JOINT MEETING

of the

INDIAN AFFAIRS

and the

RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEES

Santa Fe, New Mexico
July 13, 2010

Jerry Schoeppner
Mining Environmental Compliance Section, GWQB
New Mexico Environment Department

Grants Mining District

- Overview
- Groundwater Sampling
- Mine Screens
- Mill Activity
- Future Activity

Grants Mining District

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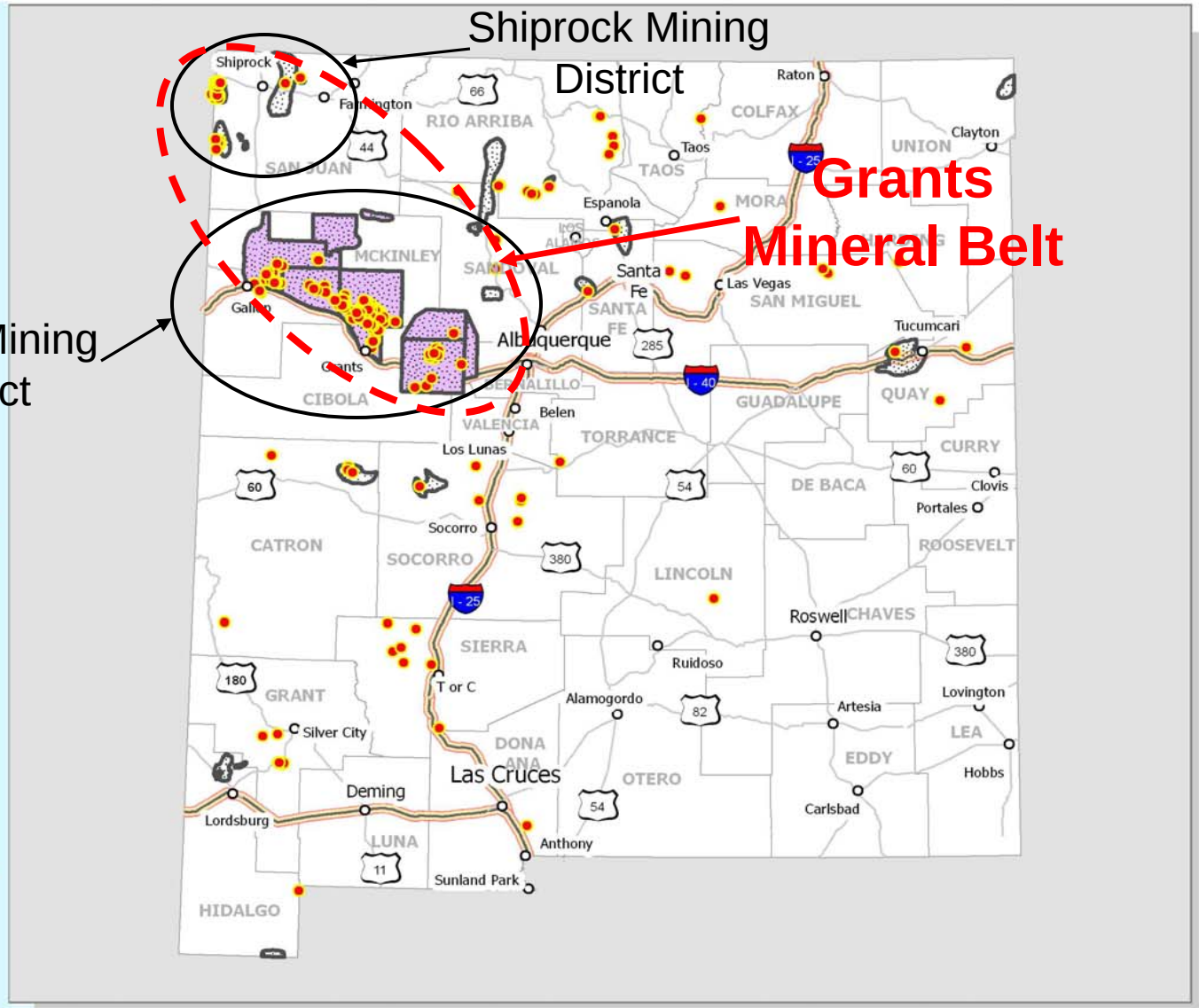
New Mexico Grants Uranium Belt and State-wide Distribution of Abandoned Uranium Mines (AUM)



- AUM
- Major Cities
- Uranium Districts
- Grants Uranium Belt
- Limited Access
- Major Roads

Created by New Mexico Mining & Minerals Division for NM Environment Dept, January 2009

North American Datum 83
Universal Transverse Mercator
NM Zone 13

Data:
Mining & Minerals Div. (NM Energy, Minerals & Nat. Res. Dep.),
New Mexico Bureau of Geology and Mineral Resources;
New Mexico Resource GIS Program (http://rgis.nm.edu)

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Grants Mining District Sub-districts

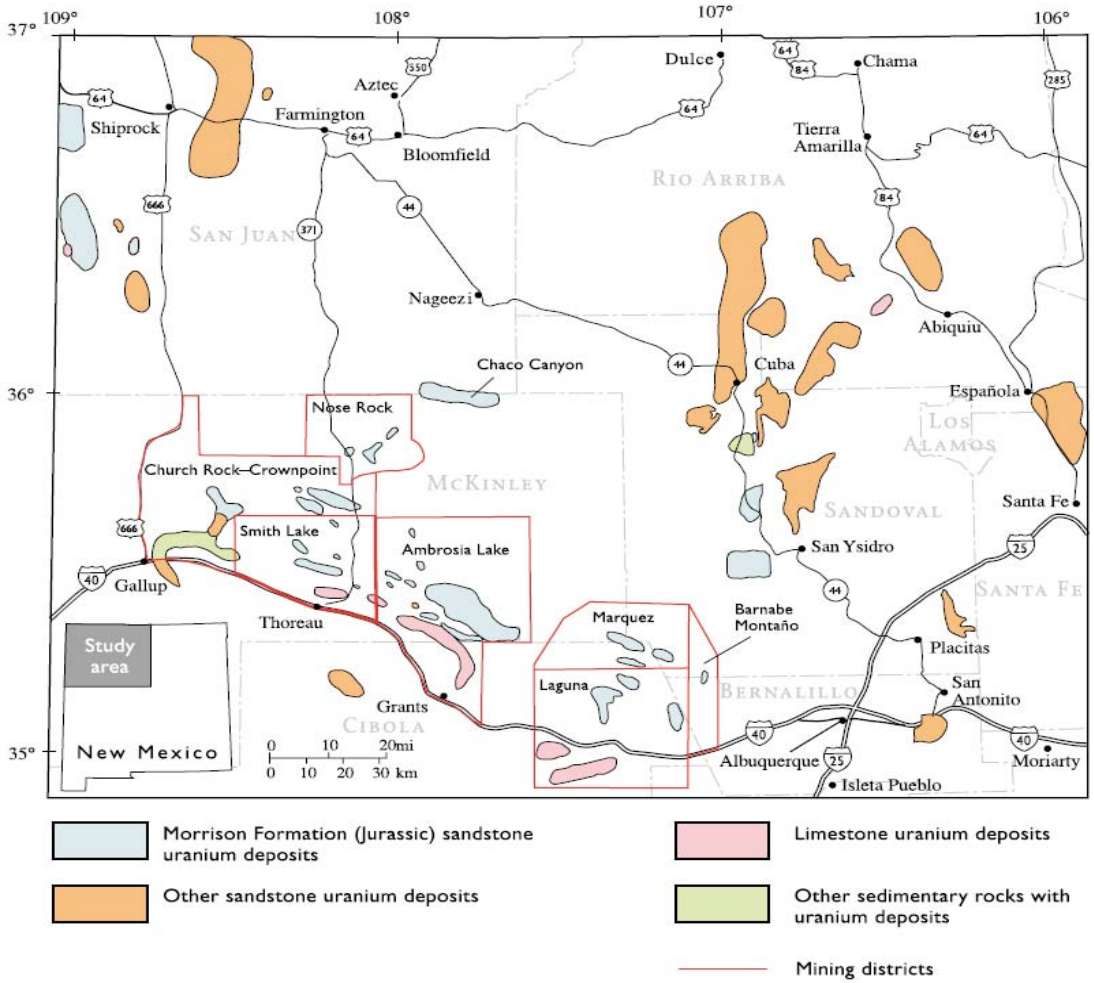


FIGURE 4 Uranium potential in the San Juan Basin, New Mexico (from McLemore and Chenoweth, 1989).

Grants Mining District Sub-districts

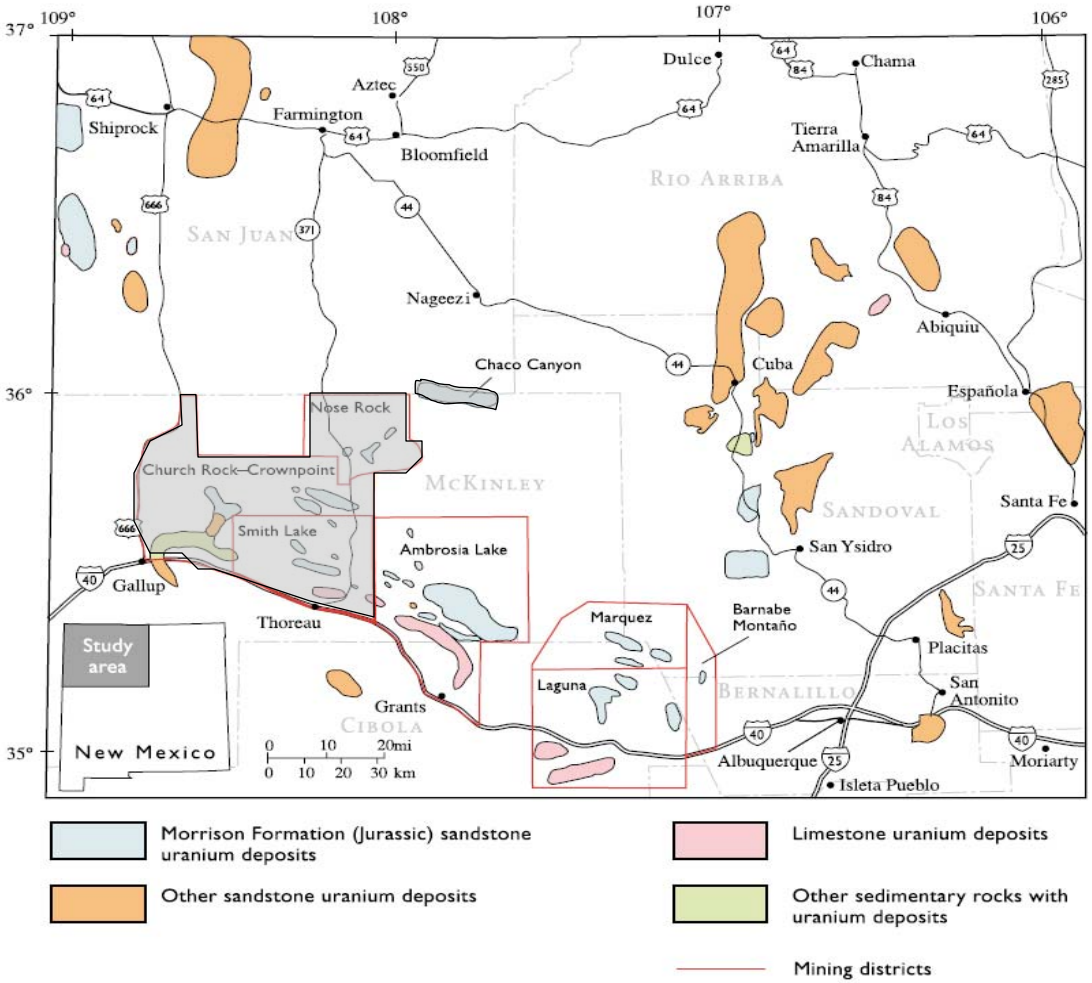


FIGURE 4 Uranium potential in the San Juan Basin, New Mexico (from McLemore and Chenoweth, 1989).

Grants Mining District Sub-districts

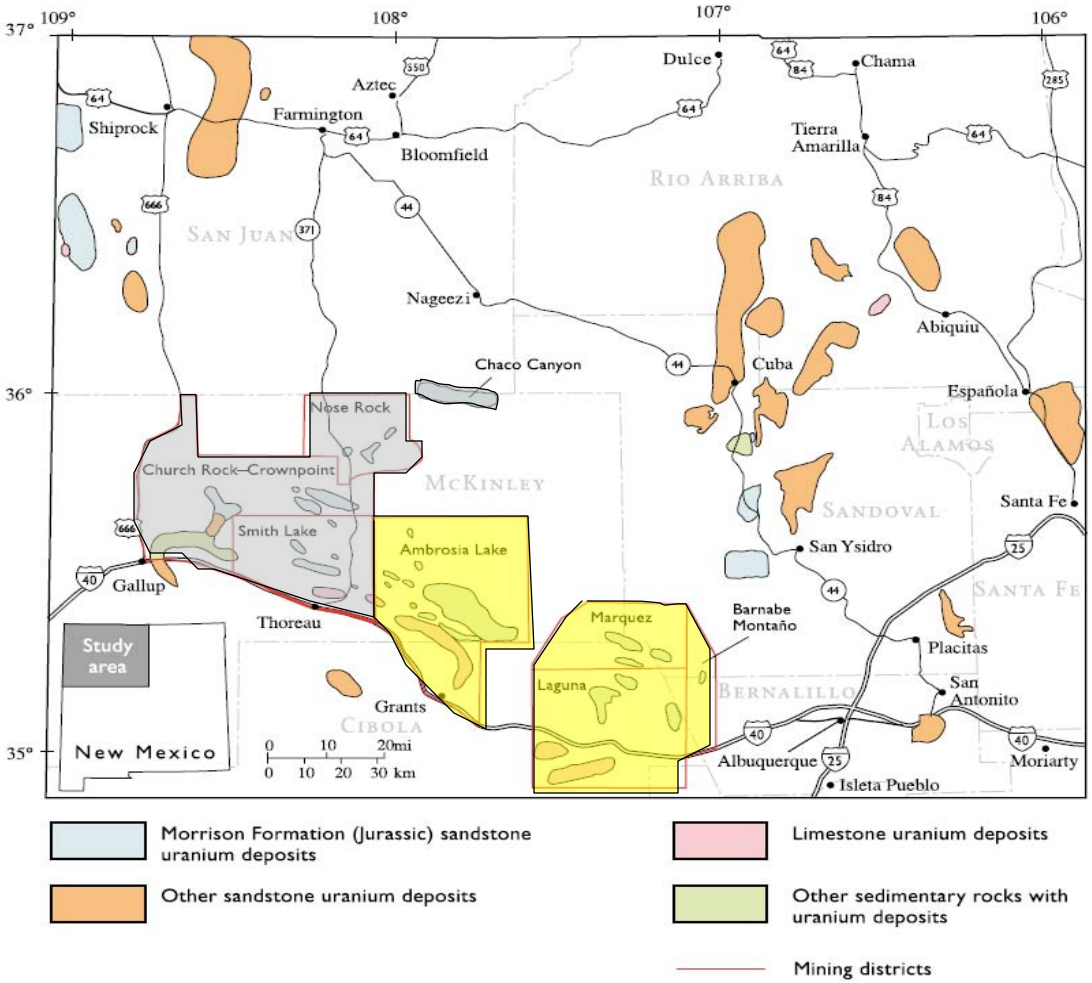
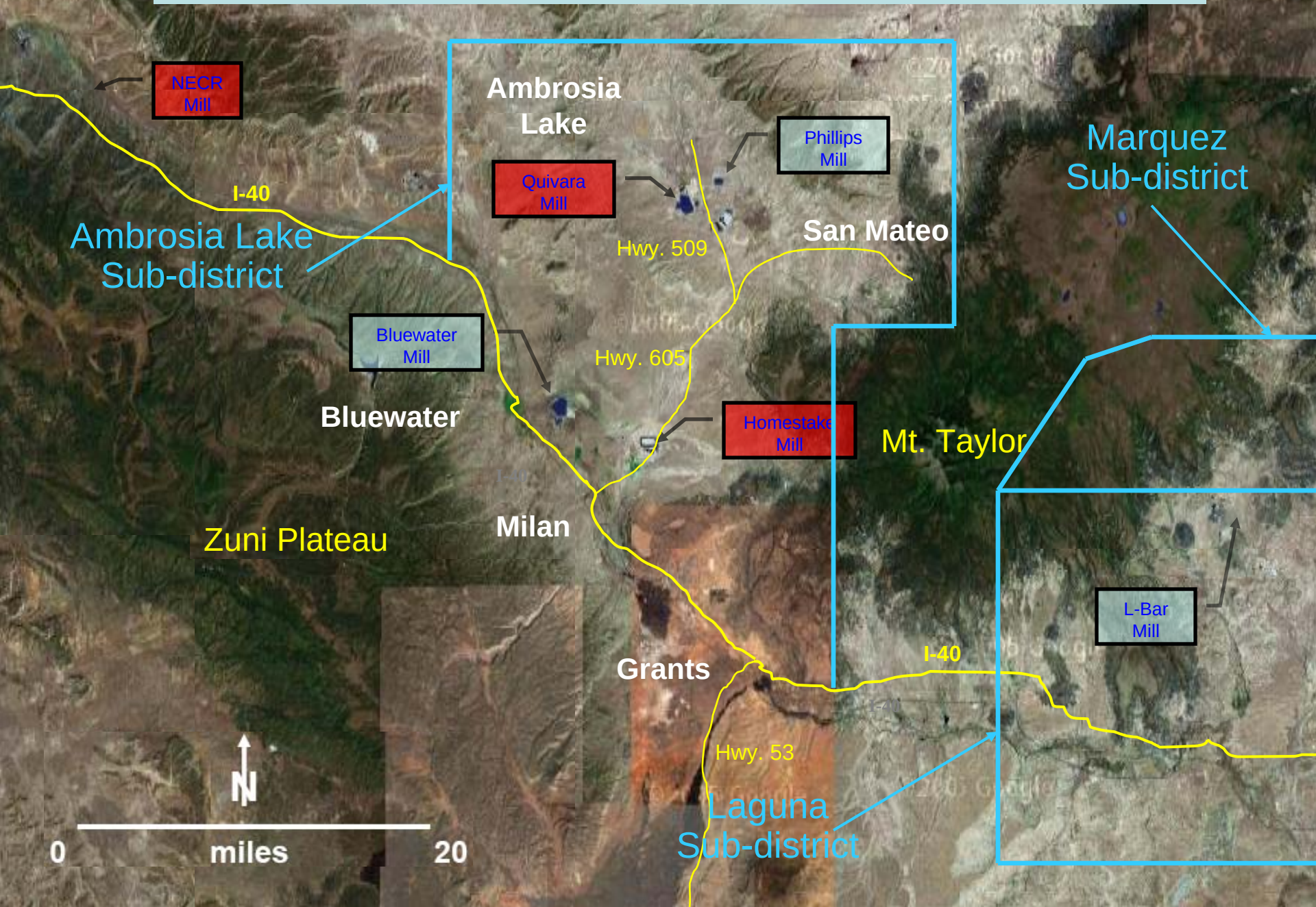


FIGURE 4 Uranium potential in the San Juan Basin, New Mexico (from McLemore and Chenoweth, 1989).

Grants Mining District Satellite View



Grants Mining District Stats

Ambrosia Lake Sub-district

78 mines, 4 Mills

1950’s – 2002 (most closed in 1980’s)

Conventional and open pit mining

Laguna Sub-district

18 mines, 1 mill

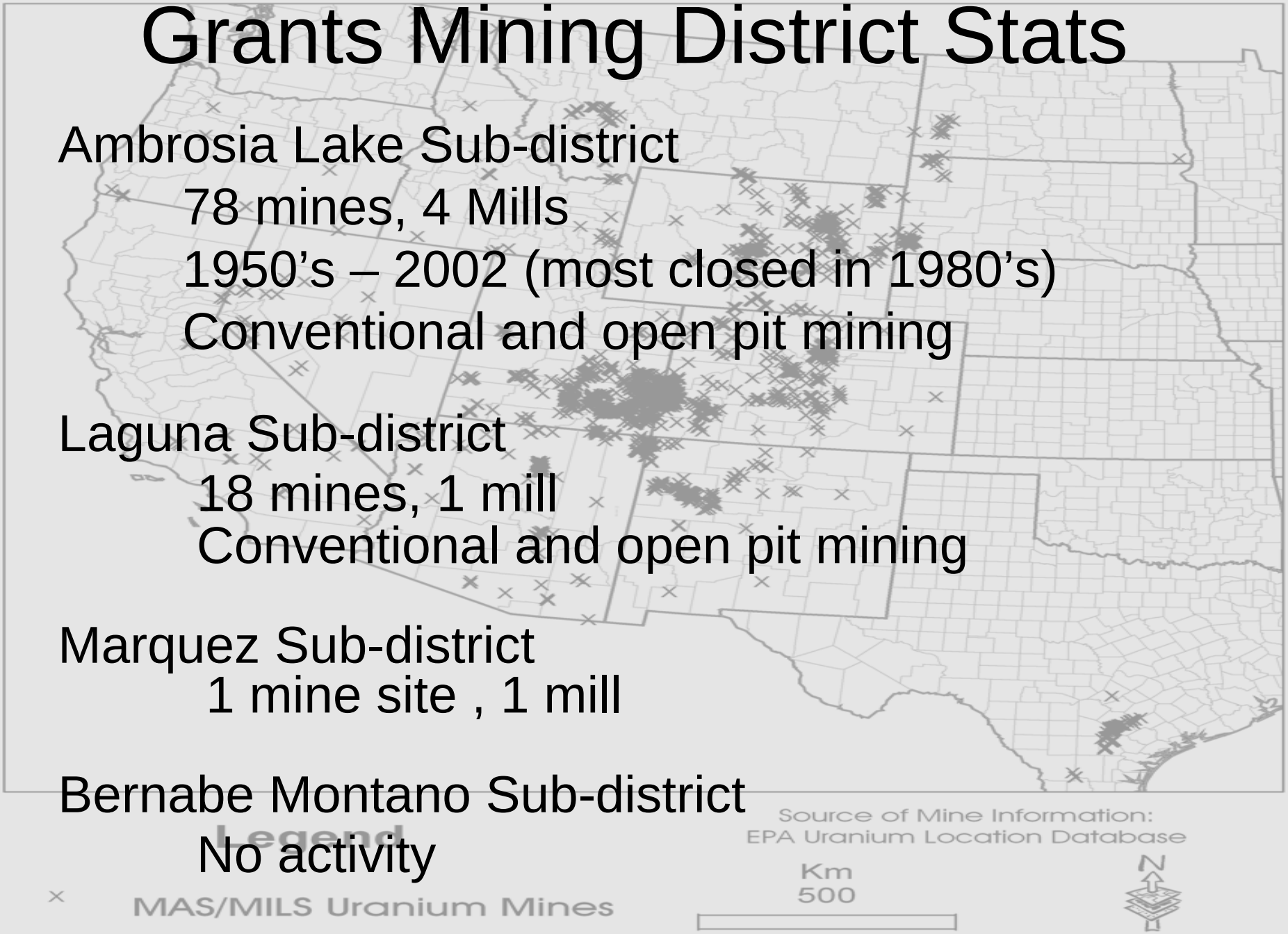
Conventional and open pit mining

Marquez Sub-district

1 mine site , 1 mill

Bernabe Montano Sub-district

No activity



Grants Mining District

Overview

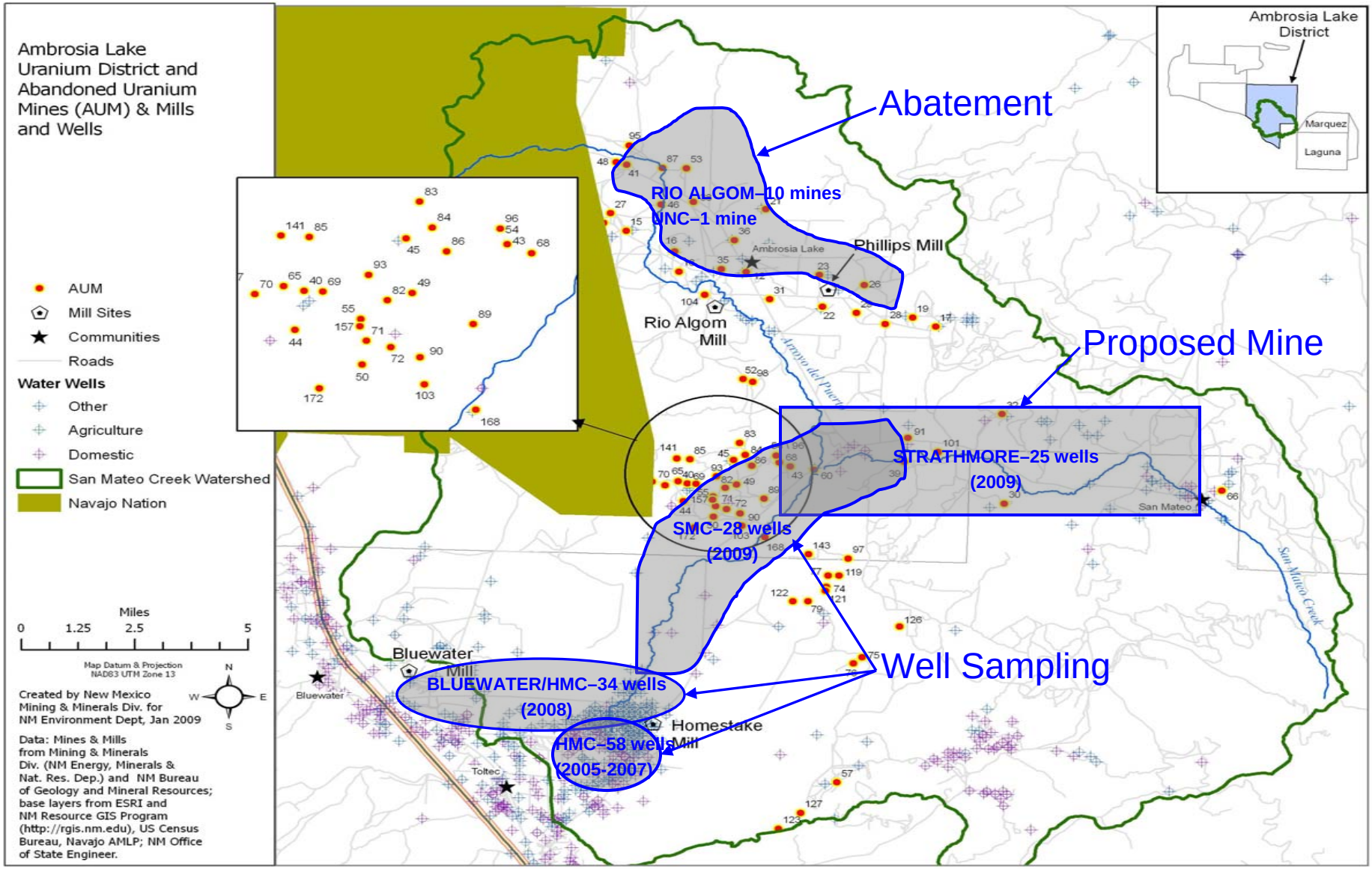
Groundwater Sampling

Mine Screens

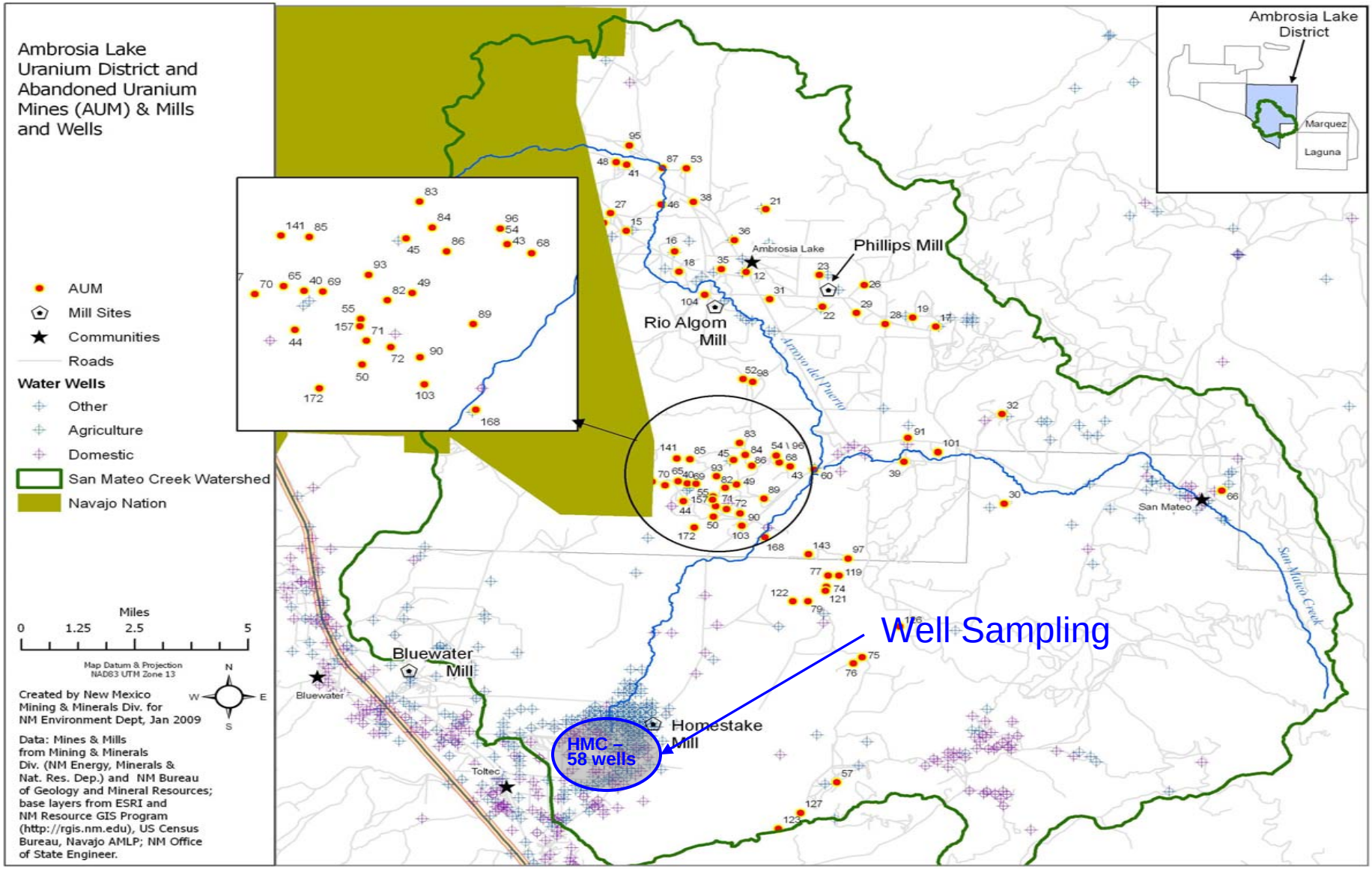
Mill Activity

Future Activity

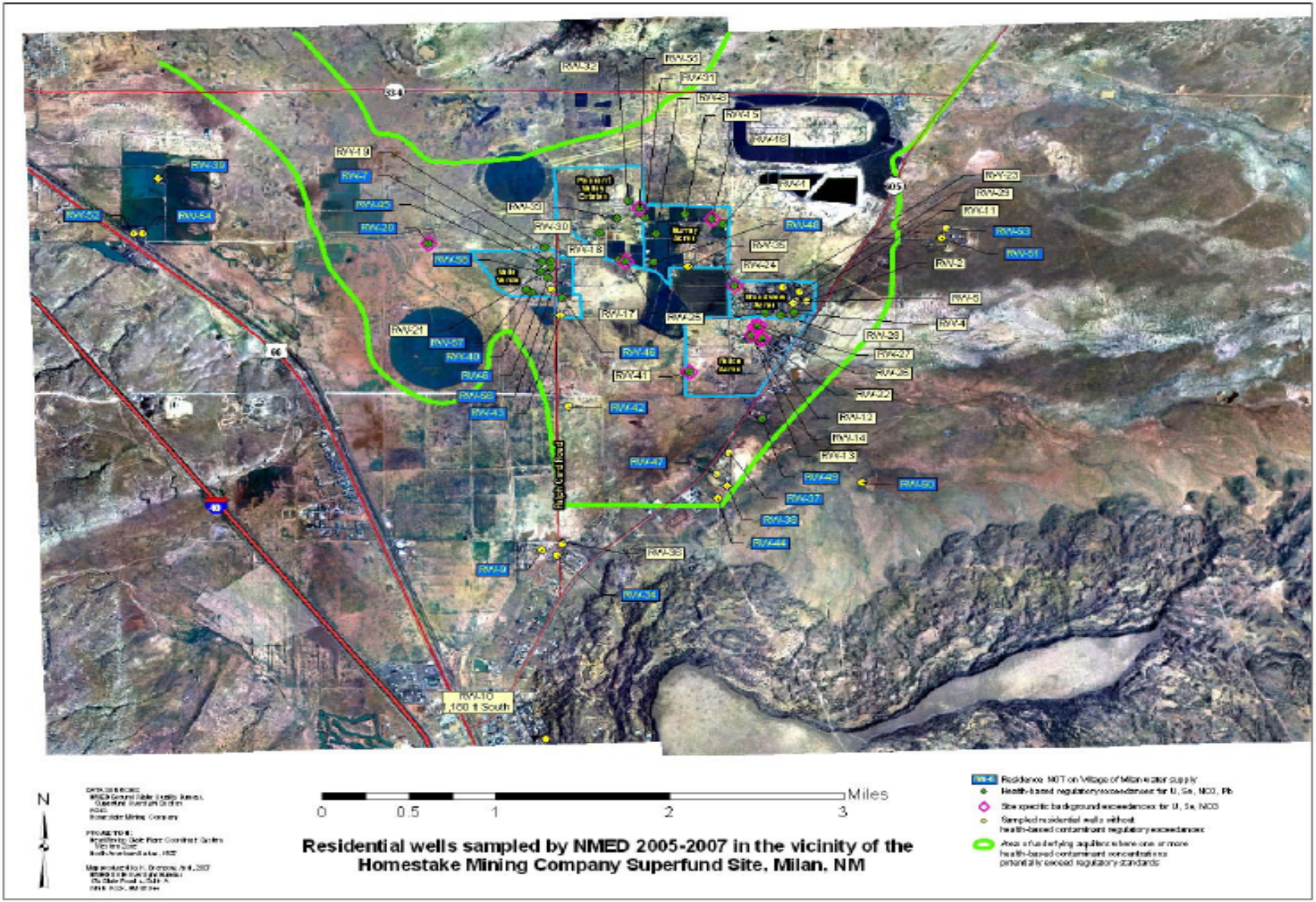
Ambrosia Lake Sub-district Mines, Wells & Sampling



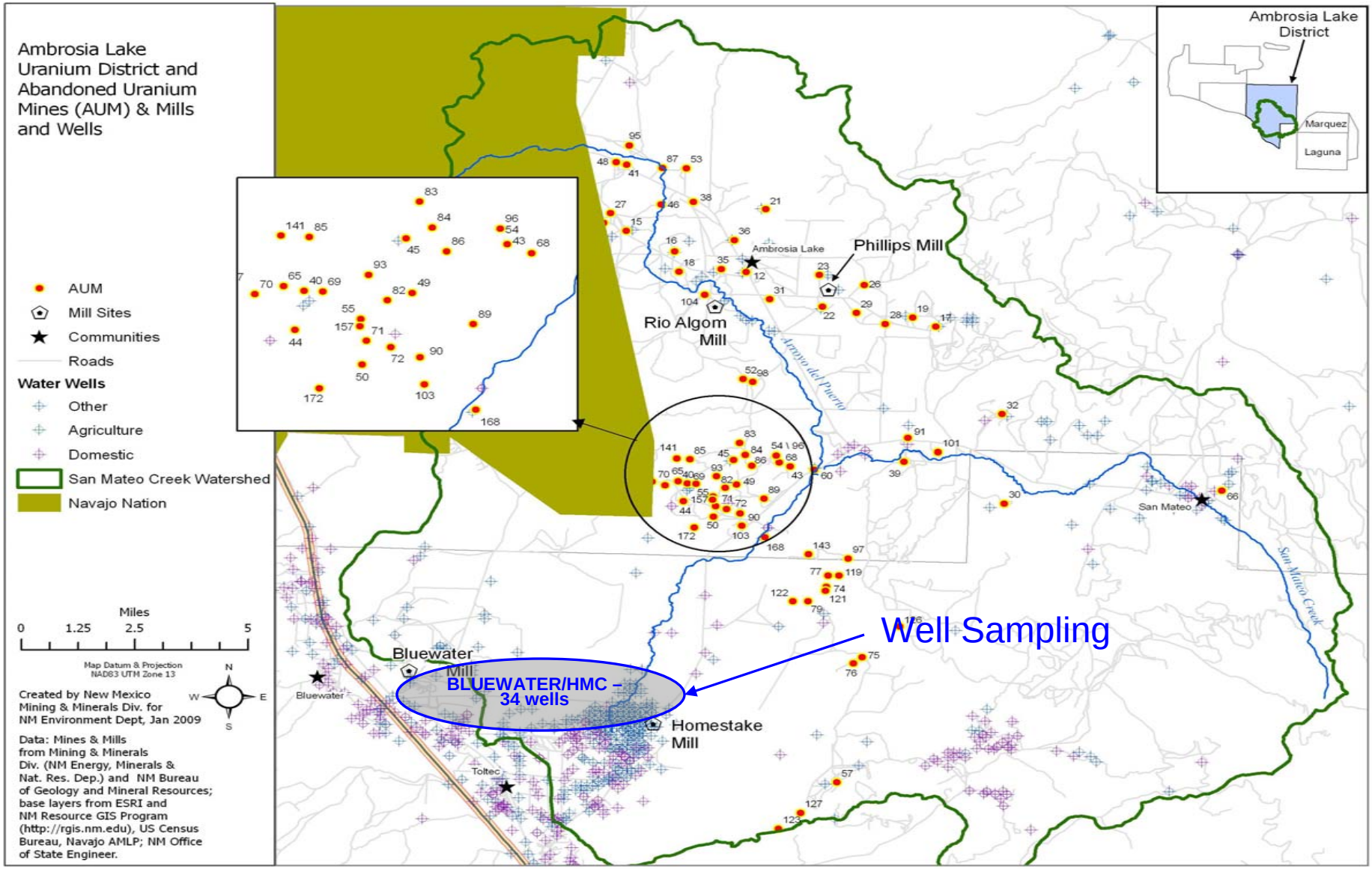
Ambrosia Lake Sub-district Mines, Wells & Sampling



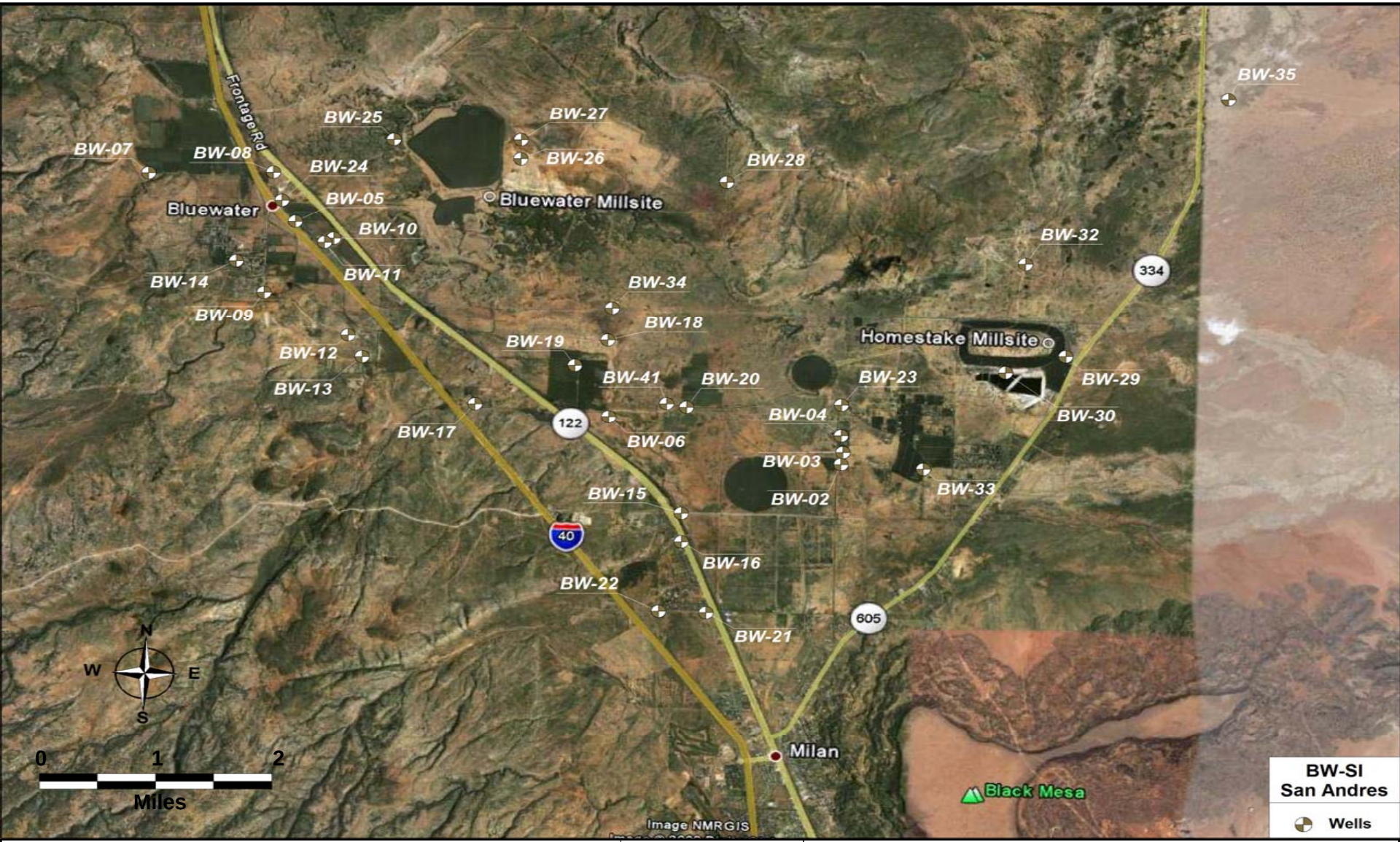
Homestake Sampling



Ambrosia Lake Sub-district Mines, Wells & Sampling



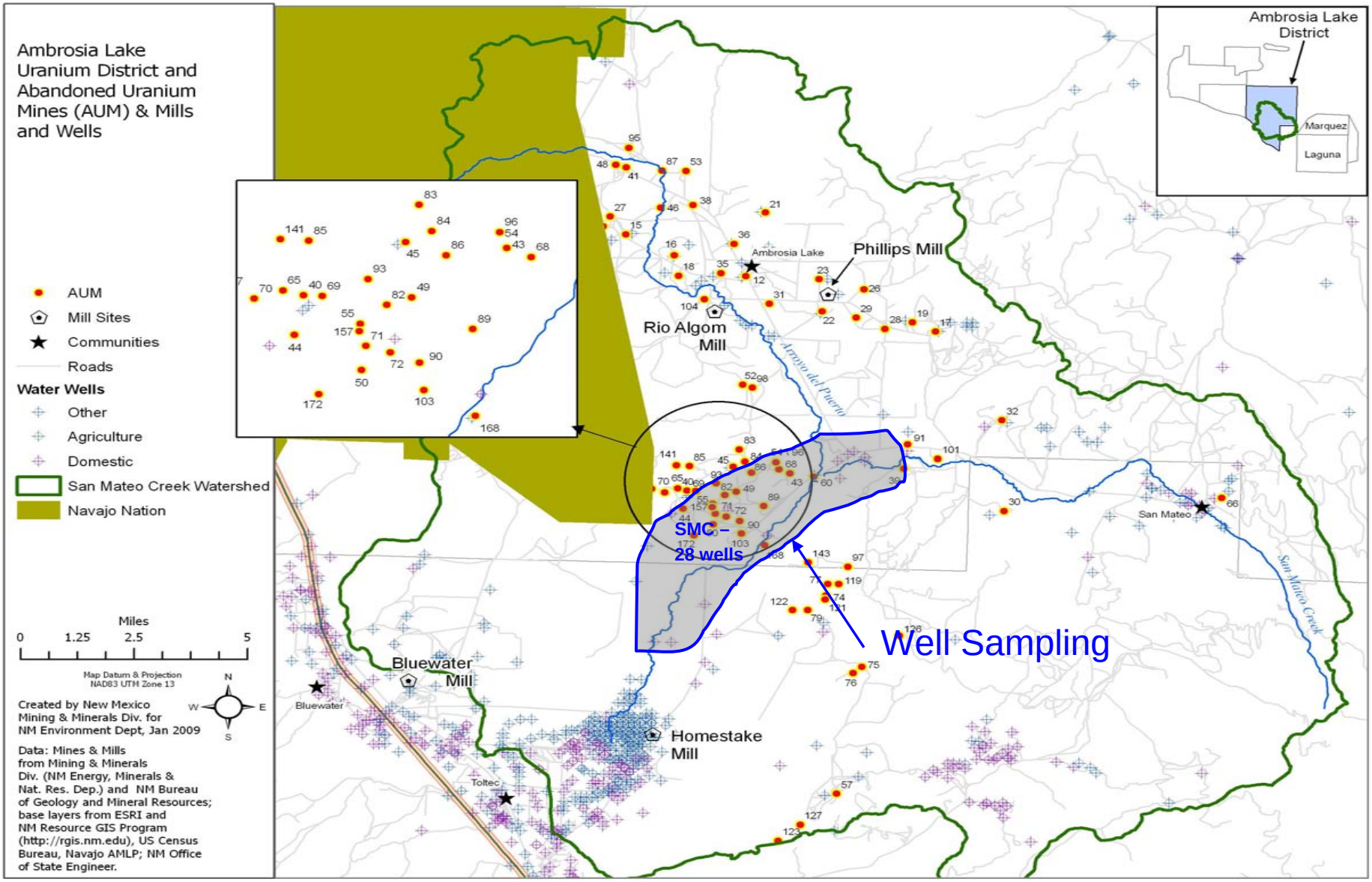
Bluewater-Homestake Sampling



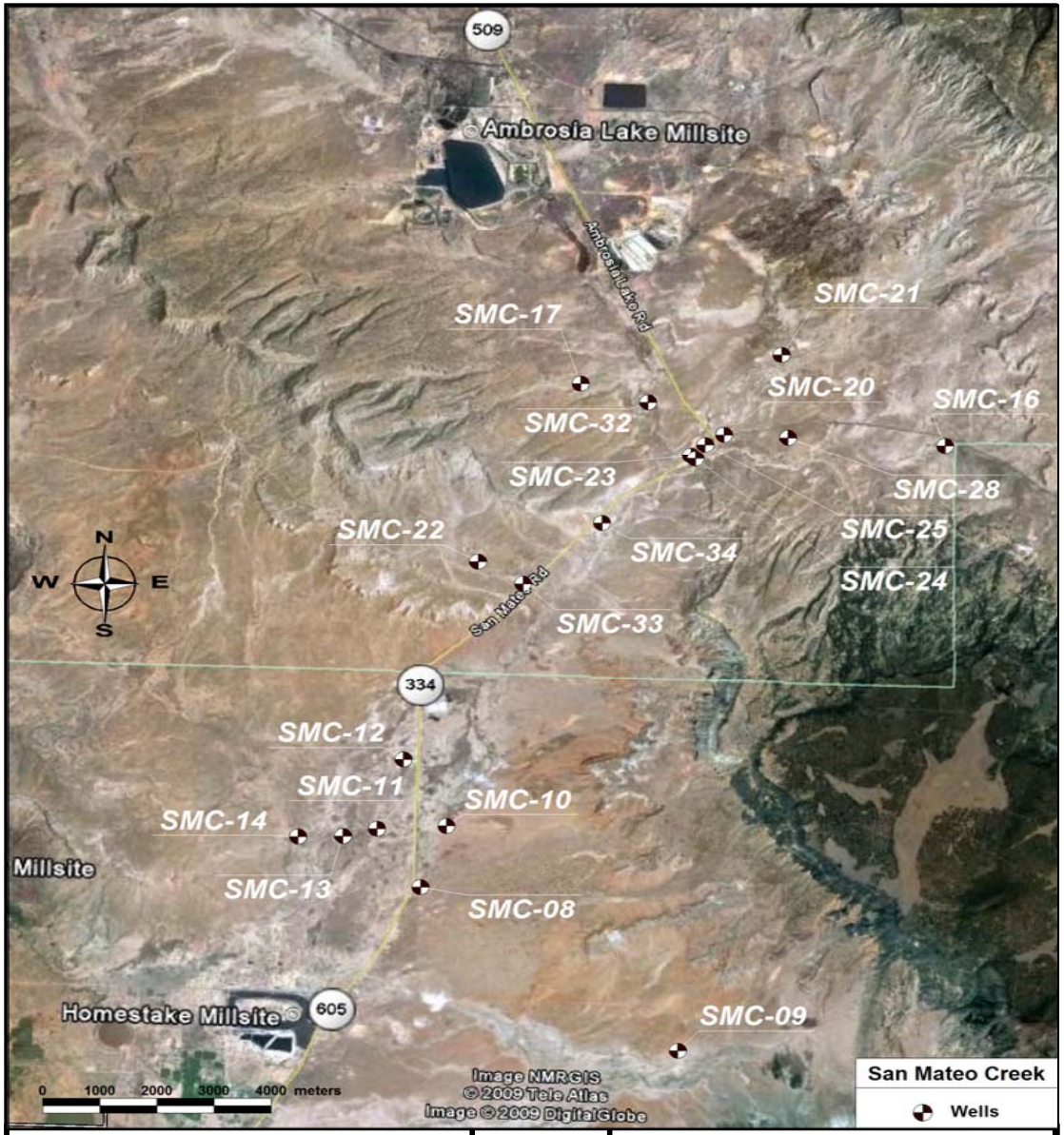
Ground Water Well Location Map
San Andres Aquifer - 2008

New Mexico Environment Department
Bluewater Site Inspection Investigation
Bluewater, New Mexico

Ambrosia Lake Sub-district Mines, Wells & Sampling

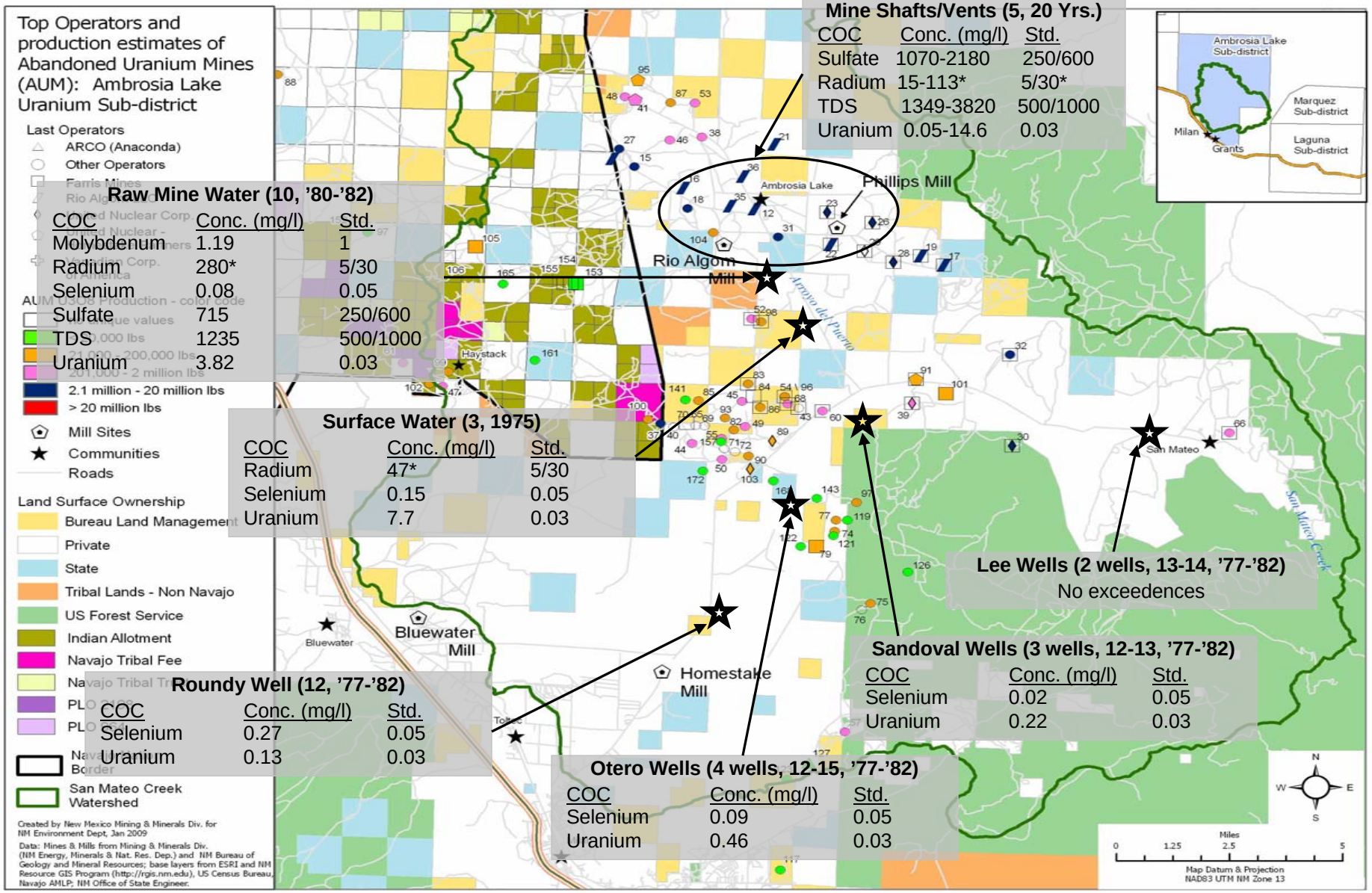


San Mateo Creek Sampling



Ground Water Well Location Map		New Mexico Environment Department San Mateo Creek Investigation Grants, New Mexico

Ambrosia Lake Sub-district Historic Contamination



Mine Shafts/Vents (5, 20 Yrs.)

COC	Conc. (mg/l)	Std.
Sulfate	1070-2180	250/600
Radium	15-113*	5/30*
TDS	1349-3820	500/1000
Uranium	0.05-14.6	0.03

Raw Mine Water (10, '80-'82)

COC	Conc. (mg/l)	Std.
Molybdenum	1.19	1
Radium	280*	5/30
Selenium	0.08	0.05
Sulfate	715	250/600
TDS	1235	500/1000
Uranium	3.82	0.03

Surface Water (3, 1975)

COC	Conc. (mg/l)	Std.
Radium	47*	5/30
Selenium	0.15	0.05
Uranium	7.7	0.03

Lee Wells (2 wells, 13-14, '77-'82)

No exceedences

Sandoval Wells (3 wells, 12-13, '77-'82)

COC	Conc. (mg/l)	Std.
Selenium	0.02	0.05
Uranium	0.22	0.03

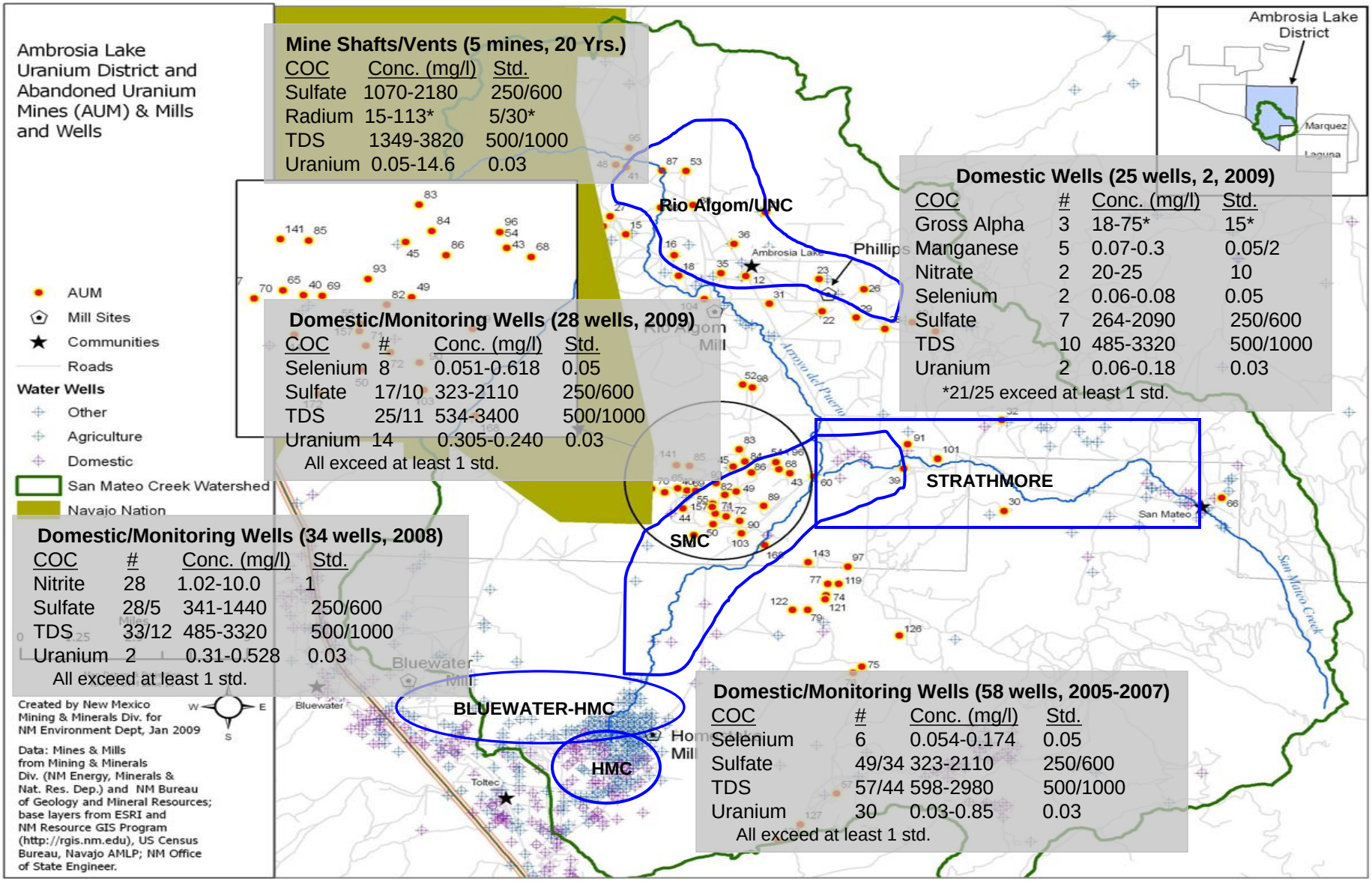
Roundy Well (12, '77-'82)

COC	Conc. (mg/l)	Std.
Selenium	0.27	0.05
Uranium	0.13	0.03

Otero Wells (4 wells, 12-15, '77-'82)

COC	Conc. (mg/l)	Std.
Selenium	0.09	0.05
Uranium	0.46	0.03

Ambrosia Lake Sub-district Mines, Wells & Sampling



Mine Shafts/Vents (5 mines, 20 Yrs.)

COC	Conc. (mg/l)	Std.
Sulfate	1070-2180	250/600
Radium	15-113*	5/30*
TDS	1349-3820	500/1000
Uranium	0.05-14.6	0.03

Domestic/Monitoring Wells (28 wells, 2009)

COC	#	Conc. (mg/l)	Std.
Selenium	8	0.051-0.618	0.05
Sulfate	17/10	323-2110	250/600
TDS	25/11	534-3400	500/1000
Uranium	14	0.305-0.240	0.03

All exceed at least 1 std.

Domestic Wells (25 wells, 2, 2009)

COC	#	Conc. (mg/l)	Std.
Gross Alpha	3	18-75*	15*
Manganese	5	0.07-0.3	0.05/2
Nitrate	2	20-25	10
Selenium	2	0.06-0.08	0.05
Sulfate	7	264-2090	250/600
TDS	10	485-3320	500/1000
Uranium	2	0.06-0.18	0.03

*21/25 exceed at least 1 std.

Domestic/Monitoring Wells (34 wells, 2008)

COC	#	Conc. (mg/l)	Std.
Nitrite	28	1.02-10.0	1
Sulfate	28/5	341-1440	250/600
TDS	33/12	485-3320	500/1000
Uranium	2	0.31-0.528	0.03

All exceed at least 1 std.

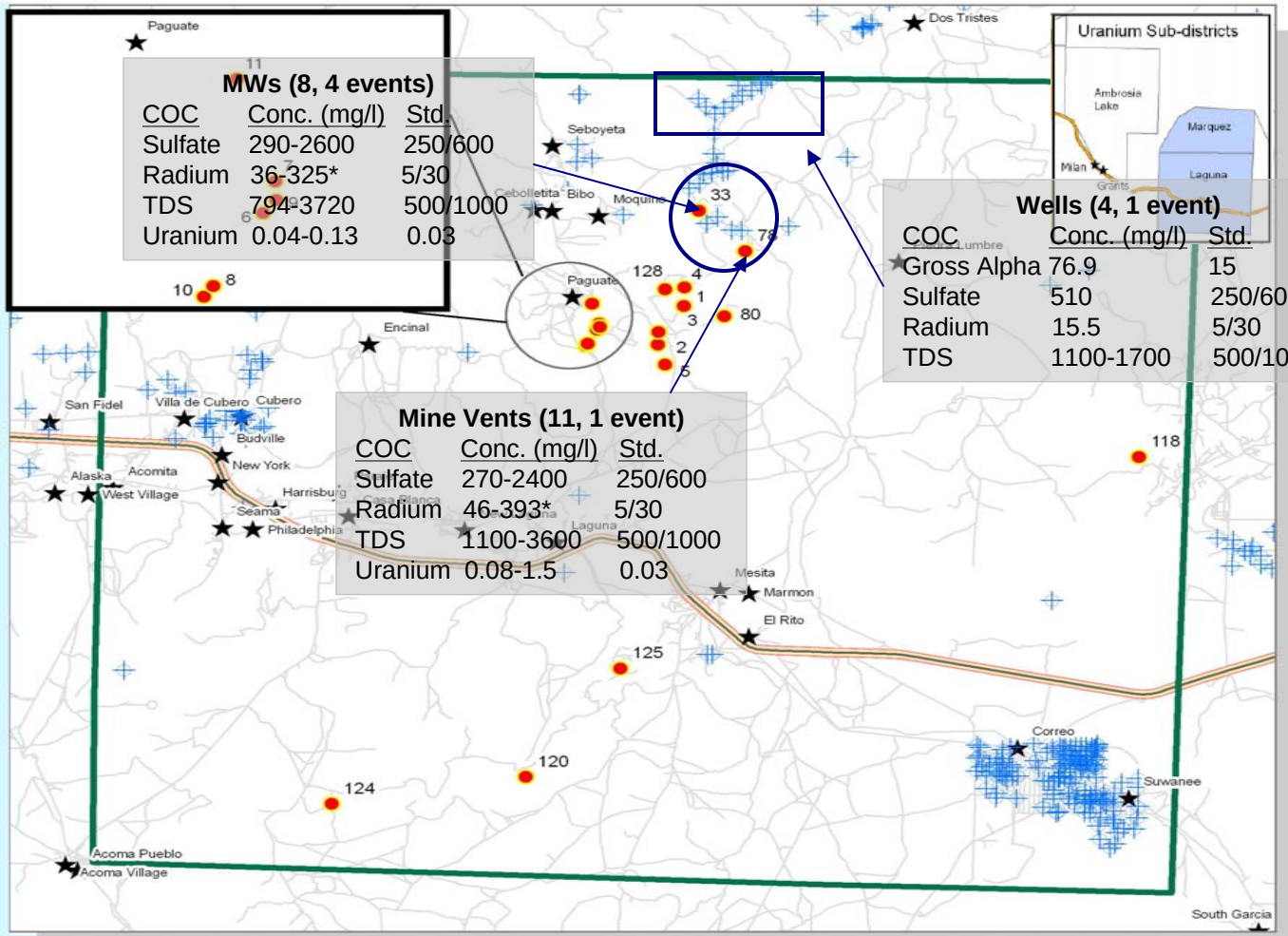
Domestic/Monitoring Wells (58 wells, 2005-2007)

COC	#	Conc. (mg/l)	Std.
Selenium	6	0.054-0.174	0.05
Sulfate	49/34	323-2110	250/600
TDS	57/44	598-2980	500/1000
Uranium	30	0.03-0.85	0.03

All exceed at least 1 std.

Laguna & Marquez Sub-districts Mines & Wells

Distribution of Abandoned Uranium Mines (AUM) with the Laguna Uranium District



MWs (8, 4 events)

COC	Conc. (mg/l)	Std.
Sulfate	290-2600	250/600
Radium	36-325*	5/30
TDS	794-3720	500/1000
Uranium	0.04-0.13	0.03

Wells (4, 1 event)

COC	Conc. (mg/l)	Std.
Gross Alpha	76.9	15
Sulfate	510	250/600
Radium	15.5	5/30
TDS	1100-1700	500/1000

Mine Vents (11, 1 event)

COC	Conc. (mg/l)	Std.
Sulfate	270-2400	250/600
Radium	46-393*	5/30
TDS	1100-3600	500/1000
Uranium	0.08-1.5	0.03

- AUM
- Water Wells
- Population Centers
- Laguna U District
- Limited Access
- Roads

Created by New Mexico Mining & Minerals Division for NM Environment Dept, January 2009

North American Datum 83
Universal Transverse Mercator
NM Zone 13

Data:
Mining & Minerals Div. (NM Energy, Minerals & Nat. Res. Dep.),
New Mexico Bureau of Geology and Mineral Resources,
New Mexico Resource GIS Program (http://rgis.nm.edu),
NM Office of State Engineer.

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Grants Mining District

Overview

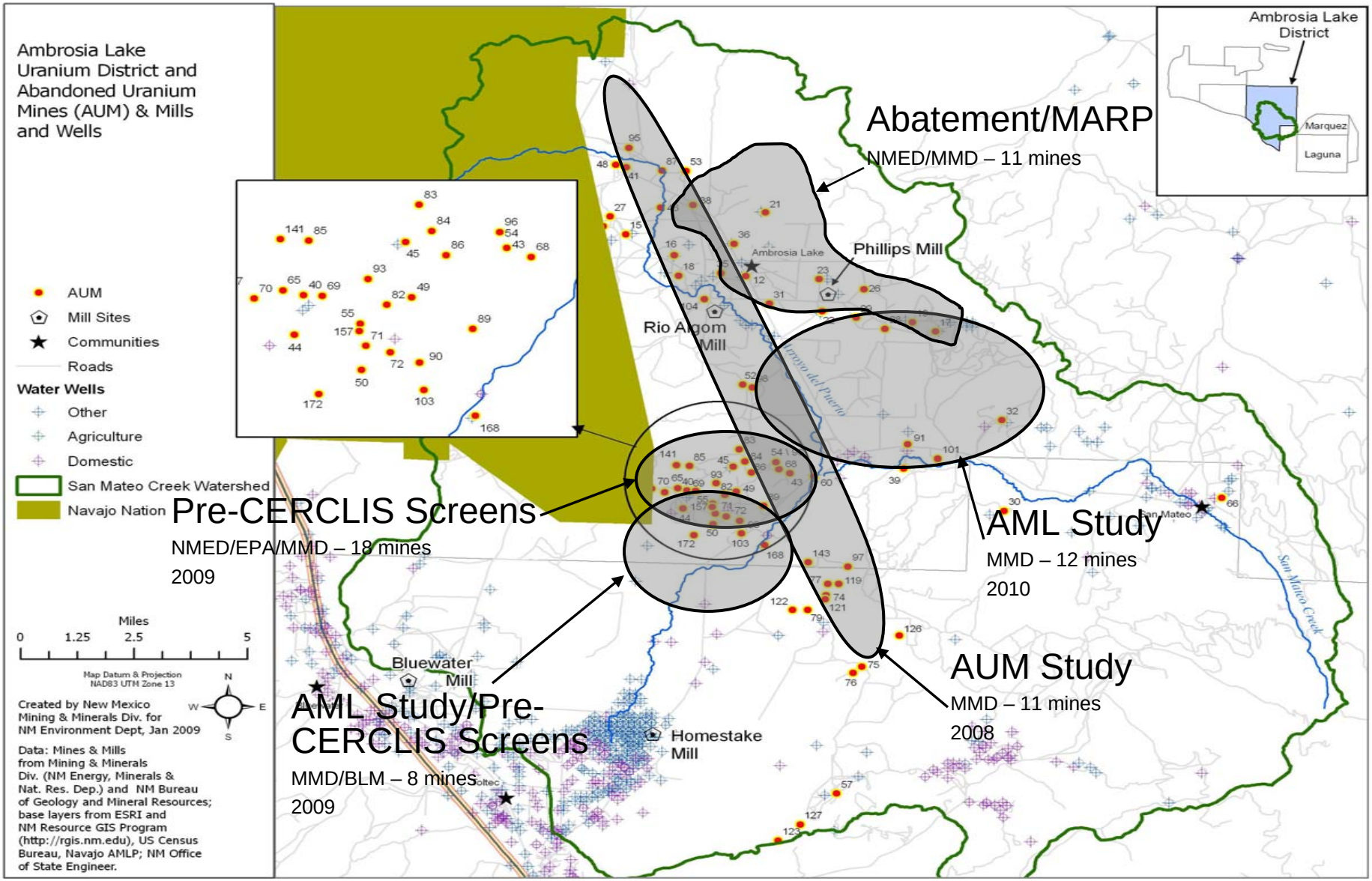
Groundwater Sampling

Mine Screens

Mill Activity

Future Activity

Ambrosia Lake Sub-district Mine Screens



Laguna & Marquez Sub-districts
Mines & Wells

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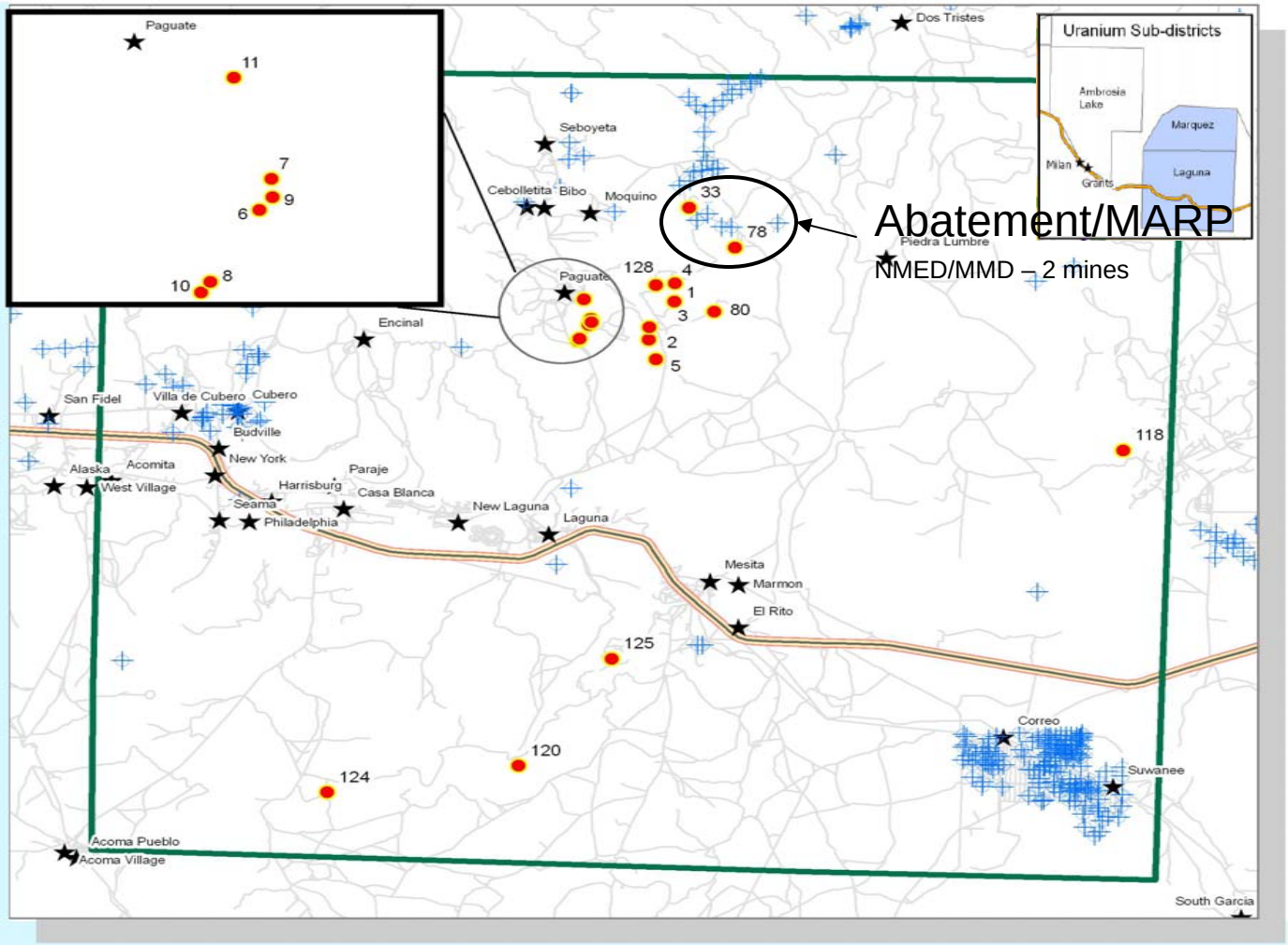

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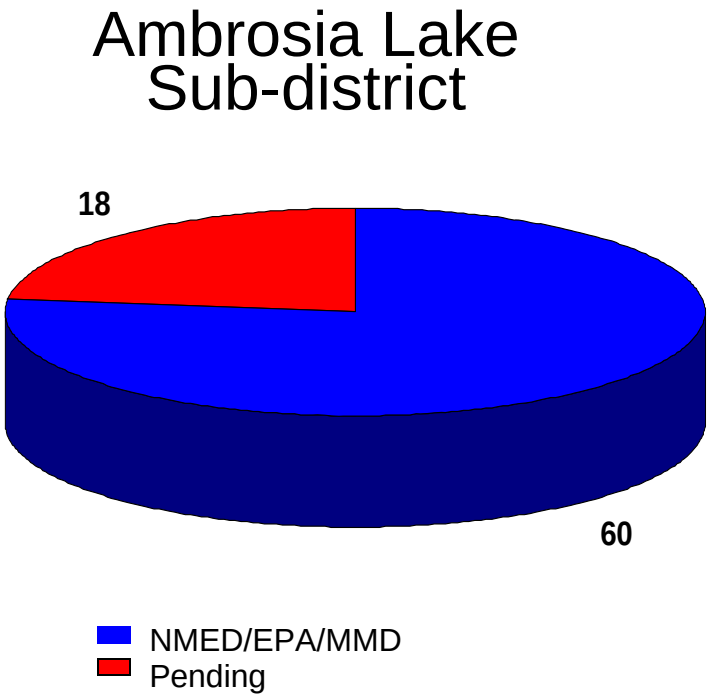
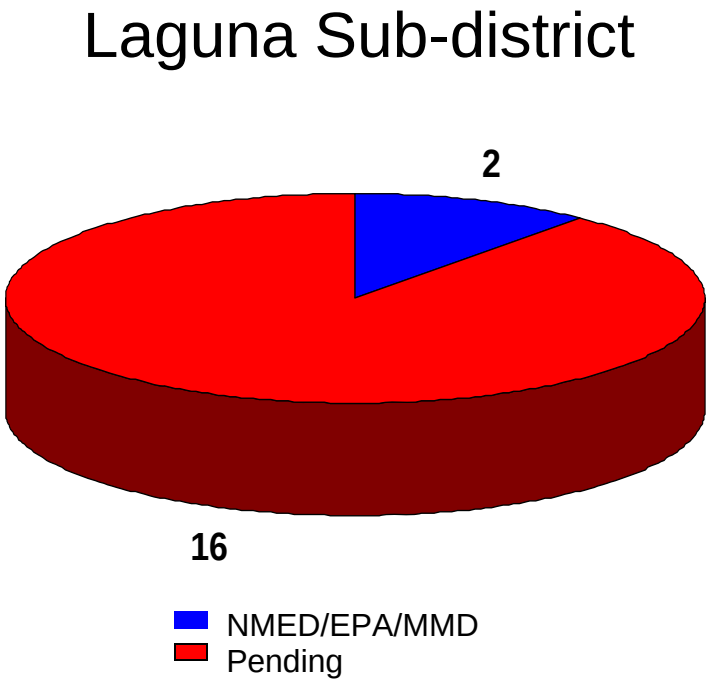
LUM Activity





Pre-CERCLIS Screen Data
Poison Canyon

26 mines screened

Prioritized based on

*Physical hazards: open shafts, vent holes, adits, declines, high walls in pits

*Environmental hazards: potential contamination of soil or surface/ground water

12 sites proposed for consideration of emergency response due to physical hazards

9 sites proposed for consideration for removal action due to ongoing releases

Doris Mine

Pre-CERCLIS Screens

Spencer mine

Spencer mine

Section 25

Roundy Manol

Grants Mining District

Overview

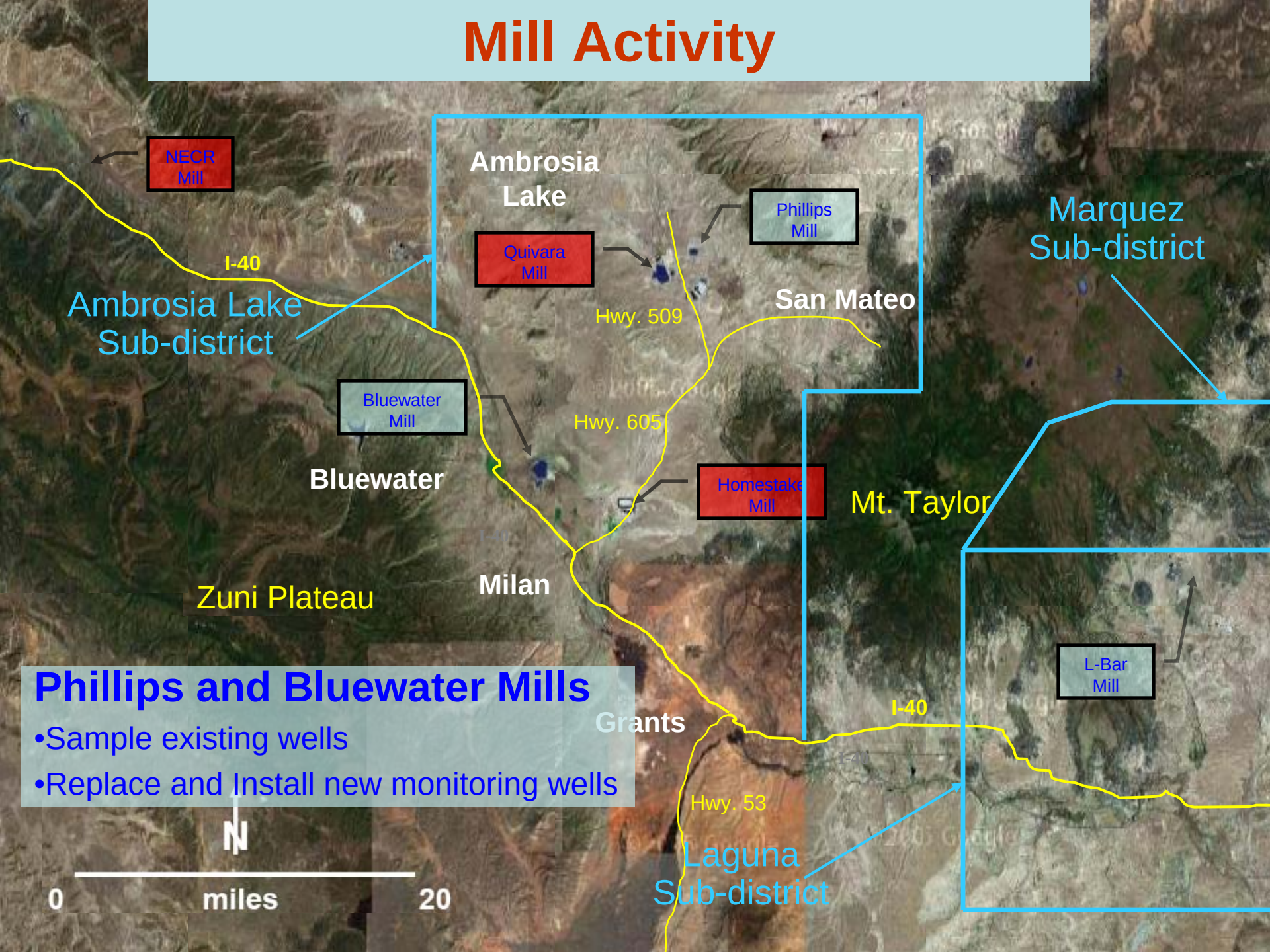
Groundwater Sampling

Mine Screens

Mill Activity

Future Activity

Mill Activity



Phillips and Bluewater Mills

- Sample existing wells
- Replace and Install new monitoring wells

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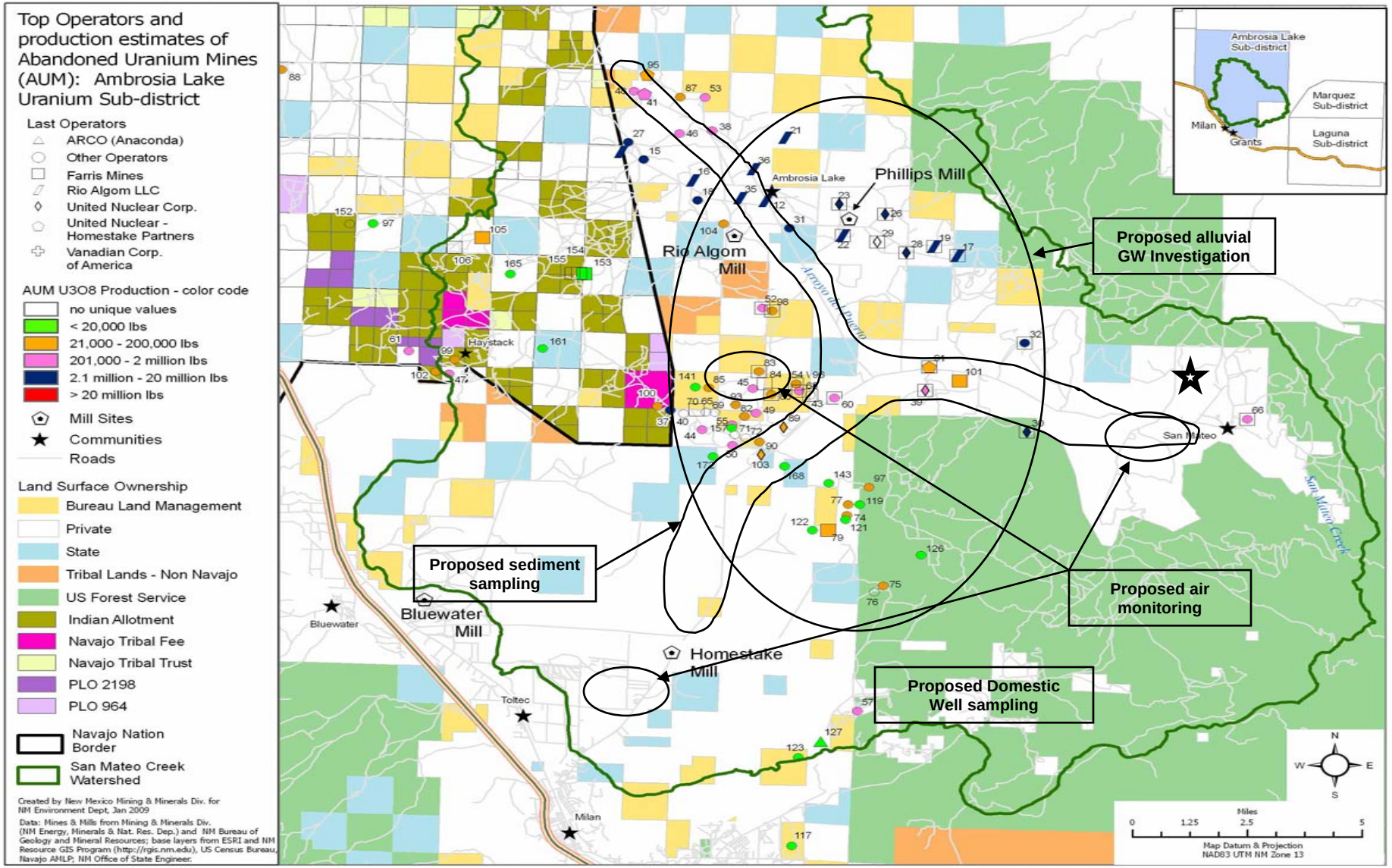
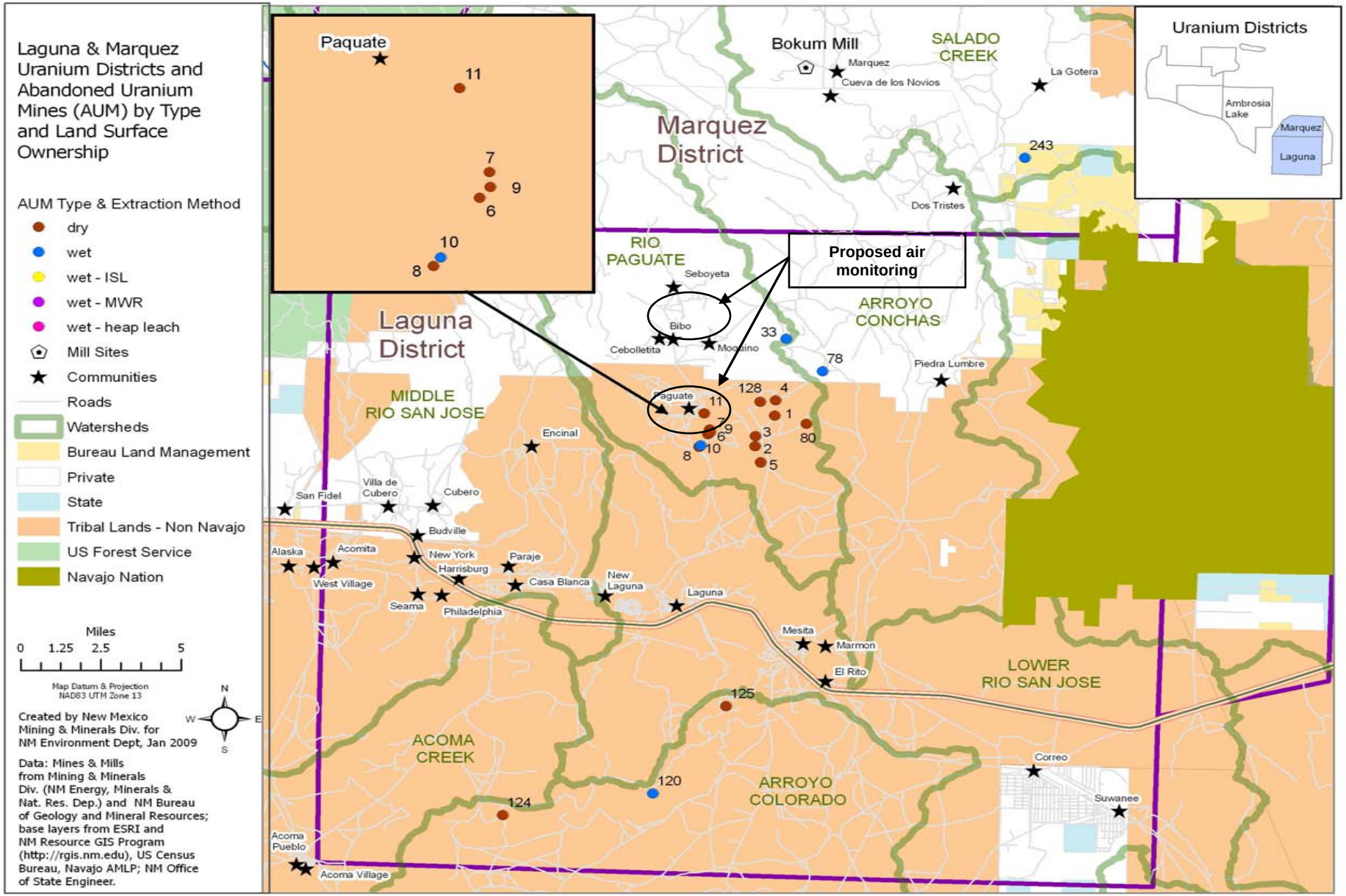
Future Activity



Future Activity



Future Activity

- Continued coordination with federal, state and tribal agencies
- Perform additional screens and groundwater sampling
- Standardize assessment work and establish cleanup criteria
- Prioritize sites

Questions