Reading</u>	<u>mr/ hr</u>	<u>Lat</u>	<u>Lon</u>	<u>photo</u>	<u>video</u>
6:14p	7/14/2010	UMill-03	22.3x10 ³ /5min	1.335	N35.73946	W111.32401	M4H01144	
6:26p	7/14/2010	UMill-05	20.19x10 ³ /5min	1.209	N35.73968	W111.32401	DSC01153	
6:35p	7/14/2010	UMill-06	26.68x10 ³ /5min	1.598	N35.73963	W111.32390	DSC01168	M4H01160&1
6:44p	7/14/2010	UMill-07	26.55x10 ³ /5min	1.59	N35.73978	W111.32378	DSC0118	

Abandoned U mill (Milestone)—SE Cameron



Abandoned U mill—SE Cameron



Abandoned U mill—SE Cameron



Wetlands of the Little Colorado River in the background



Abandoned U mill—SE Cameron



Fresh cattle tracks and droppings in the abandoned site



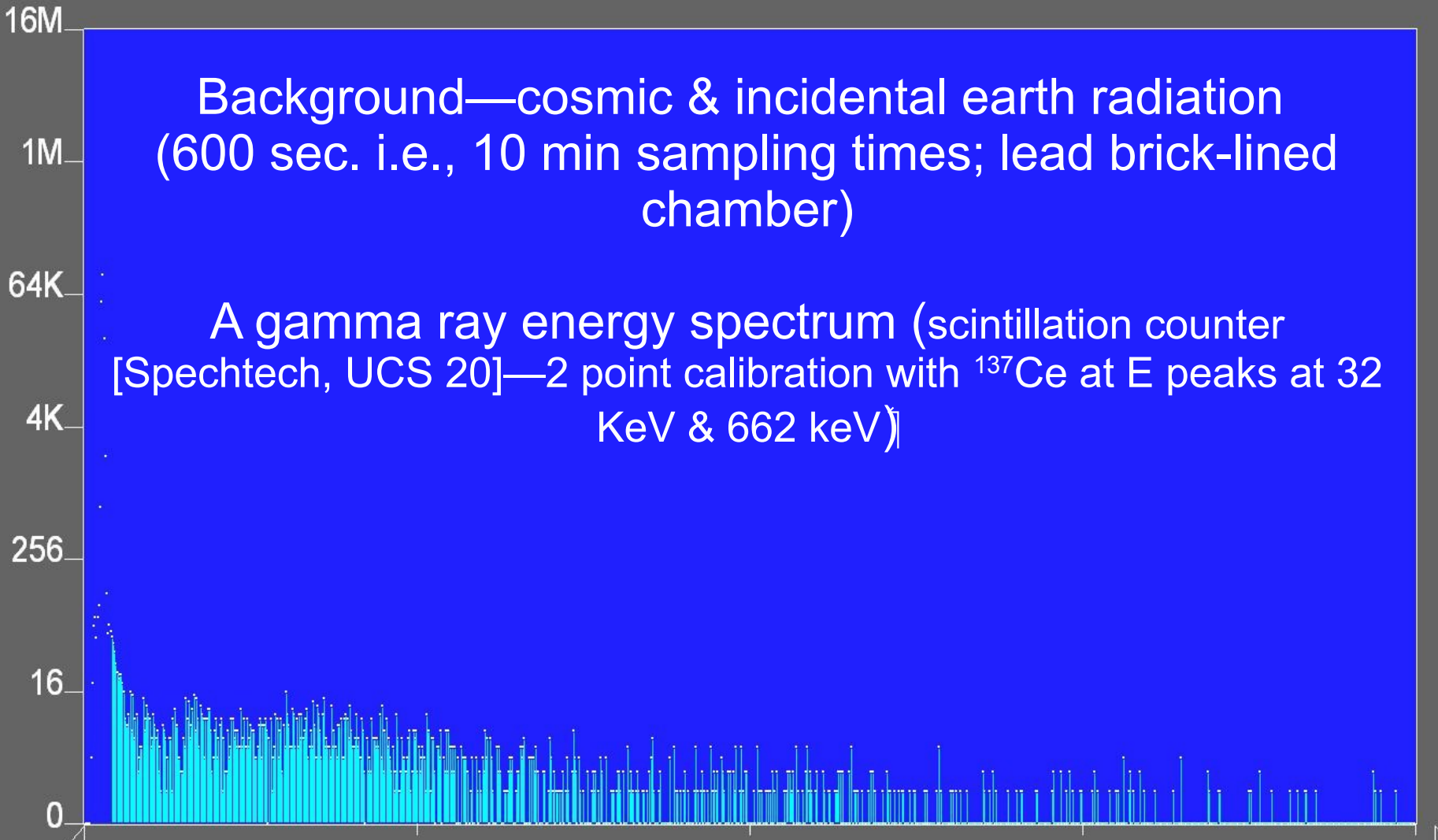
Abandoned U mill—SE Cameron



American Nuclear, Inc.



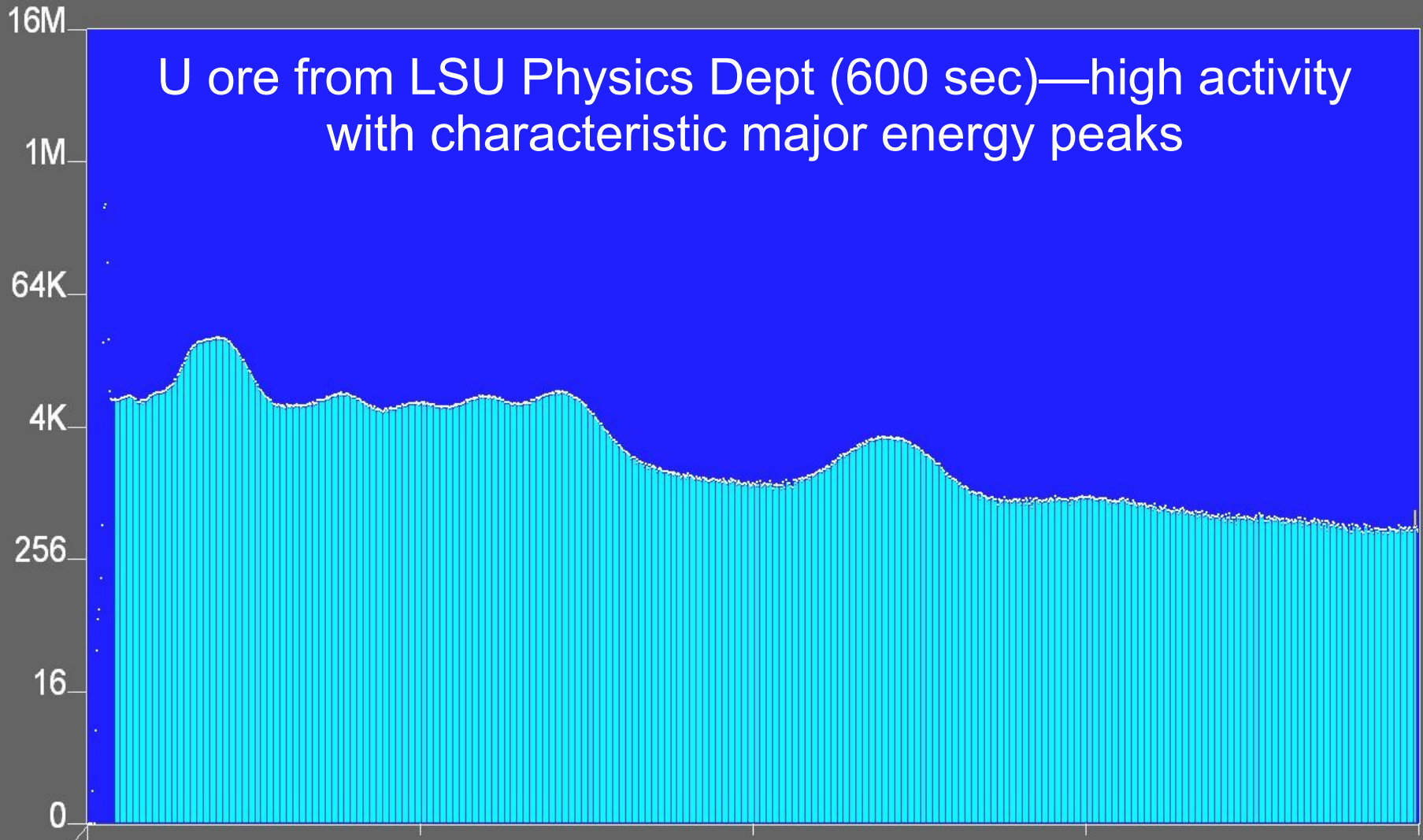
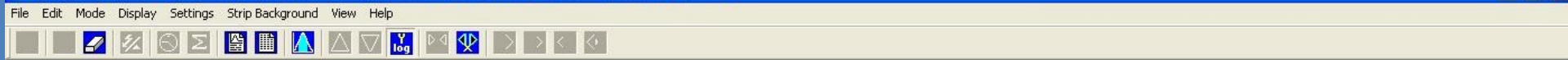
- A bunch of abandoned papers containing site maps, locations, etc. left in this old desk shoved into the hill



Background—cosmic & incidental earth radiation
(600 sec. i.e., 10 min sampling times; lead brick-lined chamber)

A gamma ray energy spectrum (scintillation counter [Spechtech, UCS 20]—2 point calibration with ^{137}Ce at E peaks at 32 KeV & 662 keV)

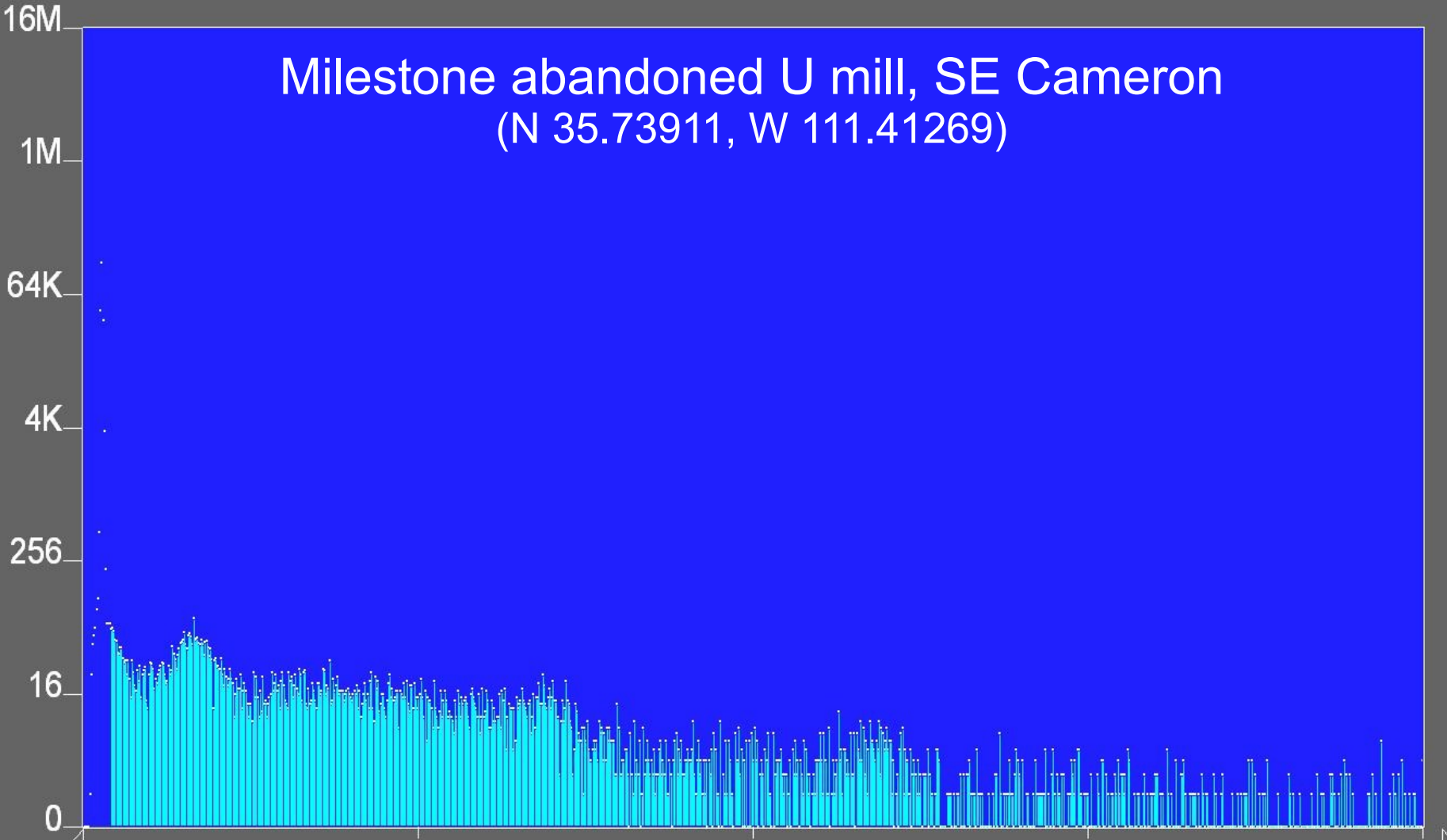
0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 2886	FWHM: 0 KeV	
Counts: 0		Net: --	Centroid: --	



0 KeV 256 KeV 512 KeV 768 KeV 1024 KeV

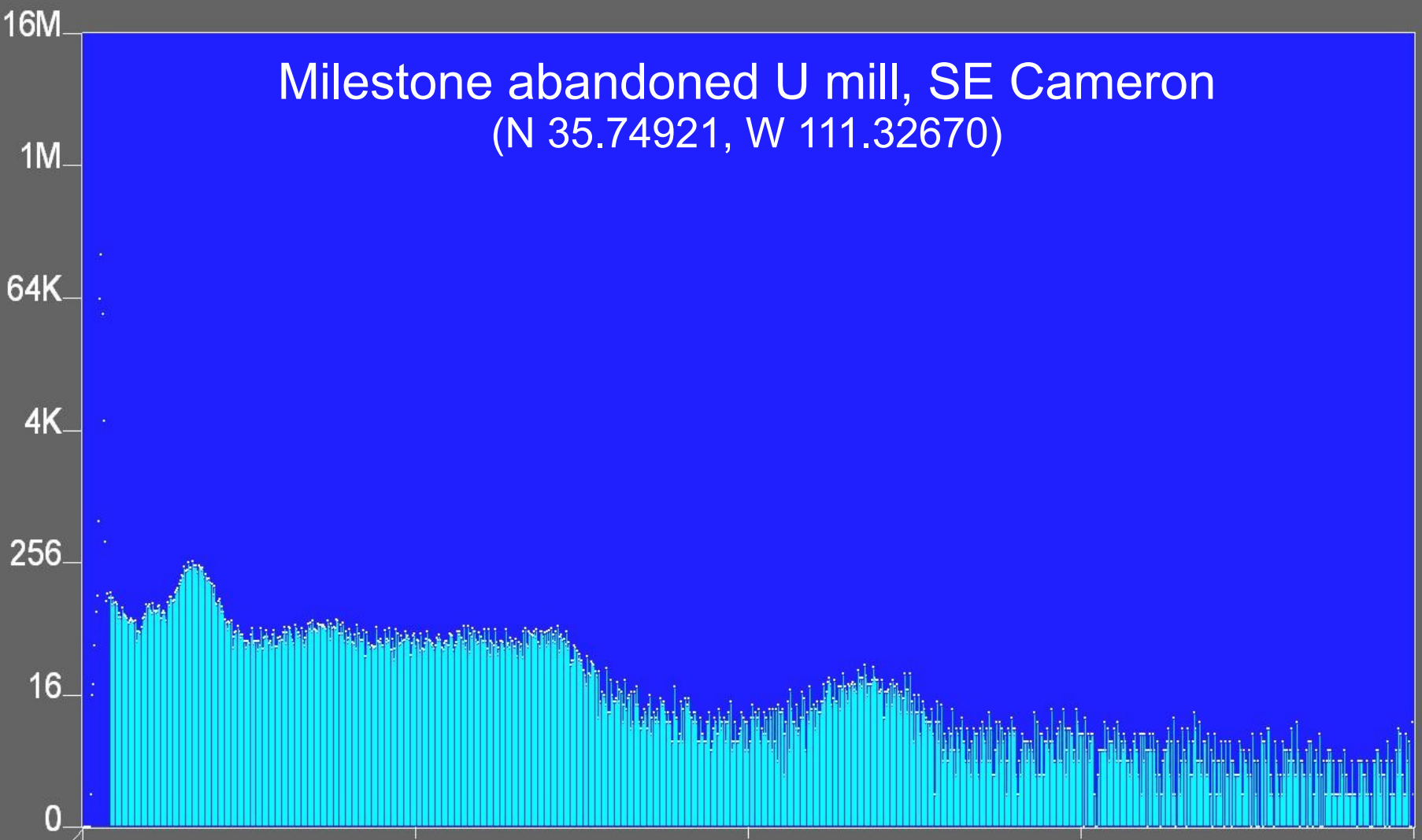
Channel: 1020 Energy: 1020 KeV Gross: 4255666 FWHM: 47 KeV
Counts: 500 Net: 403151 Centroid: 96 KeV

Milestone abandoned U mill, SE Cameron (N 35.73911, W 111.41269)

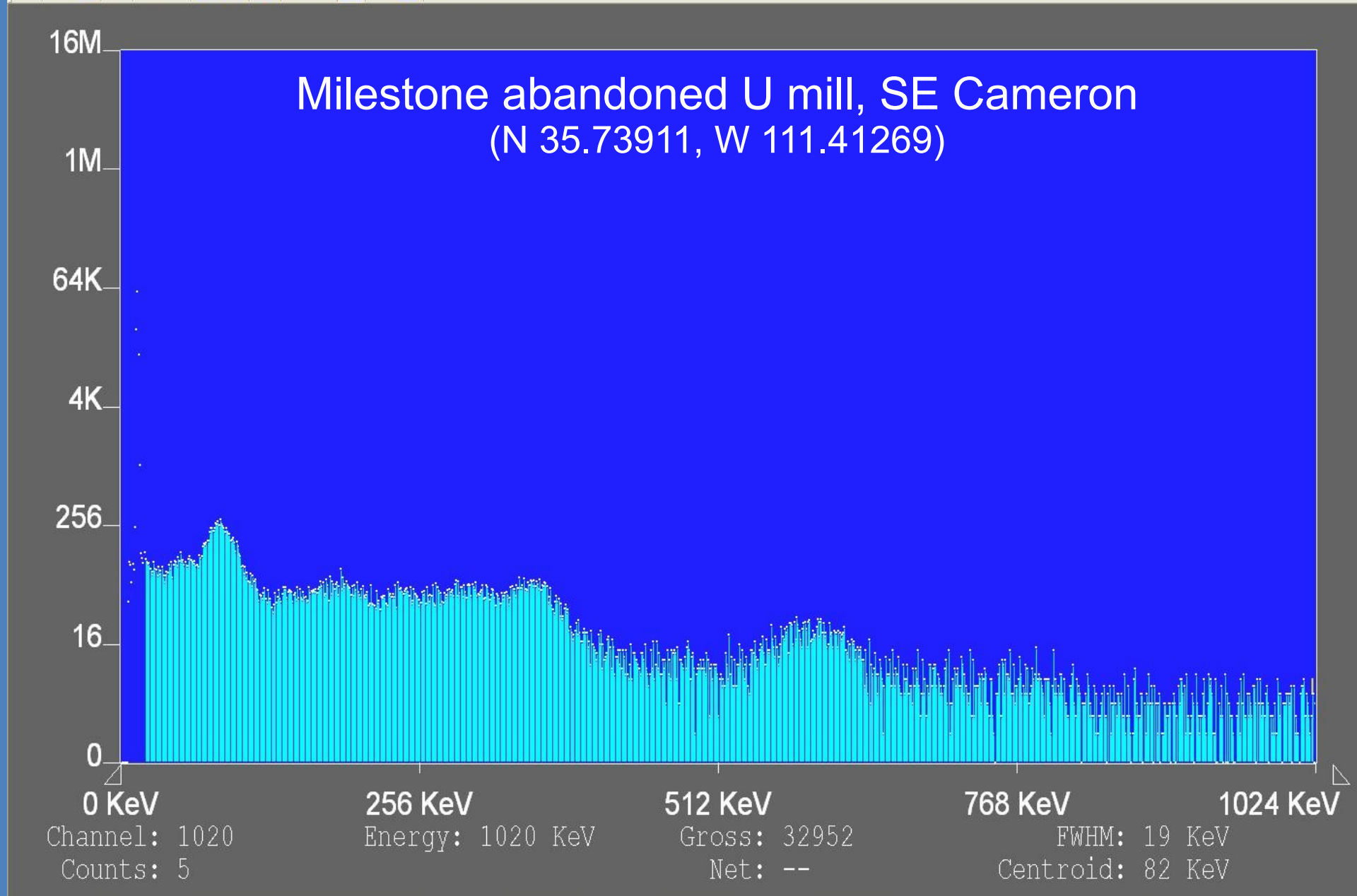


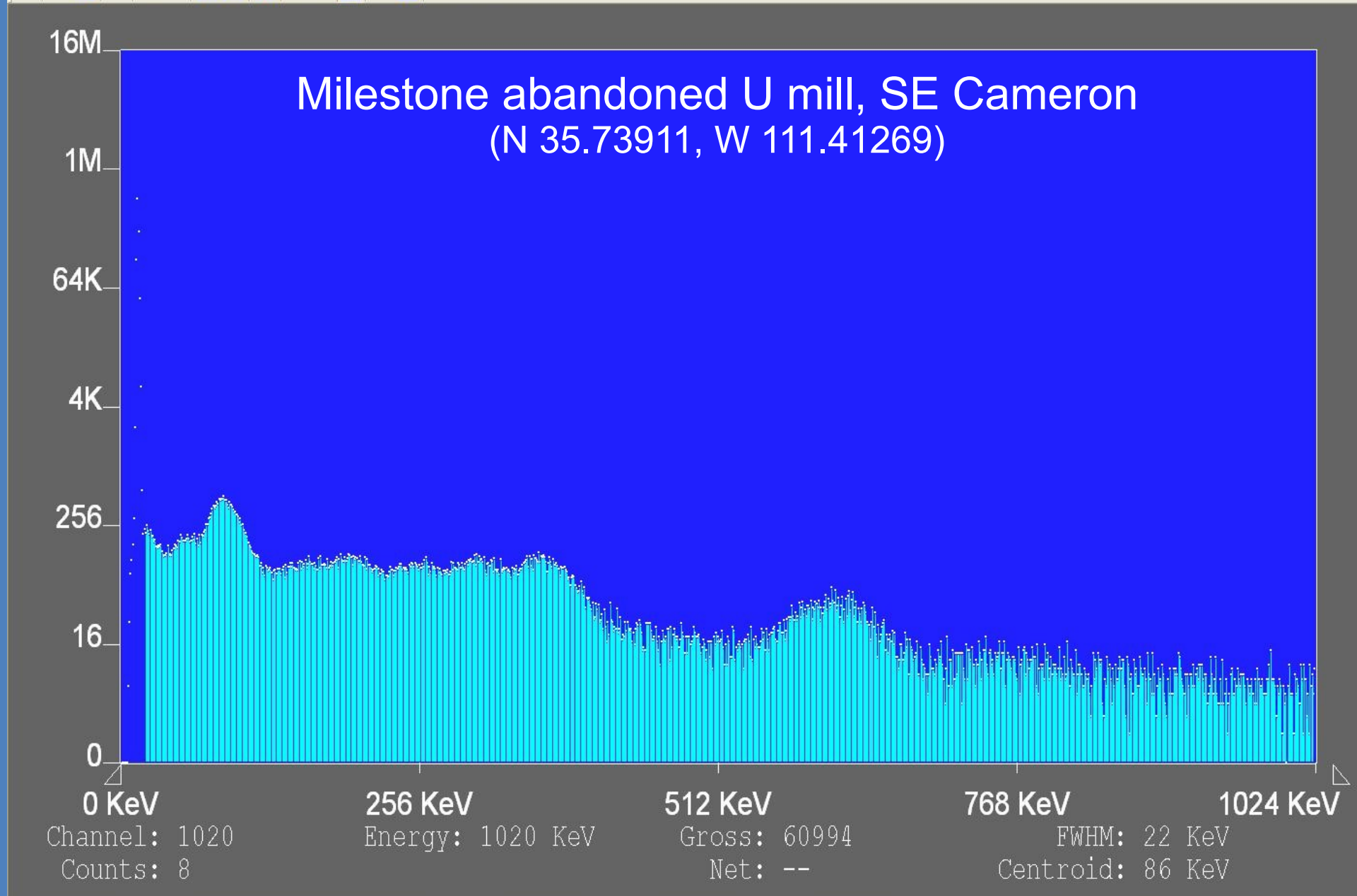
0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 8810	FWHM: 0 KeV	
Counts: 1		Net: --	Centroid: --	

Milestone abandoned U mill, SE Cameron (N 35.74921, W 111.32670)



0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 31604	FWHM: 23 KeV	
Counts: 1		Net: --	Centroid: 84 KeV	

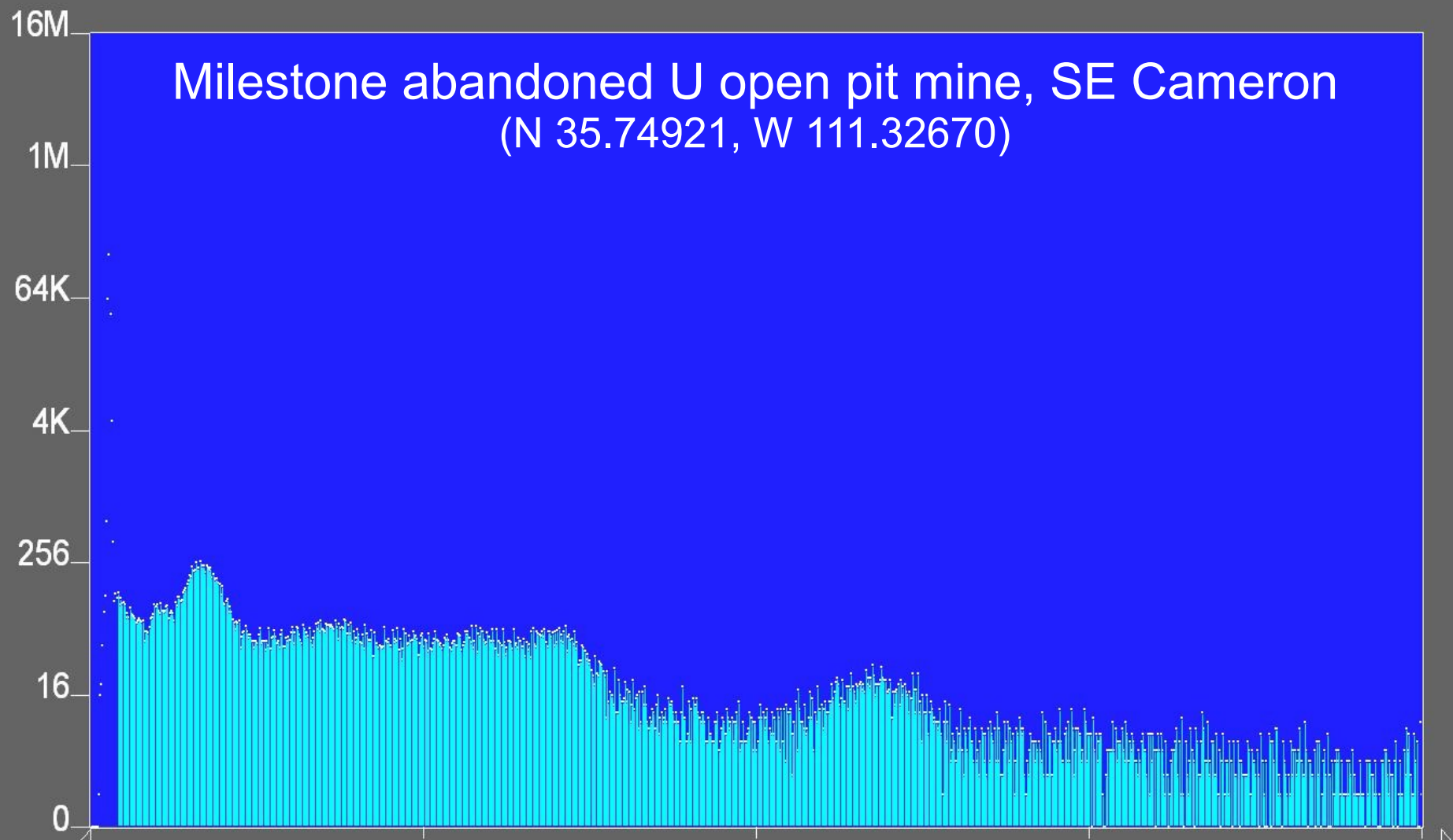






Open pit U
mine—SE
Cameron

Dook'o'oostííd —The San
Francisco Peaks (upper
left) form the **Navajo**
sacred mountain of the
west



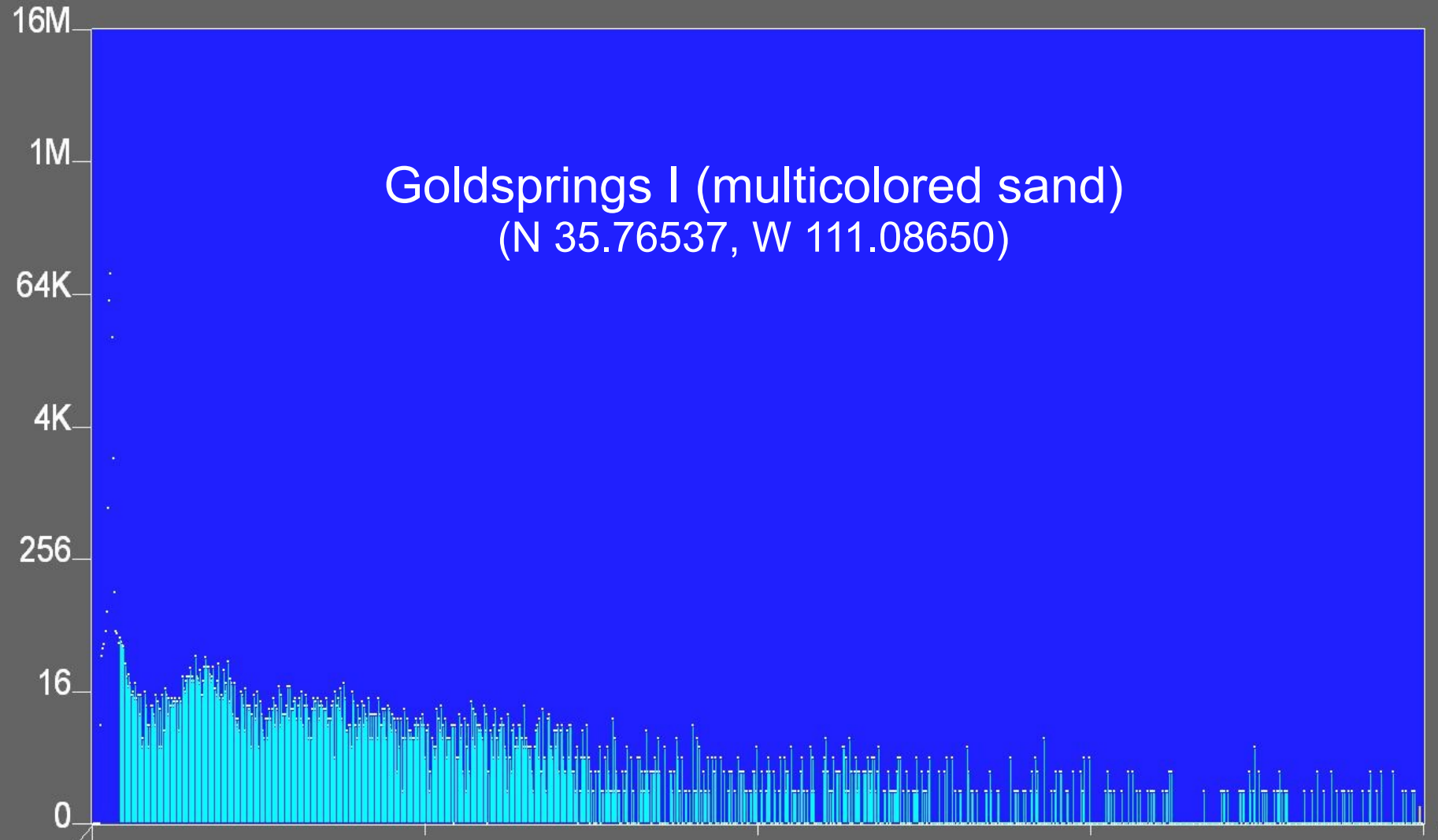
Milestone abandoned U open pit mine, SE Cameron (N 35.74921, W 111.32670)

0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 31604	FWHM: 23 KeV	
Counts: 1		Net: --	Centroid: 84 KeV	

Abandoned U site—Goldsprings I

Frank Nez (medicine man, former U miner) served as a guide to the Goldsprings U sites. Like so many his family members have suffered with cancer.

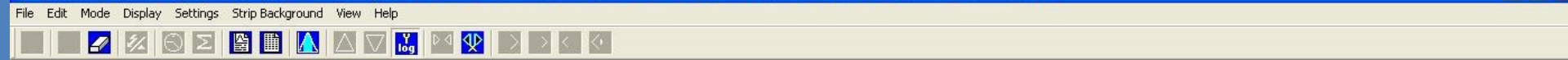




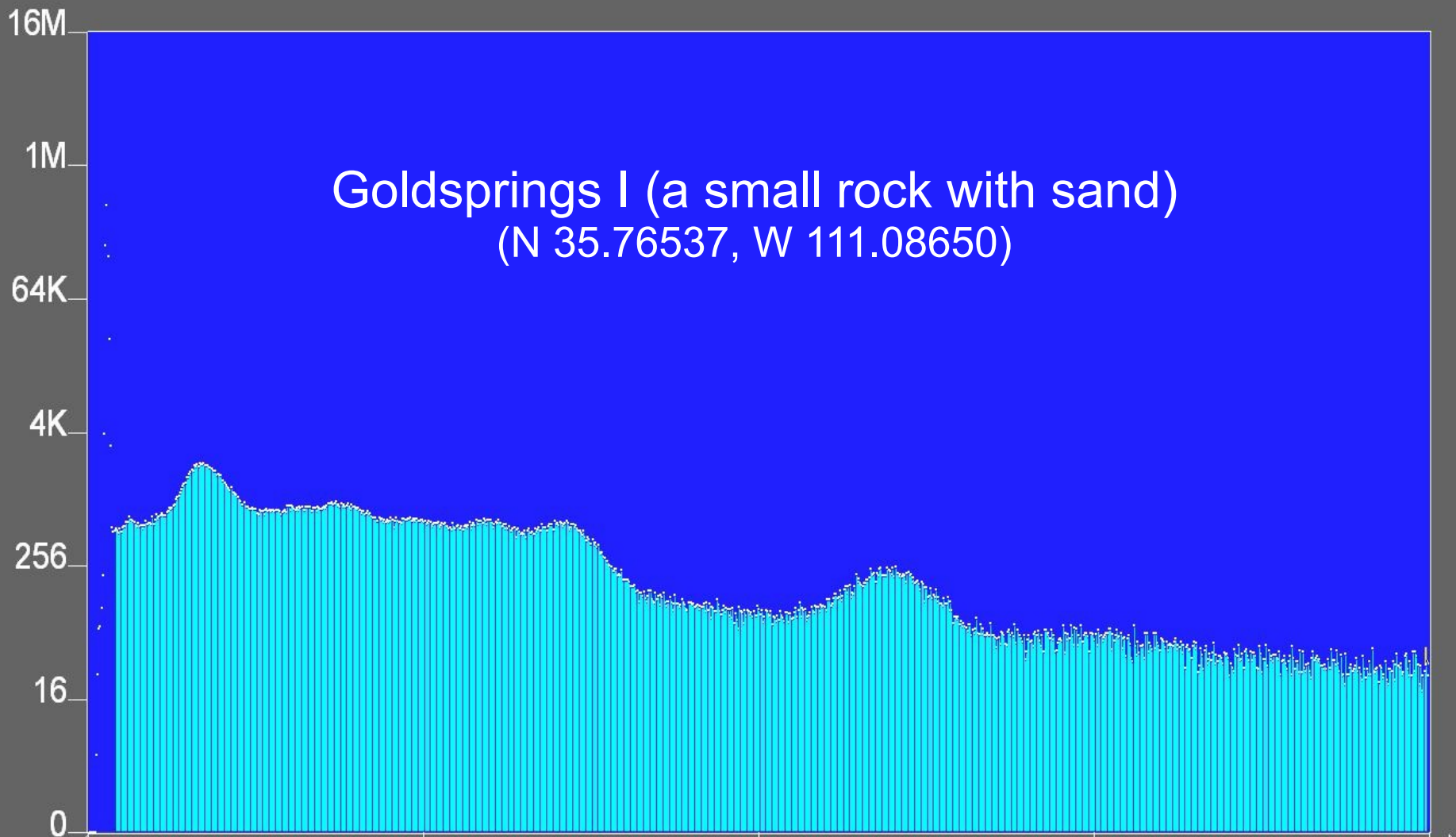
Goldsprings I (multicolored sand)

(N 35.76537, W 111.08650)

0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 4818	FWHM: 0 KeV	
Counts: 0		Net: --	Centroid: --	



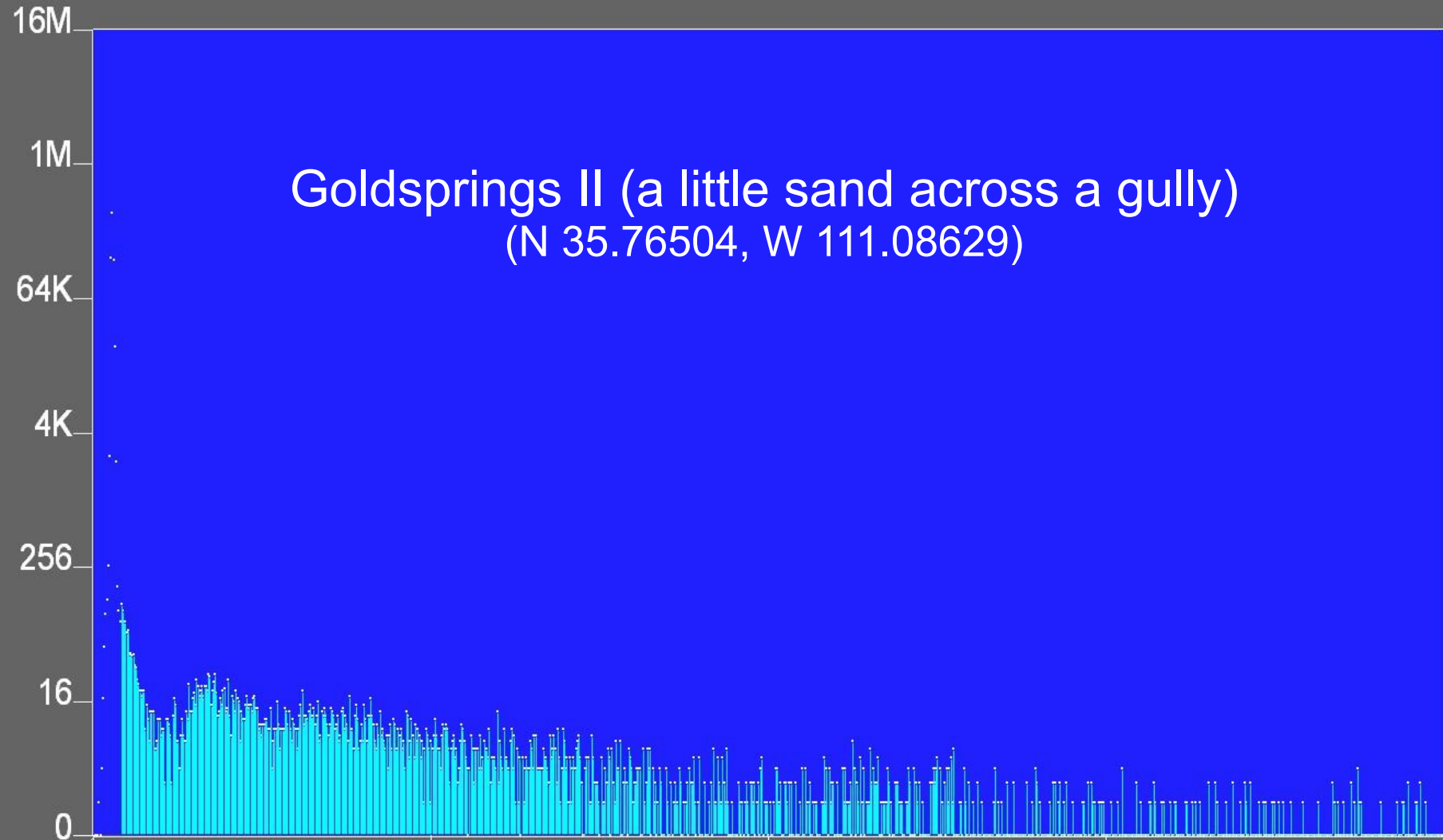
Goldsprings I (a small rock with sand) (N 35.76537, W 111.08650)



0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 352947	FWHM: 36 KeV	
Counts: 33		Net: 67328	Centroid: 87 KeV	

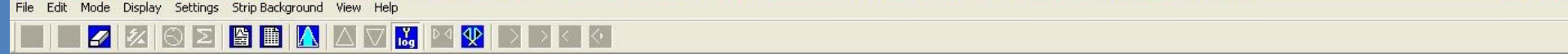
Abandoned U site—Goldsprings II



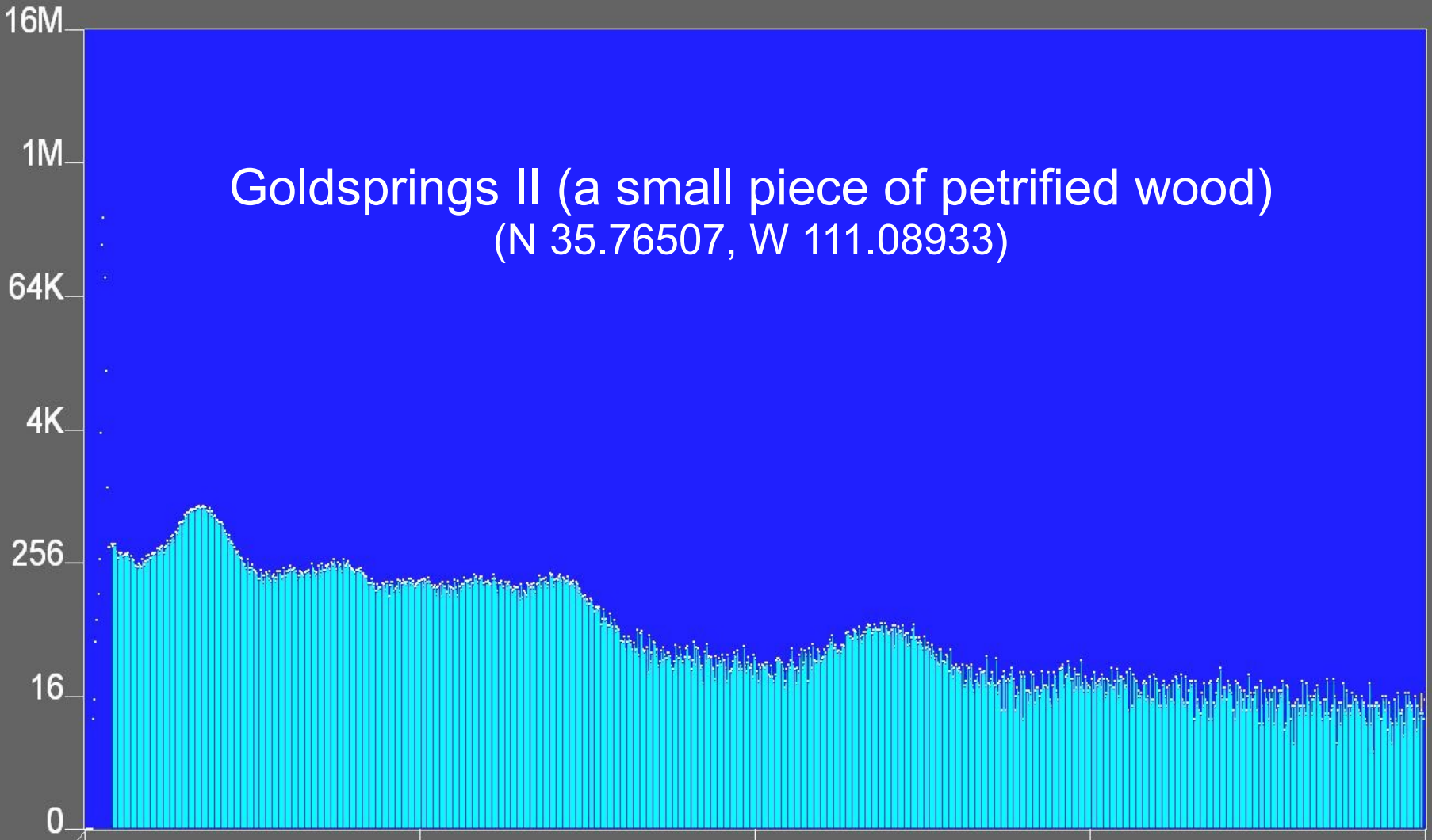


Goldsprings II (a little sand across a gully)
(N 35.76504, W 111.08629)

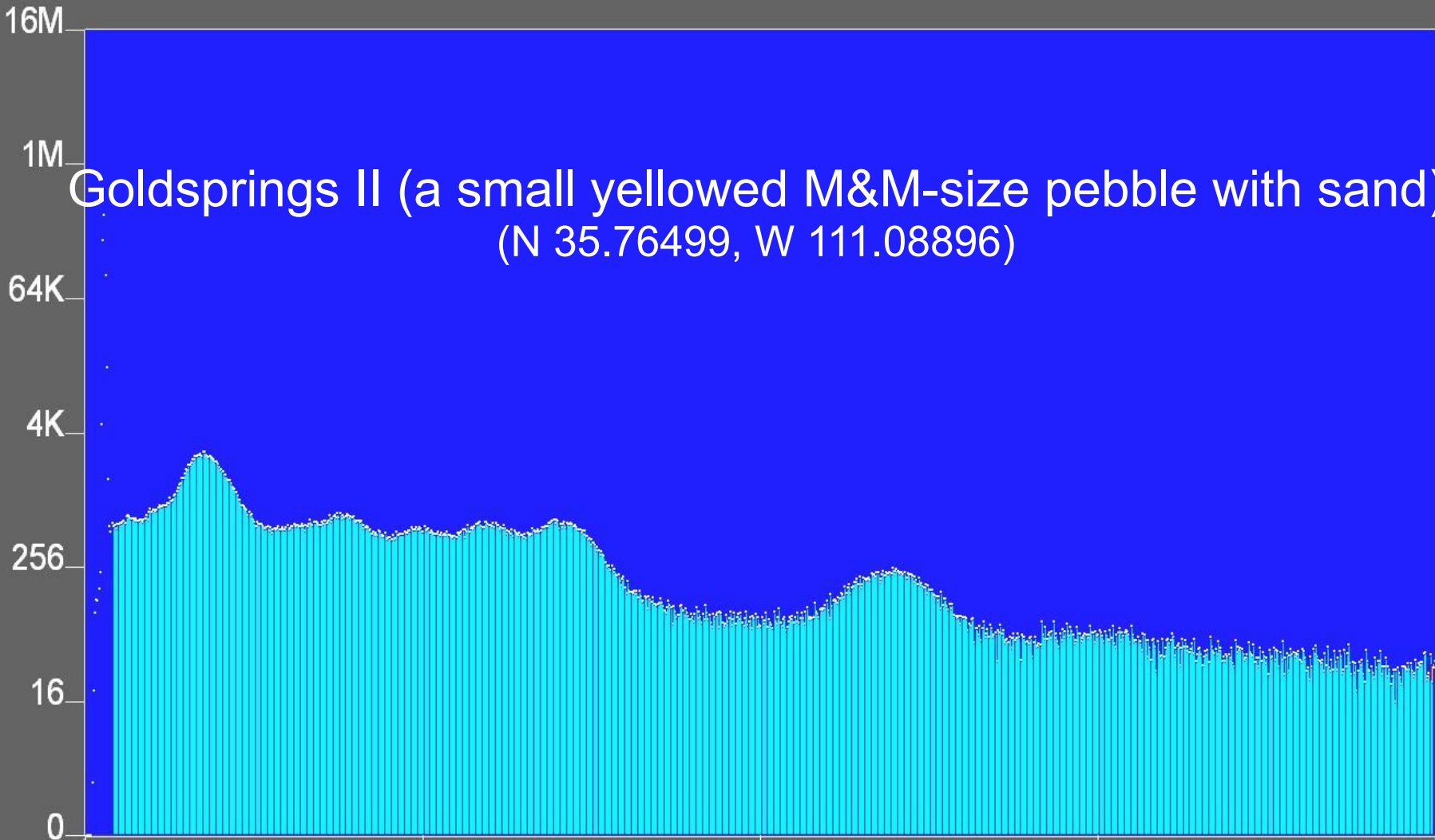
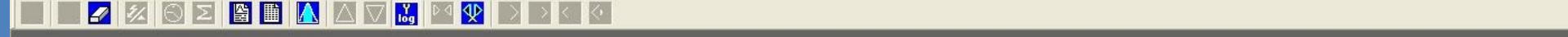
0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 511	Energy: 511 KeV	Gross: 5064	FWHM: 0 KeV	
Counts: 1		Net: --	Centroid: --	



Goldsprings II (a small piece of petrified wood) (N 35.76507, W 111.08933)

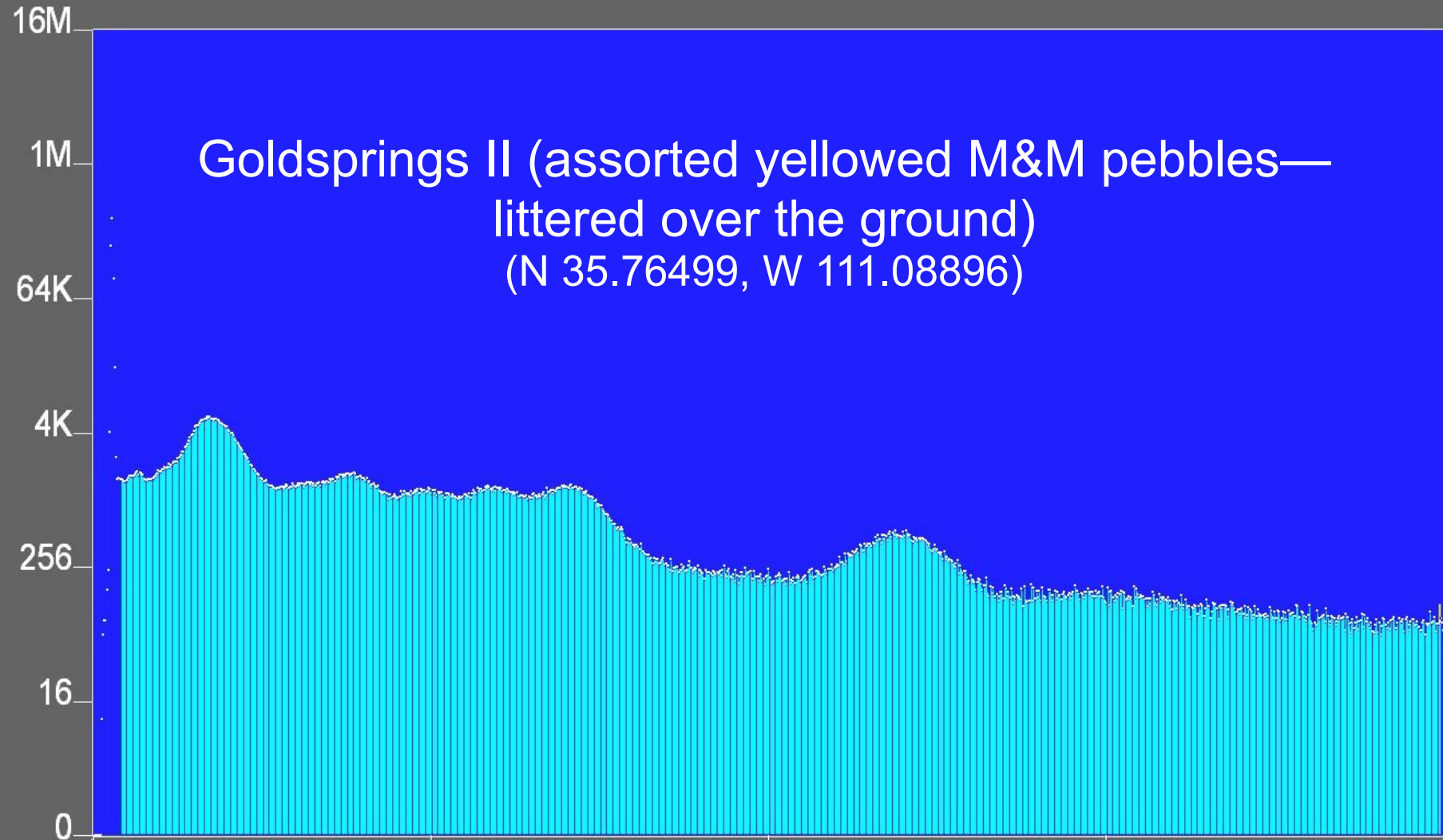


0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 114353	FWHM: 33 KeV	
Counts: 12		Net: --	Centroid: 87 KeV	



Goldsprings II (a small yellowed M&M-size pebble with sand)
(N 35.76499, W 111.08896)

0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 346541	FWHM: 36 KeV	
Counts: 24		Net: 21717	Centroid: 88 KeV	



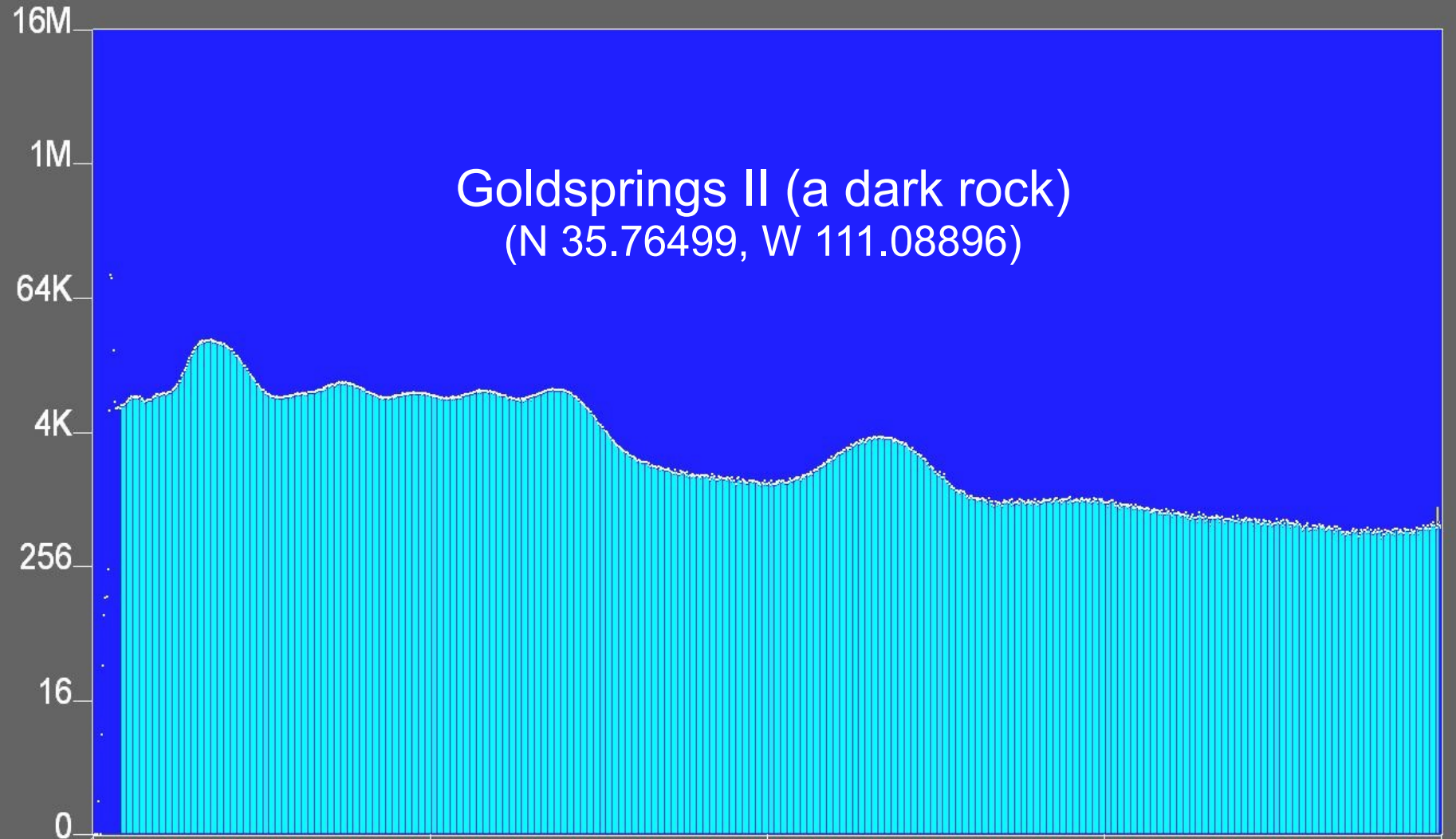
**Goldsprings II (assorted yellowed M&M pebbles—
littered over the ground)
(N 35.76499, W 111.08896)**

0 KeV 256 KeV 512 KeV 768 KeV 1024 KeV

Channel: 1020	Energy: 1020 KeV	Gross: 783087	FWHM: 37 KeV
Counts: 84		Net: --	Centroid: 88 KeV



Goldsprings II (a dark rock) (N 35.76499, W 111.08896)



0 KeV	256 KeV	512 KeV	768 KeV	1024 KeV
Channel: 1020	Energy: 1020 KeV	Gross: 4841940	FWHM: 43 KeV	
Counts: 612		Net: 1085521	Centroid: 89 KeV	

Two (of numerous) abandoned U sites

We have highlighted only two AUMs

- The Milestone abandoned U mill and open pit mine
- The Goldsprings I & II abandoned U sites (for which we now have data unavailable on 15 Sep 2010)

Both of them have exceedingly high levels of radiation ***on the surface, exposed to water erosion & dust storms***; neither of them is fenced; both of them have cattle and other livestock and wildlife nearby; both of them are upstream in watersheds containing human dwellings; one of them is a stone's throw from the wetlands of the Little Colorado River

- We reject the facile minimization of their danger that some have used, that they are “not near homes”—such rationalizations facilitate the legacy of corporate exploitation
- These two abandoned U sites represent a multitude of sites still blighting the lands and lives of Native America, and are thus the concern of all of us as representatives of humanity

In Memoriam

Pauline Lefthand (Grand Falls), Martha Cody Dixon (Box Springs) & all the other millions of casualties and exiles of the American Holocaust (1492-Present)



Call to Action

- 1) We cannot resolve uranium contamination and remediation issues without addressing the impacts of a decades long US government imposed Bennett Freeze.
- 2) We are now in the 3rd year of a 5 year plan and initial progress has begun in the western agency with contractors being sent out to the Milestone AUM & other sites.
- 3) AUMs often have no fences or warning signs.
- 4) People and their livestock are still drinking uranium & arsenic contaminated water and we still cannot find the US EPA funded water hauling truck—hope to see it soon.
- 5) We need widespread outside knowledge and advocacy
- 6) It is now time for serious action: Investigate, Remediate, Rehabilitate! The US and Navajo EPAs has taken an interest in Milestone site and similar AUMs!



Ahe'hee' (Thank you)

Forgotten People would like to acknowledge the people of the Navajo Nation, the college students in Project Pueblo, the EPA officials who have taken an interest in these U sites, GSA & the organizers of this GSA session, the Physics Department of La Sierra University for loan of and advice on equipment, and the journalists who are covering this story.