



Gold King Mine Spill Diné Exposure Project

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U. of Arizona (UA),
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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.

To Date: Water samples were tested for arsenic, lead, and manganese; refer to our previous newsletter for what we found. We are currently working through the data to have the results ready for a Spring Teach-In event.

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 wrote down all English comments word-for-word. 50 hours were translated from Diné'ke'jí to English. We continue working to carefully summarize what people said.

**SHARING STORIES ACROSS THE WATERSHED: DINÉ PERSPECTIVES
NOV. 6-7, 2017, SILVERTON, CO AREA & DURANGO, CO**

Dr. Karletta Chief and Navajo Partners visited the Gold King Mine at the beginning of November to take part in several events designed to increase communication between the upper and lower watershed communities. The trip kicked off with a group visit to the Gold King and Bonita Mines as well as the nearby Gladstone Water Treatment Center. Members from New Mexico State University, Navajo Division of Public Safety, Office of the Navajo President and Vice President, and Shiprock Chapter were in attendance. Additionally, the group heard from Dr. Butler from the Watershed Management Group and attended a roundtable discussion about water monitoring plans, ongoing work upstream and downstream, and upper watershed data that has been collected by citizen scientists.



UA, NMSU, and Navajo Division Leader and Navajo Community Leaders on November 7th, 2017 at Silverton, Colorado.

That evening, the “Sharing Stories across the watershed: Dine' Perspectives” event was held at the Animas Valley Grange with over 100 people in attendance. Panelists Janene Yazzie, Chili Yazzie, and Dr. Karletta Chief shared Diné cultural, spiritual, and lifestyle perspectives regarding water and the Gold King Mine Spill.

MEET OUR NEWEST DINÉ COLLEGE PARTNER: NEILROY SINGER

Neilroy Singer is an Environmental Specialist at Diné Environmental Institute Research & Outreach. Neilroy graduated from New Mexico State University with a Bachelor's of Science in Kinesiology. His focus is on the environmental and health impacts of Uranium and other radionuclides in the area of the Cove Community. He works under the careful supervision of Dr. Perry H Charley (Senior Scientist, Diné College). Neilroy supervises academic and summer student interns, which keeps him involved with other studies such as the Gold King Mine Spill with Dr. Karletta Chief (University of Arizona), Stove Exchange Study with Dr. Lupita Montoya (University of Colorado, Boulder), and The Phytoremediation Study with Dr. William Joseph Waugh (Navarro Research & Engineering).



THREE TEACH-INS, THREE COMMUNITIES



Shiprock community attends a Teach-in at the Shiprock Chapter House on December 7th, 2017.

Tó Bei Nihí Dziil, in collaboration with the University of Arizona, Northern Arizona University, Diné College, Fort Lewis College, and the Navajo Nation CHR program, hosted 3 Gold King Mine Spill Teach-ins. One at Upper Fruitland Chapter House on December 6th, 2017, another at Shiprock Chapter House and Aneth Chapter House on December 7th. Dr. Chief, Dr. Beamer, Mae-Gilene Begay, and Brenette Pine presented study results that helped address lingering community concerns about completed and proposed sampling. Attendees learned about the Household Biomonitoring Results. For information on these results please refer to our previous newsletter.

COMMUNITY PARTNERS ATTEND ENVIRONMENTAL HEALTH DISPARITIES



On December 5th, 2017 Mae-Gilene Begay, Janene Yazzie, Brenette Pine, and Duane Chili Yazzie attended and presented at the Environmental Health Disparities Meeting held in Albuquerque, New Mexico. The goal of the meeting was to update the National Institute of Environmental Health Sciences on the progress of the Gold King Mine Spill Dine' Exposure Project. Community partners were encouraged to share their perspectives and knowledge of current practices for results dissemination and community partnerships.

NIEHS PROGRAM DIRECTORS VISIT NAVAJO COMMUNITIES

Program Directors Symma Finn and Liam O'Fallon spend 2 days visiting the Navajo Communities of Upper Fruitland and Shiprock to hear concerns from communities and to attend the Teach-Ins where biomonitoring results were reported.



WHAT'S NEXT?

- Collect sheep and more corn samples.
- Continue to analyze soil and water samples and information from focus groups.
- Spring 2018 Analyze sediment for arsenic, lead and manganese
- Spring 2018 Begin to discuss emergency response

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.



Dr. Paloma Beamer wins “Best Community Engagement Poster” at the Environmental Health Disparities Conference



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



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