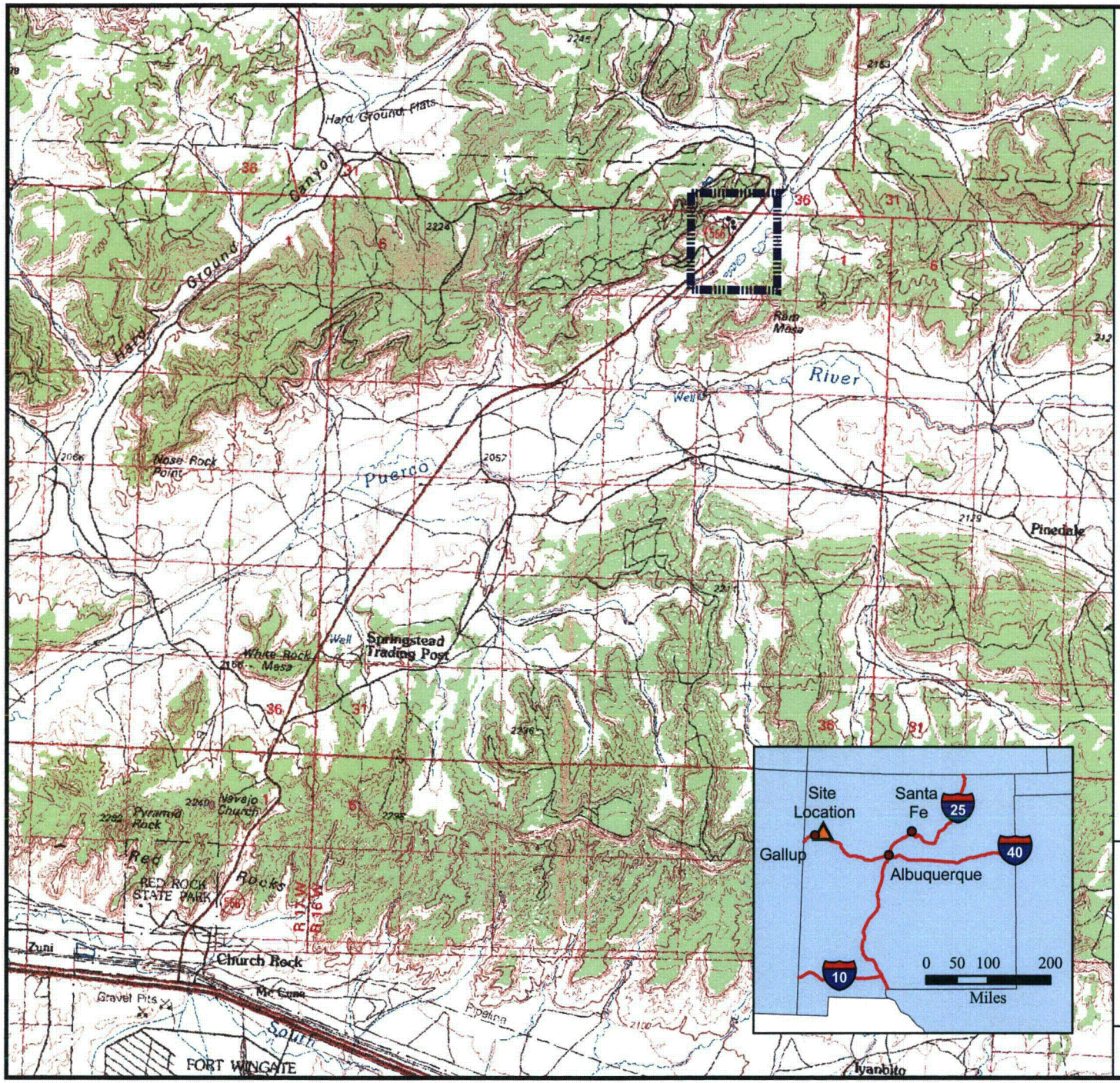


N

LEGEND

Approximate Site Location

NEW MEXICO INSET LEGEND

- Major City
- Church Rock Site Location
- Interstate Highway
- State Boundary

Notes:

1. Topographic basemap taken from the United States Geologic Survey 30x60 minute, 1:100,000 scale, Gallup, New Mexico Topographic Map, 1981.
2. Data for New Mexico Inset map taken from ESRI Data & Maps 2002 CD-ROM set.

1 0.5 0 1
Miles

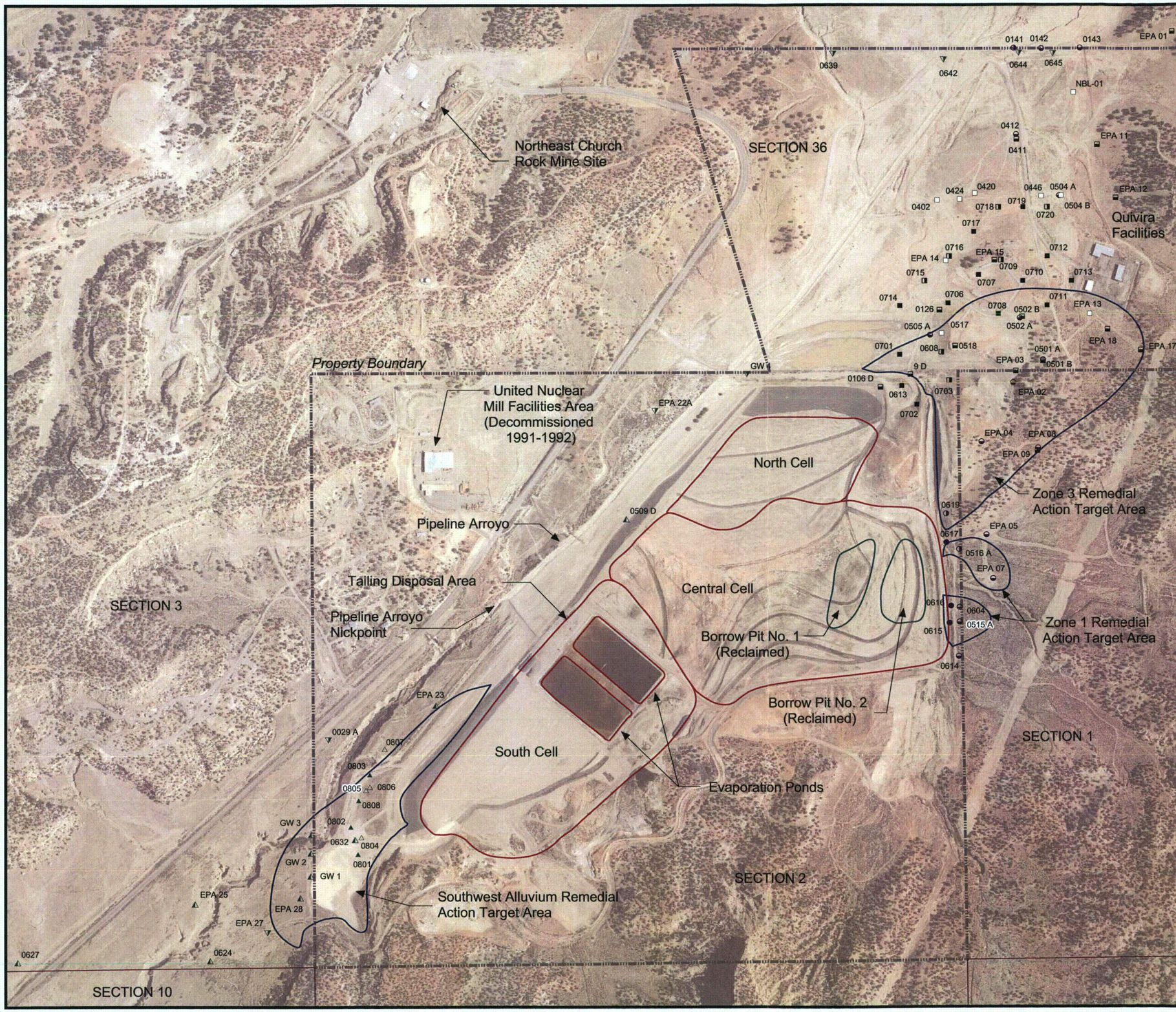
FIGURE 1

Site Location Map

United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

CHESTER ENGINEERS

Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2008_annual_report\f01_site_location.mxd; January 13, 2009



Legend

Southwest Alluvium

- Idled Extraction Well
- Monitoring Well
- Water Level Monitoring Well
- Dry Monitoring Well

Zone 3

- Idled Extraction Well Used for Monitoring
- Decommissioned or Idle Extraction Well
- Monitoring Well
- Dry or Decommissioned Monitoring Well

Zone 1

- Decommissioned Extraction Well
- Decommissioned Monitoring Well
- Monitoring Well

0 400 800 1,600
Feet

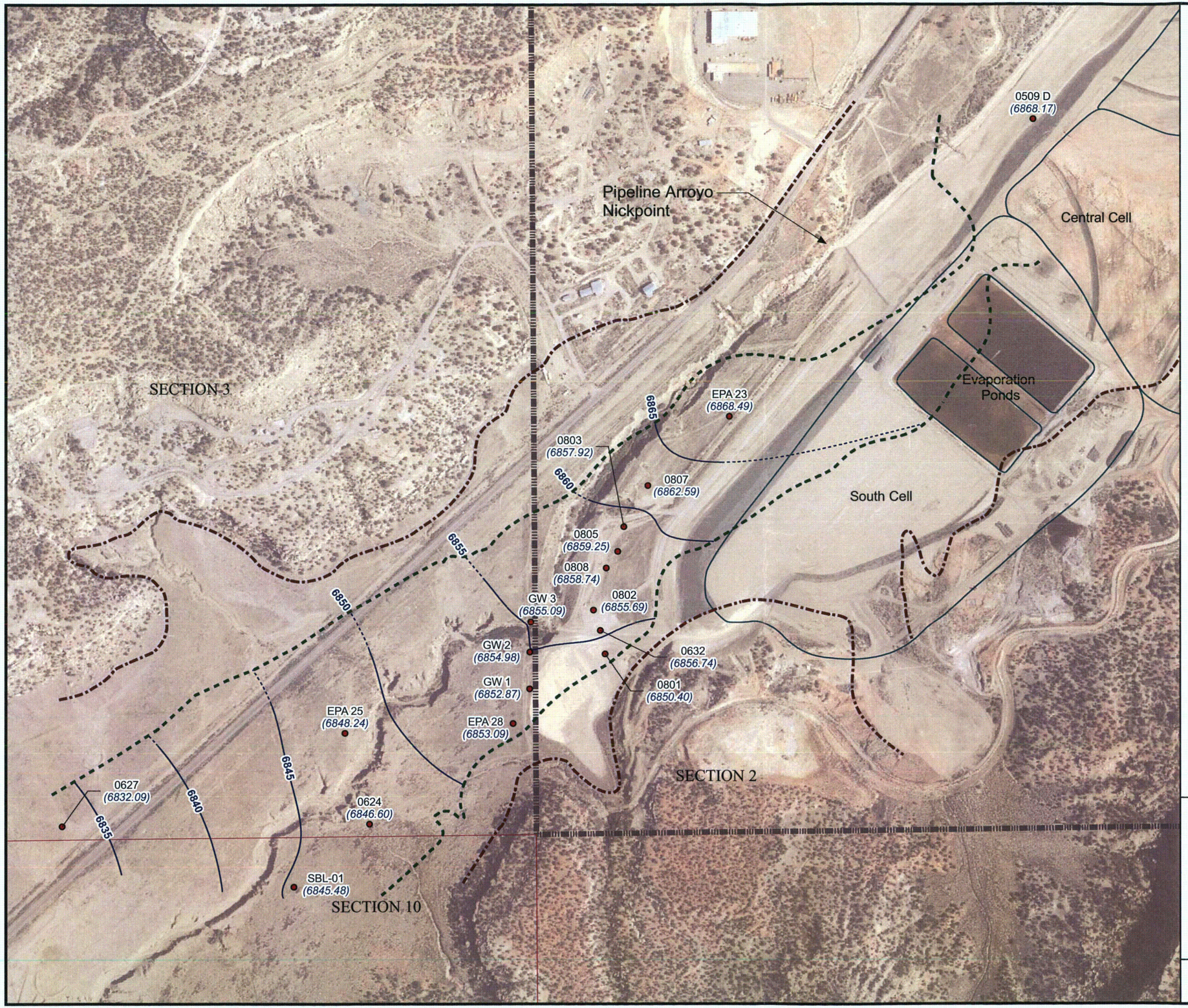
FIGURE 2

Site Layout and Performance Monitoring Well Locations 2013 Operating Year

United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

CHESTER ENGINEERS

Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2008_annual_report\f02_site_layout.mxd; January 13, 2009



Legend

- Southwest Alluvium Monitoring Well
- Groundwater Elevation Contour
- Inferred Groundwater Elevation Contour
- Approximate Extent of Alluvium
- Approximate Extent of Saturated Alluvium
- Property Boundary
- Section Boundary
- Cell Boundary

Notes:

1. Groundwater elevation values are displayed in feet above mean sea level.
2. Well names are displayed with black text.
3. Groundwater elevations are shown with blue text and enclosed in parentheses.
4. Aerial photo taken on August 1, 1996.

0 250 500 1,000
Feet

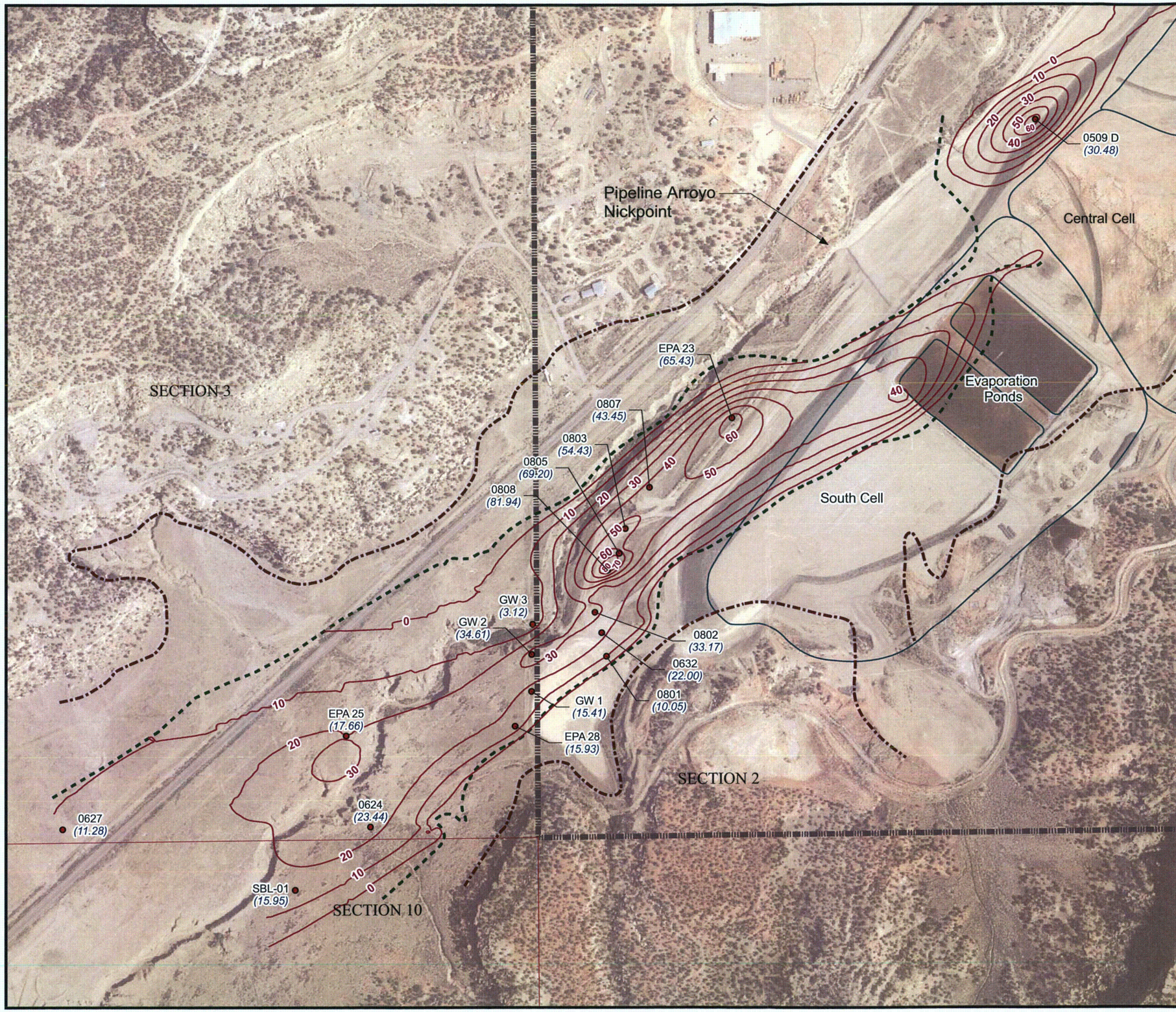
FIGURE 3A

Southwest Alluvium
Potentiometric Surface Map
September and October 2013

United Nuclear Corporation Church Rock Site,
Church Rock, New Mexico

CHESTER ENGINEERS

Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2013_annual_report\f03_swa_piezo.mxd; January 3, 2014



Legend

- Southwest Alluvium Monitoring Well
- Approximate Extent of Alluvium
- Approximate Extent of Saturated Alluvium
- Property Boundary
- Section Boundary
- Cell Boundary
- Saturated Thickness Contours (feet)

Notes:

1. Well names are displayed with black text.
2. Saturated thicknesses (feet) are shown with blue text and enclosed in parentheses.
3. Aerial photo taken on August 1, 1996.
4. The posted value of saturated thickness at well 0509 D derives from reference to the screen bottom. The alluvium extends as much as 38 feet below this depth in the vicinity of this well.

0 250 500 1,000
Feet

FIGURE 3B

Southwest Alluvium
Saturated Thickness Map
September and October 2013

United Nuclear Corporation Church Rock Site,
Church Rock, New Mexico

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Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2013_annual_report\f03b_swa_sat_thick.mxd; January 3, 2014

FIGURE 4
Southwest Alluvium Water Levels Over Time
United Nuclear Corporation, Church Rock Site, Church Rock New Mexico

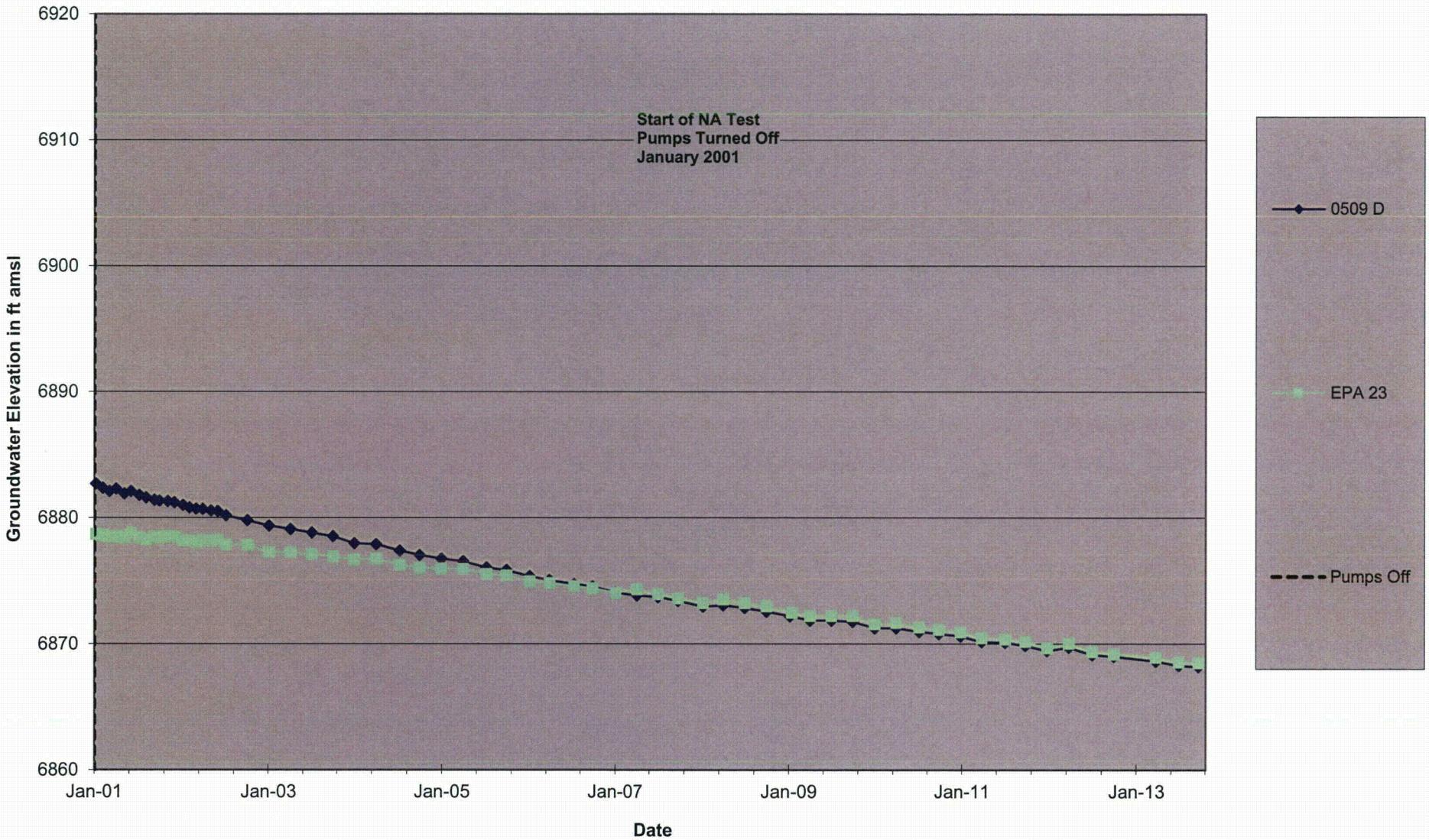

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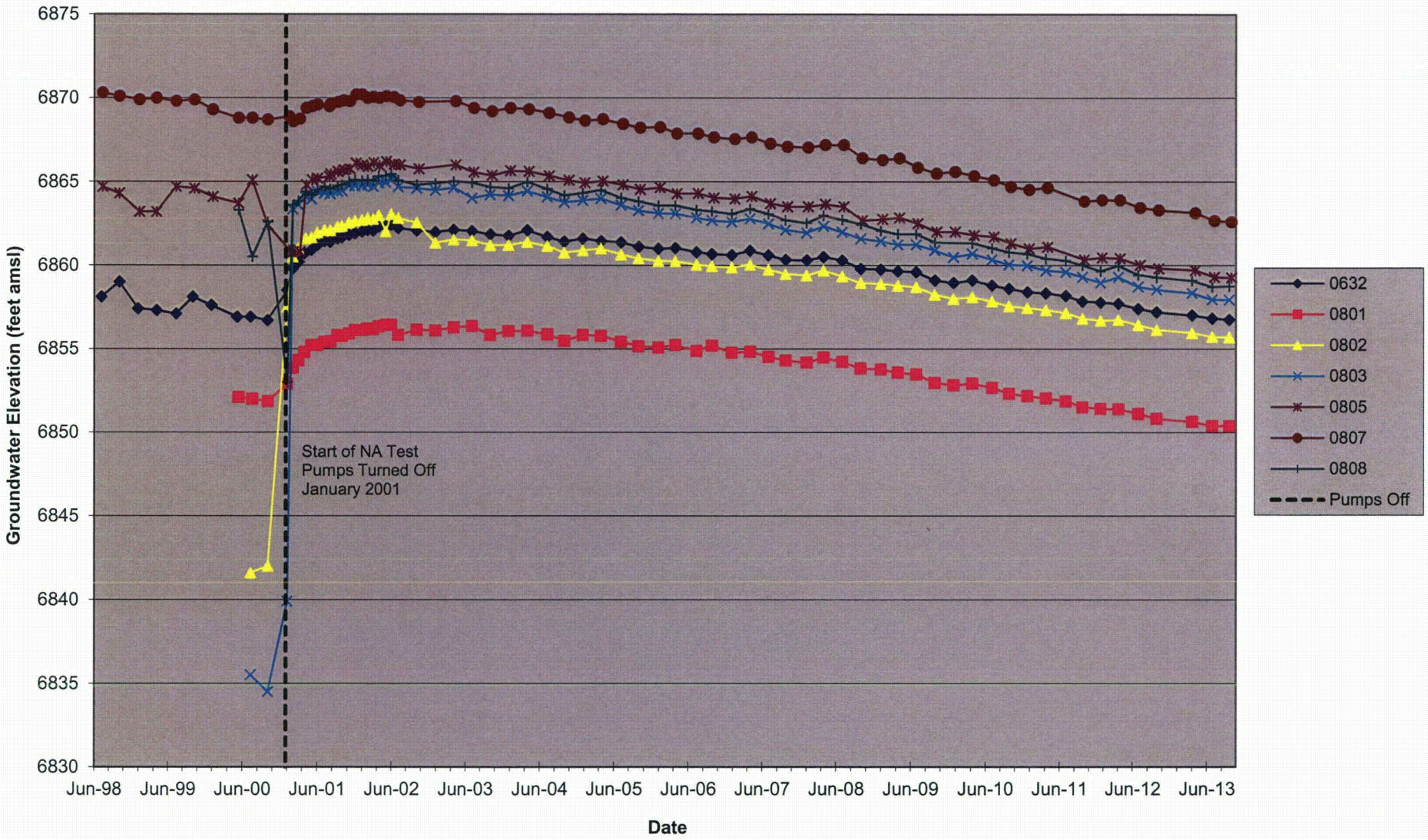
FIGURE 5
Southwest Alluvium Pumping Well Water Levels Over Time
United Nuclear Corporation, Church Rock Site, Church Rock New Mexico



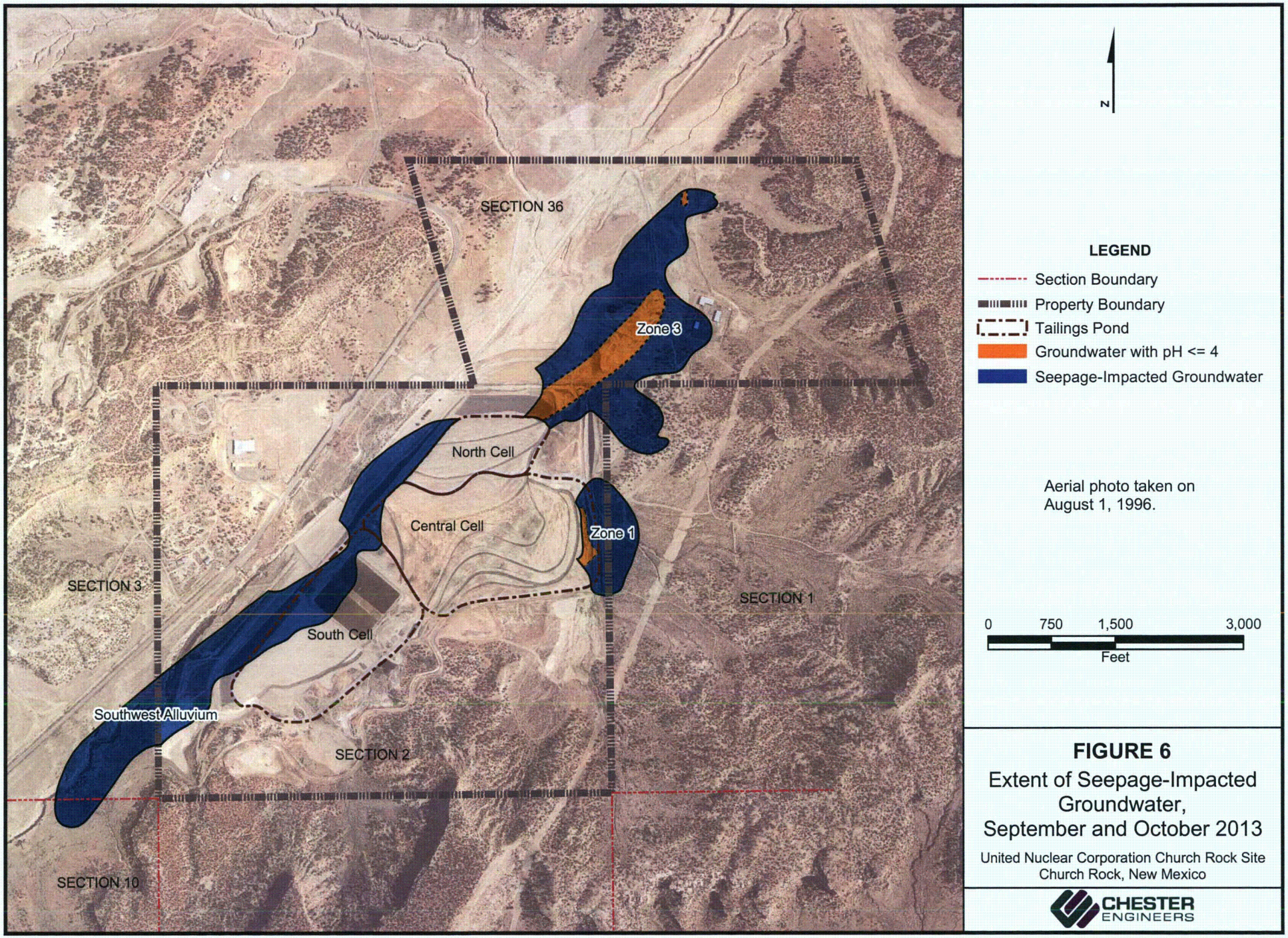


FIGURE 6

Extent of Seepage-Impacted Groundwater, September and October 2013

United Nuclear Corporation Church Rock Site
Church Rock, New Mexico

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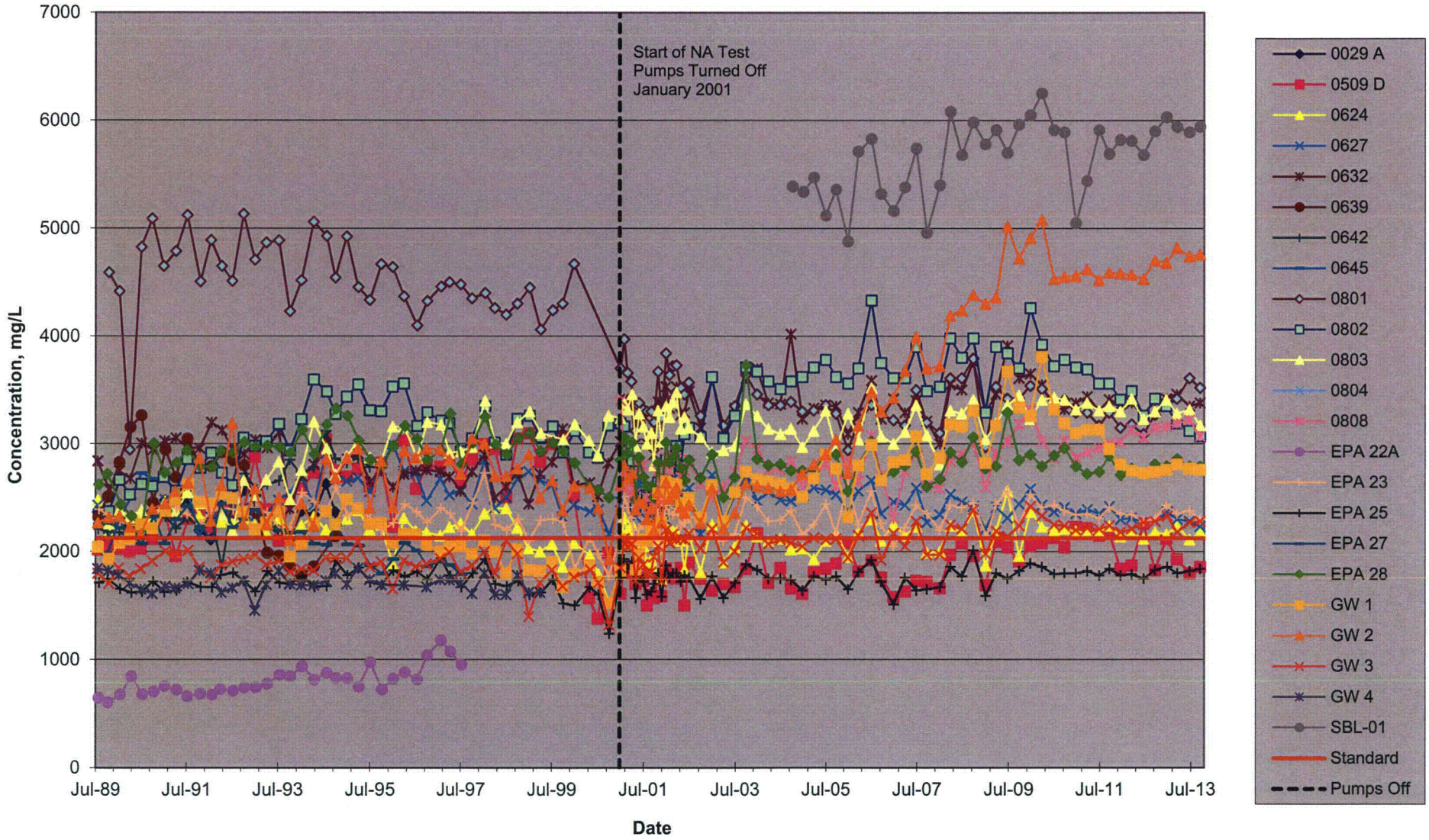
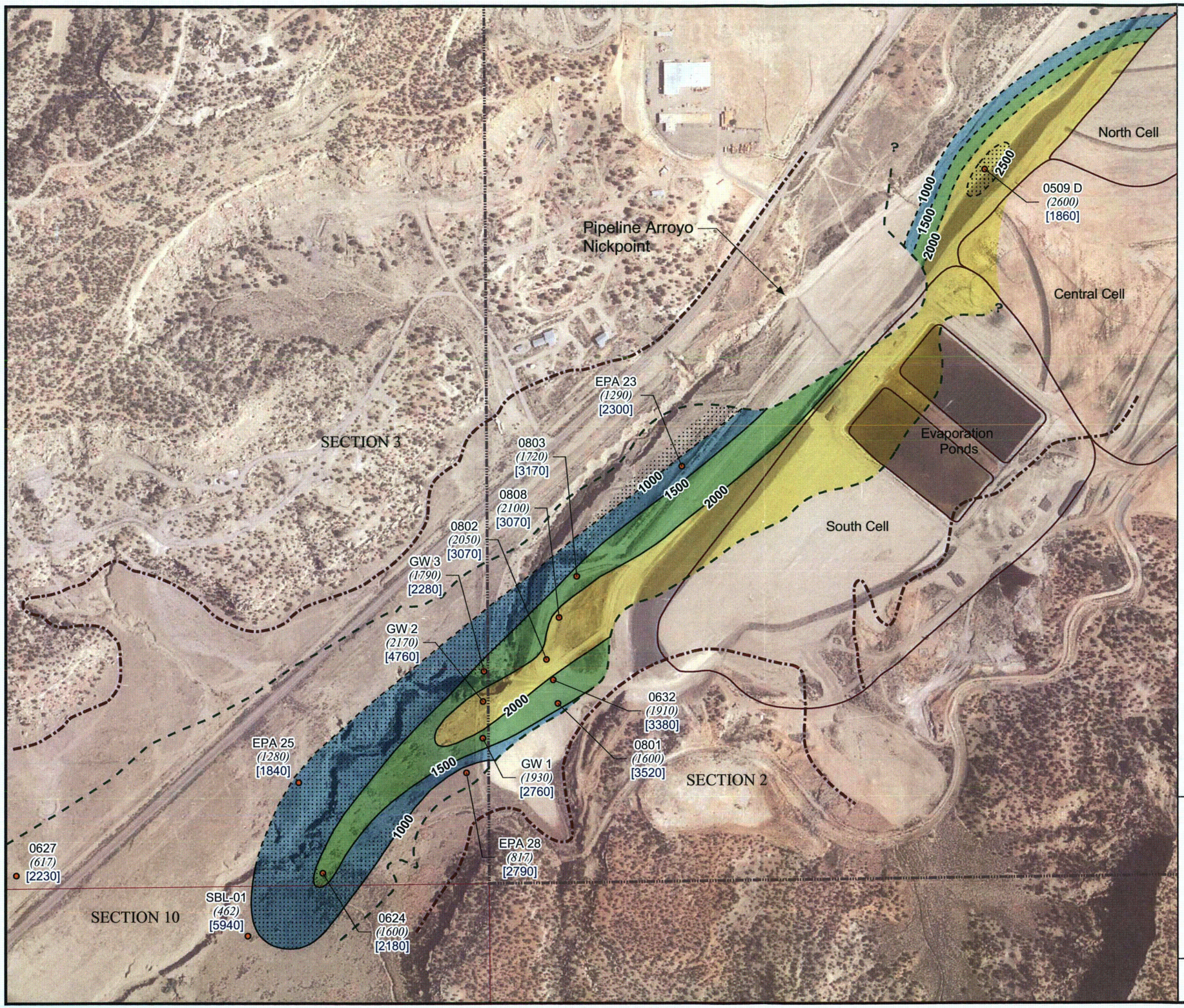
Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2013_annual_report\f06_seepage_extents.mxd; January 17, 2014

FIGURE 7
Southwest Alluvium Sulfate Concentrations Over Time
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico





Legend

- Southwest Alluvium Well
- Approximate Extent of Saturated Alluvium
- Approximate Extent of Alluvium
- Bicarbonate Isoconcentration Contour in mg/L
- Inferred Bicarbonate Isoconcentration Contour in mg/L

Bicarbonate Concentrations (mg/L)

- 1000 - 1500
- 1500 - 2000
- >2000
- Property Boundary
- Section Boundary
- Tailings Pond
- Sulfate Below 2125 mg/L
- *(2350)* Bicarbonate result in mg/L
- [3580] Sulfate result in mg/L

Notes:

1. Well names are displayed with black text.
2. Aerial photo taken on August 1, 1996.

0 250 500 1,000
Feet

FIGURE 8

Southwest Alluvium Bicarbonate Isoconcentration Map and Distribution of Sulfate Below 2125 mg/L, September and October 2013

United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

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Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2013_annual_report\f08_swa_sulfate.mxd; January 4, 2014

FIGURE 9

Primary Components of Total Dissolved Solids in the Southwest Alluvium, September-October 2013
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

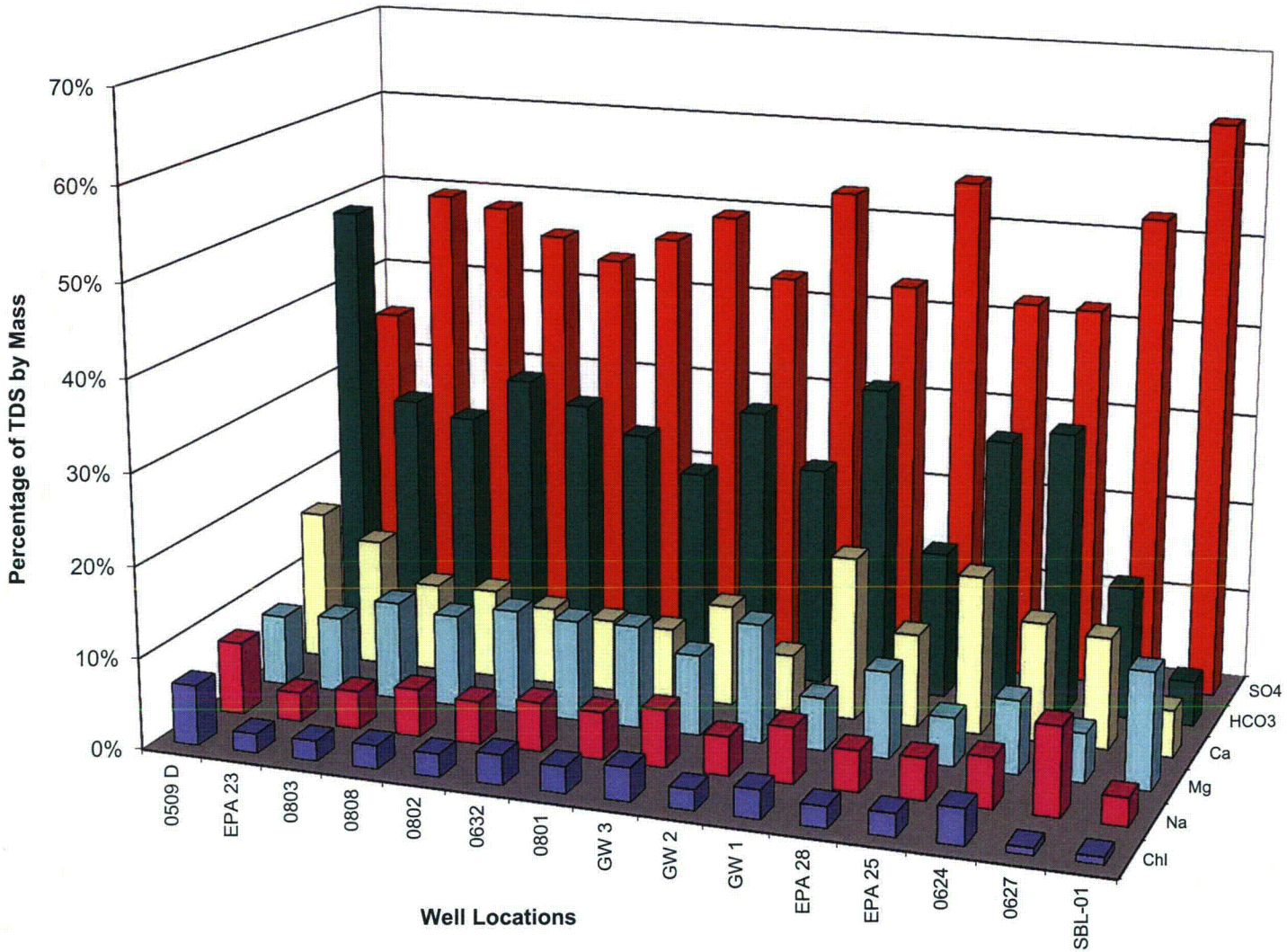


FIGURE 10

Southwest Alluvium Chloride Concentrations From 1999 Through October 2013
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

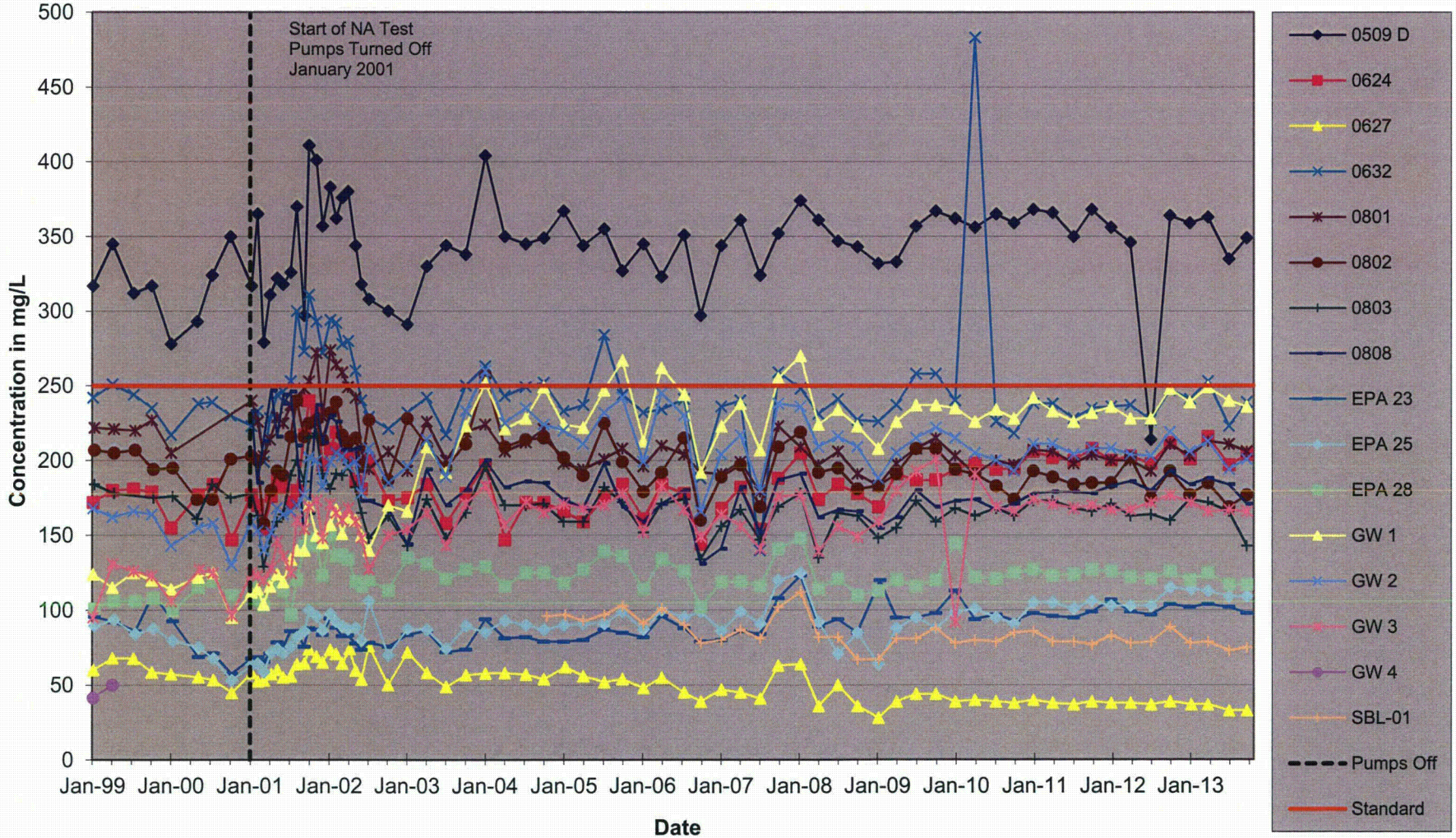


FIGURE 11

Southwest Alluvium Manganese Concentrations From 1999 Through October 2013
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

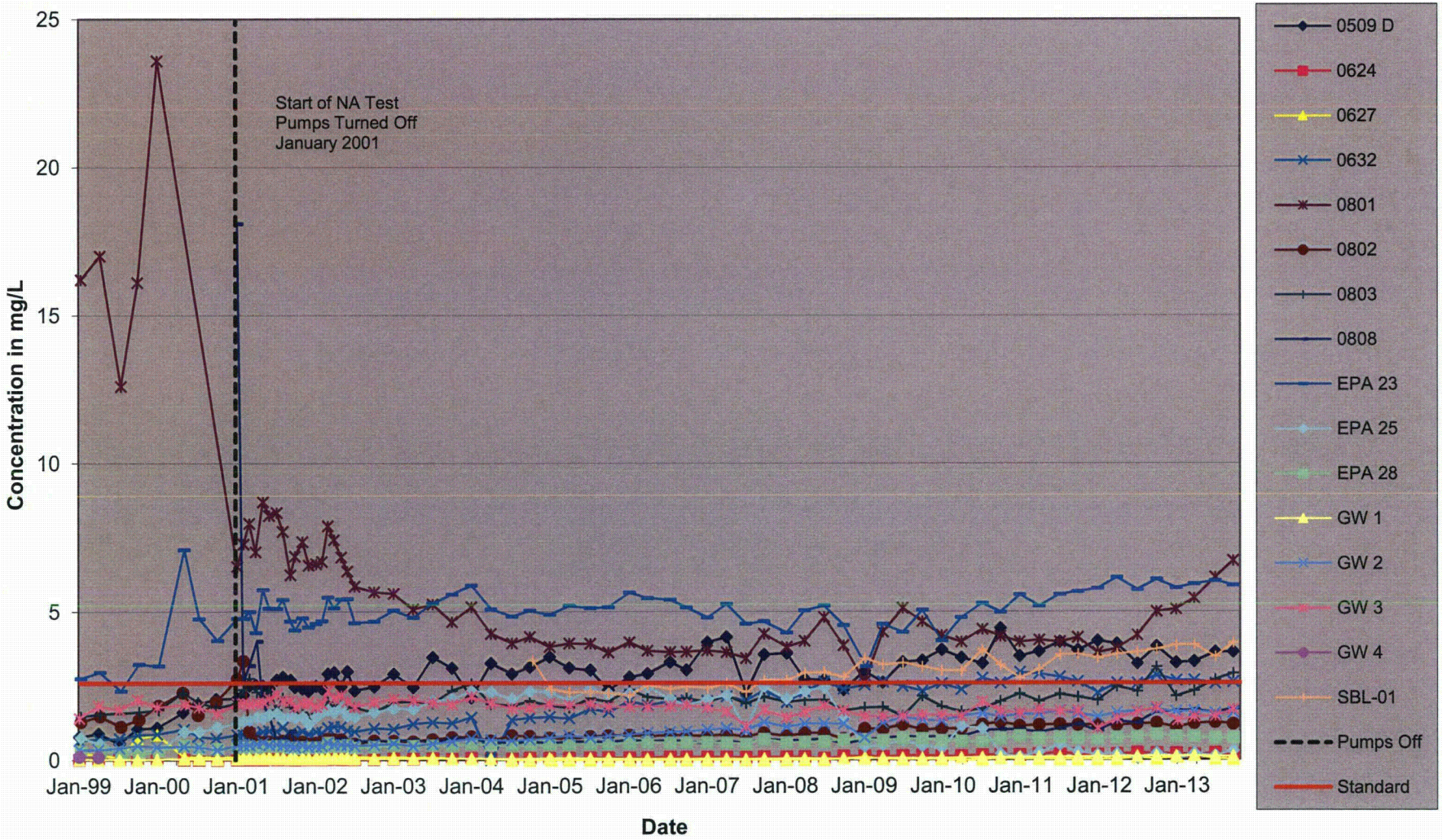


FIGURE 12
Southwest Alluvium Total Dissolved Solids Concentrations Over Time
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

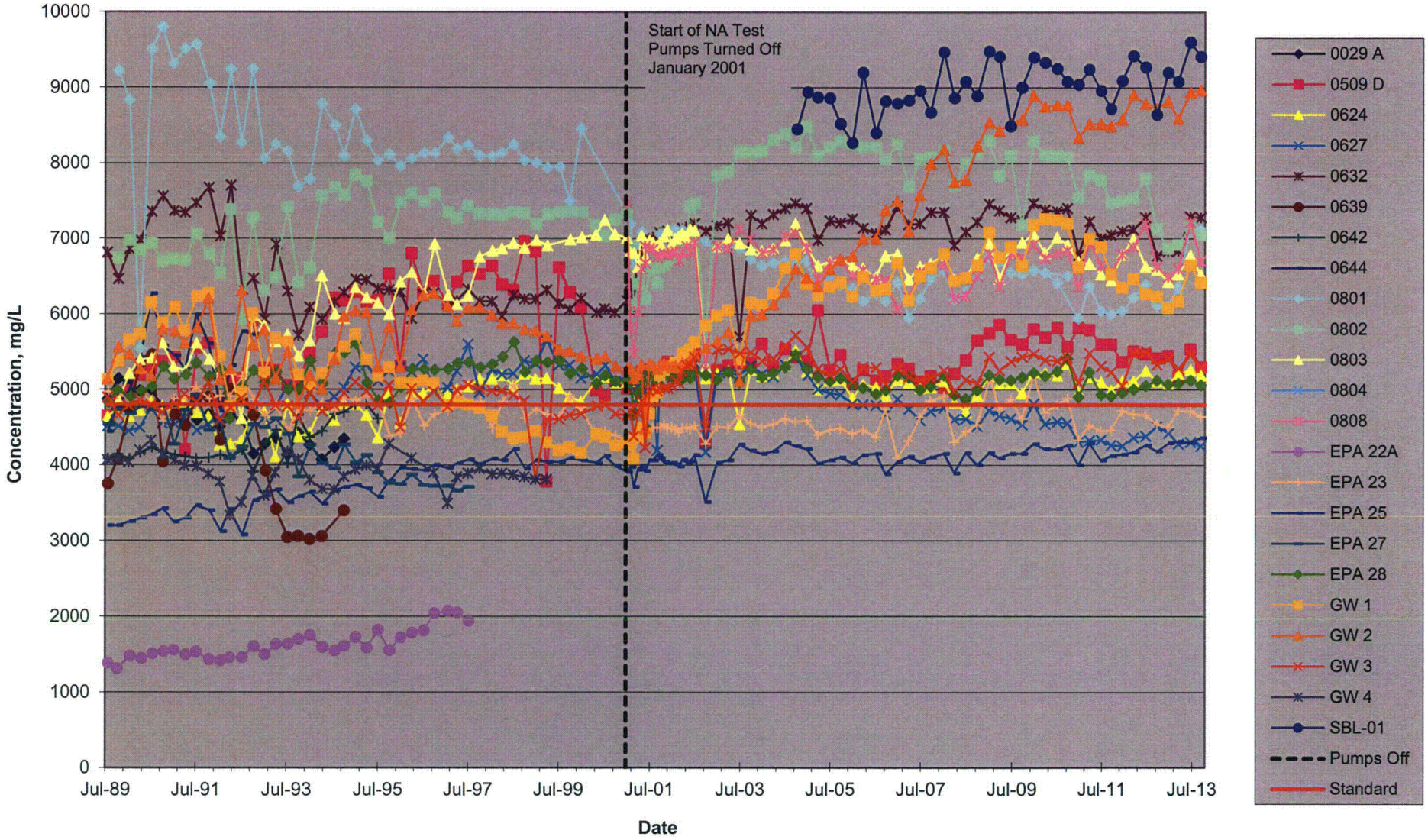


FIGURE 13

Calcium and Bicarbonate Concentrations in Selected Backgound and Seepage-Impacted Wells
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

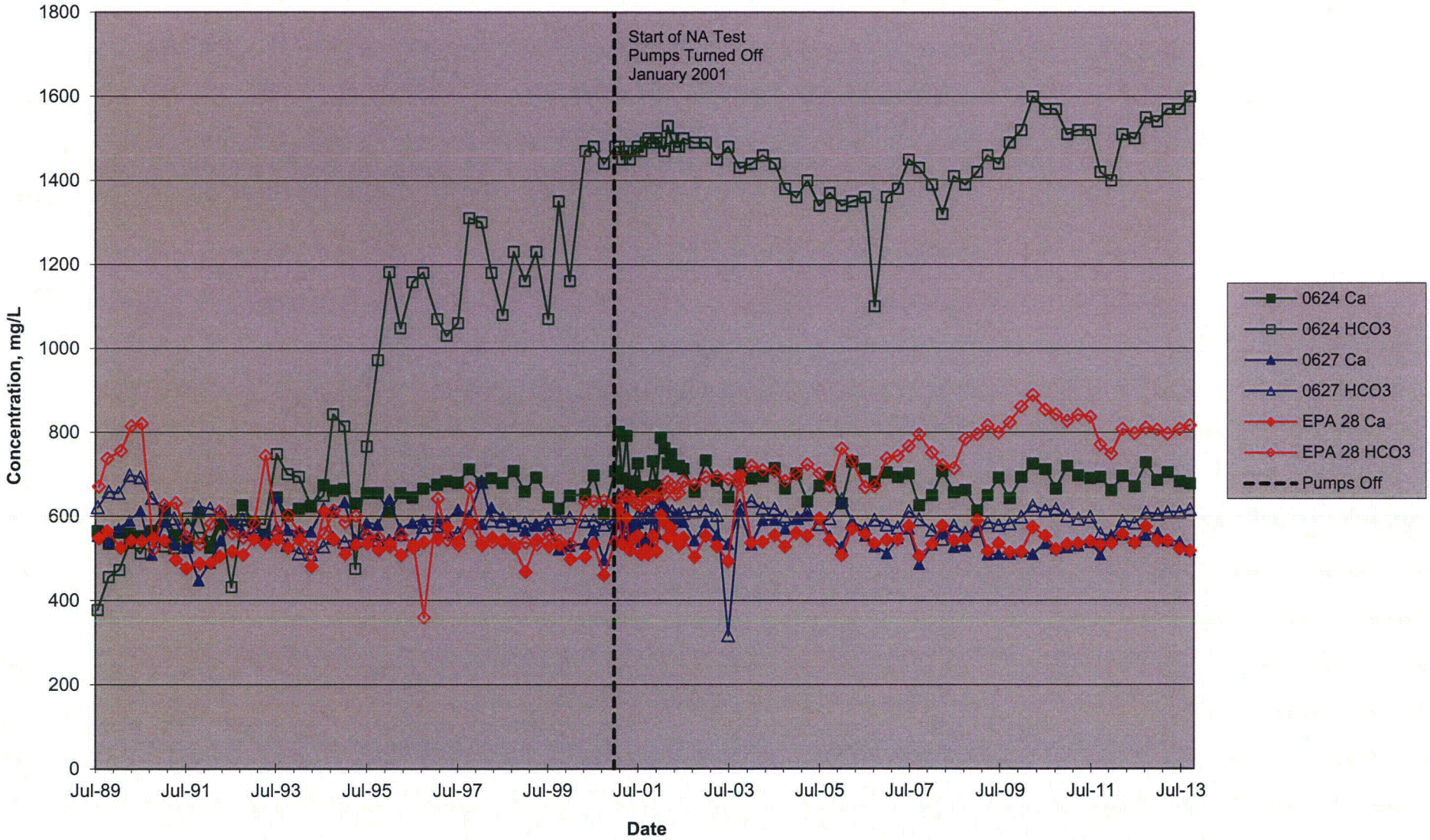


FIGURE 14

Southwest Alluvium Calcium Concentrations From 1999 Through October 2013
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

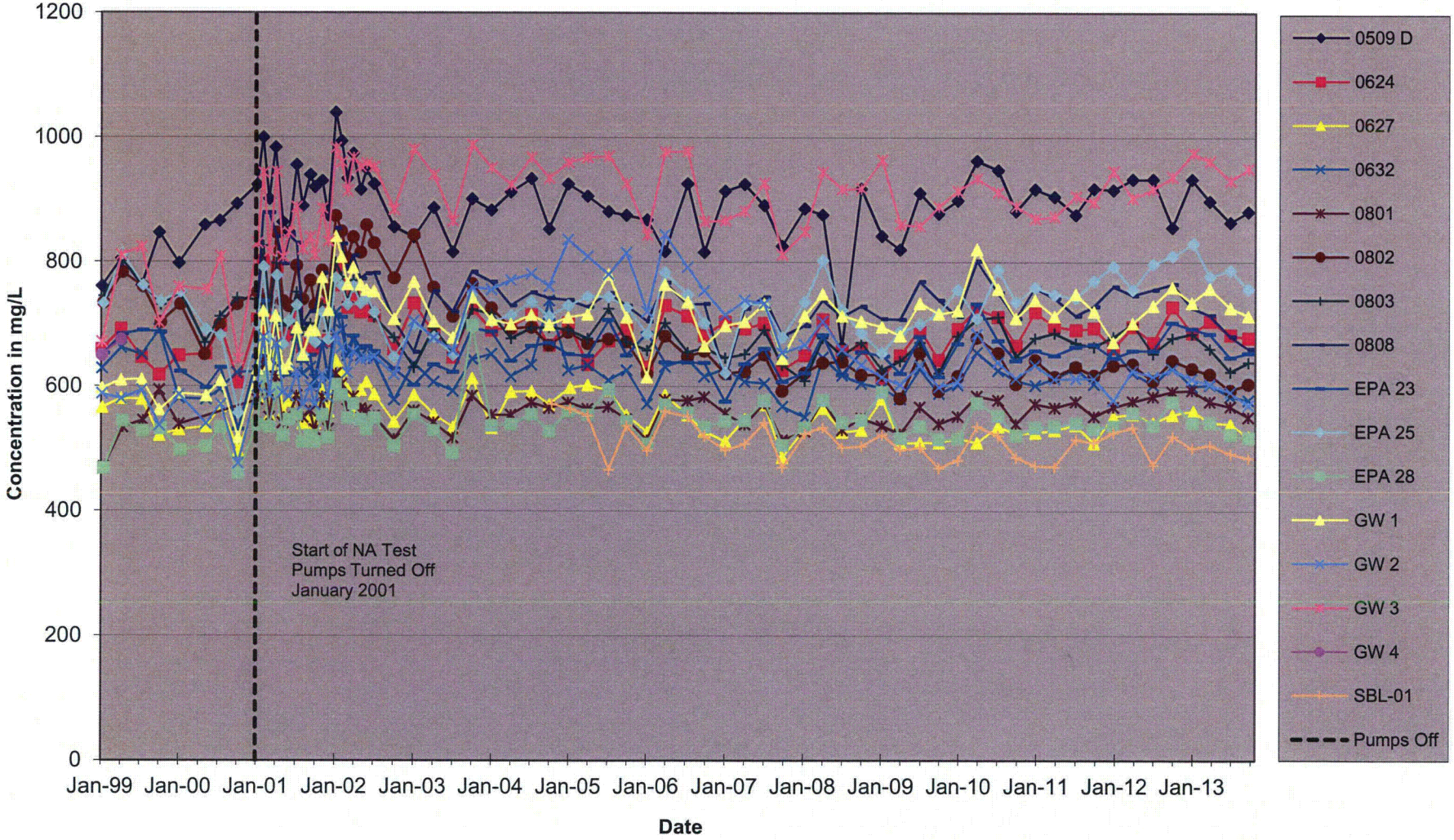


FIGURE 15

Southwest Alluvium Bicarbonate Concentrations From 1999 Through October 2013
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

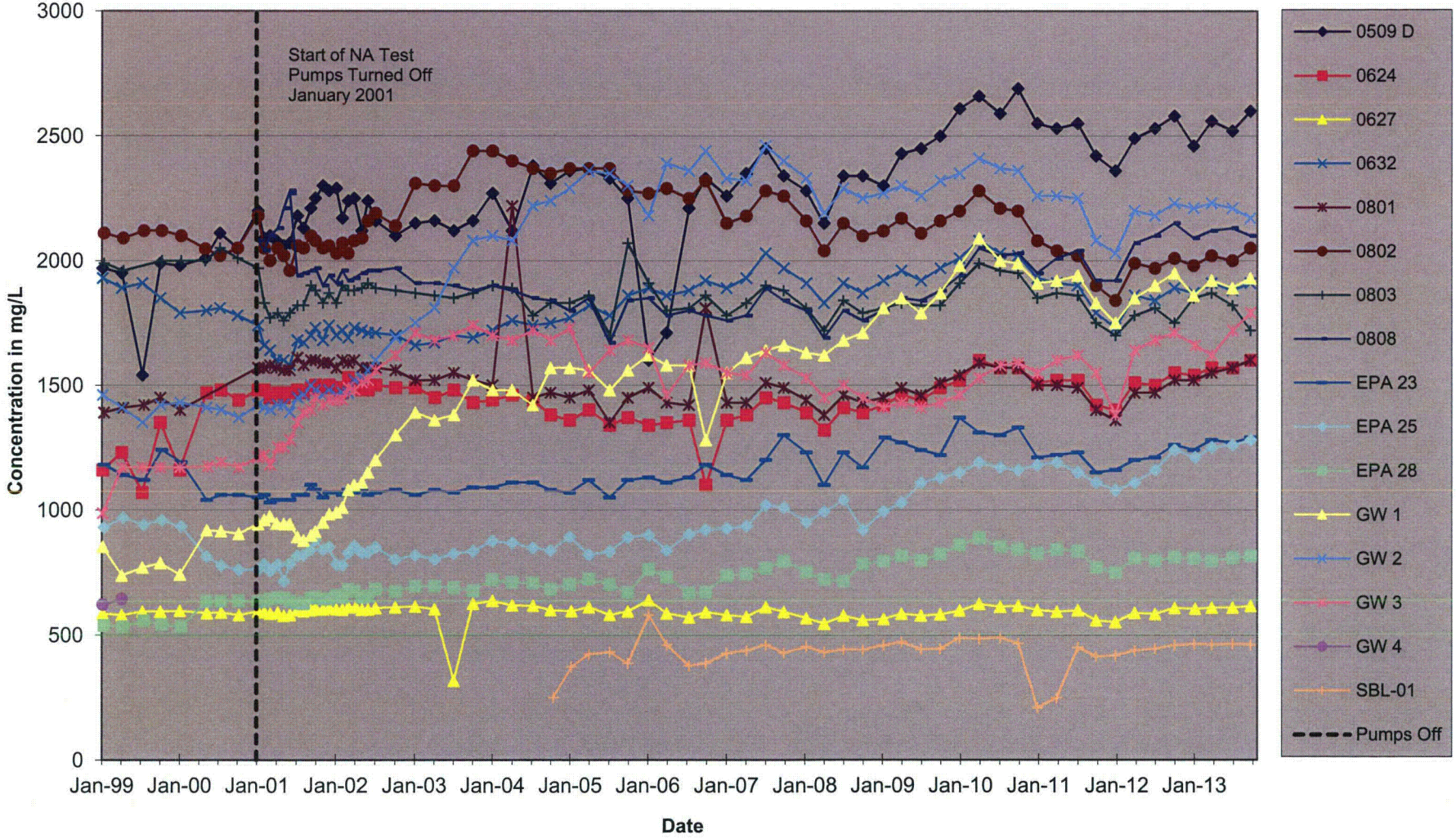


FIGURE 16

Southwest Alluvium Sulfate Concentrations From 1999 Through October 2013

United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

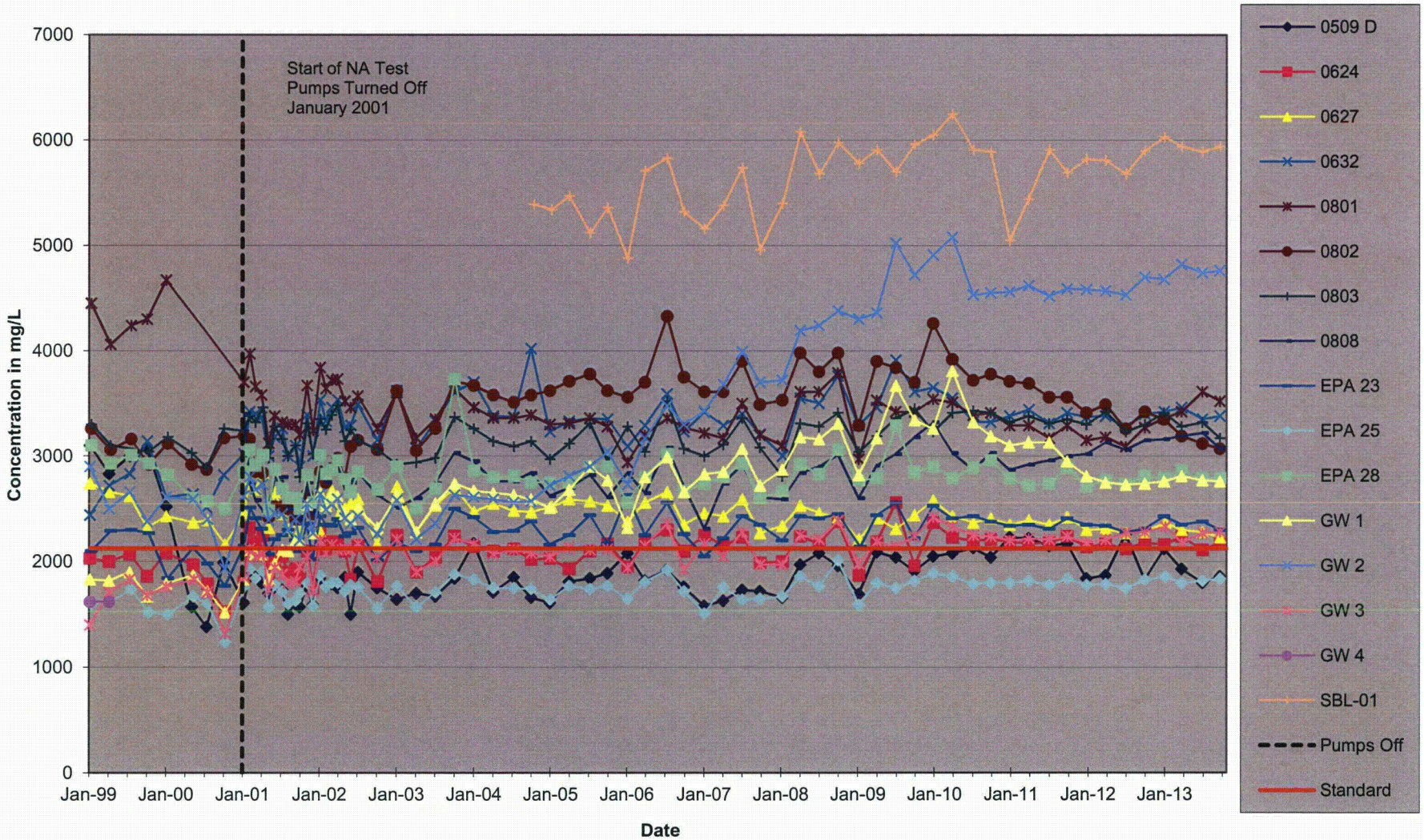


FIGURE 17

Southwest Alluvium Total Dissolved Solids Concentrations From 1999 Through October 2013
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

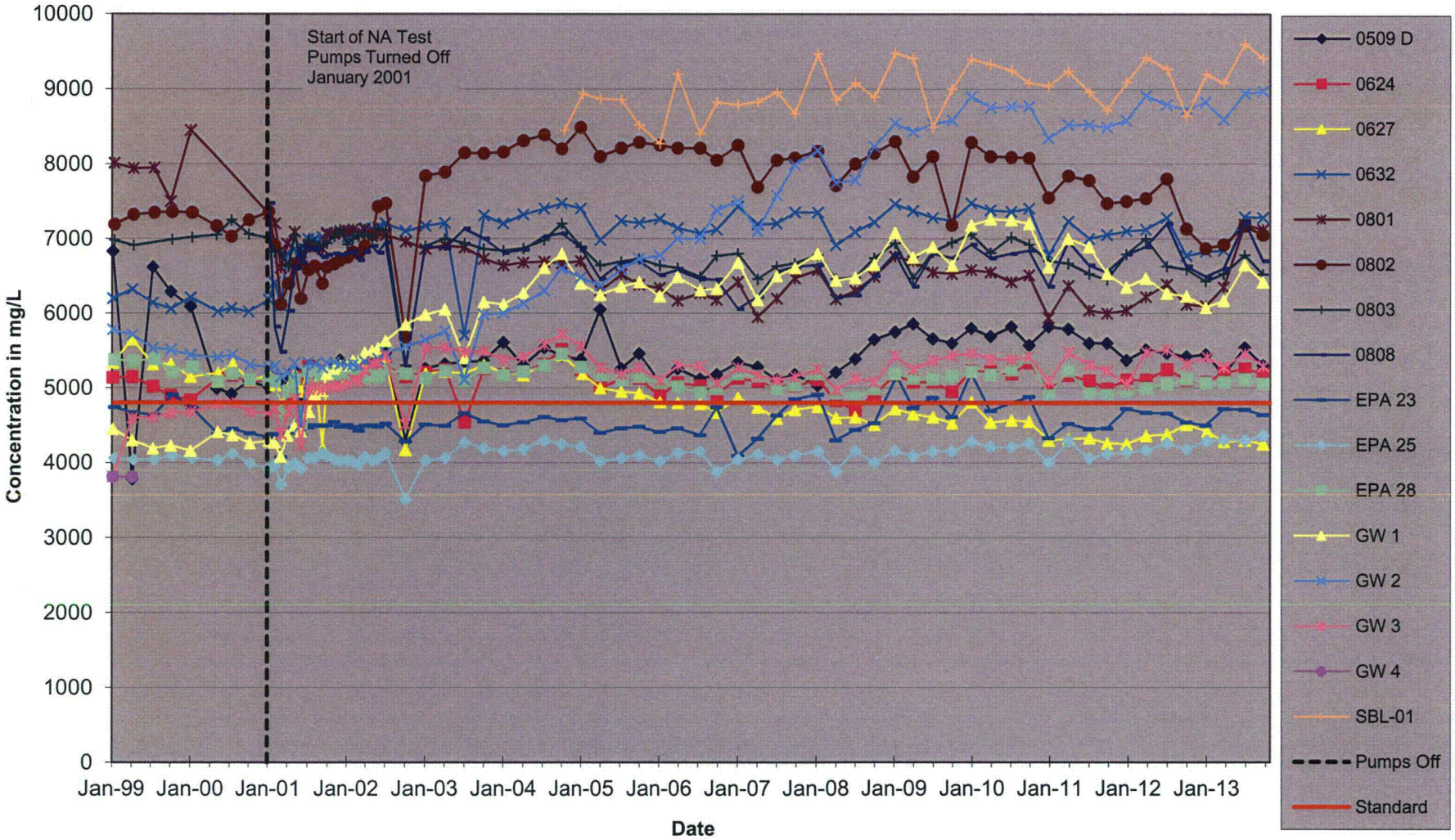


FIGURE 18
Uranium Concentrations in Selected Southwest Alluvium Wells
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

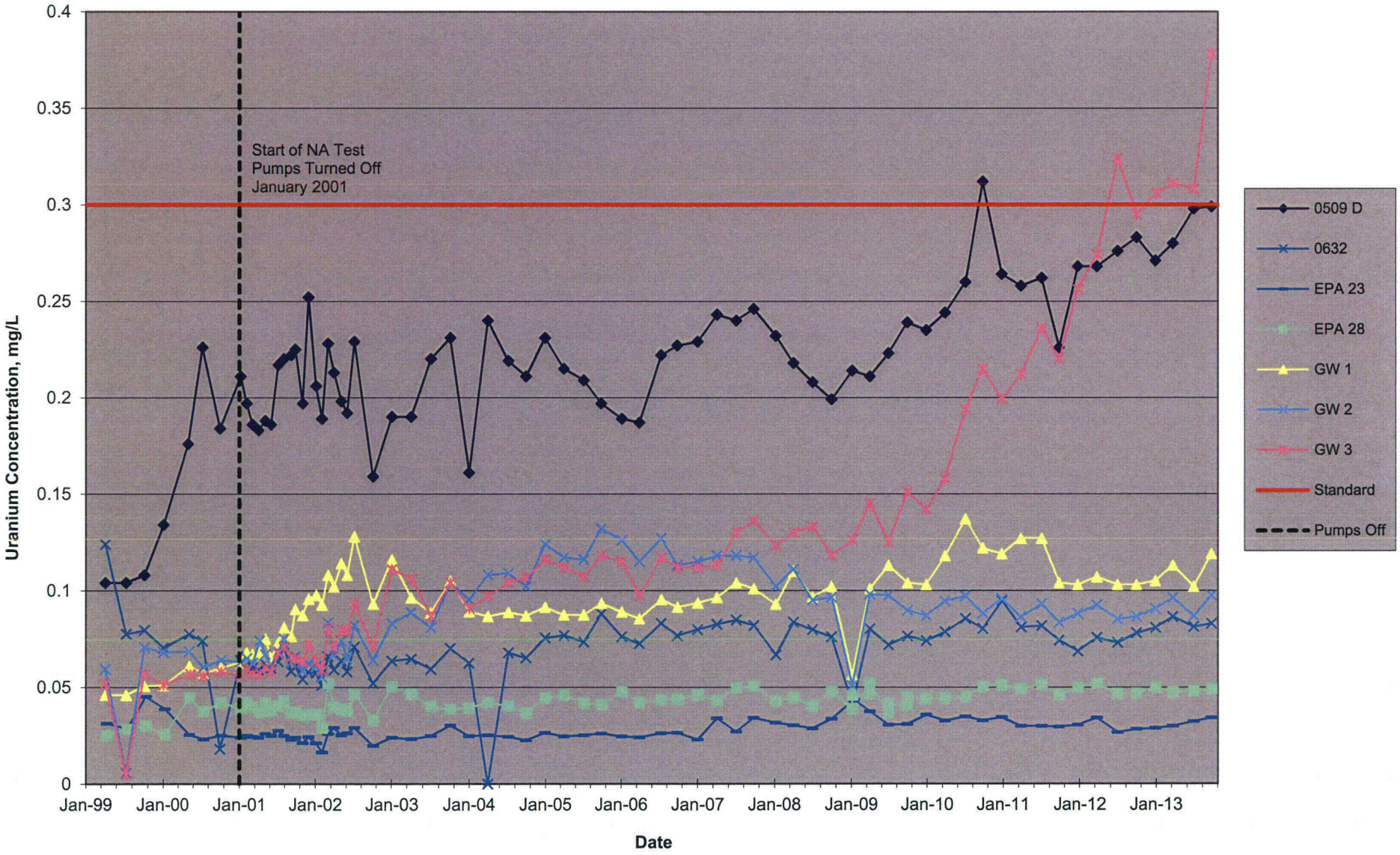


FIGURE 19
Uranium Concentrations in Selected Southwest Alluvium Wells
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

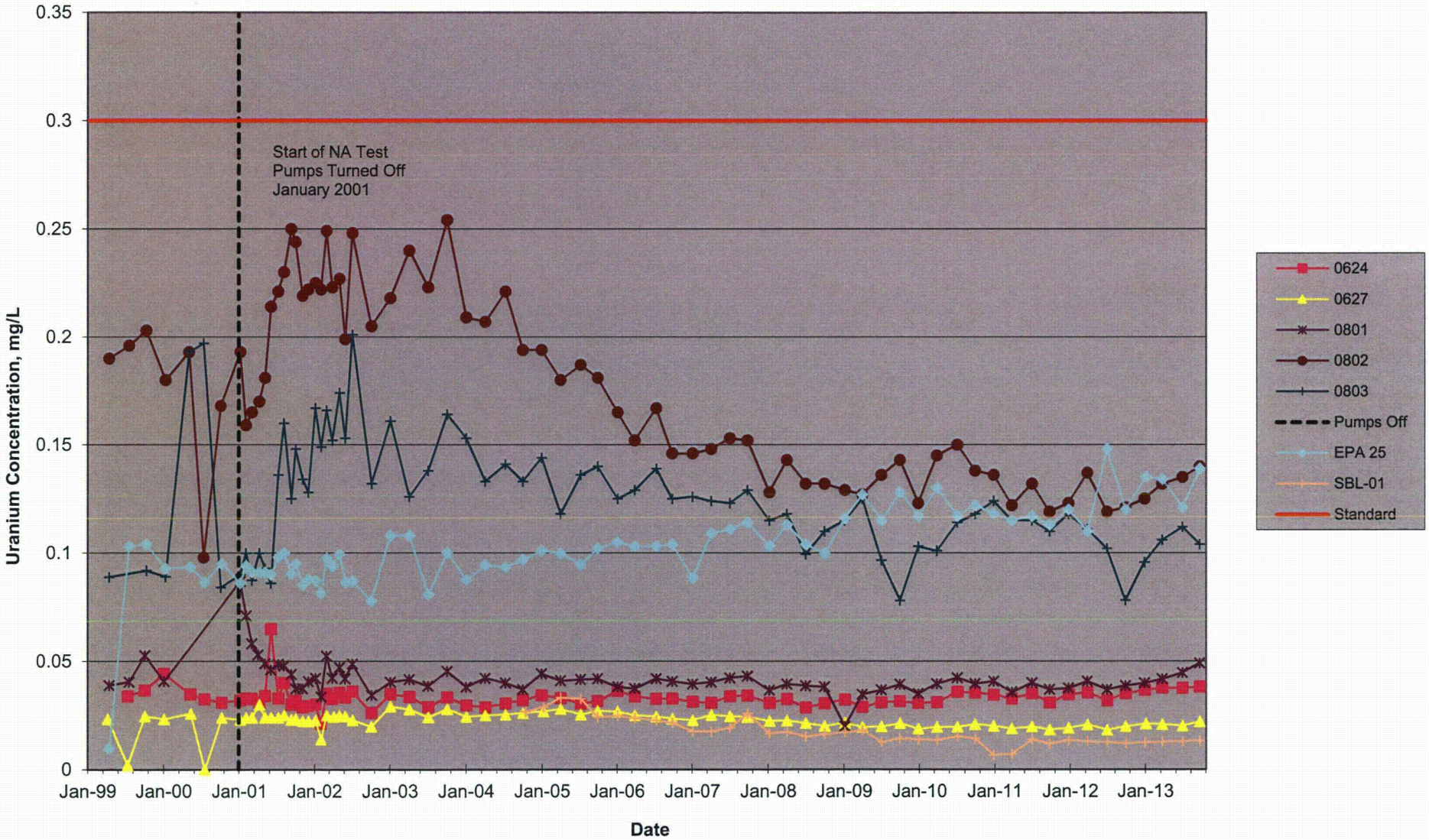


FIGURE 20
Uranium Concentrations in Well 509 D
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

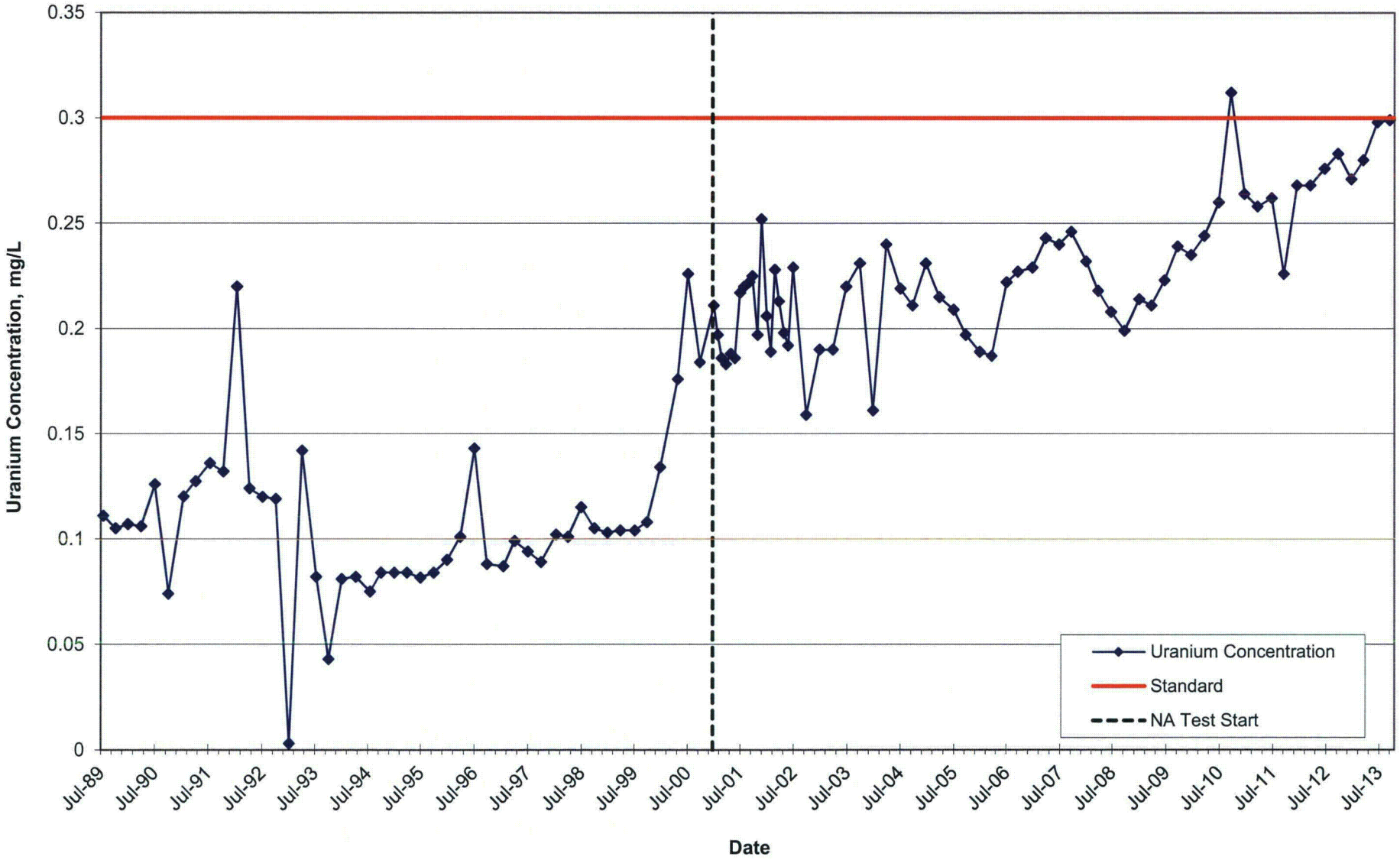


FIGURE 21
Uranium Concentrations in Well 801
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

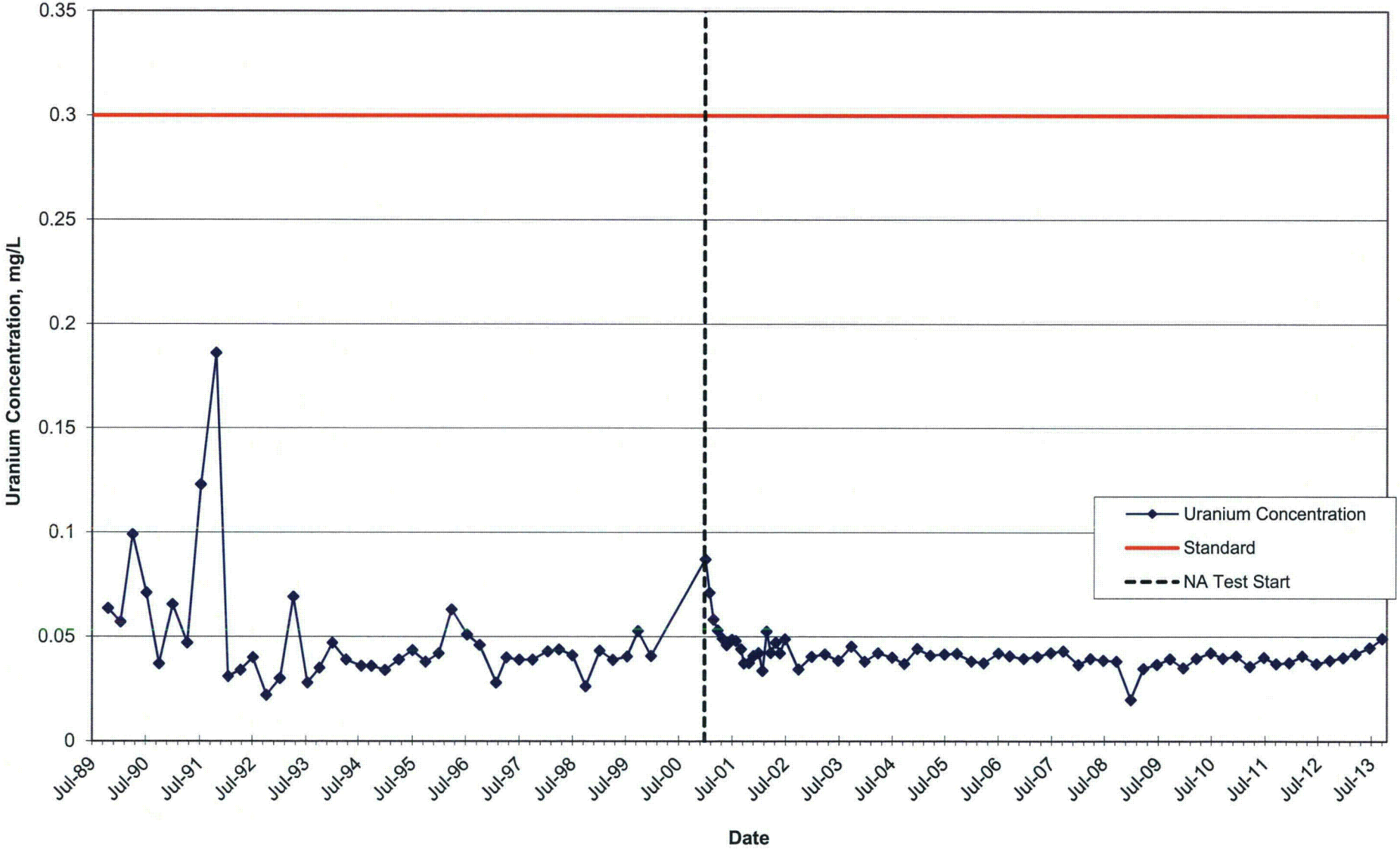


FIGURE 22
Uranium Concentrations in Well 802
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

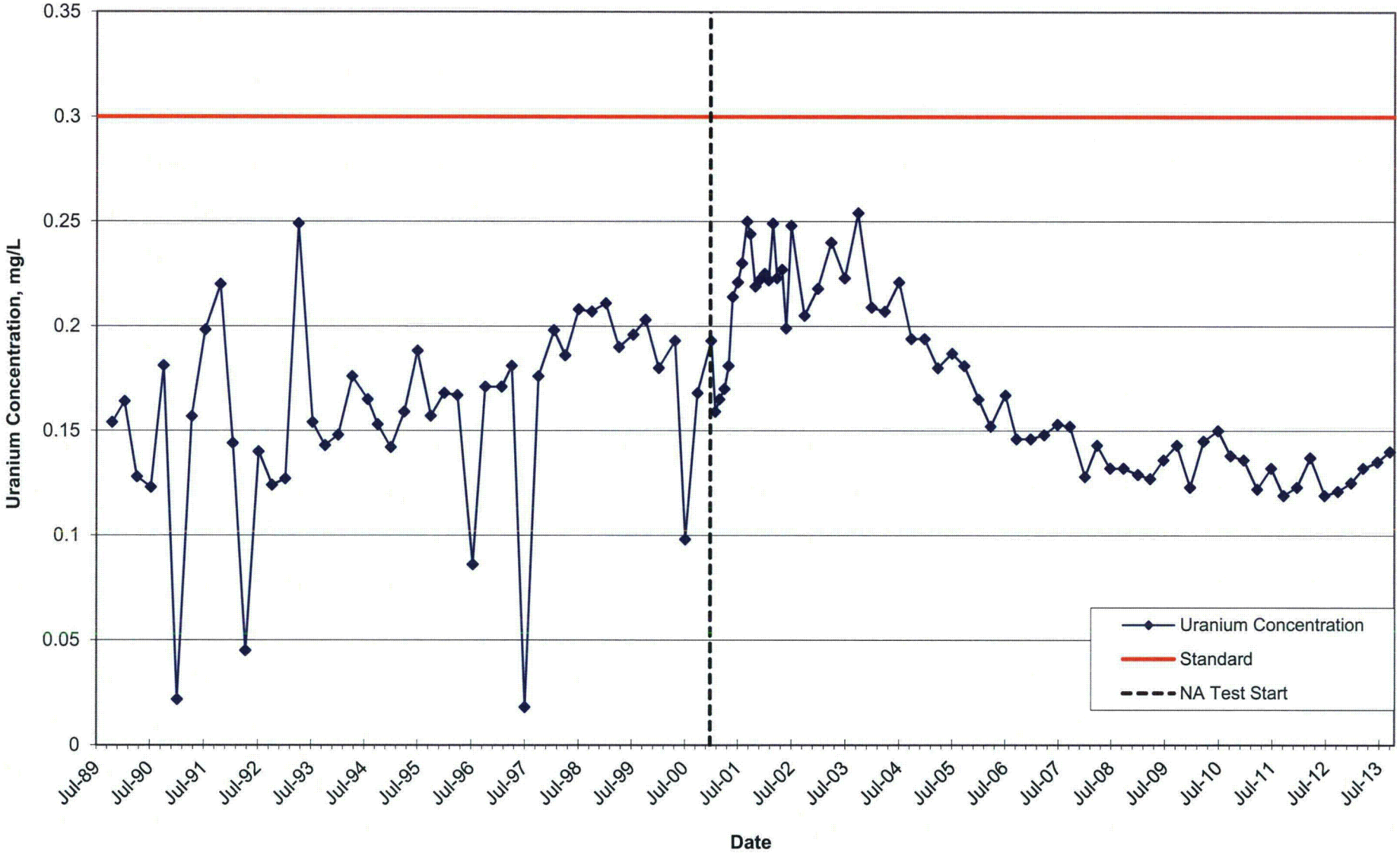


FIGURE 23
Uranium Concentrations in Well 803
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

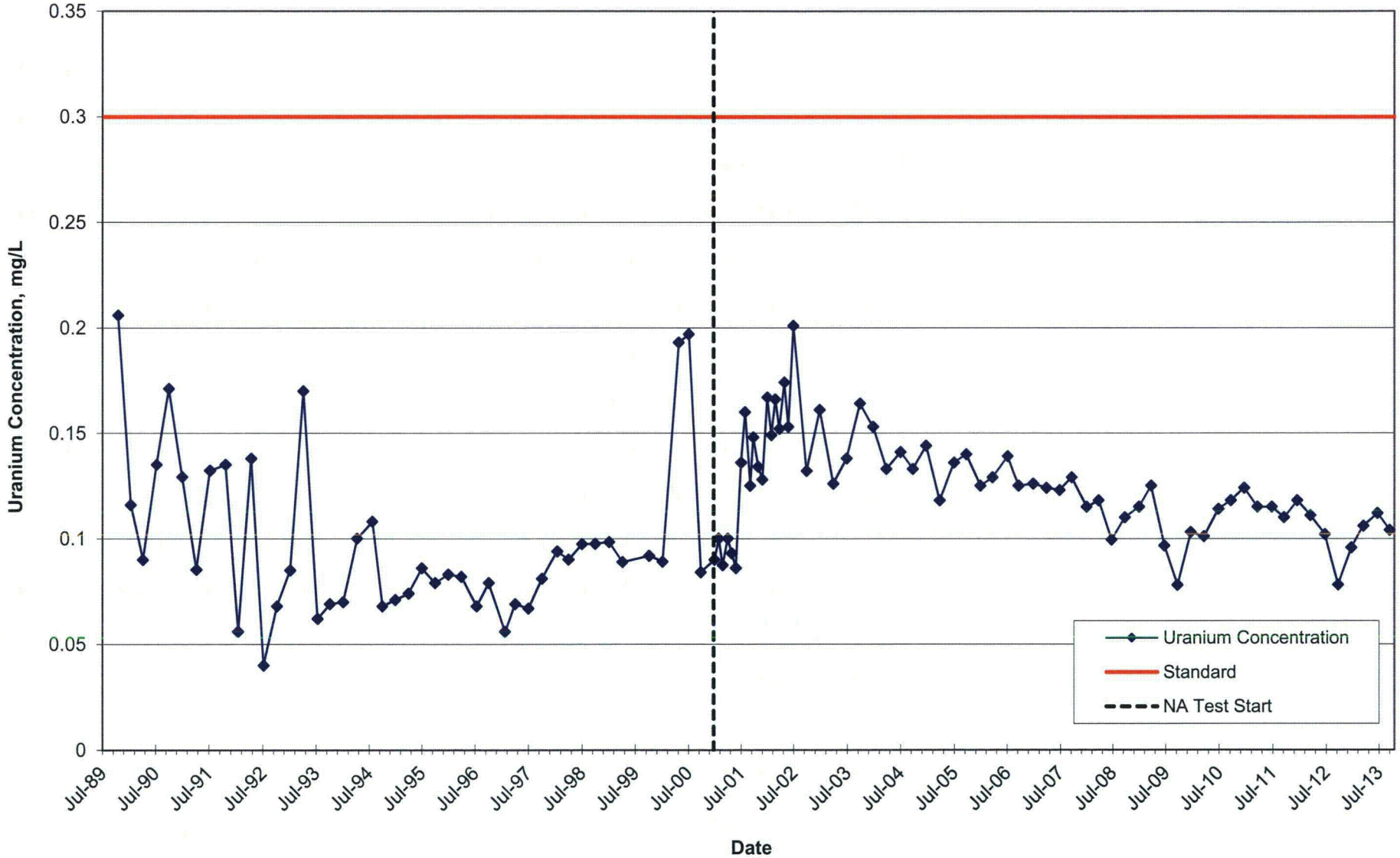


FIGURE 24
Uranium and Bicarbonate Concentrations in Well GW 1
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

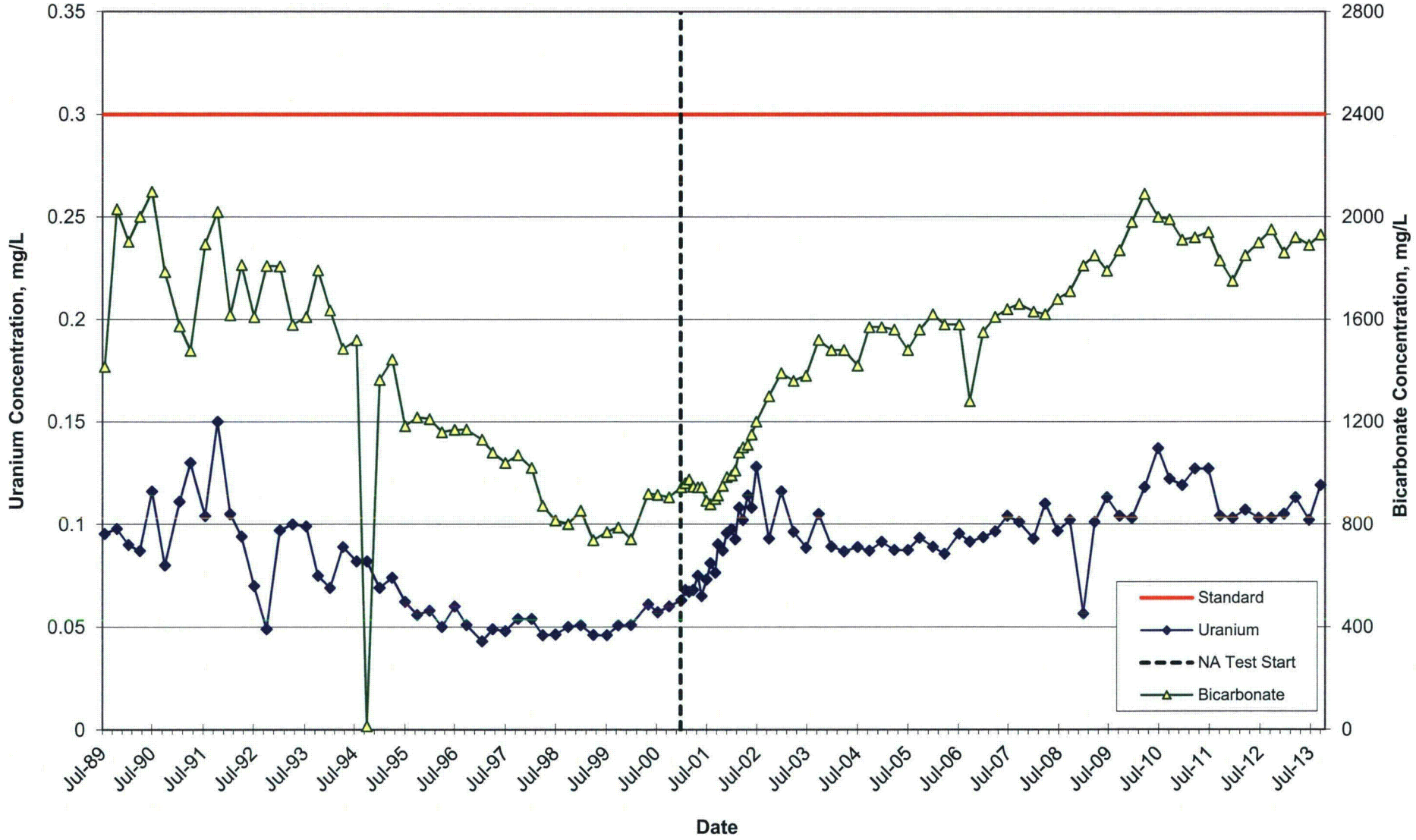


FIGURE 25
Uranium Concentrations in Well GW 2
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

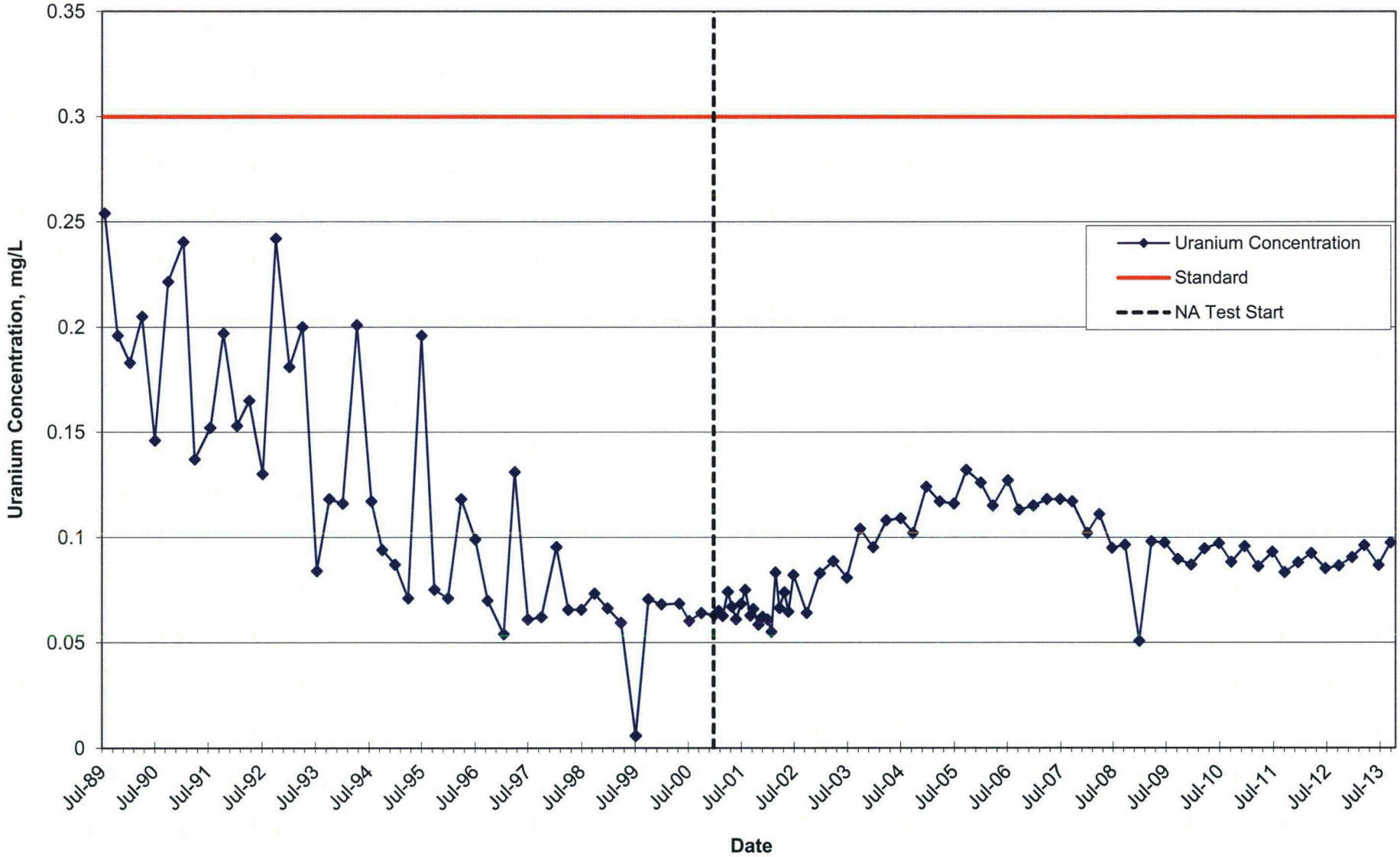


FIGURE 26
Uranium and Bicarbonate Concentrations in Well GW 3
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

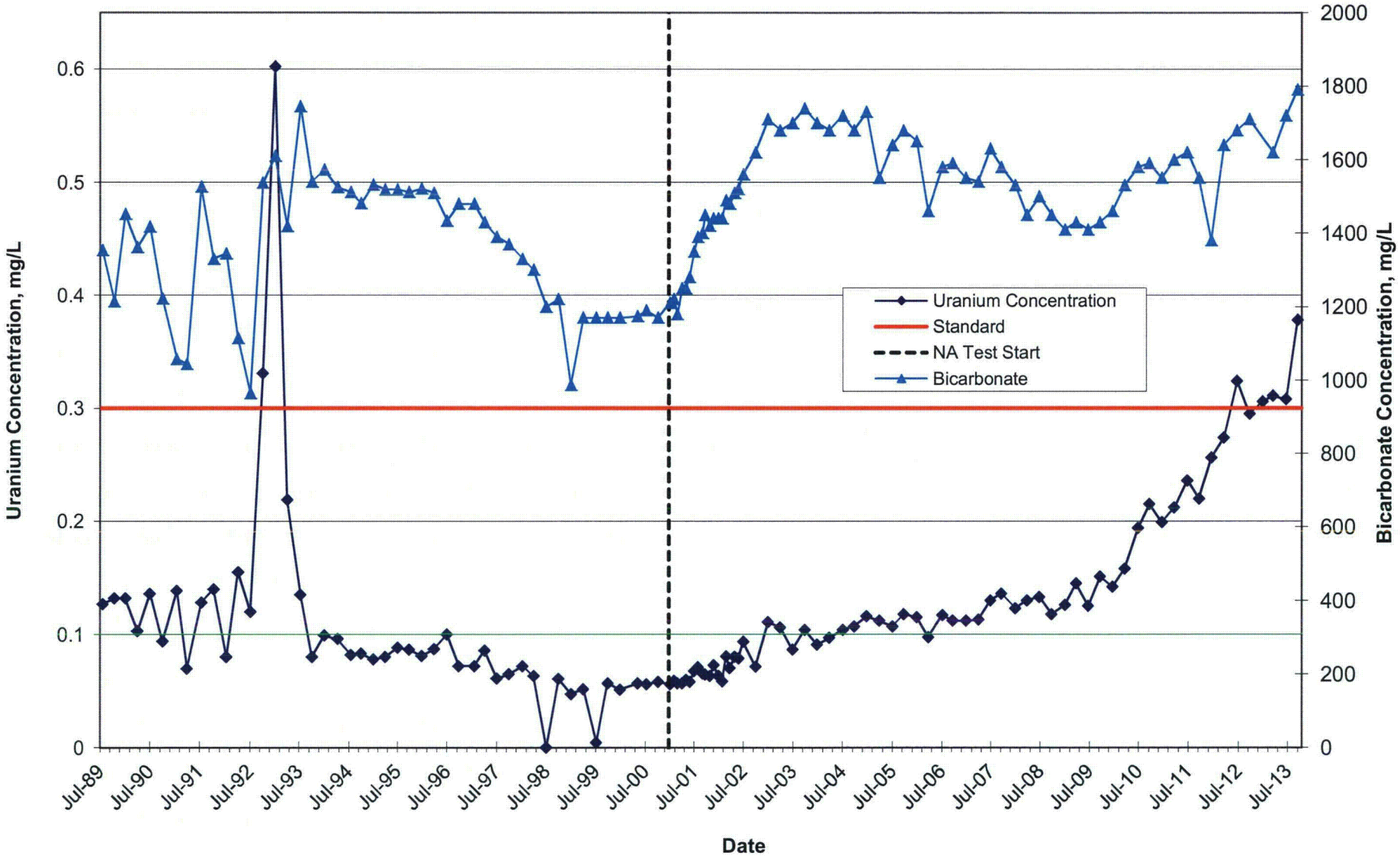


FIGURE 27
Uranium and Bicarbonate Concentrations in Well 624
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

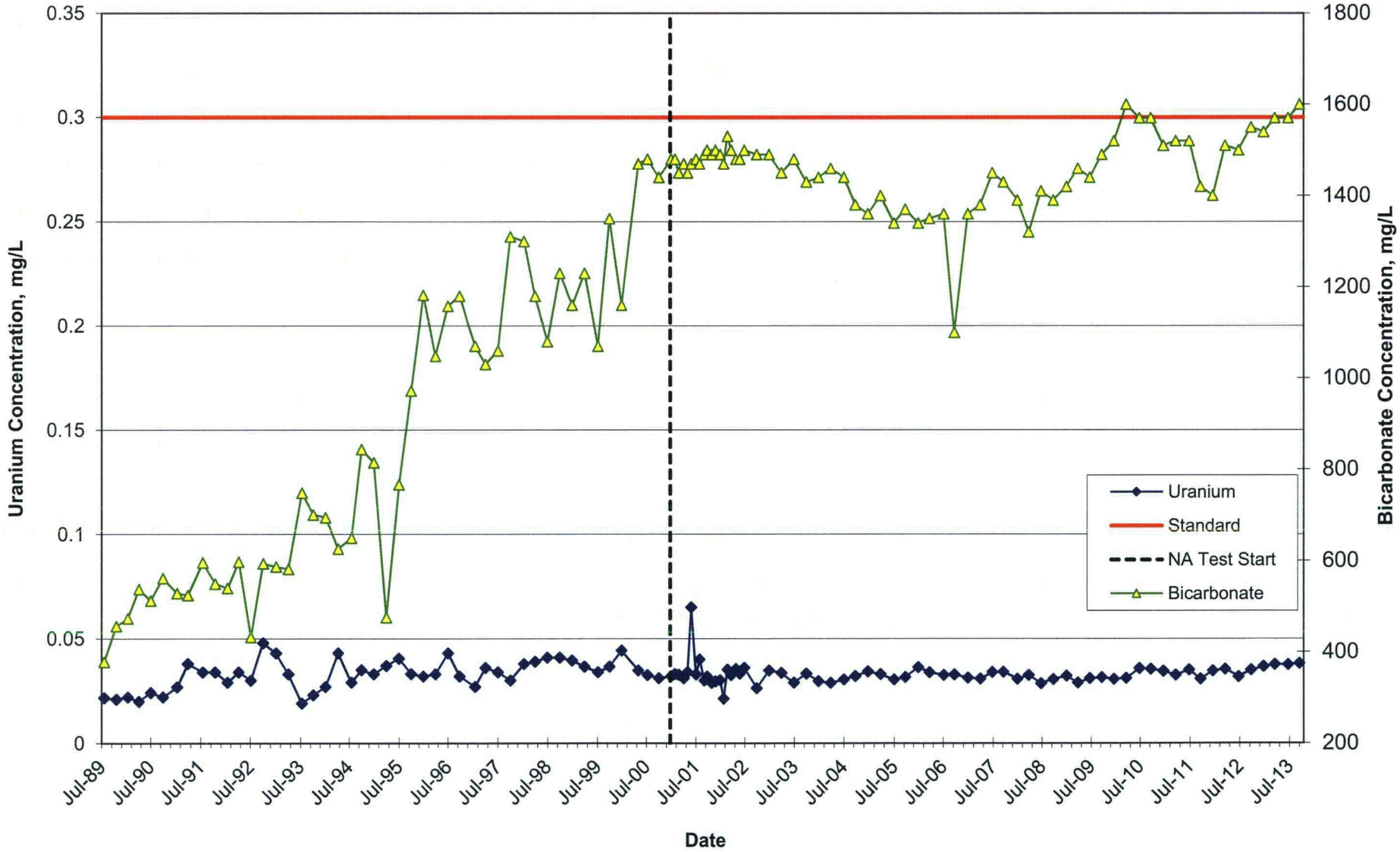


FIGURE 28
Uranium Concentrations in Well 632
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

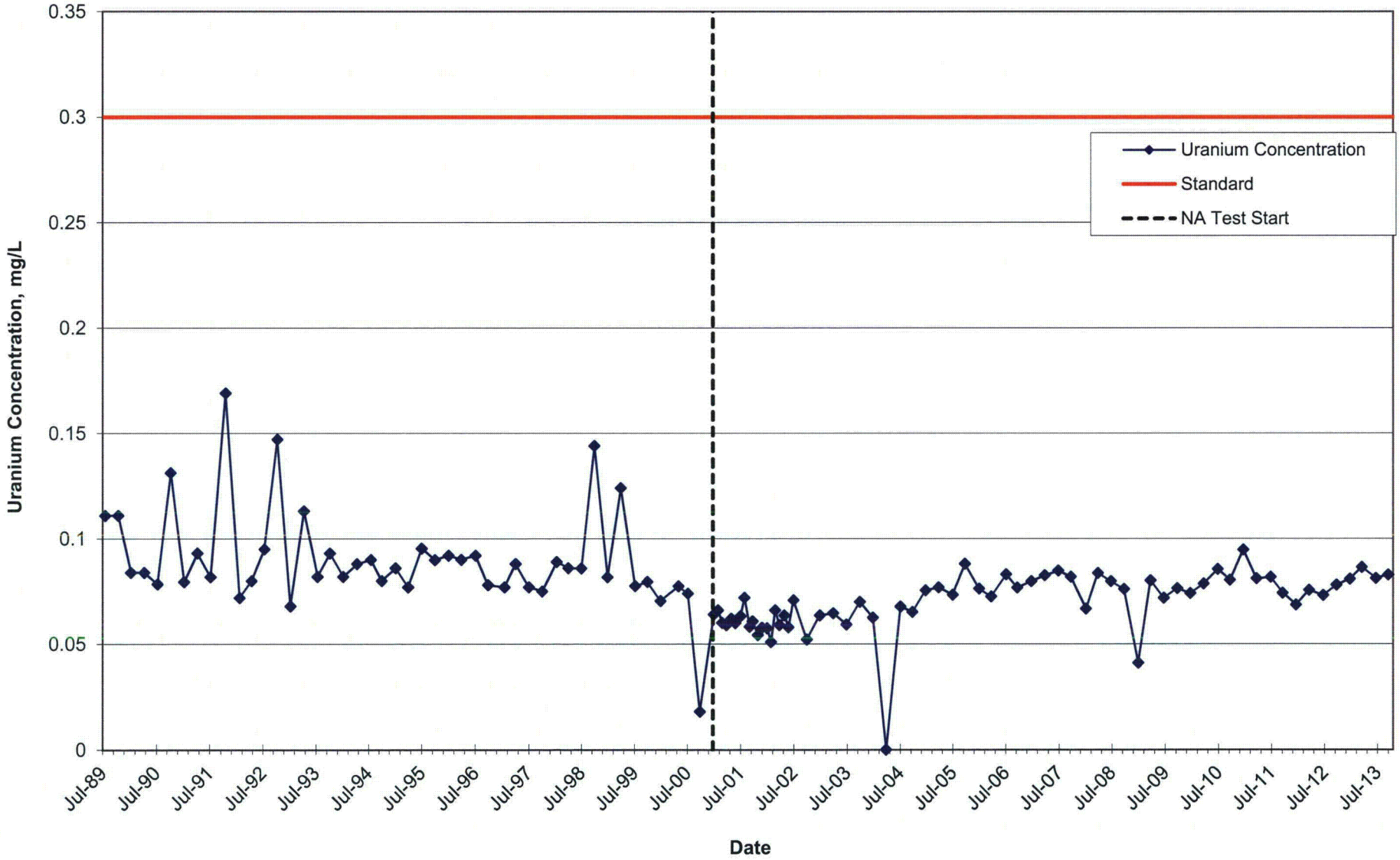


FIGURE 29
Uranium Concentrations in Well 627
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

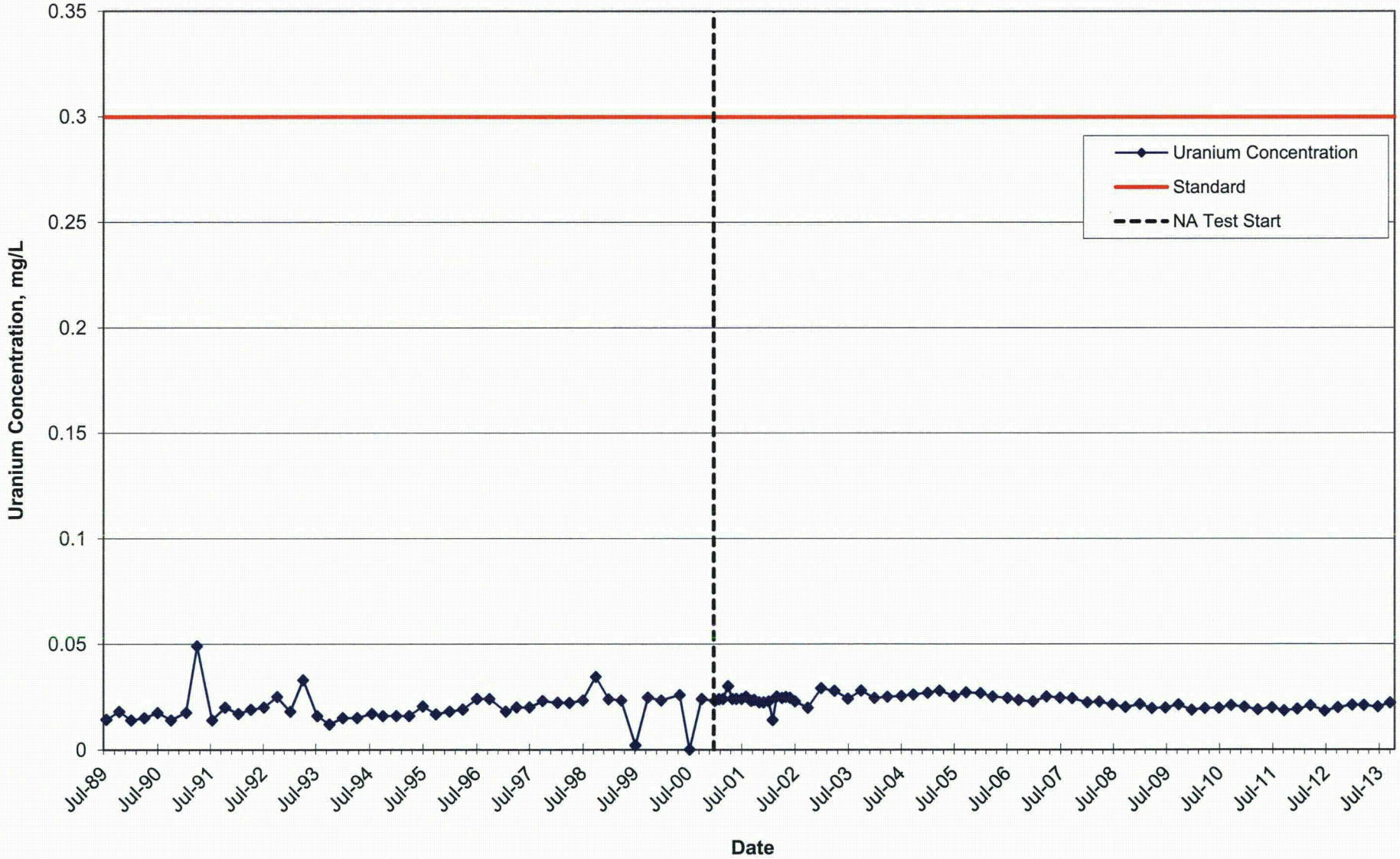


FIGURE 30
Uranium Concentrations in Well 808
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

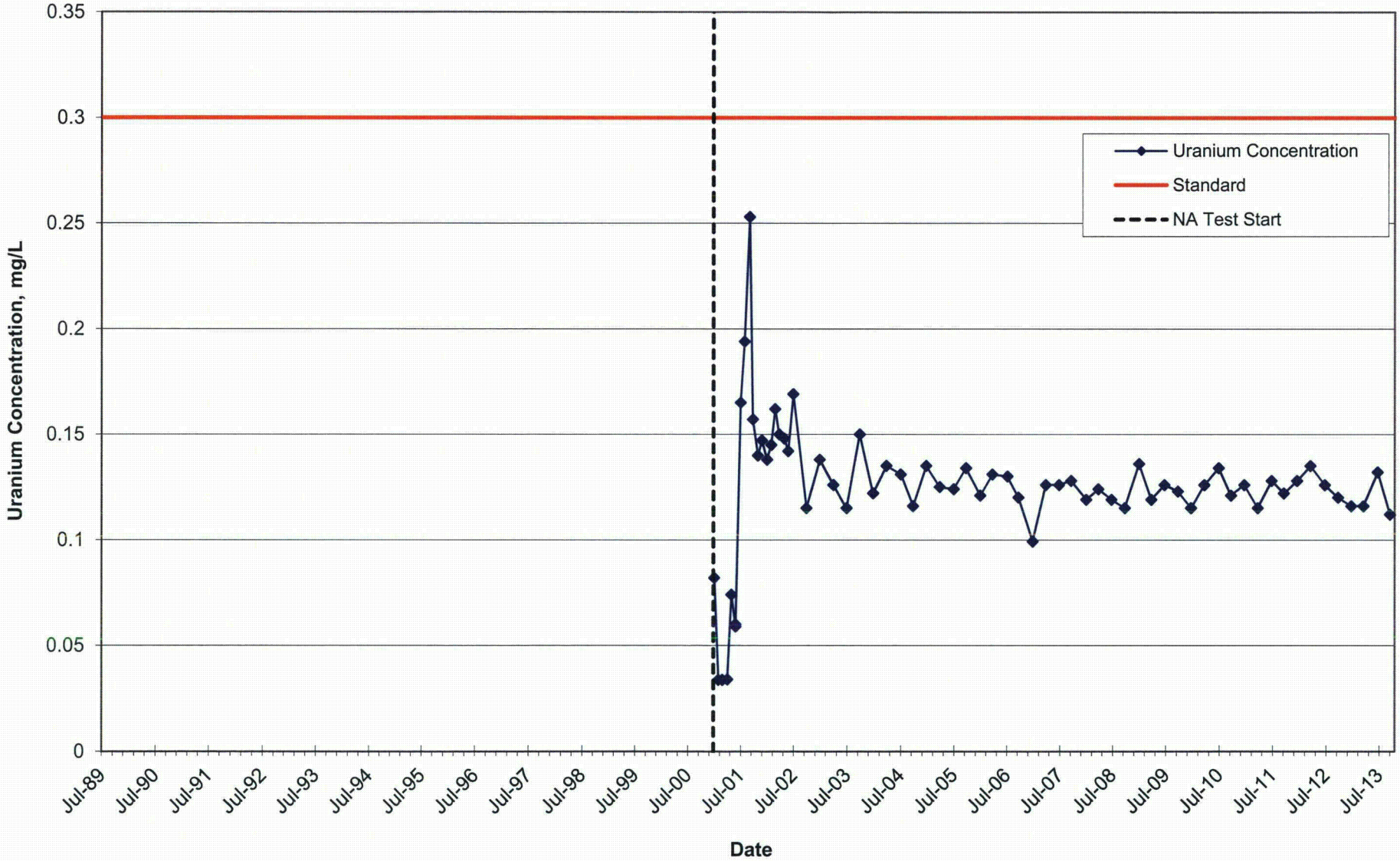


FIGURE 31
Uranium Concentrations in Well EPA 23
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

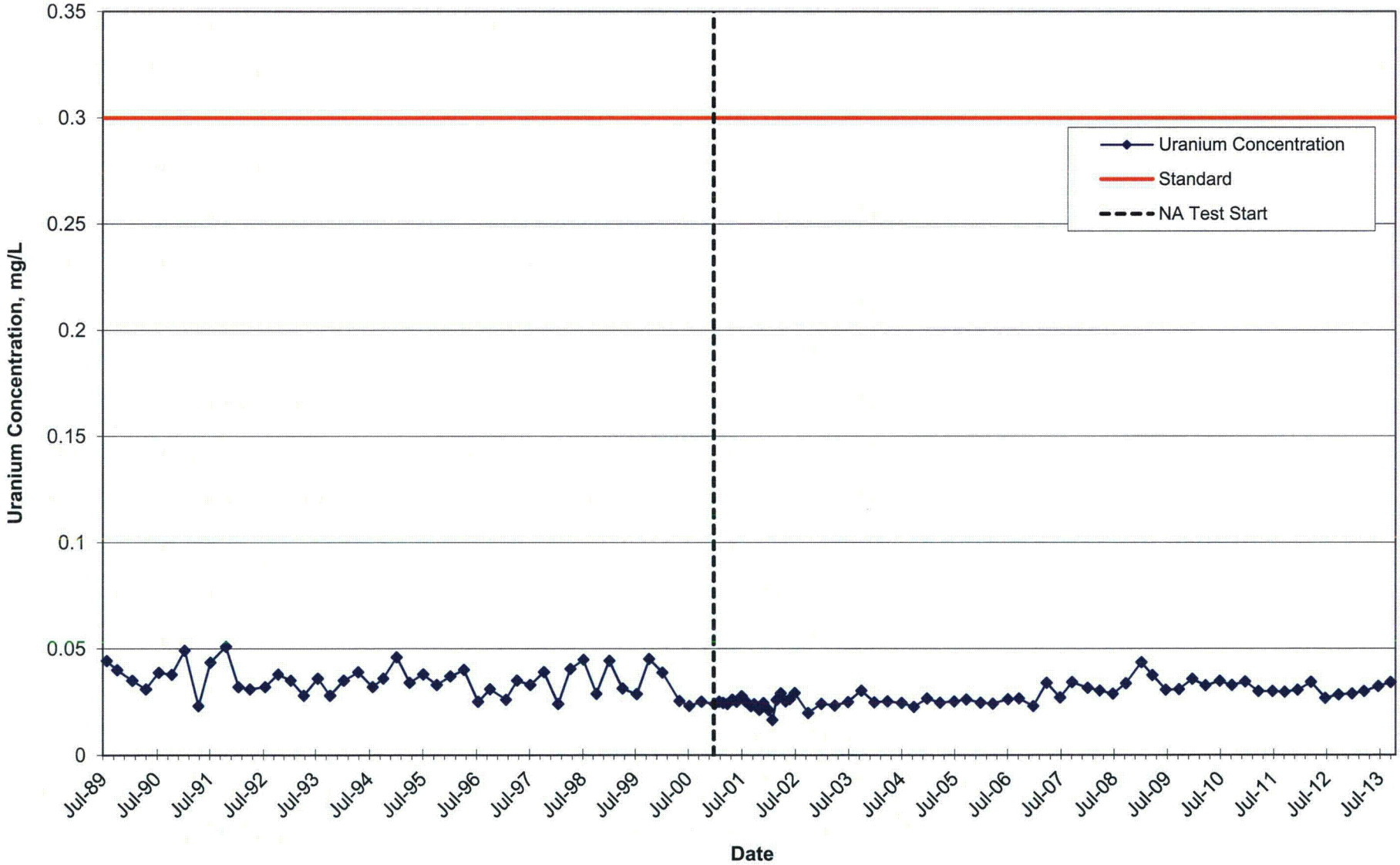


FIGURE 32
Uranium and Bicarbonate Concentrations in Well EPA 25
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

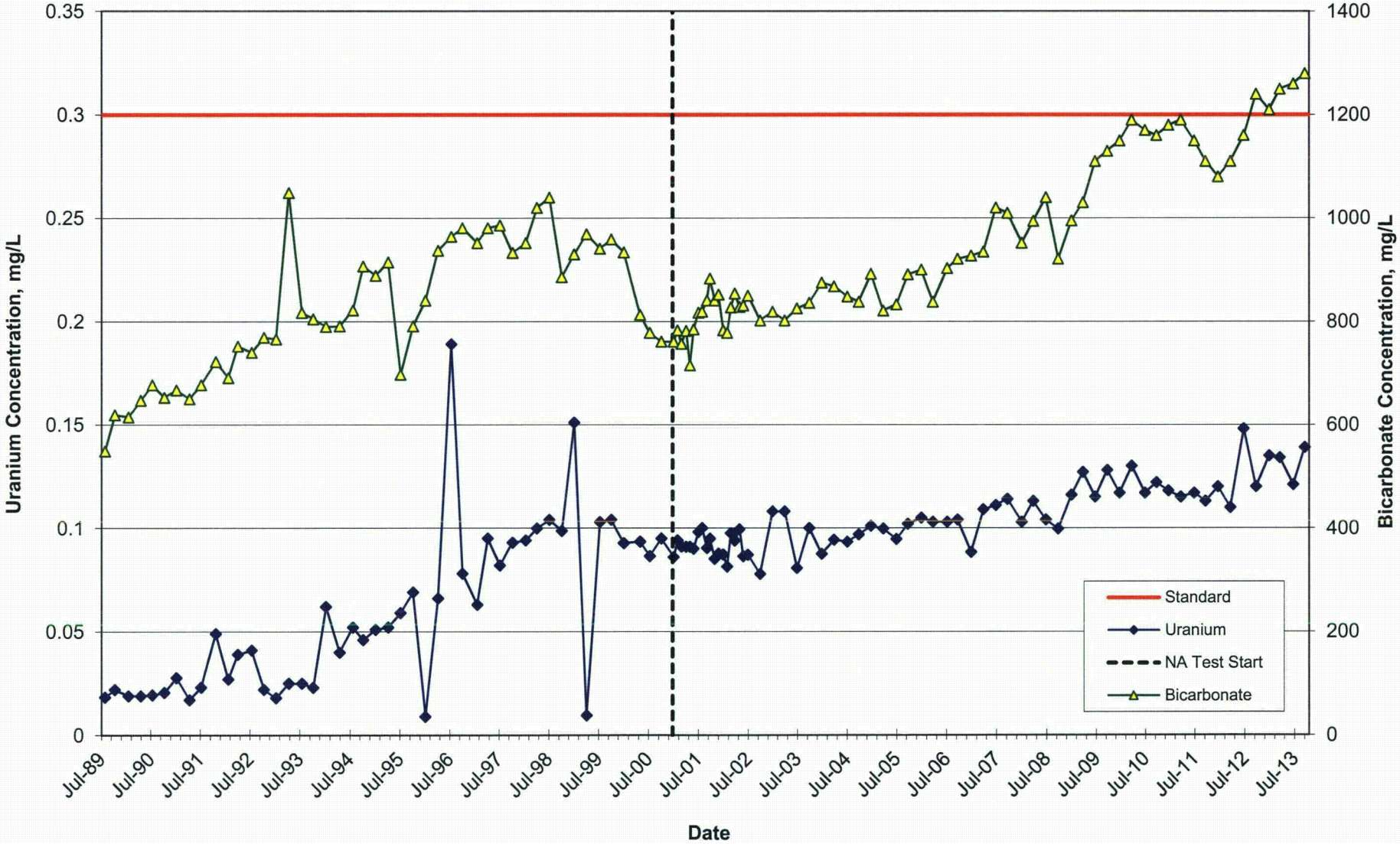


FIGURE 33
Uranium Concentrations in Well EPA 28
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

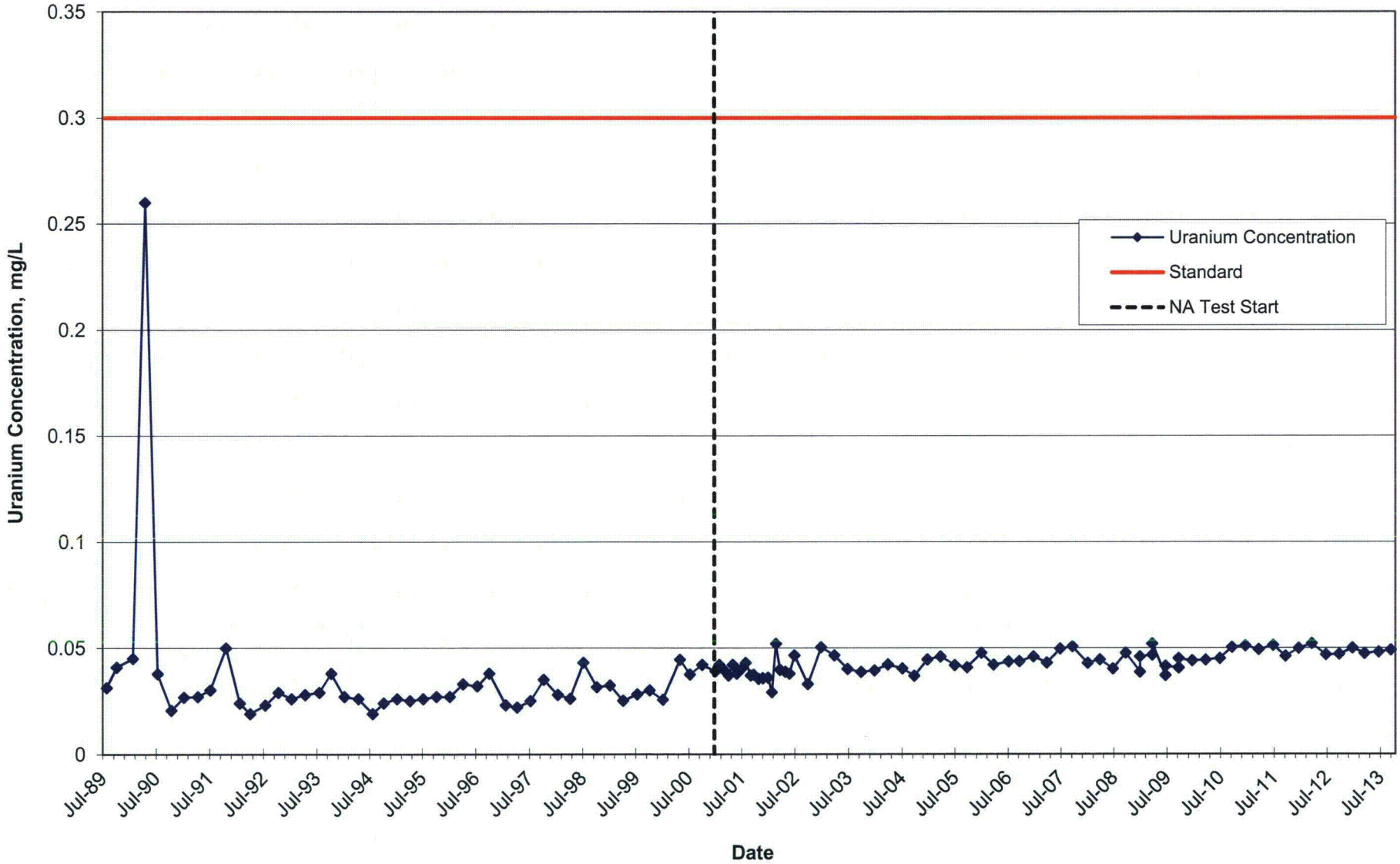
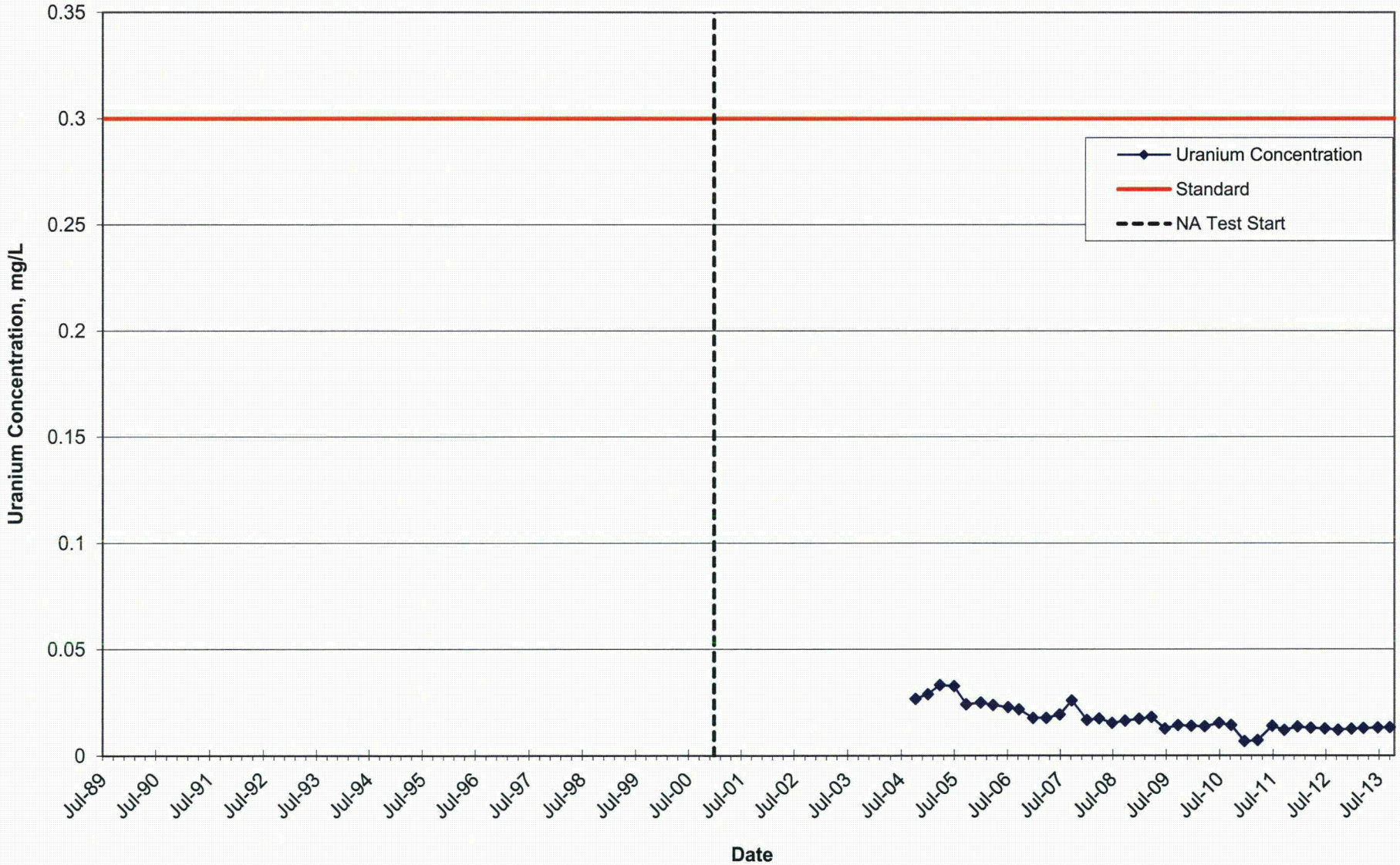
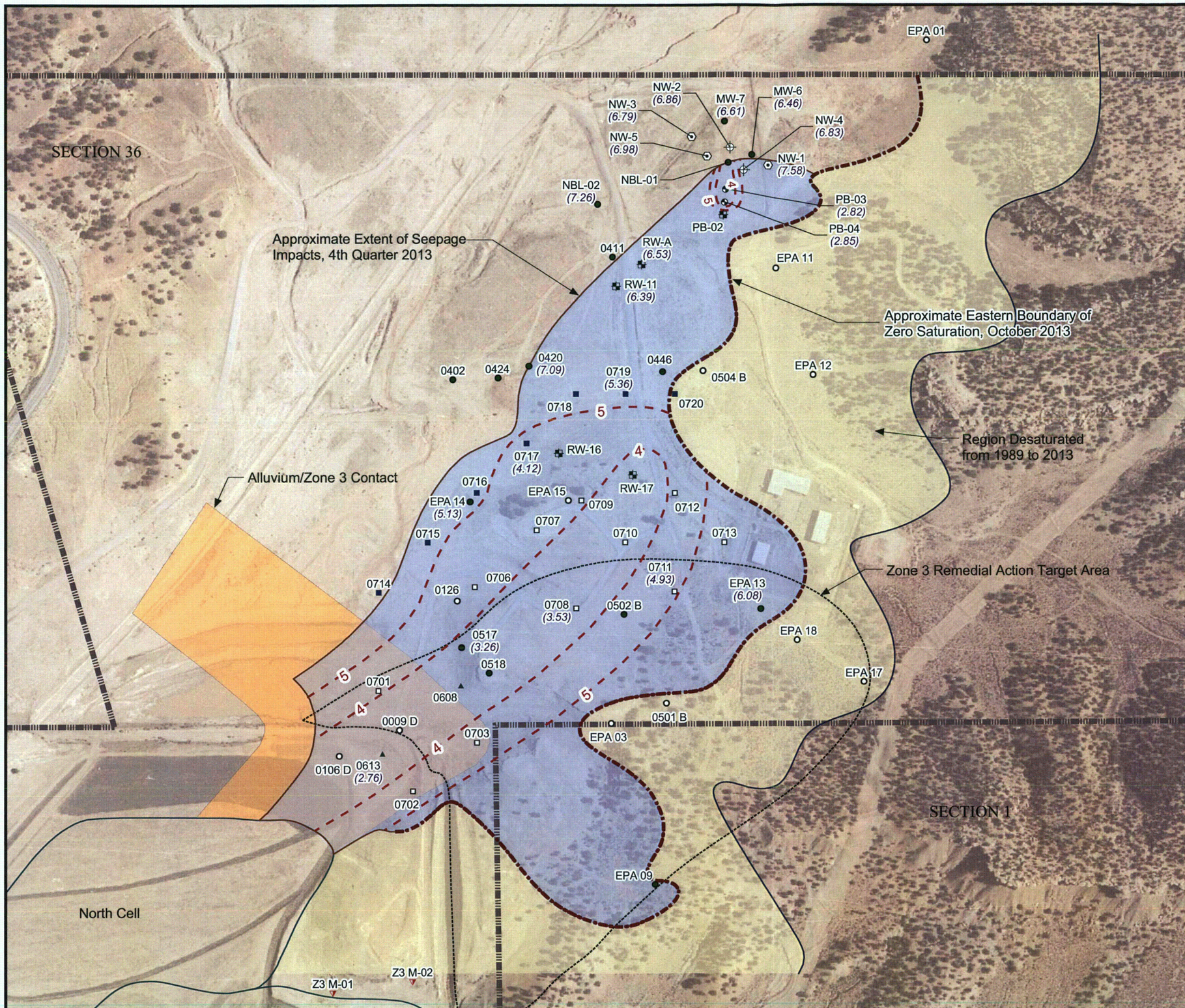


FIGURE 34
Uranium Concentrations in Well SBL-01
United Nuclear Corporation Church Rock Site, Church Rock, New Mexico





Legend

- Property Boundary
- Zone 3 Target Remedial Action Area
- Section Boundary
- Cell Boundary
- Approximate Area Impacted by Tailings Seepage

Well Type

- Monitoring
- Northernmost Pumping Wells
- Northernmost Pumping Wells (Off)
- Dry Monitoring
- Stage I Extraction
- Stage II Extraction
- Other Extraction Wells
- Plume Boundary
- Northeast Pump-Back
- Piezometer
- Approximate Eastern Boundary of Zero Saturation
- pH contour

Notes:

1. Well names are displayed with black text.
2. Values for field measured pH are shown with purple text and enclosed in parentheses.
3. PB-02 not pumping at time of October 2013 sampling event.
4. Aerial photo taken on August 1, 1996.

0 200 400 800
Feet

FIGURE 35

Zone 3 Approximate Extent of Seepage Impacts, September and October 2013

United Nuclear Corporation Church Rock Site, Church Rock, New Mexico

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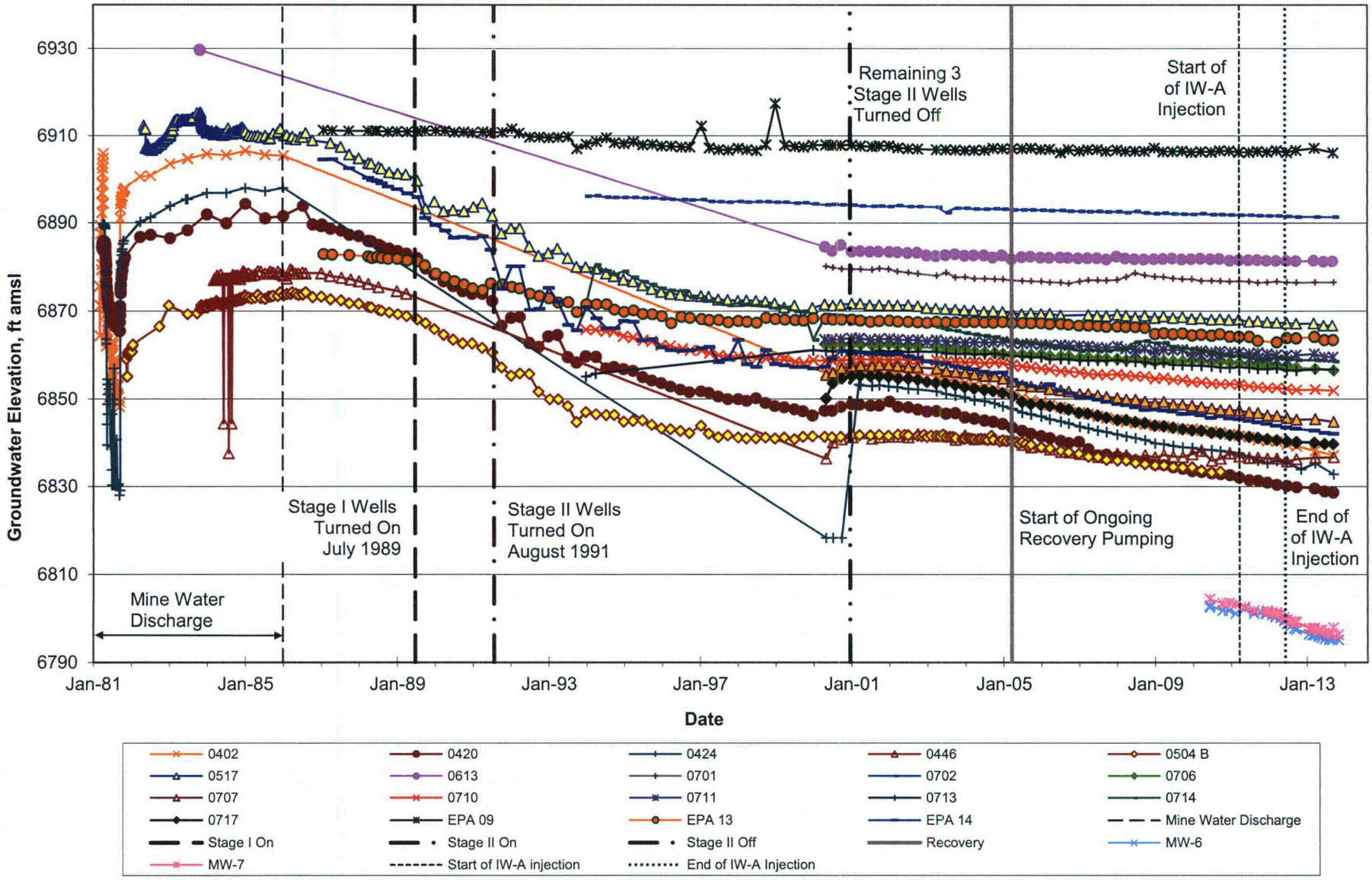
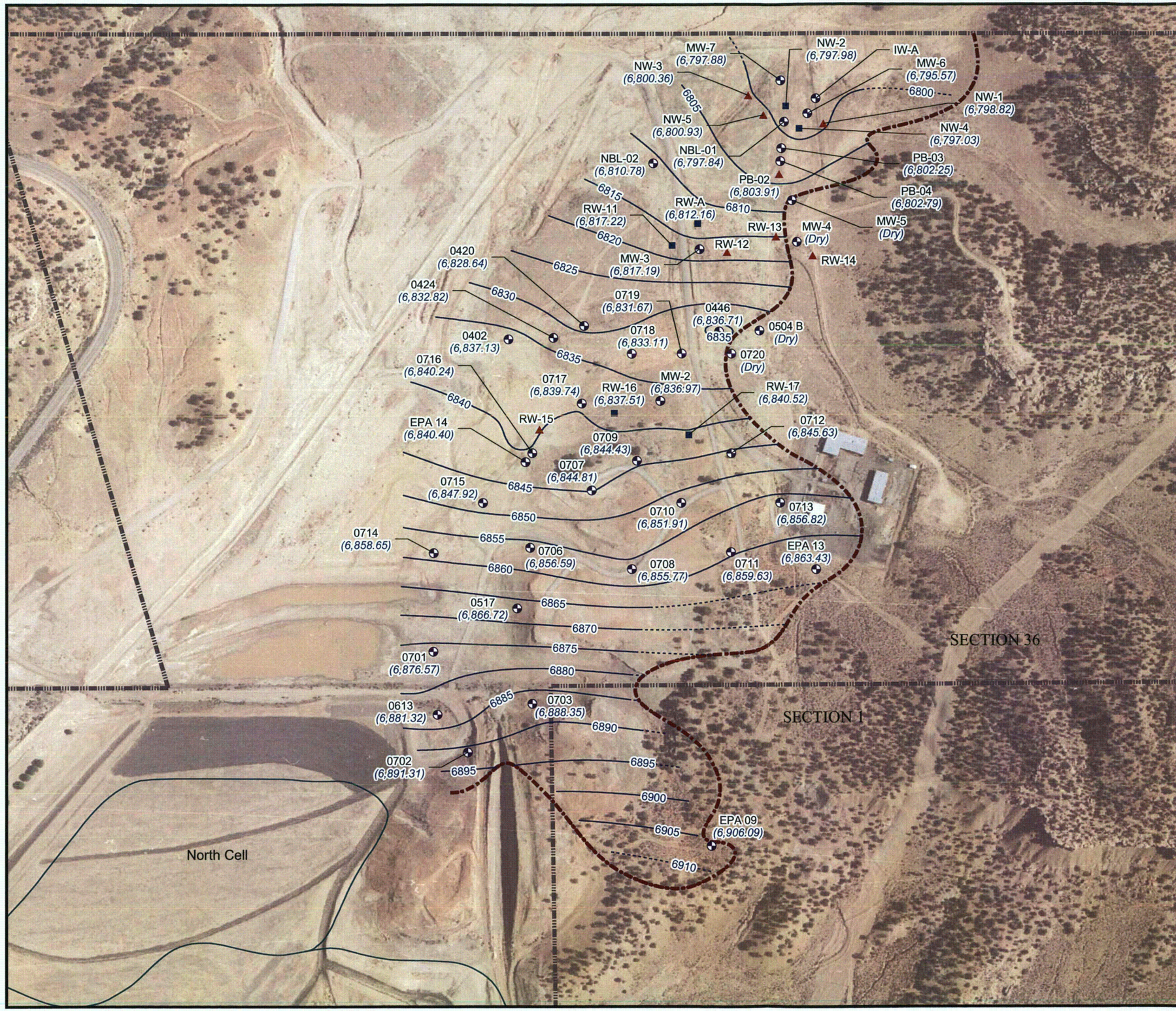
Z:\databases\6209_GE_CR\GISDATA\arcmap_doc\2013_annual_report\f35_z3_seepage.mxd; January 6, 2014

FIGURE 36

Effects of Past and Current Pumping to Dewater Zone 3

United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico





Legend

- Monitoring Well
- Non-Pumping Well
- Pumping Well
- Cell Boundary
- Property Boundary
- Approximate Eastern Boundary of Zero Saturation
- Groundwater Elevation Contour
- Inferred Groundwater Elevation Contour
- *(6906.46)* Measured Groundwater Elevation

Notes:

1. Groundwater elevation values are displayed in feet above mean sea level.
2. Well names are displayed with black text.
3. Aerial photo taken on August 1, 1996.

0 200 400 800
Feet

FIGURE 37

Zone 3 Potentiometric Surface Map
September and October 2013

United Nuclear Corporation Church Rock Site,
Church Rock, New Mexico

CHESTER ENGINEERS

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