



Gold King Mine Spill Diné Exposure Project

SPRING 2019
ISSUE 10

Funded by:

National Institutes of Health

\$434,028 (3/2016-2/2018)

Agnese Nelms Haury Foundation

\$600,000 (7/2016-7/2019)

U. of Arizona (UA),
Northern Arizona U.
(NAU), Navajo Nation,
Diné College, Tó Bee
Nihi Dziil, & Fort Lewis
College



TÓŁÍTSO, THE WATER IS YELLOW:

*Investigating short term exposure and risk perception of Navajo Communities to the Gold King Mine Spill
– Upper Fruitland; NM, Shiprock, NM; and Aneth, UT –*

Aim 1: Determine exposure of Diné residents in these three communities to the Spill.

August 2016: Navajo Community Health Representatives sampled drinking water, yard soil, and household dust in about 60 Diné homes to measure for lead and arsenic. They did a finger prick to measure lead in residents' blood using a 3-minute test machine. They collected a urine sample to measure for arsenic. They also asked people what they eat, how they use the river, and how the Spill impacted them.

To Date: *In December 2017, we reported results back to the Shiprock, Upper Fruitland, and Aneth Chapters.*

Aim 2: Measure lead and arsenic in river water, river sediment, agricultural soil, irrigation water, and irrigation sediment.

November 2015 – June 2016: We took almost 1,000 samples of water and sediment from the river and irrigation canals and soil from fields.

June 2016 – January 2018: We analyzed the samples for arsenic and lead. Water results were presented at Shiprock Ag days 2017

To Date: *In March 2018, we reported results back during Shiprock Ag day.*

Aim 3: Find out what people are concerned about when using the River after the Spill and find out the risk based on the samples and information collected for Aims 1 and 2 (left & middle columns).

May 13-22 & June 15-17: We held 12 group discussions or “focus groups:” 4 in Upper Fruitland; 6 in Shiprock; and 2 in Aneth. 123 total people took part in these focus groups. We asked people how they used the river before the Spill; how the Spill impacted them; and what they think about the river's future.

To Date: We are in the final stages of finalizing the summary of what people said. Information specifically related to the emergency response were presented at the Navajo Emergency Response Executive Session in September 2018.

Shiprock Agricultural Days 2019

GKMS-DEP group presented current monitoring results after the Gold King Mine Spill on Wednesday March 20, 2019 for Shiprock Ag Days at the Shiprock Chapter House for a Gold King Session featuring talks from UA, NMSU, and Diné' College on results for impacts on sediments and crops and considerations on restarting agricultural production. Lunch was sponsored by the Gold King Mine Spill Diné' Exposure Project.



Farming is Life Study Results- Arsenic (Béésh libáhá)



	Prior to planting	Growing and Post-harvest	Compared to:
River Water	All 5 samples met guideline	All 40 samples met guideline	NN EPA Maximum Contaminant Level
Farming Water	All 10 samples met guideline	All 40 samples met guideline	NN EPA Maximum Contaminant Level
Farming soil	All 10 samples met guideline	All 10 samples met guideline	Canadian Agricultural Soil Guideline
Corn	All 8 samples similar to NAPI	All 7 samples similar to NAPI	Navajo Agricultural Products Industry 2017 and 2018

Farming is Life Study Results- Lead (Béésh dilyíhi)



	Prior to planting	Growing and Post-harvest	Compared to:
River Water	All 5 samples met guideline	All 40 samples met guideline	NN EPA Maximum Contaminant Level
Farming Water	All 10 samples met guideline	All 40 samples met guideline	NN EPA Maximum Contaminant Level
Farming soil	All 10 samples met guideline	All 10 samples met guideline	Canadian Agricultural Soil Guideline
Corn	All 8 samples similar to NAPI	All 7 samples similar to NAPI	Navajo Agricultural Products Industry 2017 and 2018

Radio Forums

The Gold King Mine Spill Diné Exposure Project hosted two radio forums in the same week of the Shiprock Ag Days. The first one was on Monday March 18, 2019 at 1 – 3 PM MDT, hosted by KNDN 960 AM All Navajo Radio; the second other was on Tuesday March 19, 2019 at at 6 - 8 PM MDT, broadcasted by KTNN (AM 660 & FM 101.5) & KWRK (FM 96.1). Panelists from University of Arizona, Navajo Nation, and New Mexico State University presented on current status of monitoring and research activities on the Navajo Nation after the Gold King Mine Spill, and answered questions from radio listeners. Recordings of the radio forum are available on the Gold King Mine YouTube channel.



GKMS-DEP Videos

New videos are now available on our YouTube channel “Navajo Gold King Mine Spill Exposure Project”, summarizing Diné people’s perspectives on the impact of the Gold King Mine Spill and the posthaste collaborative efforts to understand it.



We also have videos presenting the key findings of GKMS-DEP on our YouTube channel “Navajo Gold King Mine Spill Exposure Project”, narrated in Navajo with English subtitles.

- ❖ Video 1 in Navajo: Introduction of Project (complete, ~11 min)
- ❖ Video 2 in Navajo: Water Quality Results (complete, ~6 min)
- ❖ Video 3 in Navajo: Sediment Quality Results (complete, ~13 min)
- ❖ Video 4 in Navajo: Household Results (complete, ~10 min)



1-Project Introduction.mp4



2-Water Results.mp4



3-Soil Results.mp4



4-Household Results.mp4

Haury Program Showcase

The Agnese Nelms Haury Program celebrated five years of impact On April 24. Dr. Karletta Chief led a presentation of the project K'é bee da'ahííniíta: Strenght Through the Diné (Navajo) Clan System to Respond to Gold King Mine Spill.



NIHB Tribal Public Health Summit



Carmenlita (NAU) and Chili Yazzie (Navajo Nation) co-presented the focus groups results “Concerns of Navajo farming communities after Spill” at the NIHB Tribal Public Health Summit in Albuquerque, NM on May 13-15, 2019.

We gratefully acknowledge our many research partners, volunteer students, advisory board members, and funding sources. This research effort is enhanced immensely by their enthusiastic support.

NIH National Institute of Environmental Health Sciences
IR2IES026948-01

A Agnese Nelms Haury Program in Environment and Social Justice
5P5OES026089-02

CAIR Center for American Indian Resilience
IP20MD006872

S Superfund Research Program The University of Arizona
P3OES006694

S Southwest Environmental Health Sciences Center
P3OES006694



American Public Health Association (APHA) selected Mae-Gilene Begay to be featured on the Who Is Public Health page. Mae-Gilene is the past immediate chair of APHA Community Health Workers section.

Karletta Chief received the 2018 National TriO Achievement Award in October 2018 in New York City.

WHAT'S NEXT?

- “Farming is life” corn results
- Spring 2019 Community Healing
- Spring 2019 Shiprock Ag Days
- Spring 2019 KTNN Radio Forum
- Summer 2019 Teach-in with NM WRRI

Fact Sheet

Chief, K., J.F. Artiola, P. Beamer, S. Wilkinson, R.M Maier, C. Rock, and C. Sanchez. 2015. Understanding the Gold King Mine Spill. Fact Sheet. University of Arizona, Tucson, AZ. (http://www.superfund.pharmacy.arizona.edu/sites/default/files/u43/gold_king_mine_spill.pdf)

News Article

Beamer, P., K. Chief, N. Borrero, and B. Rivera. 2016. Water Is Our Life: How a Mining Disaster Affected the Navajo Nation. Truth Out, April 2016. <http://www.truth-out.org/news/item/36049-water-is-our-life-how-a-mining-disaster-affected-the-navajo-nation>.



UNIVERSITY OF ARIZONA

Karletta Chief
 Dept. of Soil, Water & Environmental Sciences
 PO Box 210038
 Tucson, AZ 85737
goldkingproject@gmail.com
 (505) 652-4563 or 505-652-GKME
Like us on Facebook