

US EPA ARCHIVE DOCUMENT

DiNEH Project Water Sampling Results for Eastern Navajo Agency

**Navajo Uranium Contamination
Stakeholders Workshop, Gallup, NM**

November 4, 2009

**Chris Shuey, MPH (co-PI, DiNEH Project)
with Tommy Rock, Jeremy DeGroat,
Glenn Stark, Teddy Nez**

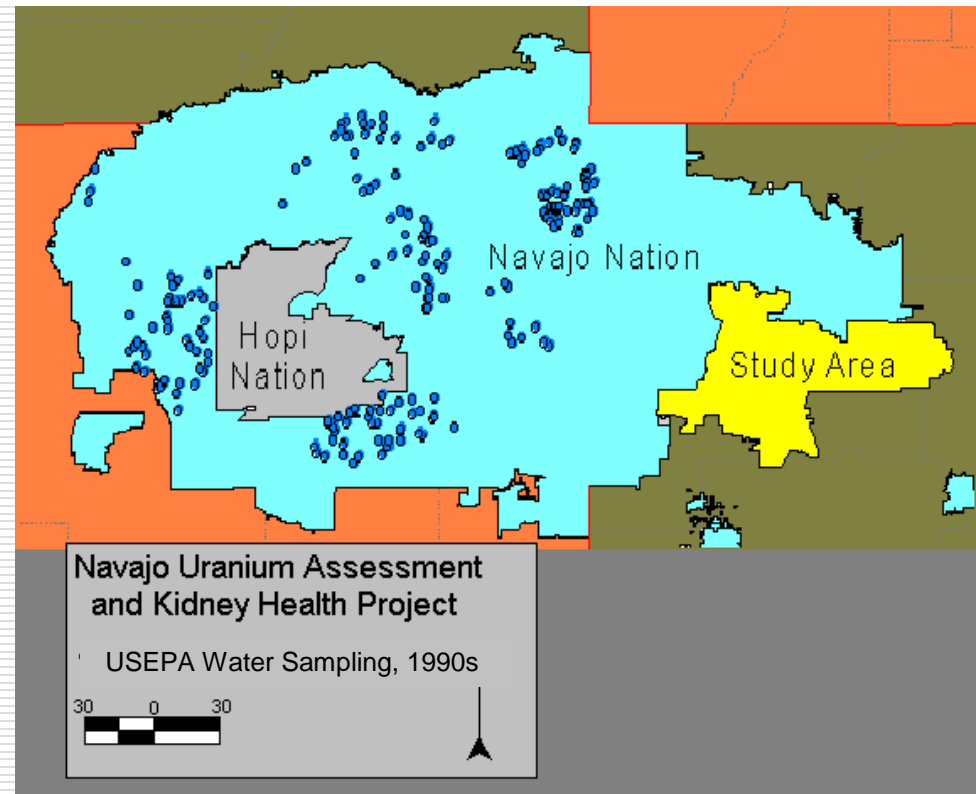
**and Sandy Ramone, Sarah Henio-Adeky, Johnnye Lewis,
Mallery Downs, Miranda Cajero, Bernadette Pacheco**



Diné Network for Environmental Health



- Determine whether exposure to uranium and other heavy metals contributes to kidney disease/ diabetes in 20 Chapters of Eastern Navajo Agency
- Assess water quality in unregulated wells in Study Area



Regulated v. Unregulated Water Sources

□ Regulated water sources:

- "safe" drinking water
- NTUA water (water stations)
- Regularly tested and treated
- Complies with primary drinking water standards



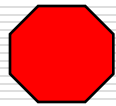
Above: Regulated water at 2 hauling stations
Below: unregulated water sources

□ Unregulated water sources:

- Not regularly tested or treated
- Windmills, springs, artesian wells, private wells, stock ponds
- Used for livestock watering, irrigation



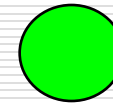
DiNEH Project Use Recommendations



STOP! Don't Use!



USE CAUTION!



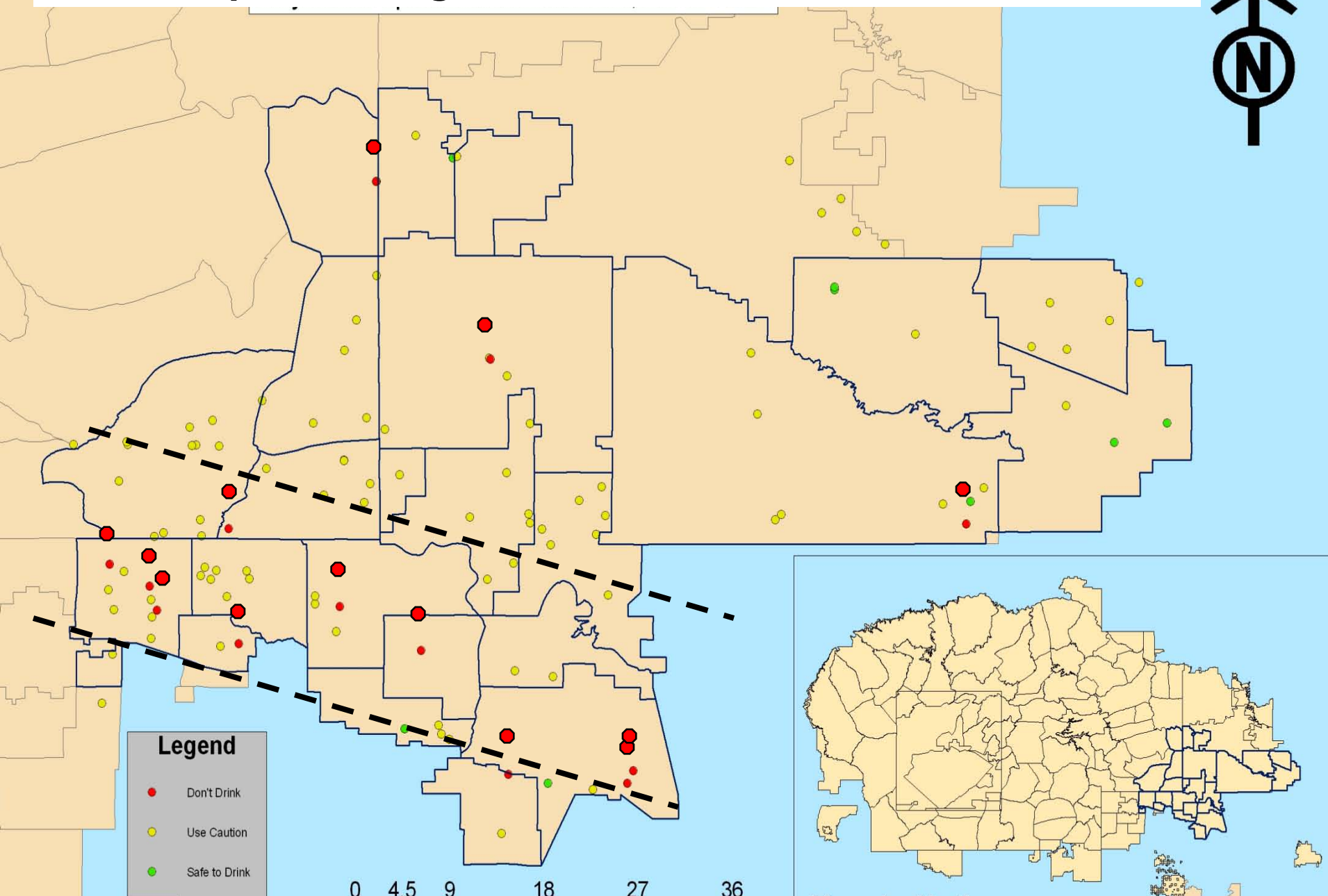
OK TO USE!

- We use water quality results to evaluate —
 - Human use (drinking and cooking)
 - Domestic use (bathing, cleaning, washing)
 - Livestock use (animal watering)
- Compare results with USEPA MCLs* and SDWSs**
- Unregulated wells never receive “green light” for human use
 - We don't test for all contaminants, like bacteria, pesticides and petroleum products
 - *Navajo Nation policy is that livestock-use-only water sources are not to be used for human drinking water*
- We NEVER shut down wells!**

H	Human Use
D	Domestic Use
L	Livestock Use

*MCL = maximum contaminant level; **SDWSs = secondary drinking water standards

Locations of DiNEH-sampled water sources with colors representing recommendations for human use



DiNEH Project Water Sampling Program (2003-2009*)

"We lack full well completion data"



Water sources newly sampled	112
Water sources sampled more than once	25
Water sources exceeding 1 or more primary MCLs	21
Water sources having NO primary MCL exceedance on 2 nd or subsequent samples	11
Water sources having petroleum smells or such bad quality they merit RED STOP SIGN	3
Water sources receiving RED STOP SIGN for human use	13
Water sources exceeding 1 or more SDWSs	96

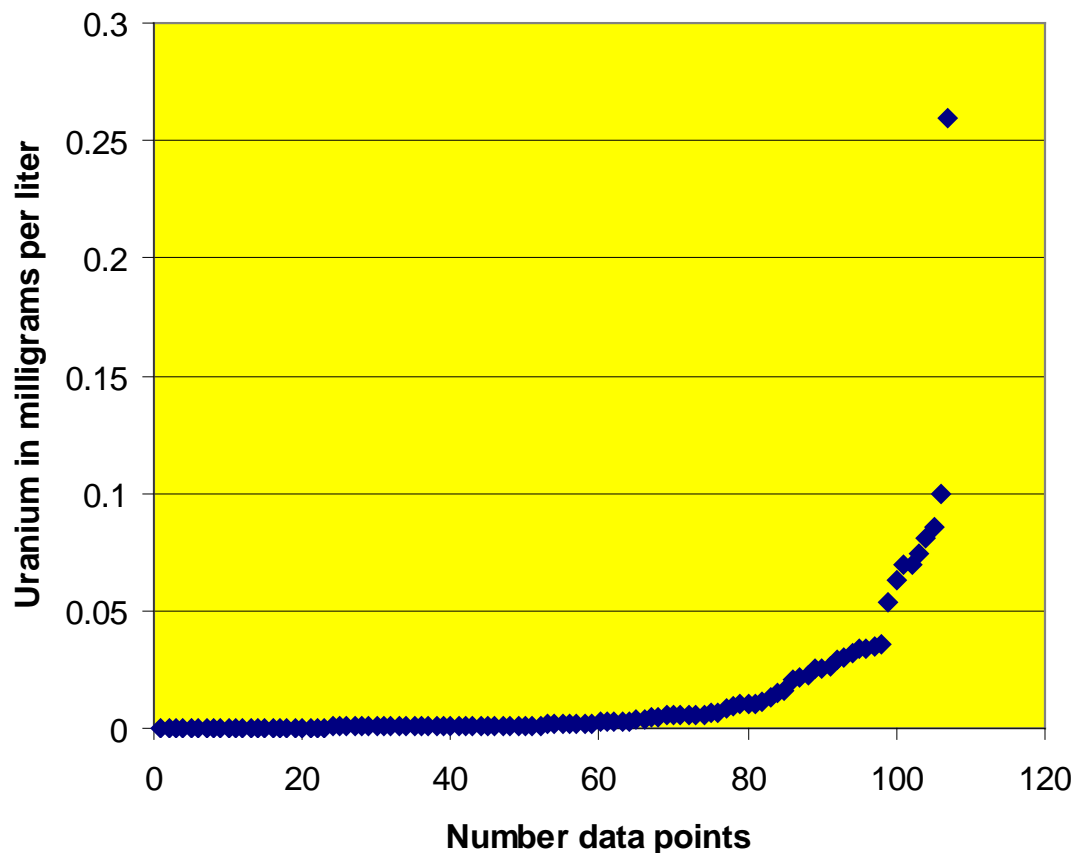
*Includes Church Rock Uranium Monitoring Project sampled water sources and data from USEPA 2008 sampling program.

Major Constituents Exceeded

Constituent	# Water Sources	Notes
Arsenic	8	4 not confirmed on 2 nd sample
Uranium	8	Confirmed
Selenium	5	3 not confirmed on 2 nd sample
Fluoride	3	Primary MCL
Gross alpha	3	All results confirmed
Mercury	2	2 not confirmed on 2 nd sample
Nitrate	2	Confirmed
Lead	1	Confirmed

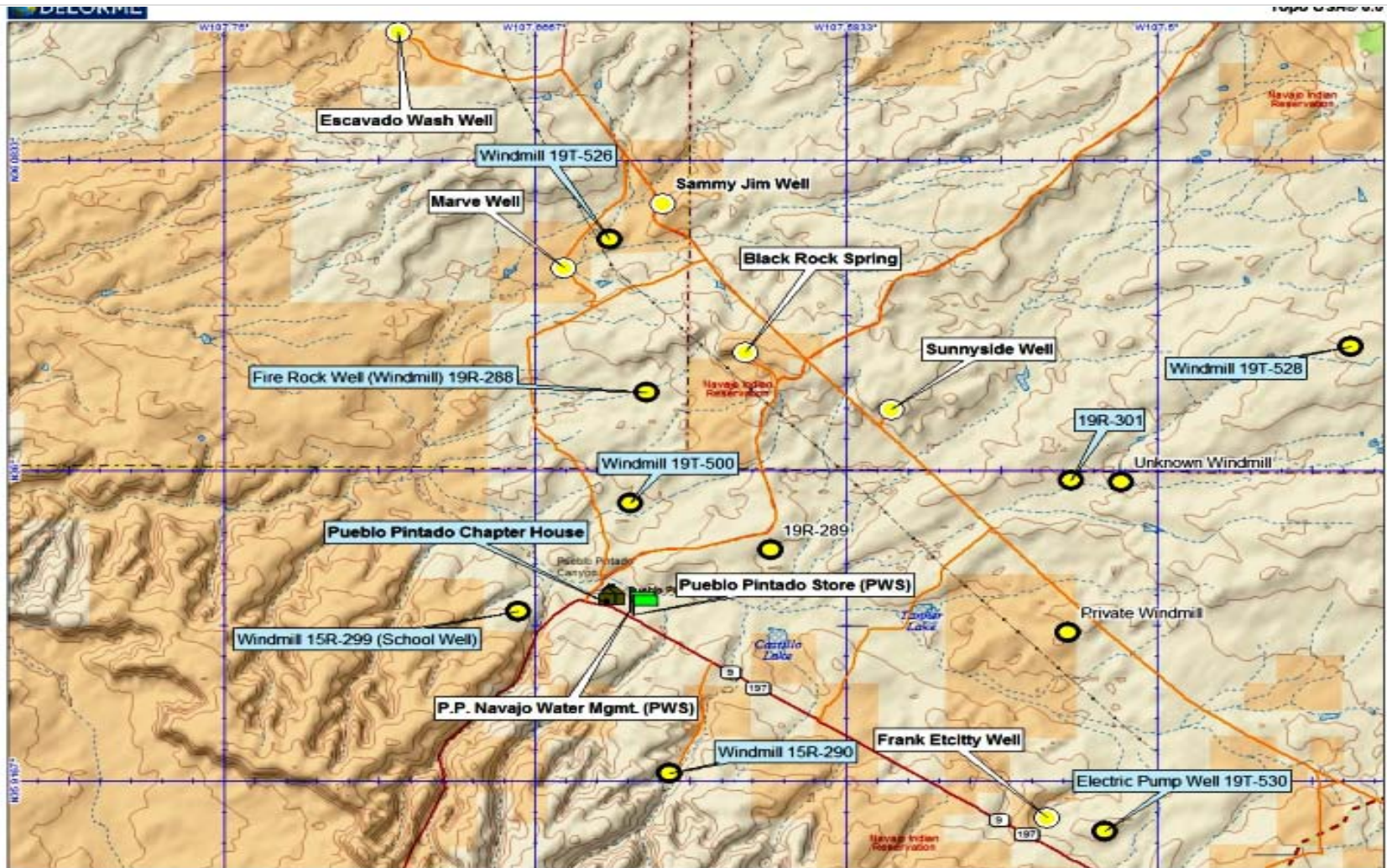
Uranium levels in DiNEH-sampled water sources

Scatter Plot of Uranium Values (n=107)



- 163 data points
- 56 "non-detects"
- 107 values
- Median = 0.0015 mg/l
- Range = 0.000015–0.26 mg/l
- Mean (SD) = 0.014 (0.032)

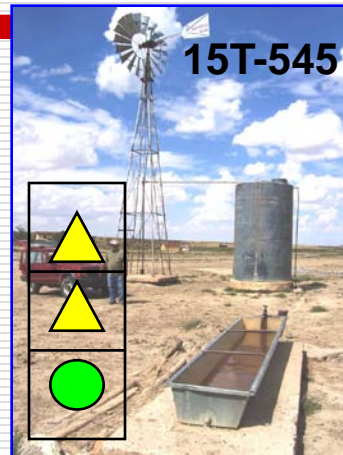
Examples of DiNEH Risk Communication Methods: Chapter Maps



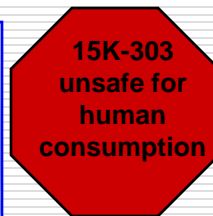
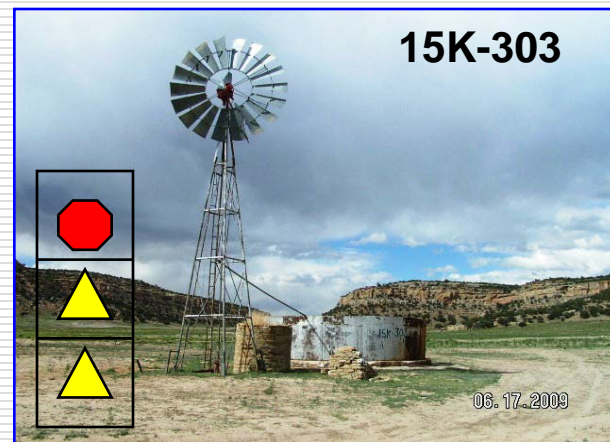
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Risk Communication Methods: Nahodishgish sources with POOR quality



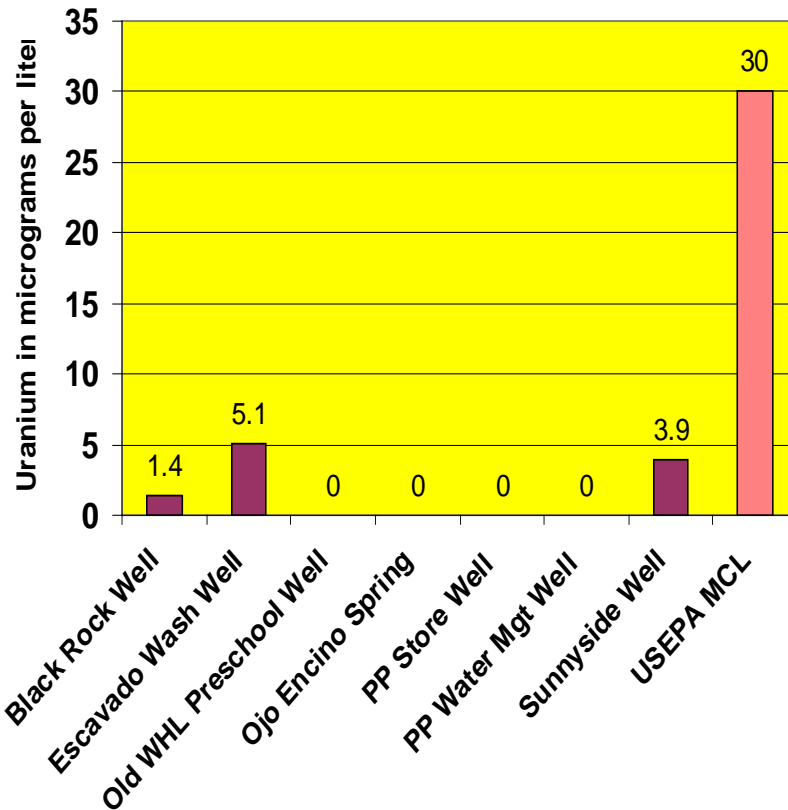
➤ Water from these 5 wells contain high levels of SALTS, which may contribute to high blood pressure



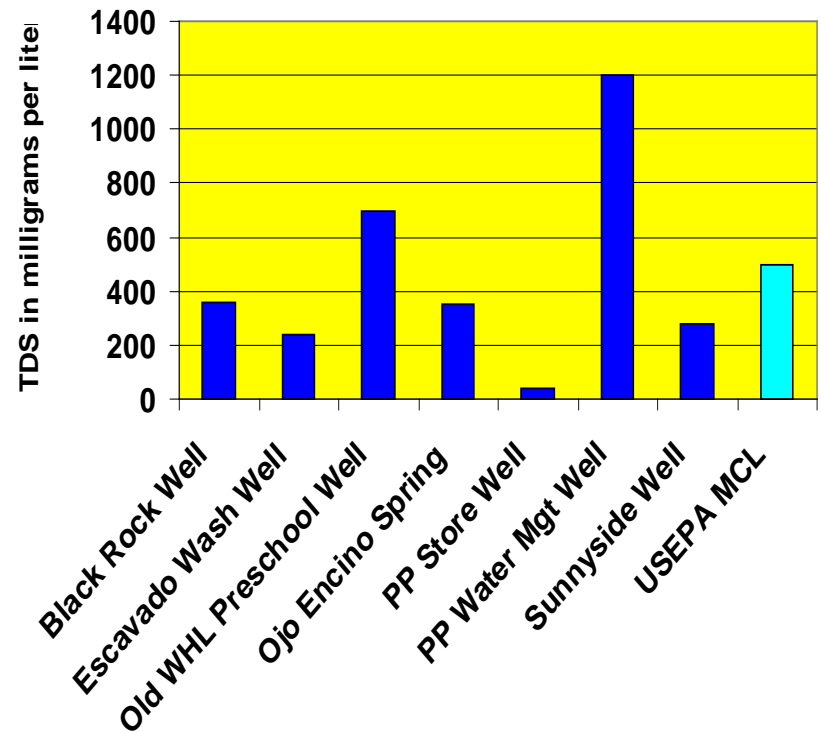
Charts and Graphs:

Overall PP water quality: Fair to Very Good

Uranium Levels in Top P-P Wells



Total Dissolved Solids Levels in Top P-P Wells






The **unregulated wells** have LOW uranium and LOW dissolved solids levels, but we cannot recommend human use because bacteria may be present.

Warning posters, placards, laminated safe-water hauling cards

Yíiyá! Báháxid!

**Water from Largo Corral Well
(16T-519)* in Smith Lake Chapter
is NOT safe to drink**







**Arsenic and uranium exceed drinking water standards*

Largo Corral Well, 16T-519

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.

Safe Water Hauling Guide
A guide for safe water hauling from the DiNEH Project




Water Barrels

- Use barrels that are made to haul drinking water
- Use clean food containers
- Use the steps on the back of this sheet to clean food containers




Hoses

- Use hoses that are made for drinking water, such as hoses for RVs and boats
- Do not use gardening, green, or orange water hoses
- Look for approval on the label for "Drinking Water"
- Do not let the hose fittings touch the ground
- Clean hose fittings well & often

Suggested Retail Outlets for Water Hauling Supplies for Barrels and/or Hoses

Gallup Gallup Lumber & Supply • 863-4475 • 1724 South 2nd T & R Feed • 722-4366 • 671 Hwy 491

Grants Diamond G • 287-8861 • 225 El Morro Rd. Wal-Mart Super Center • 285-3350 • 1000 Roberts Dr.

Albuquerque Central Trailer Supplies • 266-5687 • 8225 Central NE Myers RV Center • 298-7691 • 12024 Central SE

Farmington Aaladin Southwest • 327-6722 • 1516 W. Murray Dr.

For more information call
Navajo EPA at 928-871-7755

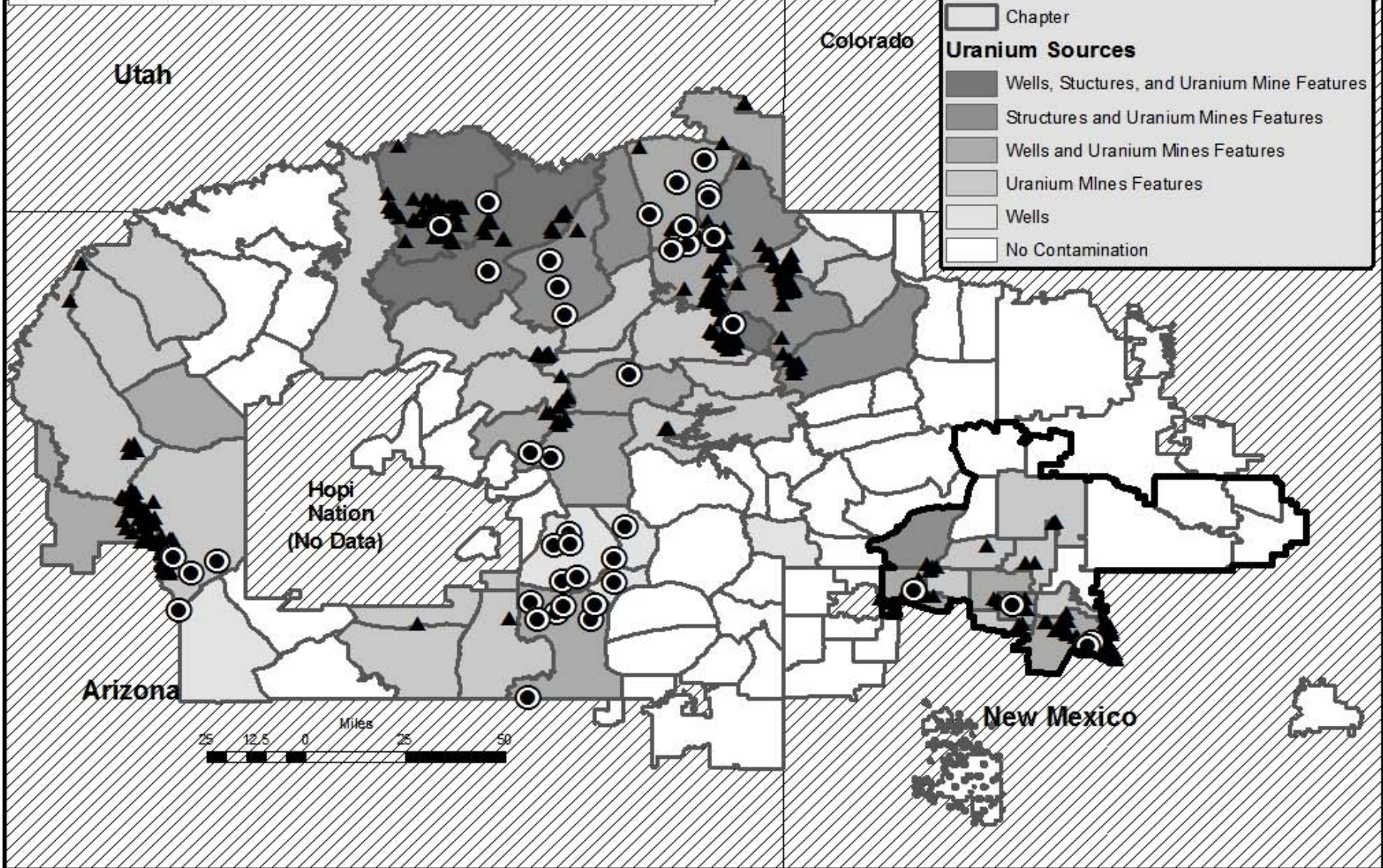


The Navajo Nation
Environmental Protection



Diné Network for
Environmental Health
Project

**Navajo Nation Uranium Exposure Sources:
Uranium Mine Features, Contaminated Structures
Uranium Contaminated Wells
(Non-Navajo Lands data not included)**



Protect *Tsoodził*
(Mt. Taylor)

Ahéhee'

