

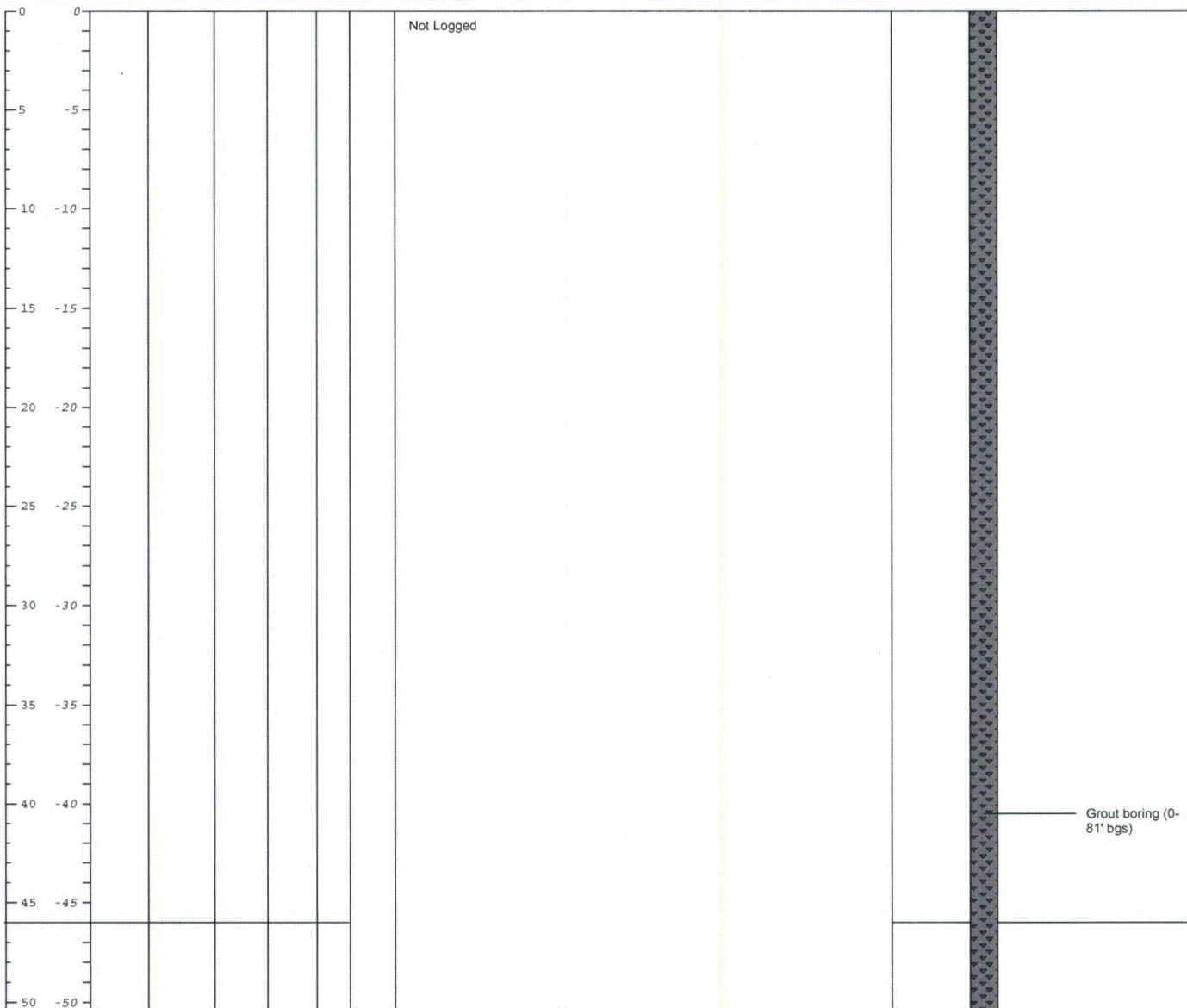


Attachment B-1

Boring Logs

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 81 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CS-1 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------



	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
---	--

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 81 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CS-1 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------

55	-55	1	54.5-56.5	1.5				Silty Sand (0,80,20,0), brown (7.5YR 5/4), wet, loose, well sorted, medium to fine grained	
		2	56.5-58.5	1.5				Silty Sand (0,80,20,0), brown (7.5YR 5/4), wet, loose, well sorted, medium to fine grained	
		3	58.5-60.5	1.5				Silty Sand (0,80,20,0), brown (7.5YR 5/4), wet, loose, well sorted, medium to fine grained	
60	-60	4	60.5-62.5	1.5				Silty Sand (0,80,20,0), brown (7.5YR 4/4), wet, loose, well sorted, medium to fine grained	
		5	62.5-64.5	1.5				Silty Sand with Clay (0,50,30,20), brown (7.5YR 5/4), loose, wet, well to moderately sorted, medium to fine grained	
65	-65	6	64.5-66.5	1.5				Silty Clay with Sand (0,20,25,55), brown (7.5YR 5/3), firm, wet, low plasticity, fine grained	
		7	66.5-68.5	1.5				Silty Clay with Sand (0,25,30,45), brown (7.5YR 5/3), firm, wet, low plasticity, fine grained	
70	-70	8	68.5-70.5	1.5				Silty Sand (0,80,20,0), brown (7.5YR 5/3), loose, wet, well sorted, medium grained	
								Not Logged	
75	-75	9	75-77	1.5				Silty Sand with Clay (0,50,20,30), brown (7.5YR 4/3), loose, wet, moderately sorted, fine to medium grained, stiff, low plasticity	
		10	77-79	1.5				Sandy Clay with Silt (0,40,10,50), brown (7.5YR 4/4), loose, wet, moderately sorted, fine to medium grained, firm, low plasticity	
80	-80							Silty Sand with Clay (0,65,20,15), brown (7.5YR 4/4), wet, loose, moderately sorted, fine to medium grained, stiff, low plasticity (Silica Sand noted)	

	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
---	--

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 95 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CS-2 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------

0	0							Not Logged	
5	-5								
10	-10								
15	-15								
20	-20								
25	-25								
30	-30								
35	-35								
40	-40								
45	-45								
50	-50								

Back-filled with Bentonite

	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
---	--

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 95 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CS-2 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
55	-55	1	55.5-	0				No Recovery	
		2	56.5- 58.5	1.5				Silty Sand with Clay (0.60,25,15), light brown (7.5YR 6/4), wet, loose, moderately sorted, fine grained	
				0				Silty Sand (0.80,20,0), brown (7.5YR 5/3), wet, loose, well sorted, medium to fine grained	
60	-60	3	59.5- 60.5	1.5				No Recovery	
			62.5	1.5				Silty Sand (0.80,20,0), brown (7.5YR 5/3), wet, loose, well sorted, medium to fine grained	
		4	62.5-	1.5				Silty Sand (0.80,20,0), brown (7.5YR 5/3), wet, loose, well sorted, medium to fine grained	
		5	64.5	1.5				Silty Sand (0.80,20,0), brown (7.5YR 5/3), wet, loose, well sorted, medium to fine grained	
65	-65		64.5-	1.5				Silty Sand (0.80,20,0), brown (7.5YR 5/3), wet, loose, well sorted, medium to fine grained	
		6	66.5	1.5				Clayey Sand with Silt (0.50,15,35), brown (7.5YR 5/3), loose, wet, moderately sorted, medium to fine grained	
		7	66.5-	1.5				Sandy Clay with Sand (0.35,15,50), brown (7.5YR 5/4), wet, stiff, low plasticity, fine grained	
		8	70.5	1.5				Clay (0.0,0,100), Brown (7.5YR 5/4), very stiff, moist, no plasticity	
								Silty Sand (0.90,10,0), brown (7.5YR 5/3), wet, loose, very well sorted, medium grained	
75	-75		75-	1.5				Not Logged	
		9	77-	1.5				Sandy Clay with Silt (0.25,20,55), brown (7.5YR 4/2), wet, firm, low plasticity, fine to medium grained	
		10	79-	1.5				Clay (0.0,0,100), brown (7.5YR 5/3), wet, very stiff, no plasticity	
80	-80	11	81-	1.5				Silty Clay (0.0,25,75), brown (7.5YR 5/3), firm to soft, wet, low to medium plasticity	
		12	83-	1.5				Silty Sand with Clay (0.60,25,15), Brown, (7.5YR 5/3), loose, wet, well sorted, fine to medium grained	
		13	85-	1.5				Silty Sand (0.80,20,0), Brown, (7.5YR 5/3), loose, wet, well sorted, medium to fine grained	
85	-85		87-	1.5				Clayey Sand with Silt (0.60,15,25), Brown (7.5YR 5/3), loose, wet, moderately sorted, fine to medium grained	
		14	89-	1.5				Silty Clay (0.0,15,85) Brown (7.5YR 4/2), moist, stiff, low plasticity	
90	-90	15	91-	1.5				Silty Sand with Clay (0.40,20,40) Brown (7.5YR5/3), wet, loose, poorly sorted, medium to fine grained, stiff, low to medium plasticity	
		16	93-	1.5				Silty Sand (0.75,20,5) Brown, (7.5YR 4/4), wet, loose, moderately sorted, fine grained, trace clays	
95	-95	17	95	1.5				Silty Sand (5.90,5,0) Brown (7.5YR 4/3), wet, loose, very well sorted, medium grained, trace gravels	
		18							

	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
---	--

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 88 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CS-3 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------

0	0							Not Logged	
5	-5								
10	-10								
15	-15								
20	-20								
25	-25								
30	-30								
35	-35								
40	-40								
45	-45								
50	-50								

Back-filled with Bentonite



Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride;
 Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 88 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CS-3 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

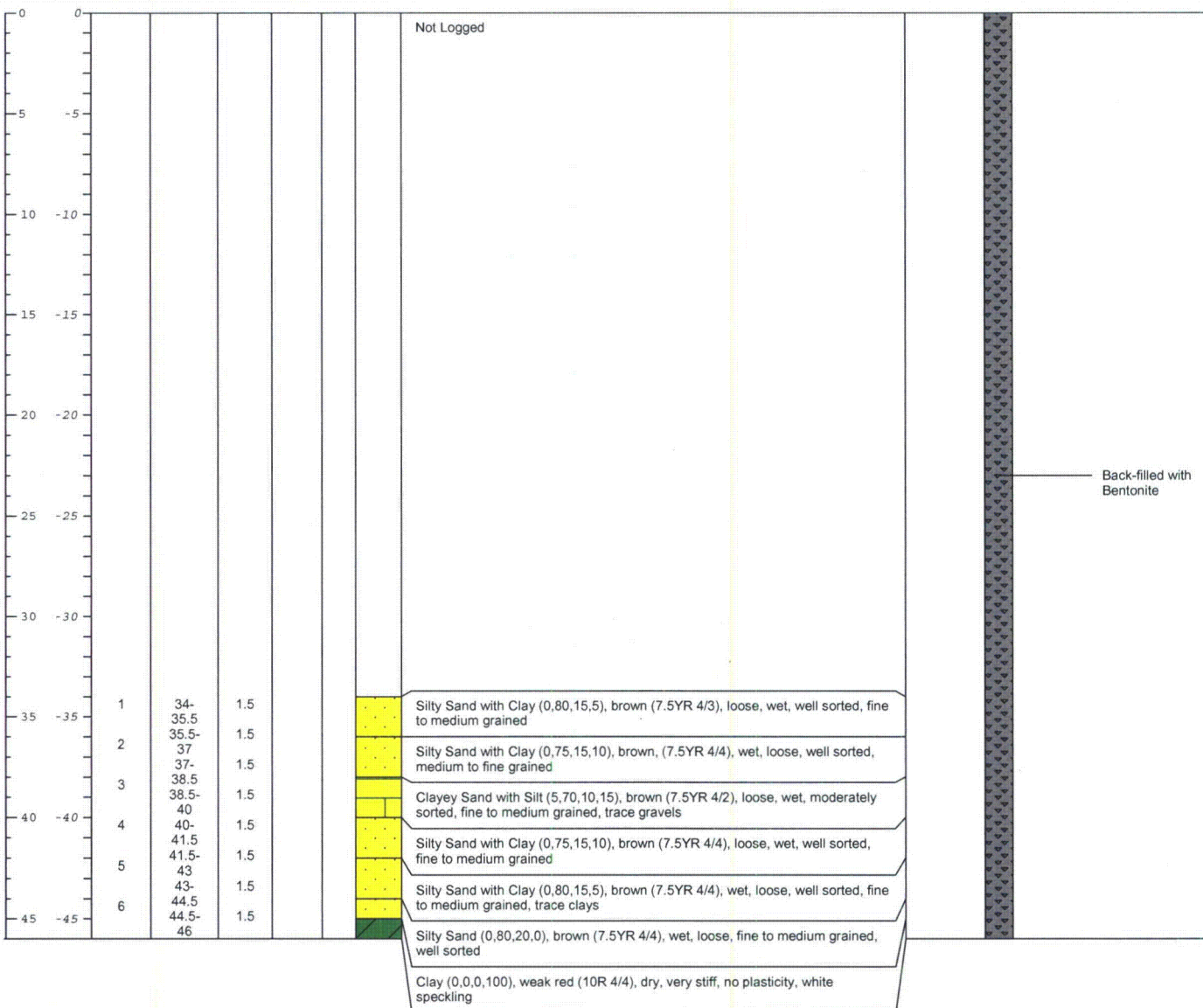
DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------

55	-55								
60	-60	1	60-62	1.5				Silty Sand with Clay (0.65,15,20), brown (7.5YR 5/3), loose, wet, moderately sorted, fine to medium grained	
		2	62-64	1.5				Silty Clay with Sand (0.20,15,65), light brown (7.5YR 4/4), firm, wet, low to medium plasticity, fine to medium grained	
65	-65	3	64-66	1.5				Sandy Clay with Silt (0.40,10,50), brown (7.5YR 5/3), wet, firm, low to medium plasticity, fine to medium grained	
								Not Logged	
70	-70								
75	-75								
80	-80	4	82-84	1.5				Silty Clay with Sand (0.20,25,55), brown (7.5YR 5/3), wet, stiff, low plasticity, fine to medium grained	
85	-85	5	84-86	1.5				Silty Clay with Sand (0.20,25,55), brown (7.5YR 5/3), wet, stiff, low plasticity, fine to medium grained	
		6	86-88	1.5				Clay (0.0,0,100), Brown (7.5YR 4/2), wet, very stiff, no plasticity	

	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
---	--

Date Start/Finish: 4/8/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 46 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CX-1 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

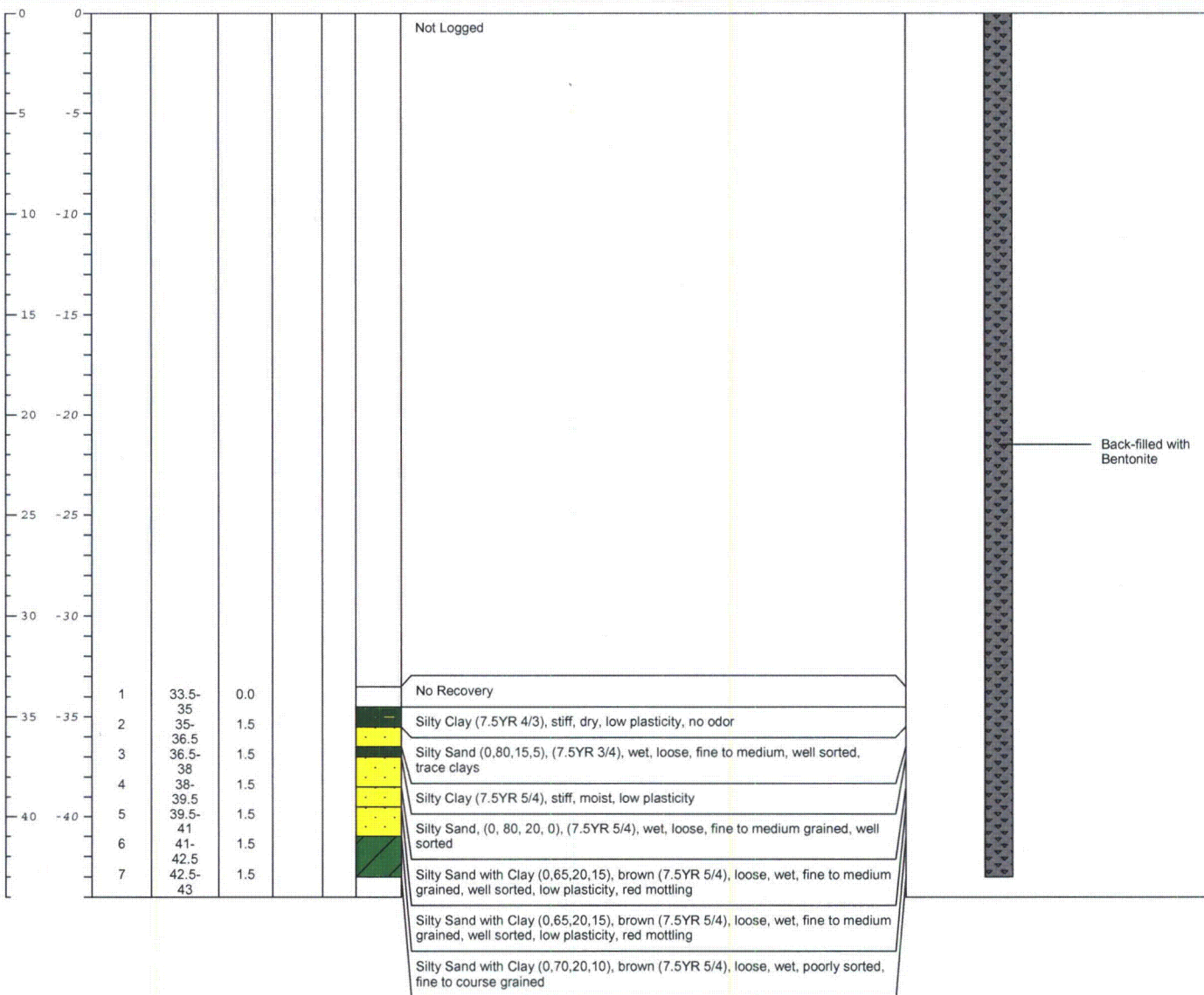
DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------



	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
---	---

Date Start/Finish: 4/8/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 43 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CX-2 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

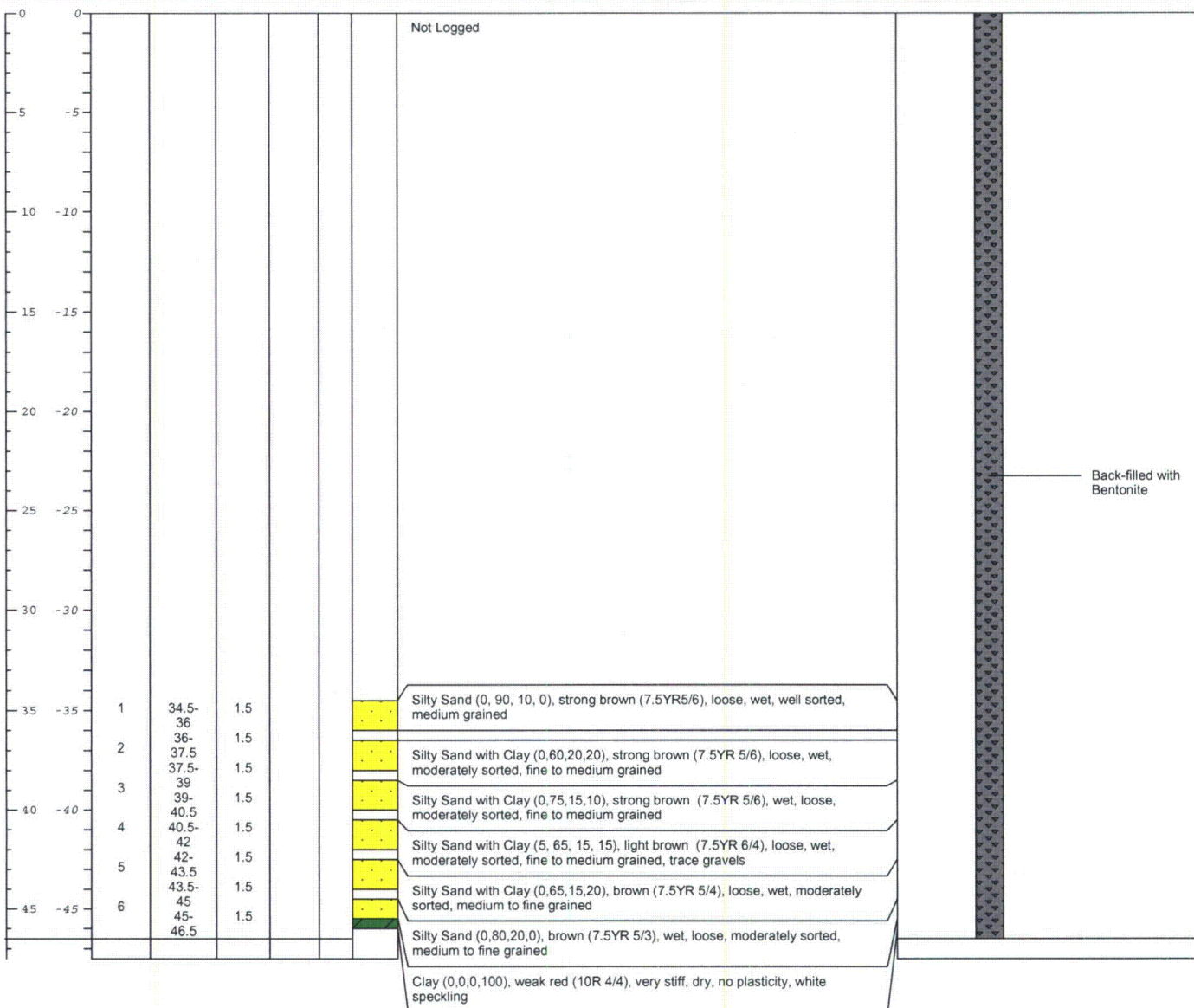
DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------



	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
--	--

Date Start/Finish: 4/9/14 Drilling Company: National EWP Driller's Name: Matt Caine Drilling Method: Hollow Stem Auger Auger Size: 8 inch Rig Type: CME 85 Sampling Method: Split Spoon	Northing: Easting: Casing Elevation: Borehole Depth: 46.5 feet bgs Surface Elevation: Descriptions By: Ben McKenna	Well/Boring ID: CX-3 Client: Homestake Mining Company Location: Homestake Mining Facility Grants, New Mexico
--	---	--

DEPTH (feet bgs)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
------------------	-----------	-------------------	-----------------	-----------------	---------------------	-------------------	-----------------	---------------------------	--------------------------



	Remarks: bgs = below ground surface; ft = feet; P.G. = professional geologist; PID = photoionization detector; USCS = United Soil Classification System; PVC = polyvinyl chloride; Stratigraphic descriptions listed as a percentage of (gravel, sand, silt, clay)
--	--



Attachment B-2

SEM-EDX Results from
DCM Science Labs



June 11, 2014

Mr. Michael Hay
Chemac Environmental Services
5827 E. Fair Place
Centennial, CO 80111

Dear Mr. Hay:

We received five samples for scanning electron microscopy analysis. Per client request, only client samples no. **CX-1 40.5-42** and **CX-2 36.5-38** were analyzed. The results are outlined in the following report.

Thank you for the opportunity to provide this service. If you have any questions, please call.

Sincerely,

A handwritten signature in black ink that reads "Ron Schott". The signature is written in a cursive, flowing style.

Ron Schott
Laboratory Director



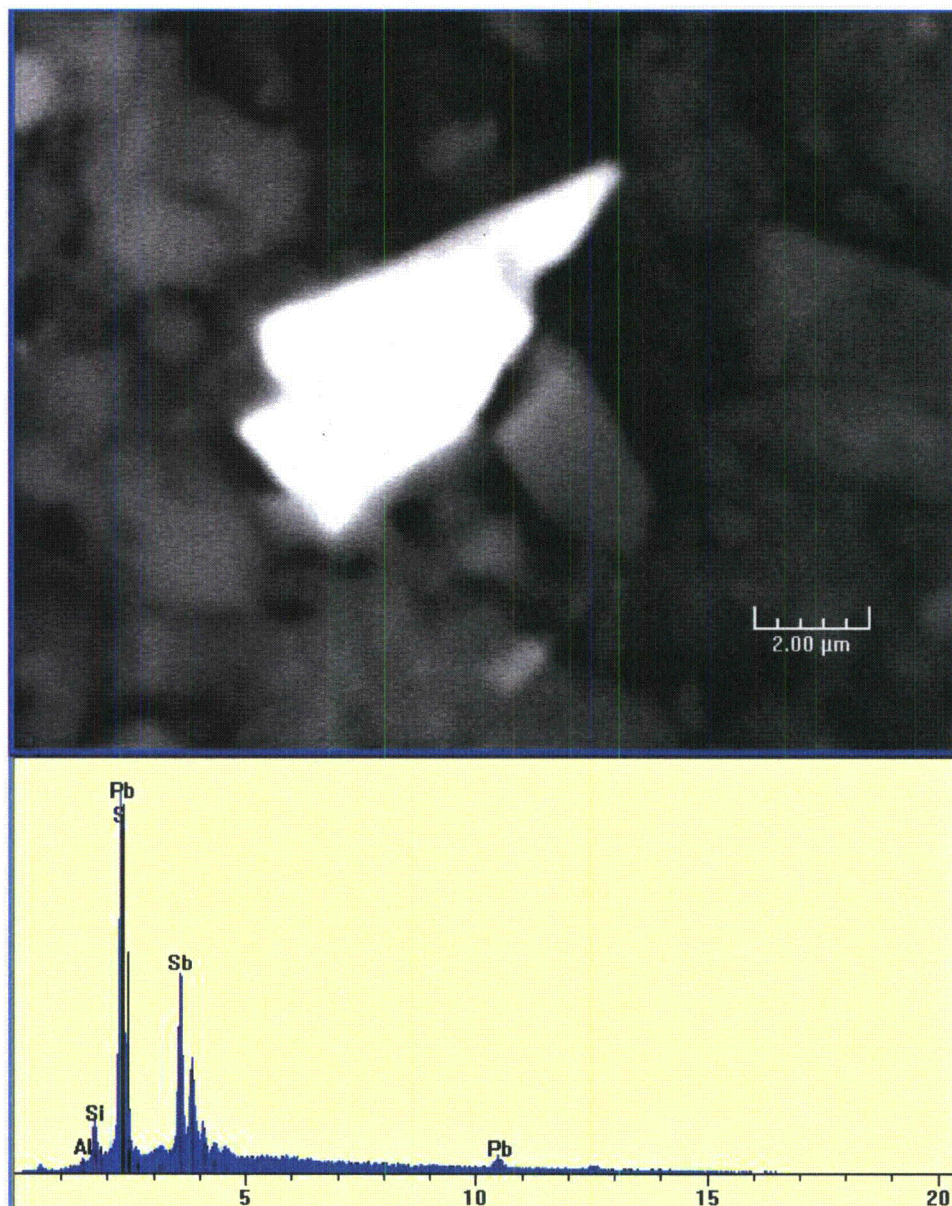
12421 W. 49th Avenue, Unit #6
Wheat Ridge, CO 80033 - (303) 463-8270

Scanning Electron Microscopy Analysis
Page 1 of 9

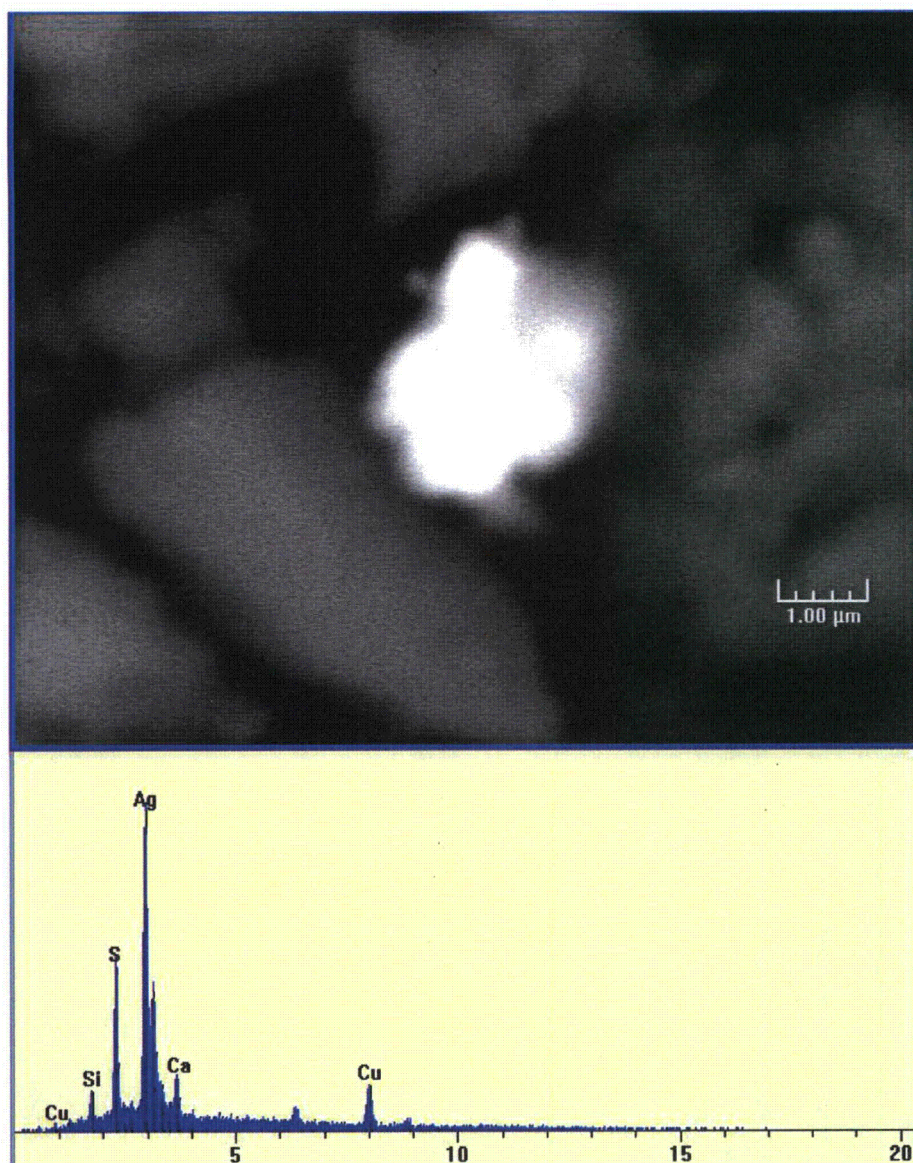
Client:	Analysis Date:	6-9-14
Chemac Environmental Services	Reporting Date:	6-11-14
5827 E. Fair Place	Receipt Date:	5-22-14
Centennial, CO 80111	Client Job No.:	None Given
	Project Title:	None Given
	DCMSL Project:	CHEM1

The purpose of this project is to identify uranyl phosphate mineralogy in soil samples. Client samples no. **CX-1 40.5-42**, **CX-2 36.5-38**, **CS-1 62.5-64.5**, **CS-1 77-79** and **CX-3 38.5-40 (Background)** were received for analysis. Sample numbers **CX-1 40.5-42** and **CX-2 36.5-38** have the highest U content and were therefore chosen for analysis by scanning electron microscopy (SEM) equipped with an energy dispersive system (EDS). The samples were dried and screened through a 60 mesh sieve. A representative portion of the -60 mesh was mounted on a 1x1 inch section of carbon tape and fixed to a glass slide to form a mono-layer of particles. The preparation was then carbon coated for analysis. SEM images and EDS spectra are included for documentation.

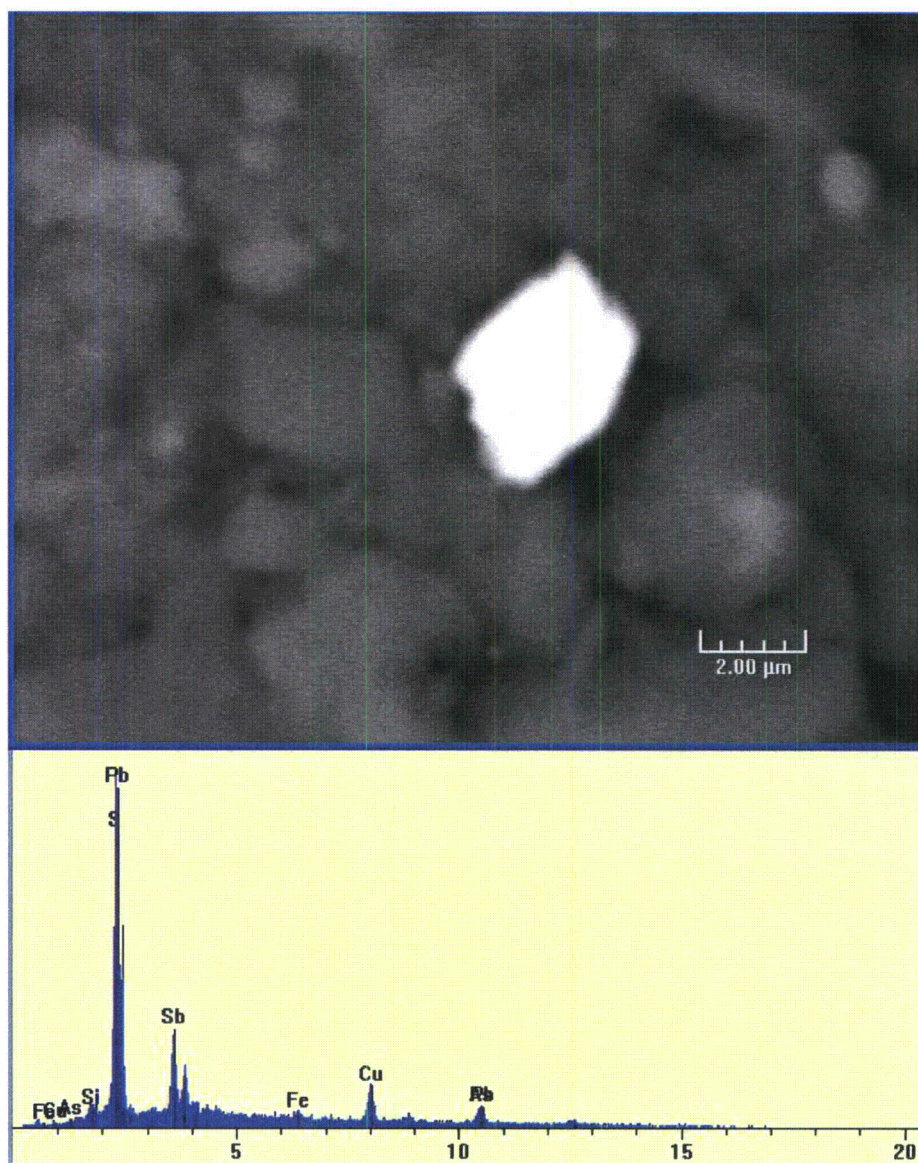
SEM/EDS analysis was performed at magnifications ranging from 1,000 X to 30,000 X in backscatter imaging for detection of coatings and fragments containing heavy elements. An extensive search of both samples failed to detect uranyl phosphate mineralogy, however, phosphates are present as a natural component of the soil. Several minute grains of rare earth phosphates that likely represent a monazite group mineral are contained in both samples. The grains are typically in the 1 μm to 2 μm size range and carry typical rare elements of Ce, La, Nd. One grain carries appreciable Th. Barium sulfate (barite) is well represented in both samples and occurs as small fragments that vary in size from 1 μm up to 100 μm . Several small fragments of a Pb-Sb sulphosalt are present in both samples. The sulphosalt occurs as small, angular fragments with grain size measurements that vary from 1 μm to approximately 15 μm . EDS x-ray analysis of one grain detects low levels of As and Cu. A few rare grains containing high Pb levels were identified in both samples and likely represent a carbonate. One small 3 μm grain of an Ag sulfide (acanthite) was identified in sample **CX-1 40.5-42**.



Client Sample No. CX-1 40.5-42
Backscatter image of a fragment of Pb-Sb sulfide – 7,000X.

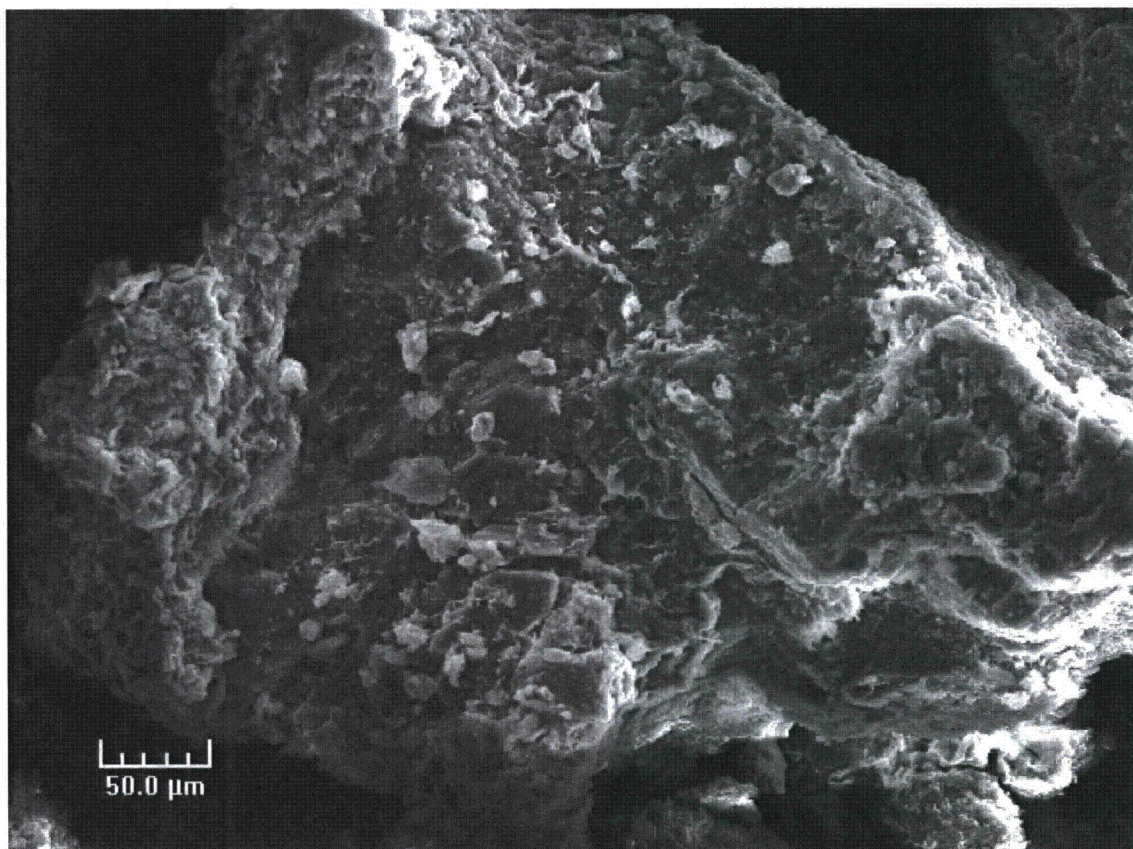


Client Sample No. **CX-1 40.5-42**
Backscatter image of a bright Ag sulfide grain – 11,000X.



Client Sample No. CX-1 40.5-42

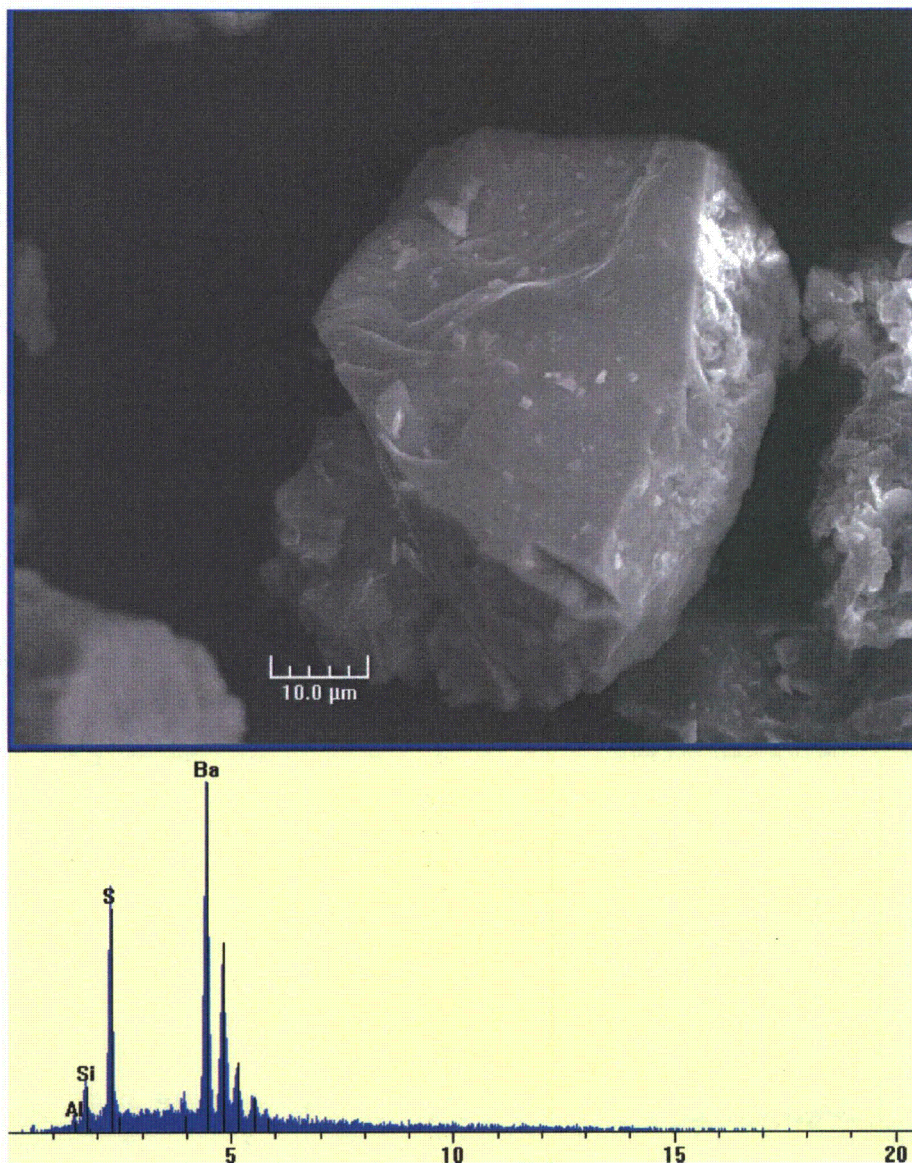
Backscatter image of a bright Pb-Sb sulfide grain with minor As content – 6,500X.



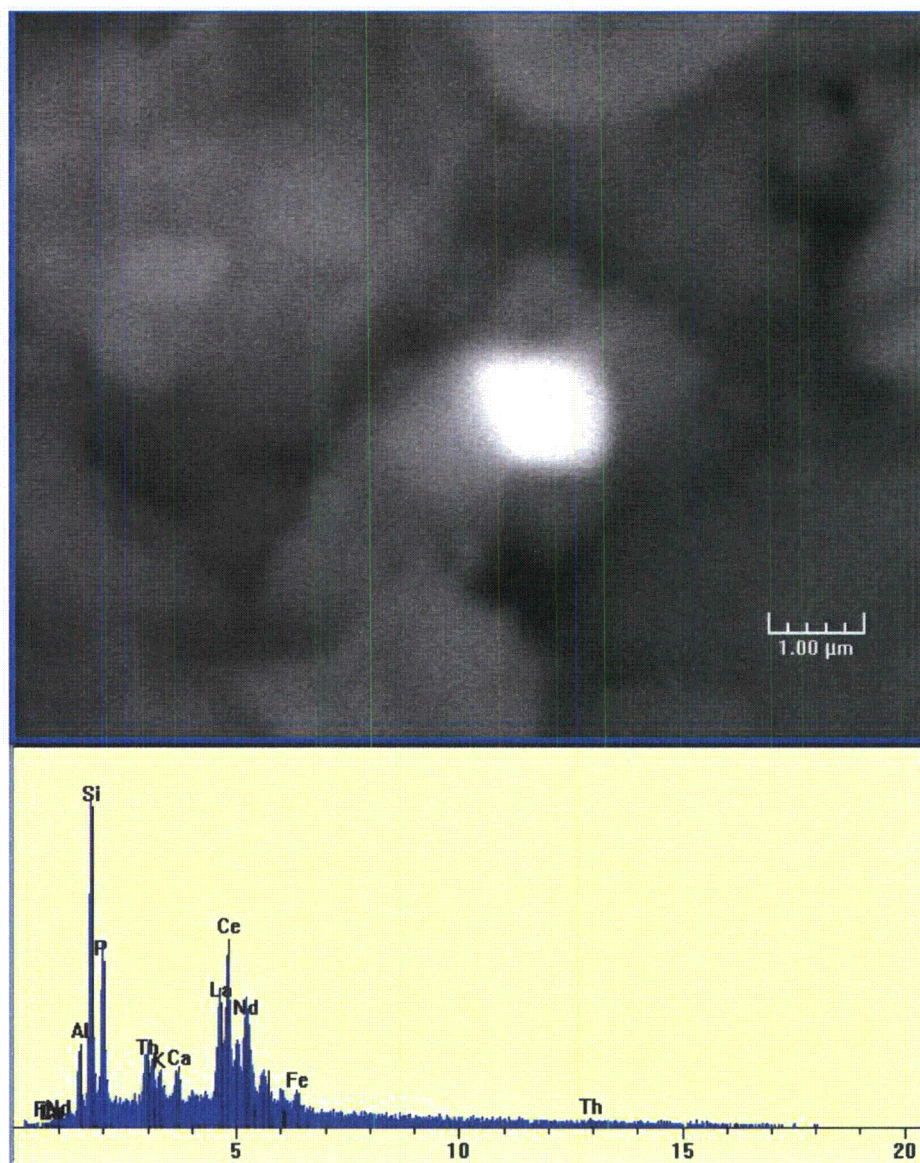
Client Sample No. **CX-1 40.5-42**
SEM image of clay coated sand grain - 230X.



Client Sample No. CX-2 36.5-38
SEM image of a triangular grain of possible Pb carbonate – 8,500X.

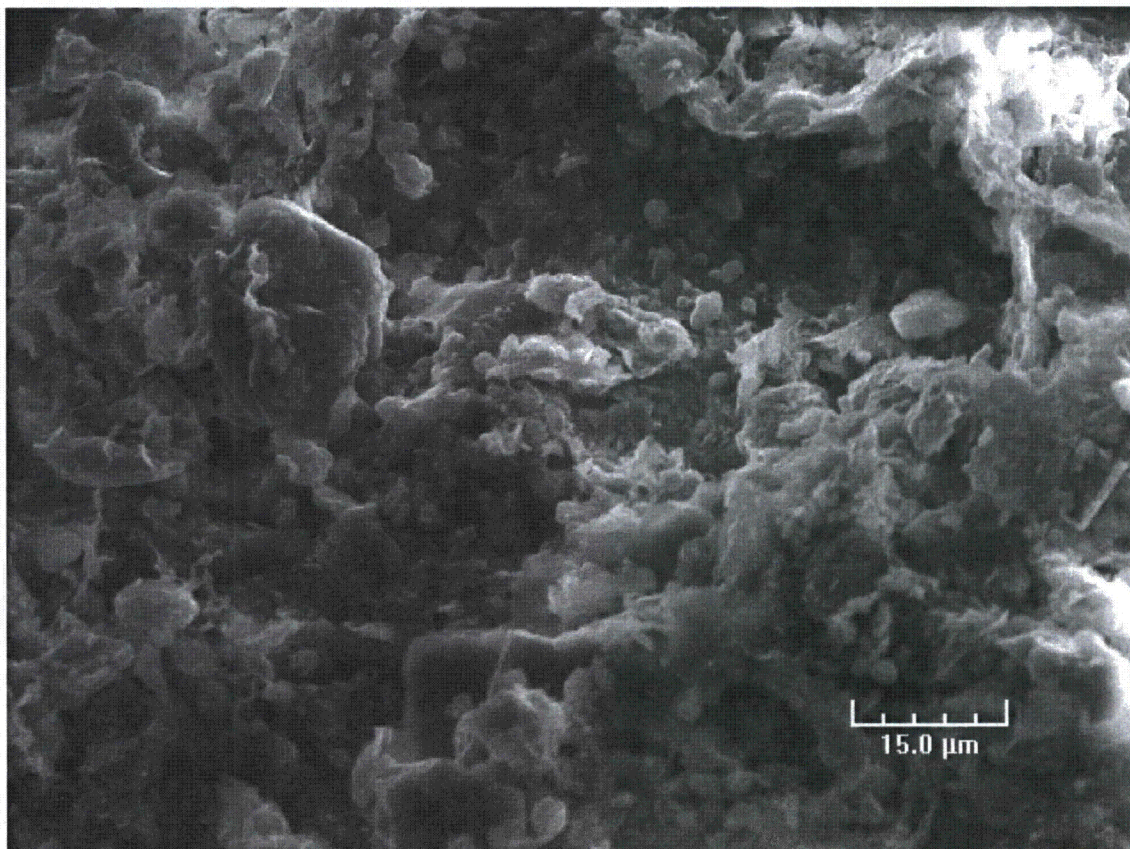


Client Sample No. **CX-2 36.5-38**
SEM image of a liberated barite fragment – 1,200X.



Client Sample No. CX-2 36.5-38

Backscatter image of a bright rare earth phosphate grain composed of typical rare earth elements and appreciable Th – 12,000X.



Client Sample No. **CX-2 36.5-38**
SEM image of clay/carbonate coated sand grain – 1,100X.



Appendix C

Push Pull Pilot Test Procedures and
Results

**Homestake Mining Company of
California**

**Appendix C
Push Pull Pilot Test
Procedures and Results**

TPP Alluvial Pilot Testing Summary Report

July 3, 2014



A handwritten signature in black ink, appearing to read "Mike Hay".

Mike Hay, PhD
Project Scientist

A handwritten signature in black ink, appearing to read "Jeff Gillow".

Jeff Gillow, PhD
Technical Expert

A handwritten signature in black ink, appearing to read "Phillip DeDycker".

Phillip DeDycker
Principal in Charge / Project Director

**Appendix C
Push Pull Pilot Test
Procedures and Results**

TPP Alluvial Pilot Testing
Summary Report

Prepared for:
Homestake Mining Company of California

Prepared by:
ARCADIS U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535

Our Ref.:
AO000120.006A

Date:
July 3, 2014

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

1. Introduction	1
2. Push Pull Test Objectives	1
3. Push Pull Test Field Activities	2
3.1 Baseline Sampling	3
3.2 Push Phase Implementation	3
3.3 Pull Phase Implementation	4
4. Push Pull Test Results and Interpretation	4
4.1 Test S-1 Results	5
4.2 Test X-1 and X-2 Results	6
5. Summary and Implications	8
6. References	9

Tables

Table C-1	Push Pull Test Parameter Summary
Table C-2	Depth to Groundwater Measurements
Table C-3	Analytical Results: S Area
Table C-4	Analytical Results: X Area, Test 1
Table C-5	Analytical Results: X Area, Test 2

Figures

Figure C-1	Pilot Test S Location
Figure C-2	Pilot Test X Location
Figure C-3	Push Pull Test Results: S Area
Figure C-4	Push Pull Test Results: X Area, Test 1
Figure C-5	Push Pull Test Results: X Area, Test 2
Figure C-6	Uranium Concentrations: Pre-TPP Pilot and Push Pull Test
Figure C-7	Push Pull Test Results: Bicarbonate, Calcium, pH and TDS

1. Introduction

On behalf of Homestake Mining Company of California (HMC), ARCADIS U.S., Inc. (ARCADIS) has prepared this summary of the single-well injection-withdrawal ("push pull") tests performed within the tripolyphosphate (TPP) alluvial pilot testing areas at the Grants Reclamation Project in Grants, New Mexico (site; **Figures C-1 and C-2**).

As described in the main text of this report, HMC is currently evaluating the *in situ* immobilization and treatment of uranium using a TPP amendment to strategically augment the existing Corrective Action Program (CAP) for the site. In 2013, with continued monitoring into 2014, a TPP pilot test program was conducted in the alluvial aquifer in two areas: one on the west side of the Large Tailings Pile (LTP) in an area of relatively high groundwater flux (Area S pilot test; **Figure C-1**), and one on the east side of the LTP in an area of relatively low groundwater flux (Area X pilot test; **Figure C-2**). After six months of pilot test monitoring and nearly eight months post-injection, push pull tests were conducted in two of the injection wells, as described in more detail below. The New Mexico Environment Department (NMED) approved the TPP pilot test in the alluvial aquifer, with the condition that the long-term stability of precipitated uranium be evaluated (NMED 2013). This is being assessed through push pull tests.

The objectives of the push pull tests are outlined below in **Section 2**, followed by a description of field activities in **Section 3**, the results and interpretations of the testing in **Section 4**, and a summary of the conclusions and implications in **Section 5**.

2. Push Pull Test Objectives

The goal of the push pull tests was to evaluate the long-term stability and potential for dissolution ("rebound") of the uranium that precipitated within the treatment zone during the TPP pilot test. Stability of the deposited uranium was assessed via direct injection and re-extraction of a low uranium groundwater into the center of the reactive zone. Low uranium groundwater was injected into the original pilot test wells, displacing the resident groundwater. After a brief rest phase or "shut-in" period to allow for geochemical equilibration, the injected water was withdrawn from the same well. Samples of the extracted water were collected during the extraction phase and submitted for analyses of dissolved constituents. A nontoxic conservative tracer, deuterated water (also referred to as deuterium oxide, D₂O, or "deuterium"), was added to quantify the degree of mixing of the injectate with the native groundwater and the efficiency of extraction. Based on the concentration of uranium, water quality

parameters, and conservative tracer in the extraction solution as a function of extracted volume, the stability of precipitated uranium was assessed.

Push pull test field activities were initiated in both areas of the TPP pilot test. The S Area push pull test was conducted in the shallow injection well, SIW-S, and the X Area push pull test was conducted in injection well XIW. One push pull test (Test S-1) was conducted in the S Area, and two push pull tests (Tests X-1 and X-2) were conducted in series (one after the other) in the X Area. The goals of the first test in each area were the same, while the second test in the X Area was intended to be a more rigorous extraction, as follows:

- Tests S-1 and X-1: Determine the level of uranium release/rebound under native aquifer water quality conditions (i.e., current pH and major ion concentrations).
- Test X-2: Determine the level of uranium release/rebound under varying water quality, particularly under a condition of lower ionic strength.

Water from the San Andres formation (collected from DEEP WELL #1 and #2) was chosen for Tests S-1 and X-1 given its low uranium concentration and similarity in water quality to groundwater in the alluvium, particularly with respect to calcium concentration, alkalinity, and pH. For Test X-2, a 50:50 mixture of San Andres water and reverse osmosis (RO) product water was used to evaluate an injectate with lower ionic strength, calcium content, and alkalinity, which could potentially exacerbate uranium rebound due to enhanced dissolution of calcium phosphate and carbonate solids. This solution was also chosen to represent a scenario in which blended RO product water is injected into the alluvial aquifer for hydraulic control and alluvial flushing, potentially contacting TPP reactive zones under full-scale treatment. The full-scale alluvial flushing program will utilize RO product water blended with zeolite-treated water. A future push pull test may involve this mix of waters, once the alluvial flushing and zeolite treatment systems are fully operational.

3. Push Pull Test Field Activities

Push pull testing was conducted onsite between April 15, 2014 and April 22, 2014. A summary of the testing activities and injection/extraction parameters is included in **Table C-1**. Details of the three push pull tests, including one in the S Area and two in the X Area, are described in more detail below.

3.1 Baseline Sampling

Prior to testing, the injection and dose response wells were gauged for depth to water using an electronic water level meter (WLM). Depth to groundwater (DTW) measurements for injection and dose response wells within each pilot test area (the S Area and the X Area) before and after testing are presented in **Table C-2**.

Baseline groundwater samples were collected prior to each push pull test to determine baseline water quality. Groundwater samples were collected from injection wells SIW-S and XIW. Groundwater was purged until a total of three well volumes had been extracted. During purging, water quality parameters (pH, temperature, specific conductivity, dissolved oxygen, and oxidation-reduction potential) were monitored using a YSI multi-parameter probe and recorded. Field parameters and groundwater analytical results are summarized in **Tables C-3 through C-5**.

Groundwater samples were shipped to three laboratories for chemical analysis. Deuterated water was analyzed at Isotope Tracer Technologies Inc. (IT2) of Waterloo, Ontario, Canada. Eosine and Rhodamine WT were analyzed at Ozark Underground Laboratories (Ozark) of Protem, Missouri. All other groundwater constituents were analyzed at Energy Laboratories, Inc. (Energy) of Casper, Wyoming.

3.2 Push Phase Implementation

Based on results of the TPP pilot injections, it was estimated that 500 gallons of tracer-spiked injectate achieved the target radius of influence (ROI) in each area, provided in **Table C-1**.

Water for Tests S-1 and X-1 was sourced from the deep San Andres aquifer via DEEP WELL #1. For Test X-2, approximately 250 gallons of San Andres water and approximately 250 gallons of RO product water from the onsite RO treatment plant were used. At the time of testing, the RO plant was not in operation, and the RO product water used was obtained from a storage tank located within the RO plant. In all three events, the injectate water was recirculated for approximately 0.5 hours to mix approximately 320 milliliters (mL) of deuterium oxide (D_2O , 70% pure), yielding a targeted deuterium concentration value of 705 delta per mil (δ ‰) in the injection solution. Note that these units represent the deviation in deuterium abundance relative to the Vienna Standard Mean Ocean Water (VSMOW) international standard. The concentration of added deuterium oxide was chosen based on a target signal-to-background ratio of approximately 500.

Injectate was added via gravity feed from a 600-gallon vertical cone bottom tank into the injection wells. Injection rates for each test are provided in **Table C-1**. During injection, a sample was collected from each injectate solution batch and submitted to the Energy, IT2, and Ozark laboratories. Results of the injectate samples are presented in **Tables C-3** through **C-5**. During injections, flow rates, totalizer readings, injection parameters, and DTW measurements from the dose response wells were collected periodically. Test parameters are presented in **Table C-1**, and DTW measurements are presented in **Table C-2**.

Following injections, the injectate remained in the ground for 15 to 17 hours (**Table C-1**) to allow sufficient time for the injected solution to equilibrate with the aquifer matrix before extraction ("shut-in period").

3.3 Pull Phase Implementation

The pull phase involved extraction and sampling of the water injected the previous day. Immediately before extraction, DTW measurements were collected at the injection well and dose response wells (**Table C-2**). Extraction was achieved using a downhole, submersible Grundfos® pump, deployed in the injection well at the approximate midpoint of the screened interval. Samples were collected periodically during extraction. The extraction rates, sampling frequencies, number of samples collected, and total extraction volumes for each test are listed in **Table C-1**. Analytical results are presented in **Tables C-3** through **C-5**.

In Test S-1, extraction proceeded until 763 gallons (approximately 1.5 times the injected volume) were extracted. Due to the relatively low hydraulic conductivity and shallow injection screen interval in the X Area, groundwater extraction pumping rates were set to less than 1.0 gallon per minute (gpm) to minimize water level drawdown in the screen interval. During Test X-1, 360 gallons were extracted (0.72 times the injected volume). During Test X-2, 500 gallons (1 times the injection volume) were extracted.

4. Push Pull Test Results and Interpretation

The push pull tests were successfully implemented in both the S Area and the X Area. The results of each test are described below.

4.1 Test S-1 Results

Water quality monitoring results for the pull phase of Test S-1 in the S Area indicate that release of dissolved uranium and phosphate with inflow of clean groundwater is very low (**Figure C-3**). These results demonstrate that long-term uranium concentrations are anticipated to remain close to or below the short-term treatment levels achieved following reagent injections. Key observations from Test S-1 are as follows:

- Deuterium concentrations on initiation of the pull phase were very close to the injectate concentration, with just over 60% of tracer recovery achieved after extracting 1.5 times the injected volume. This demonstrates that most of the recovered water was injected fluid, but also that a portion of the injectate likely washed out of the injection zone during the overnight shut-in period (i.e., the injectate partially migrated away from the injection well with groundwater flow). The level of washout observed was consistent with groundwater flow, suggesting that the shut-in time frame was appropriate (i.e., roughly consistent with the groundwater hydraulic residence time within the reactive zone).
- Uranium concentrations during the pull phase were below the baseline concentration of 0.05 milligrams per liter (mg/L), dropping to as low as 0.038 mg/L (15% decrease). This confirms that the uranium treatment was sustained and that uranium that was incorporated into mineral or solid phases during treatment did not dissolve back onto the aqueous phase.
- Phosphate concentrations remained below baseline levels during the pull phase, increasing to baseline levels as the injectate was removed. This confirms that the continued presence of phosphate is not required to maintain the stability of uranium sequestered in mineral or solid phases.
- Calcium, bicarbonate, and total dissolved solids (TDS) concentrations of the baseline and injectate were similar, with concentrations remaining steady through the pull phase, indicating that *in situ* water quality was not substantially impacted during the test.

Overall, uranium and phosphate behaved as anticipated during the push pull test. As clean water was injected into the reactive zone, small amounts of uranium and phosphate were released into the solution (note that although the uranium concentration was below groundwater baseline, it was slightly higher than would be

predicted by mixing of groundwater and clean water according to the deuterium tracer curve). This is likely due to desorption of uranium and phosphate from mineral surfaces, noting that the resident dissolved uranium and phosphate within the aquifer are in sorptive equilibrium with the aquifer matrix. Because uranium and phosphate decreased below baseline levels during the push pull test, it is likely that the adsorbed uranium and phosphate fractions would be washed out rapidly with groundwater flow. The results also indicate that release of uranium and phosphate from the dissolution of uranium phosphate mineral precipitates is minimal or insignificant. These uranium phosphate minerals were formed *in situ* as a result of the injection of TPP during the pilot test, and remained stable during the push pull test. The increase in concentrations to baseline levels is the result of mixing with native groundwater, consistent with the tracer dilution curve.

4.2 Test X-1 and X-2 Results

Results for dissolved uranium, phosphate, deuterium tracer, and ion concentrations for Tests X-1 and X-2 are provided on **Figures C-4** and **C-5**, respectively. Key observations are as follows:

- During push pull Test X-1, uranium concentrations increased above baseline from 0.03 mg/L to approximately 0.12 mg/L, before slowly decreasing during the test. Although concentrations increased nearly 4 times during the push pull test, they still remained approximately 40 times below the pre-pilot test level of 4.63 mg/L (**Figure C-6**). It is likely that this increase is due to mixing with untreated native groundwater rather than liberation of precipitated uranium, as described in more detail below.
- Uranium concentrations also increased during Test X-2 to concentrations between 0.19 and 0.28 mg/L, increasing relative to Test X-1 but remaining more than 20 times less than the pre-pilot test level. As in Test X-1, this increase is likely due to mixing with untreated native groundwater.
- Dissolved uranium at the end of Test X-1 was 0.11 mg/L, but decreased to a Test X-2 baseline level of 0.078 mg/L four days later (28% decrease), suggesting that the untreated groundwater pulled into the reactive zone exhibits attenuation.
- Although the goal of Test X-2 was to test a lower ionic strength water, the RO product water used exhibited similar water quality (including calcium, alkalinity, and

TDS) to the alluvial groundwater. Accordingly, the injectate chemistry for Tests X-1 and X-2 were nearly identical (**Figure C-7**).

- Baseline groundwater in the X Area exhibited substantially higher calcium concentrations and lower alkalinity relative to the injectate water. This was in contrast to the S Area, which exhibited water quality nearly identical to the injectate.
- Dissolved phosphate concentrations remained below baseline levels during the pull phase, increasing to baseline levels as the injectate was removed. This further suggests that the dissolved uranium increase observed during testing was not due to dissolution of uranium phosphate precipitates that were formed during the pilot test phase.
- As in Test S-1, tracer concentrations indicated mixture of injectate water with native groundwater. The tracer recovery curves indicate that approximately 55% of the injectate was recovered in Test X-1, and approximately 68% of the injectate was recovered in Test X-2.

In contrast to Test S-1, in which dissolved uranium concentrations remained below baseline groundwater values, dissolved uranium increased above the baseline groundwater value as noted above. Given the differences in well depths, water chemistry, and achieved TPP reagent distribution between the S Area and the X Area, it is likely that the observed increase in uranium concentration in Area X is due to pilot test-related artifacts, rather than a true rebound of uranium precipitated during TPP testing. Specifically, three potential factors have been identified as likely contributing to the observed dissolved uranium increase:

- 1) Due to the more limited distribution of TPP achieved during the TPP X Area pilot test compared to the S Area test, it is possible that the injected solution is mixing with both treated and untreated native groundwater. Note that although dissolved uranium increased relative to the baseline observed at the injection well, concentrations remained nearly an order of magnitude below the minimum concentrations observed at the X Area dose response wells after treatment (1 to 2 mg/L at XDR wells; see main report text).
- 2) The XIW screened interval is extremely close to the water table, and drawdown into the screened interval was observed during the pull phase of the test. Accordingly, mounding of the injectate during the push phase likely pushed

injectate into the previously unsaturated zone, which may have desorbed or otherwise mobilized uranium near the capillary fringe that was not directly treated during the TPP pilot test.

- 3) As noted above, the injectate water exhibited higher alkalinity and lower dissolved calcium concentrations than the native groundwater in the vicinity of the X Area injection well. It is possible that the higher alkalinity shifted the uranium sorption equilibrium, resulting in a greater concentration of dissolved uranium in sorptive equilibrium with the aquifer matrix. Given the finer grain texture in the X Area relative to the S Area, uranium sorption may be playing a relatively stronger role in buffering aqueous uranium concentrations in the X Area.

Most importantly, although dissolved uranium exhibited an increase above the post-TPP baseline concentration, concentrations remained several times lower than pre-TPP baseline values and below post-treatment TPP baseline values observed in X Area dose response wells. Further, based on phosphate concentrations, there is no evidence that the uranium concentration increase is a result of liberation from precipitated uranyl phosphate phases.

5. Summary and Implications

Push pull tests were performed by injection and re-extraction of low uranium groundwater within the original S Area and X Area TPP pilot test injection wells. These tests were performed to evaluate the stability of uranium immobilized within the TPP pilot test reactive zones. The tests were designed to represent the effects of long-term flushing of clean groundwater through the reactive zone following the completion of all groundwater treatment remedies. Particularly in the S Area, the shut-in time frame was roughly consistent with the hydraulic residence time of groundwater within the treatment zone, suggesting that the push pull tests are relevant to a clean groundwater flushing scenario. The following conclusions are noted:

- In the S Area, where a greater degree of phosphate distribution was achieved during TPP pilot testing, uranium and phosphate concentrations remained below pre-push pull baseline levels and significantly below pre-TPP pilot concentrations.
- In the X Area, uranium concentrations increased above pre-push pull baseline levels. However, the increase is likely due to mixing with untreated groundwater rather than liberation of treated uranium, given the lower degree of reagent distribution achieved in the X Area during TPP pilot testing. This observation is

consistent with observed phosphate concentrations (which remained below baseline levels during the push pull test), as well as uranium concentrations observed in X Area dose response wells (which were approximately an order of magnitude above uranium concentrations observed during the pull phase).

Based on the push pull test results, it is concluded that uranium precipitated within the treatment zone is highly stable. As uranium-free water migrates through the treatment zone, concentrations are not anticipated to increase above levels achieved during testing, and are likely to be well below those levels as adsorbed uranium is flushed out of the treatment zone.

6. References

New Mexico Environment Department (NMED). 2013. Homestake Mining Company- Conditional Temporary Permission to Discharge: Phase 2 of "TPP alluvial pilot testing work plan," Sections 26 and 27 (Township 12 North, Range 10 West). February 14.

Tables

Table C-1
Push Pull Test Parameter Summary
Grants Reclamation Project
Grants, NM

Push Pull Test	S Area	X Area, Test 1	X Area, Test 2
Injection Date	4/15/2014	4/16/2014	4/21/2014
Average Injection Rate (gpm)	4	5	5
Injection Volume (gal)	483	495	513
Anticipated Radius of Influence (ft)	2.2	3.2	3.2
Approximate Shut-in Time (hours)	17	15	15
Extraction Date	4/16/2014	4/17/2014	4/22/2014
Extraction Rate (gpm)	2.2 - 3.0	0.8 - 0.9	0.9 - 1.0
Extracted Volume (gal)	763	360	501
Frequency of Extraction Sample Set Collected	Once every 50 - 125 gal extracted	Once every 50 - 60 gal extracted	Once every 50 gal extracted
Total Extraction Sample Sets Collected	9 sets	7 sets	10 sets

Notes

ft = feet

gal = gallons

gpm = gallons per minute

Table C-2
Depth to Groundwater Measurements
Grants Reclamation Project
Grants, NM

Area S
(4/15/14 - 4/16/14)

Well ID	Screened Interval (ft bgs)	Depth to Groundwater (btoc)							
		Pre-Injection (Baseline)	Mid-Injection (340 gallons)	Water Level Increase	Pre-Extraction	Mid-Extraction (140 gallons)	Water Level Decrease	Post-Extraction (763 gallons)	Water Level Decrease
SIW-S	55-70	30.71	--	--	30.62	49.20	-18.58	49.61	-18.99
SDR-1S	55-70	31.56	31.05	0.51	31.57	31.95	-0.38	31.84	-0.27
SDR-2S	55-70	31.62	31.04	0.58	31.69	32.10	-0.41	31.90	-0.21
SDR-3S	55-70	31.61	31.29	0.32	31.64	32.09	-0.45	31.94	-0.3
SDR-4S	55-70	31.94	31.68	0.26	31.98	32.39	-0.41	32.23	-0.25
SIW-D	75-95	31.67	--	--	31.47	31.72	-0.25	31.75	-0.28
SDR-1D	75-95	32.14	31.71	0.43	32.04	32.30	-0.26	32.27	-0.23
SDR-2D	75-95	33.88	33.68	0.2	33.56	33.60	-0.04	33.64	-0.08
SDR-3D	75-95	33.55	33.38	0.17	33.20	33.24	-0.04	33.26	-0.06
SDR-4D	75-95	33.69	33.48	0.21	33.33	33.36	-0.03	33.35	-0.02

Area X - Test 1
(4/16/14 - 4/17/14)

Well ID	Screened Interval (ft bgs)	Depth to Groundwater (ft btoc) and Water Level Change (ft)							
		Pre-Injection (Baseline)	Mid-Injection (260 gallons)	Water Level Increase	Pre-Extraction	Mid-Extraction (250 gallons)	Water Level Decrease	Post-Extraction (360 gallons)	Water Level Decrease
XIW	35-45	35.30	30.20	5.10	35.55	40.09	-4.54	37.29	-1.74
XDR-1	35-45	37.36	36.71	0.65	37.58	37.78	-0.2	37.7	-0.12
XDR-2	35-45	39.13*	36.97	2.16	37.74	37.95	-0.21	37.84	-0.1
XDR-3	35-45	39.03*	36.82	2.21	37.65	37.87	-0.22	37.74	-0.09
XDR-4	35-45	37.46	36.81	0.65	37.69	37.91	-0.22	37.75	-0.06

Table C-2
Depth to Groundwater Measurements
Grants Reclamation Project
Grants, NM

Area X - Test 2
(4/21/14 - 4/22/14)

Well ID	Screened Interval (ft bgs)	Depth to Groundwater (btoc)							
		Pre-Injection (Baseline)	Mid-Injection (190 gallons)	Water Level Increase	Pre-Extraction	Mid-Extraction (300 gallons)	Water Level Decrease	Post-Extraction (501 gallons)	Water Level Decrease
XIW	35-45	35.23	--	--	35.19	--	--	38.27	-3.08
XDR-1	35-45	37.44	36.60	0.84	37.35	37.58	-0.23	37.47	-0.12
XDR-2	35-45	37.60	36.91	0.69	37.53	37.73	-0.20	37.61	-0.08
XDR-3	35-45	37.51	36.90	0.61	37.42	37.64	-0.22	37.53	-0.11
XDR-4	35-45	37.54	36.85	0.69	37.47	37.69	-0.22	37.55	-0.08

Notes

bgs = below ground surface

btoc = below top of casing

ft = feet

* = questionable water level measurement

Table C-3
Analytical Results: S Area
Grants Reclamation Project
Grants, NM

Parameters	Gallons Extracted		Baseline	Deep Well Water	INJ-S		S-50	S-125	S-200	S-275	S-350	S-425	S-500	S-625	S-750
	Type	Units	4/15/2014	4/16/2014	4/15/2014	--	50 4/16/2014	125 4/16/2014	200 4/16/2014	275 4/16/2014	350 4/16/2014	425 4/16/2014	500 4/16/2014	625 4/16/2014	750 4/16/2014
Radionuclides/COCs															
Uranium	Dissolved	mg/L	0.0449	0.008	0.0148	--	0.0430	0.0380	0.0378	0.0377	0.0397	0.0403	0.0422	0.045	0.0466
Uranium Precision (±)	Dissolved	mg/L	0.00725	1.3E-03	0.00239	--	0.00694	0.00613	0.00610	0.00609	0.00641	0.00650	0.00681	0.00726	0.00752
Uranium, Activity	Dissolved	uCi/mL	3.0E-08	5.6E-09	1.0E-08	--	2.9E-08	2.6E-08	2.6E-08	2.6E-08	2.7E-08	2.7E-08	2.9E-08	3.1E-08	3.2E-08
Uranium, Activity Precision (±)	Dissolved	uCi/mL	4.9E-09	9E-10	1.6E-09	--	4.7E-09	4.2E-09	4.1E-09	4.1E-09	4.3E-09	4.4E-09	4.6E-09	4.9E-09	5.1E-09
Molybdenum	Dissolved	mg/L	0.18	0.001	0.009	--	0.05	0.09	0.11	0.14	0.16	0.18	0.19	0.20	0.22
Selenium	Dissolved	mg/L	0.007	0.0060	0.005	--	0.008	0.007	0.007	0.008	0.008	0.008	0.008	0.008	0.008
Cations/ Anions															
Anions/Cations Balance (± 5)		%	-3.18	-2.8	-2.77	--	-3.83	--	-4.33	--	-5.02	--	-4.14	--	0.11
Anions		meq/L	33.8	32.2	32.9	--	34.5	--	34.1	--	34.3	--	34.0	--	33.9
Bicarbonate as HCO3		mg/L	630	611	622	--	639	--	622	--	640	--	632	--	639
Calcium		mg/L	268	239	249	--	264	265	266	263	267	269	268	270	272
Cations		meq/L	31.7	30.4	31.1	--	31.9	--	31.3	--	31.0	--	31.3	--	34.0
Chloride		mg/L	230	232	252	--	252	--	245	--	240	--	234	--	233
Magnesium		mg/L	60	77	77	--	70	--	66	--	64	--	63	--	63
Potassium		mg/L	10	13	12	--	12	--	28	--	11	--	11	--	11
Sodium		mg/L	301	272	278	--	292	--	283	--	278	--	285	--	345
Sulfate		mg/L	726	745	746	--	751	--	739	--	738	--	734	--	733
General Chemistry															
Carbonate as CO3		mg/L	<5	<5	<5	--	<5	--	<5	--	<5	--	<5	--	<5
Nitrogen, Nitrate+Nitrite as N		mg/L	1.4	1.1	1.1	--	1.2	--	1.3	--	1.4	--	1.4	--	1.50
pH		s.u.	7.1	7.14	7.13	--	7.17	--	7.18	--	7.15	--	7.13	--	7.48
Solids, Total Dissolved Calculated		mg/L	1900	1900	1900	--	2000	--	2000	--	1900	--	1900	--	2000
Solids, Total Dissolved Solids @ 180 °C		mg/L	2020	2000	2060	--	2050	--	2040	--	2020	--	2020	--	2030
TDS Balance (0.80 - 1.20)		unitless	1.04	1.05	1.06	--	1.04	--	1.05	--	1.04	--	1.04	--	1.02
Additional Performance Parameters															
Arsenic	Dissolved	mg/L	0.016	<0.001	<0.001	--	0.007	0.009	0.011	0.012	0.013	0.014	0.014	0.015	0.015
Phosphorus, Ortho as P	Dissolved	mg/L	17.9	0.016	0.146	--	12.0	12.5	16.3	14.7	16.2	16.6	16.8	17.2	17.1
Phosphorus, Total as P	Total	mg/L	17.5	0.013	0.237	--	72	12.2	12.6	12.8	13.4	14.0	13.7	14.4	14.6
Field Parameters															
pH			6.34	6.66	6.46	6.93	6.91	7.21	7.20	7.22	7.08	7.21	7.30	7.34	7.29
Conductivity		mS/cm	2.653	3.003	3.213	3.211	2.915	2.859	2.84	2.822	2.795	2.778	2.776	2.747	2.738
Total Dissolved Solids		mg/L	--	2218	2272	2269	2227	2187	2188	2177	2178	2176	2173	2181	2181
Dissolved Oxygen		mg/L	4.4	1.29	6.42	5.94	5.90	8.01	7.01	6.80	4.46	6.36	5.20	6.12	4.61
Temperature		°C	13.17	18.72	20.77	20.8	17.42	17.15	16.79	16.60	16.30	16.07	16.08	15.52	15.38
ORP		mV	114.6	74.4	101.9	77.3	184.5	77.2	91.0	82.5	82.5	83.6	73.2	85.9	73.0
Tracer															
Deuterium D2O		VSMOW	-79	--	625	649	527	447	399	286	194	106	56	-1.8	-22.5
Fluorescein		ppm	0	--	0.000402	--	0	--	0	--	0.00354	--	0.00639	--	0.00925
Eosine		ppm	0.324	--	0	--	0.0841	--	0.181	--	0.201	--	0.235	--	0.266
Rhodamine WT		ppm	0.015	--	0	--	0.00793	--	0.00967	--	0.0121	--	0.0105	--	0.0139

Table C-3
Analytical Results: S Area
Grants Reclamation Project
Grants, NM

Notes
mg/L = milligrams per liter
uCi/mL = microcuries per milliliter
meq/L = milliequivalents per liter
s.u. = standard units
mS/cm = microsiemens per centimeter
°C = degrees Celsius
mV = millivolts
VSMOW = Vienna Standard Mean Ocean Water
ppm = parts per million
TDS = total dissolved solids

Table C-4
Analytical Results: X Area, Test 1
Grants Reclamation Project
Grants, NM

Parameters	Gallons Extracted:		Baseline	INJ-X		X-50	X-100	X-150	X-200	X-250	X-300	X-360
	Type	Units	-- 4/16/2014	-- 4/16/2014	-- 4/16/2014	50 4/17/2014	100 4/17/2014	150 4/17/2014	200 4/17/2014	250 4/17/2014	300 4/17/2014	360 4/17/2014
Radionuclides/COCs												
Uranium	Dissolved	mg/L	0.0291	0.0098	--	0.118	0.113	0.110	0.110	0.106	0.103	0.108
Uranium Precision (±)	Dissolved	mg/L	0.00470	0.00159	--	0.0190	0.0183	0.0178	0.0178	0.0171	0.0166	0.018
Uranium, Activity	Dissolved	uCi/mL	2.0E-08	6.7E-09	--	8.0E-08	7.7E-08	7.5E-08	7.5E-08	7.2E-08	7.0E-08	7.3E-08
Uranium, Activity Precision (±)	Dissolved	uCi/mL	3.2E-09	1.1E-09	--	1.3E-08	1.2E-08	1.2E-08	1.2E-08	1.2E-08	1.1E-08	1.2E-08
Molybdenum		mg/L	1.29	0.006	--	0.30	0.34	0.38	0.43	0.54	0.69	0.78
Selenium		mg/L	0.127	0.006	--	0.016	0.023	0.027	0.031	0.044	0.060	0.073
Cations/ Anions												
Anions/Cations Balance (± 5)		%	-0.86	-2.70	--	-3.45	--	-4.94	--	-4.88	--	-0.04
Anions		meq/L	51.0	32.4	--	36.1	--	38	--	40.7	--	42.9
Bicarbonate as HCO3		mg/L	447	622	--	590	--	584	--	559	--	564
Calcium		mg/L	373	240	--	265	270	271	270	275	270	278
Cations		meq/L	50.1	30.7	--	33.7	--	34.4	--	36.9	--	42.9
Chloride		mg/L	986	233	--	315	--	381	--	462	--	495
Magnesium		mg/L	37	77	--	58	--	49	--	43	--	38
Potassium		mg/L	12	13	--	12	--	12	--	12	--	13
Sodium		mg/L	646	275	--	354	--	380	--	443	--	588
Sulfate		mg/L	753	744	--	751	--	735	--	745	--	784
General Chemistry												
Carbonate as CO3		mg/L	<5	<5	--	<5	--	<5	--	<5	--	<5
Nitrogen, Nitrate+Nitrite as N		mg/L	2.1	1.1	--	1.2	--	1.3	--	1.4	--	1.5
pH		s.u.	6.66	7.08	--	7.02	--	6.95	--	6.94	--	6.95
Solids, Total Dissolved Calculated		mg/L	3100	1900	--	2100	--	2200	--	2300	--	2500
Solids, Total Dissolved Solids @ 180 °C		mg/L	3340	2000	--	2170	--	2270	--	2420	--	2520
TDS Balance (0.80 - 1.20)		unitless	1.07	1.05	--	1.04	--	1.05	--	1.05	--	1.00
Additional Performance Parameters												
Arsenic	Dissolved	mg/L	0.113	<0.001	--	0.029	0.038	0.044	0.050	0.057	0.063	0.069
Phosphorus, Ortho as P	Dissolved	mg/L	34.2	0.063	--	18.9	22.0	23.9	26.4	29.5	33.6	33.4
Phosphorus, Total as P	Total	mg/L	58	0.065	--	16.6	19.6	22.6	22.8	26.1	28.5	30.3
Field Parameters												
pH			6.66	7.78	7.60	6.84	6.87	6.73	6.50	6.12	6.02	6.11
Conductivity		mS/cm	4.941	2.978	2.957	3.008	3.127	3.263	3.393	3.580	3.619	3.643
Total Dissolved Solids		mg/L	--	2158	2161	2355	2435	2492	2582	2795	2795	2838
Dissolved Oxygen		mg/L	3.55	4.64	4.56	5.75	5.34	5.57	5.27	5.14	5.10	5.13
Temperature		°C	13.91	19.62	19.21	16.07	16.36	17.22	17.40	17.52	16.71	16.32
ORP		mV	75.0	82.8	89.0	125.8	114.1	77.1	97.4	114.7	105.7	70.5
Tracer												
Deuterium D ₂ O		VSMOW	-74	632	647	584	554	528	478	391	302	229
Fluorescein		ppm	0.284	--	--	0.0715	--	0.113	--	0.149	--	0.174
Eosine		ppm	6.620	--	--	0.716	--	1.600	--	2.220	--	2.550

Table C-4
Analytical Results: X Area, Test 1
Grants Reclamation Project
Grants, NM

Notes
mg/L = milligrams per liter
uCi/mL = microcuries per milliliter
meq/L = milliequivalents per liter
s.u. = standard units
mS/cm = microsiemens per centimeter
°C = degrees Celsius
mV = millivolts
VSMOW = Vienna Standard Mean Ocean Water
ppm = parts per million
TDS = total dissolved solids

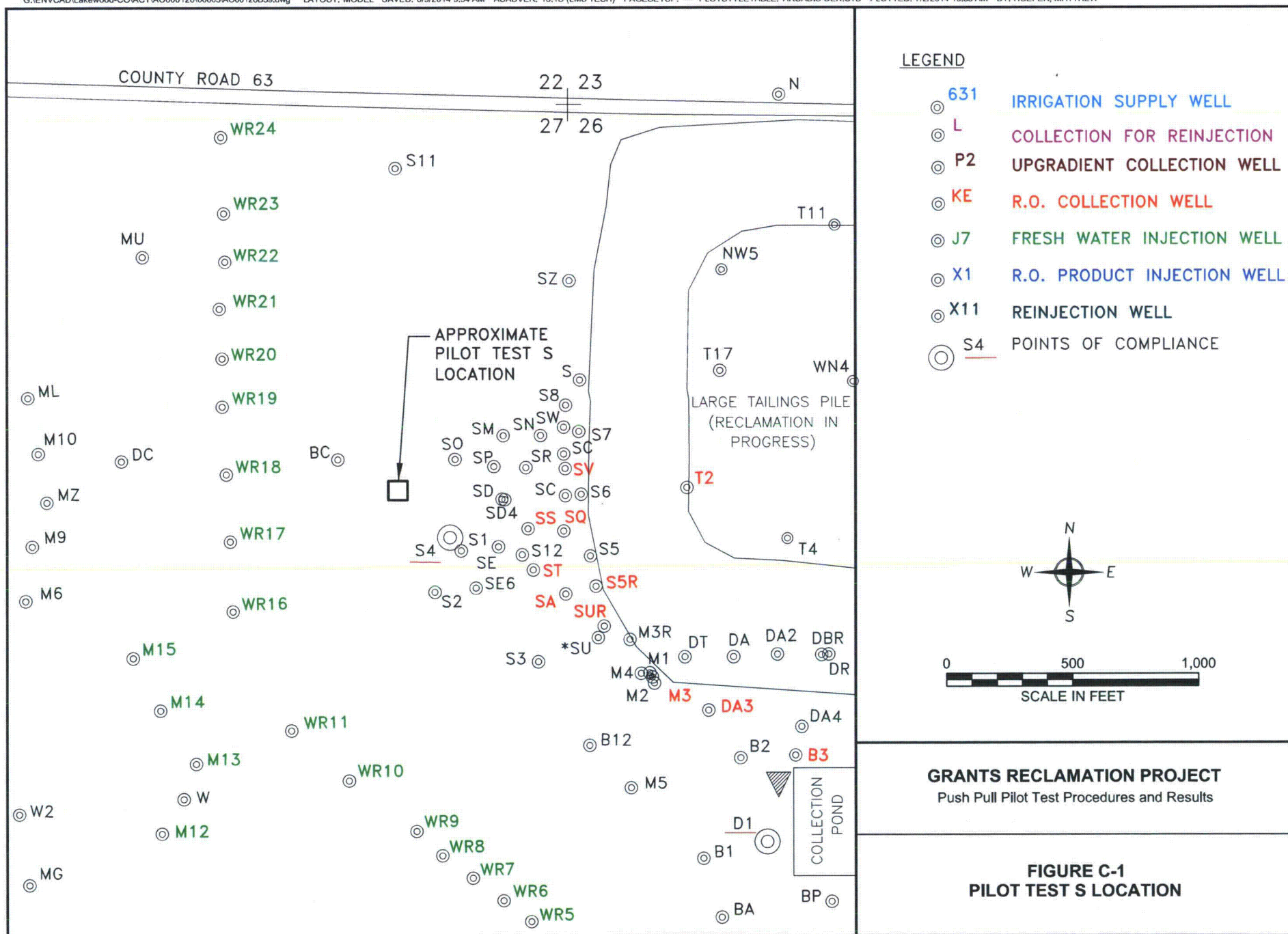
Table C-5
Analytical Results: X Area, Test 2
Grants Reclamation Project
Grants, NM

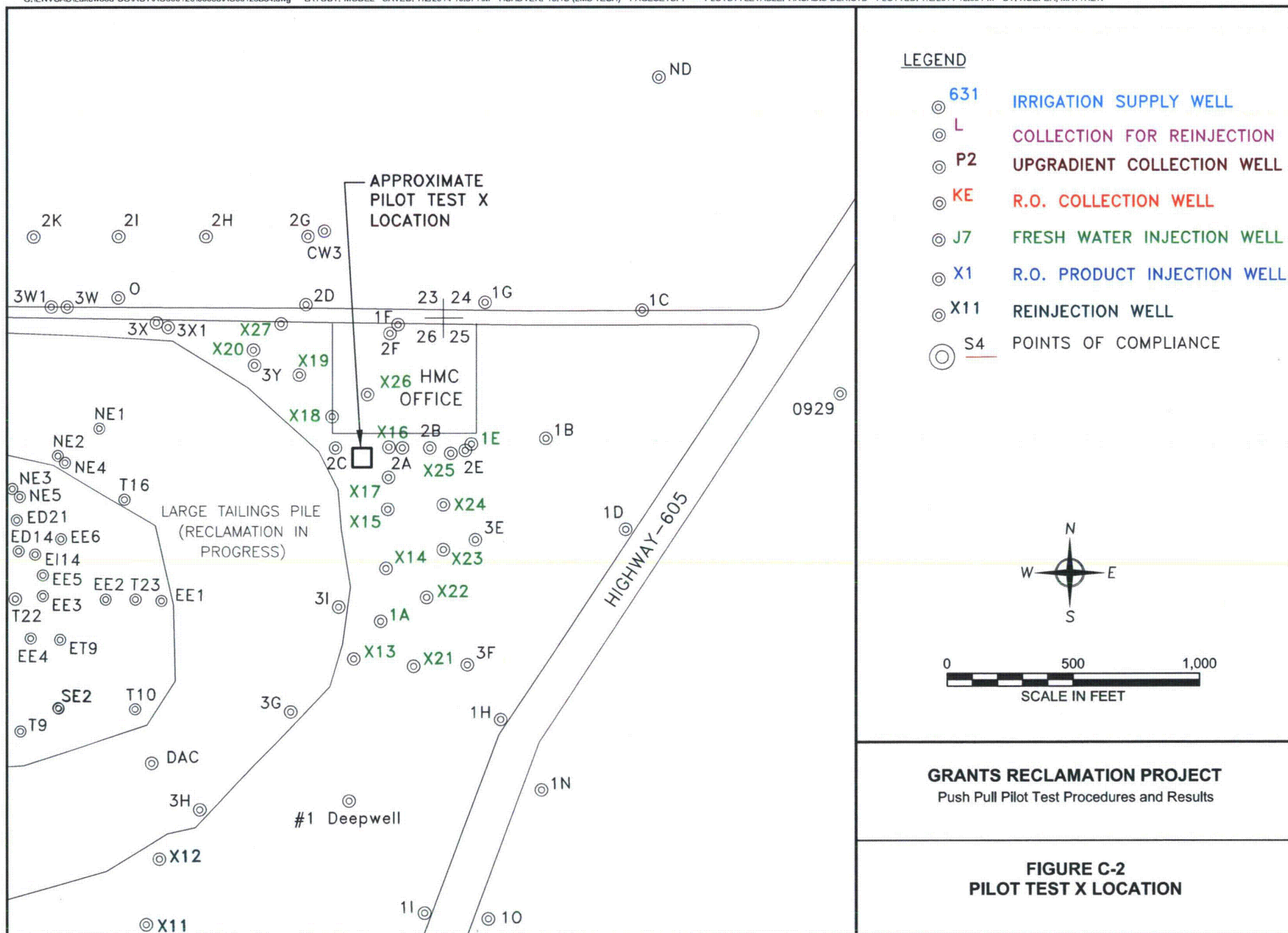
			Baseline	RO Water	INJ-X-2		X-50	X-100	X-150	X-200	X-250	X-300	X-350	X-400	X-450	X-500
			--	--	--	--	50	100	150	200	250	300	350	400	450	500
Parameters	Type	Units	4/21/2014	4/17/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014	4/22/2014
Radionuclides/COCs																
Uranium	Dissolved	mg/L	0.0781	0.0095	0.011	--	0.195	0.192	0.196	0.204	0.195	0.188	0.195	0.202	0.227	0.279
Uranium Precision (±)	Dissolved	mg/L	0.01260	1.5E-03	0.00169	--	0.0315	0.0311	0.0316	0.0330	0.0314	0.0304	0.031	0.0326	0.0366	0.0451
Uranium, Activity	Dissolved	uCi/mL	5.3E-08	6.4E-09	7.1E-09	--	1.3E-07	1.3E-07	1.3E-07	1.4E-07	1.3E-07	1.3E-07	1.3E-07	1.4E-07	1.5E-07	1.9E-07
Uranium, Activity Precision (±)	Dissolved	uCi/mL	8.5E-09	0.000000001	1.2E-09	--	2.1E-08	2.1E-08	2.1E-08	2.2E-08	2.1E-08	2.1E-08	2.1E-08	2.2E-08	2.5E-08	3.1E-08
Molybdenum		mg/L	0.945	0.004	0.003	--	0.266	0.296	0.318	0.353	0.460	0.558	0.685	0.750	0.826	0.881
Selenium		mg/L	0.084	0.007	0.006	--	0.015	0.017	0.020	0.022	0.032	0.045	0.061	0.069	0.078	0.086
Cations/ Anions																
Anions/Cations Balance (± 5)		%	0.82	-1.72	0.42	--	0.39	--	0.69	--	0.62	--	0.49	--	0.31	0.66
Anions		meq/L	43.1	32.0	32.9	--	34.6	--	35.3	--	36.8	--	39.0	--	39.7	39.8
Bicarbonate as HCO3		mg/L	553	609	606	--	588	--	574	--	576	--	572	--	585	575
Calcium	Dissolved	mg/L	282	236	237	--	256	259	259	253	254	252	261	256	249	249
Cations		meq/L	43.8	30.9	33.2	--	34.8	--	35.8	--	37.3	--	39.4	--	39.9	40.3
Chloride		mg/L	596	231	246	--	299	--	332	--	375	--	418	--	419	424
Magnesium		mg/L	40	77	82	--	62	--	56	--	48	--	43	--	38	37
Potassium		mg/L	12	12	13	--	12	--	12	--	12	--	13	--	12	12
Sodium		mg/L	600	288	330	--	383	--	412	--	467	--	517	--	554	564
Sulfate		mg/L	821	741	766	--	788	--	787	--	801	--	851	--	870	876
General Chemistry																
Carbonate as CO3		mg/L	<5	<5	<5	--	<5	--	<5	--	<5	--	<5	--	<5	<5
Nitrogen, Nitrate+Nitrite as N		mg/L	1.55	1.1	1.13	--	1.19	--	1.22	--	1.30	--	1.37	--	1.38	1.39
pH		s.u.	6.85	7.18	7.34	--	7.12	--	7.07	--	7.03	--	7.02	--	7.02	7.01
Solids, Total Dissolved Calculated		mg/L	2700	1900	2000	--	2100	--	2200	--	2300	--	2400	--	2500	2500
Solids, Total Dissolved Solids @ 180 °C		mg/L	2600	1980	1980	--	2060	--	2110	--	2210	--	2310	--	2390	2390
TDS Balance (0.80 - 1.20)		unitless	0.97	1.04	0.99	--	0.97	--	0.96	--	0.96	--	0.95	--	0.96	0.95
Additional Performance Parameters																
Arsenic	Dissolved	mg/L	0.075	<0.001	<0.001	--	0.024	0.029	0.033	0.037	0.045	0.049	0.056	0.058	0.061	0.063
Phosphorus, Ortho as P	Dissolved	mg/L	32.6	0.014	0.068	--	9.4	11.0	12.5	14.7	17.4	19.2	20.2	22.2	23.6	24.2
Phosphorus, Total as P	Total	mg/L	34.4	0.050	0.177	--	12.4	13.9	15.1	16.0	17.6	20.2	21.4	23.0	24.8	25.6
Field Parameters																
pH			6.16	--	6.98	6.97	7.36	7.37	7.35	7.38	7.14	6.78	7.00	7.03	6.98	6.84
Conductivity		mS/cm	3.188	--	2.473	2.520	2.899	2.950	3.010	3.052	3.129	3.191	3.295	3.362	3.377	3.383
Total Dissolved Solids		mg/L	--	--	1872	1874	2224	2257	2294	2331	2390	2462	2533	2593	2609	2616
Dissolved Oxygen		mg/L	5.29	--	5.87	5.75	5.85	5.87	5.88	6.40	5.93	5.89	5.31	4.74	4.72	4.94
Temperature		°C	14.93	--	17.61	18.41	17.01	17.13	17.30	17.18	17.19	16.74	16.90	16.77	16.70	16.65
ORP		mV	219.6	--	166.9	154.6	206.5	174.5	148.7	142.0	149.6	162.3	152.6	180.7	154.6	158.7
Tracer																
Deuterium D2O		VSMOW	179	93	613	629	567	552	537	517	469	374	304	215	160	153
Fluorescein		ppm	--	--	0	--	0.056	--	0.0768	--	0.101	--	0.138	--	0.167	0.173
Eosine		ppm	--	--	0	--	0.514	--	0.805	--	1.110	--	1.530	--	1.780	1.770

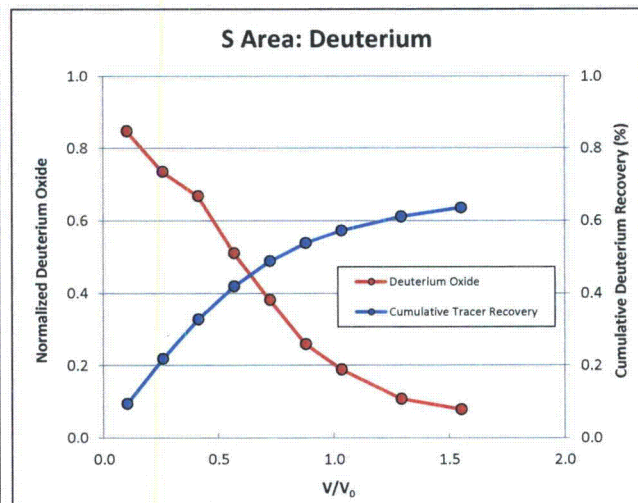
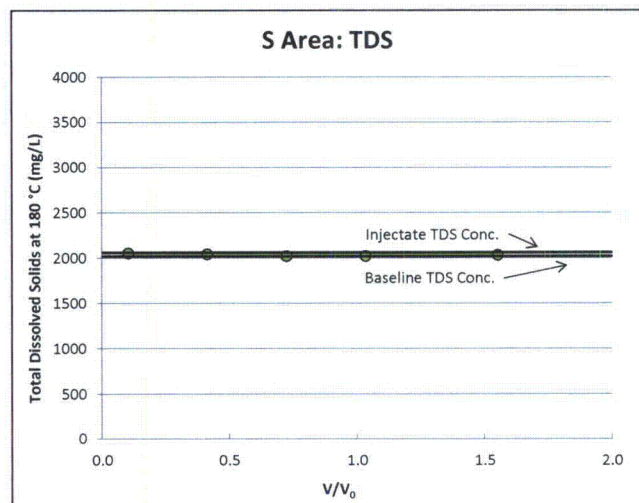
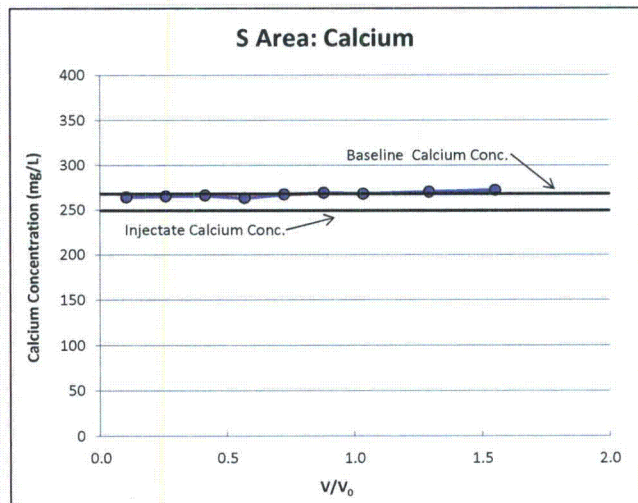
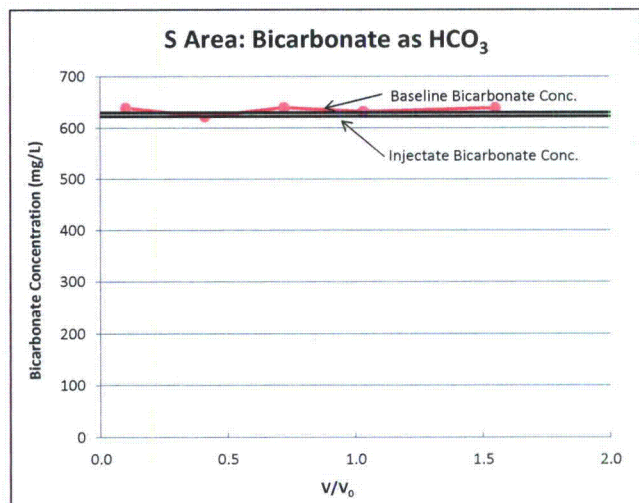
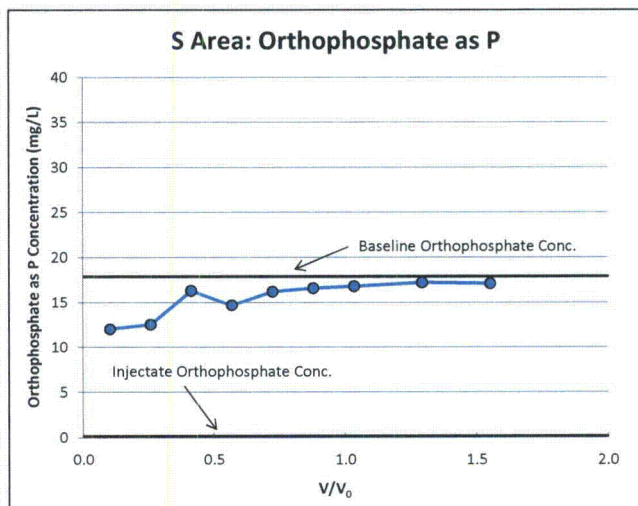
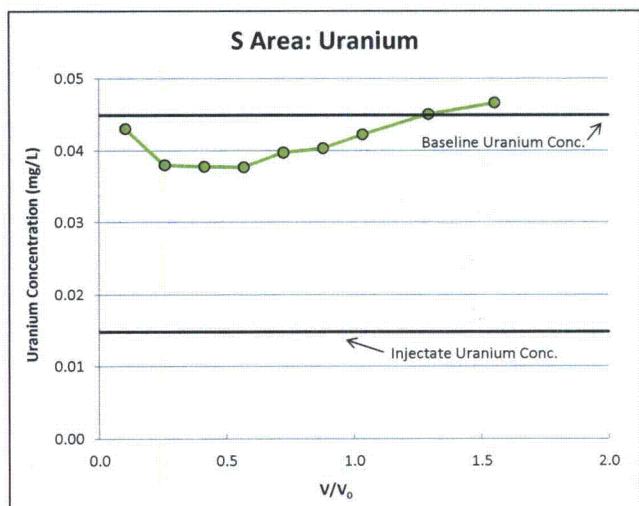
Table C-5
Analytical Results: X Area, Test 2
Grants Reclamation Project
Grants, NM

Notes
mg/L = milligrams per liter
uCi/mL = microcuries per milliliter
meq/L = milliequivalents per liter
s.u. = standard units
mS/cm = microsiemens per centimeter
°C = degrees Celsius
mV = millivolts
VSMOW = Vienna Standard Mean Ocean Water
ppm = parts per million
TDS = total dissolved solids

Figures







Notes:

mg/L = milligrams per liter

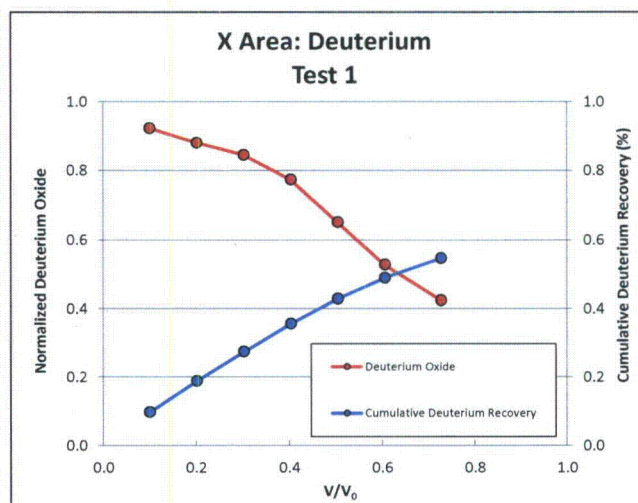
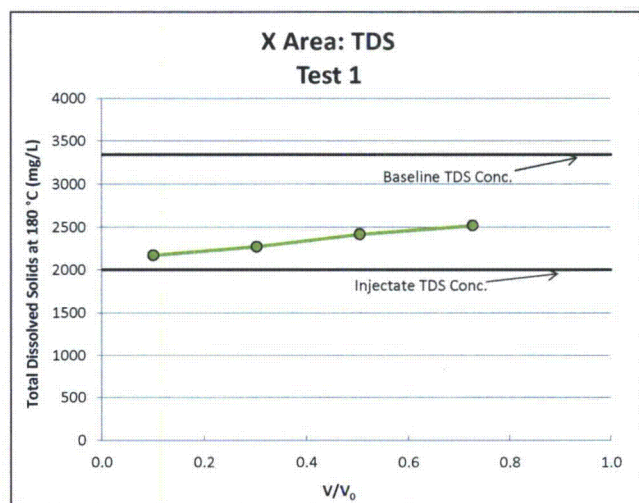
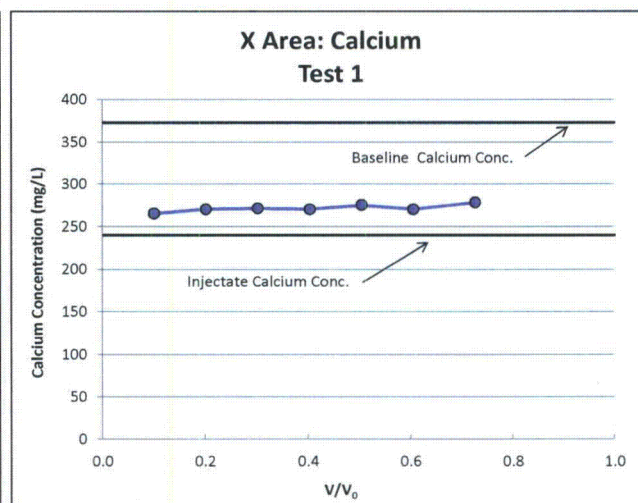
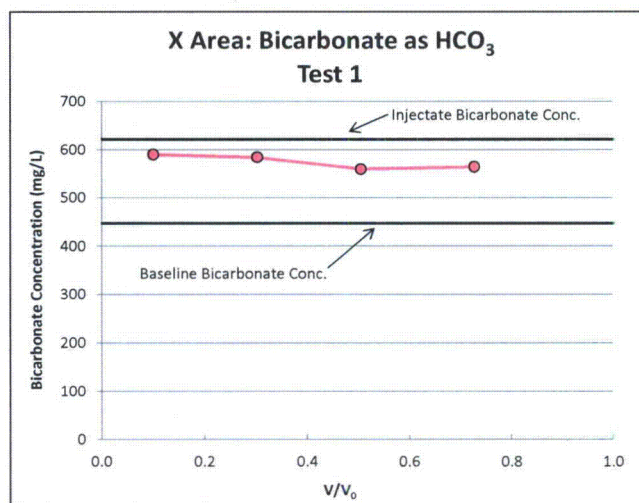
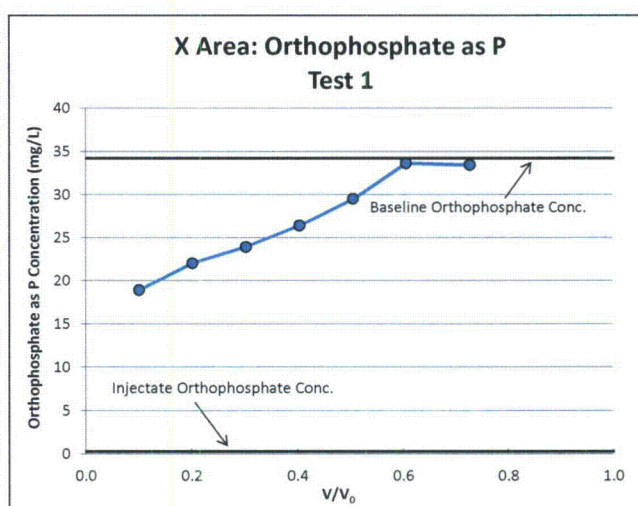
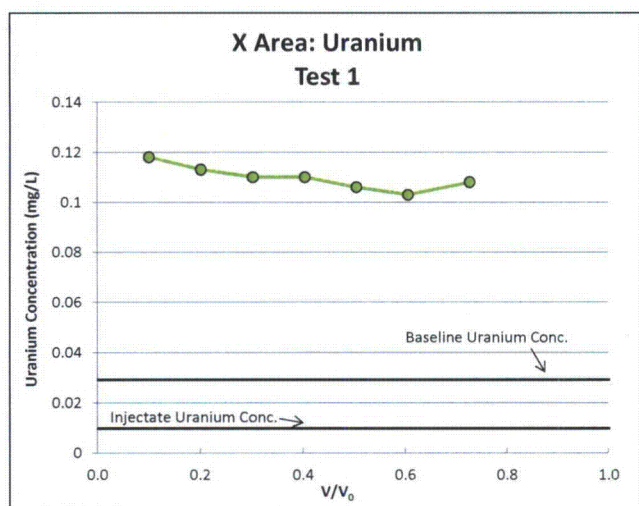
TDS = total dissolved solids

°C = degrees Celsius

V/V₀ = volume extracted divided by volume injected

GRANTS RECLAMATION PROJECT
Push Pull Pilot Test Procedures and Results

FIGURE C-3
Push Pull Test Results: S Area



Notes:

mg/L = milligrams per liter

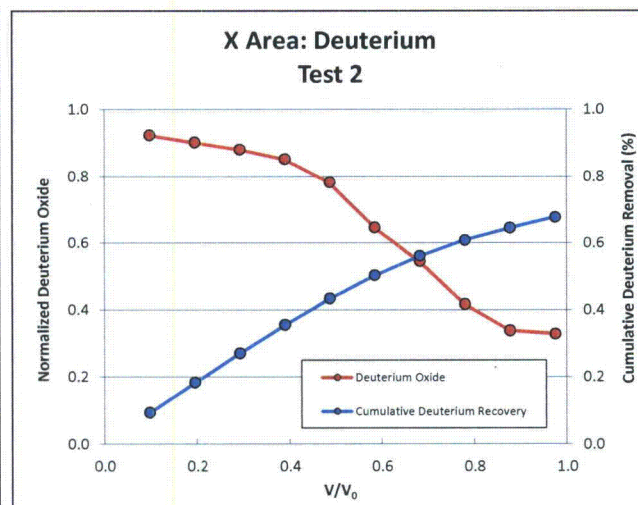
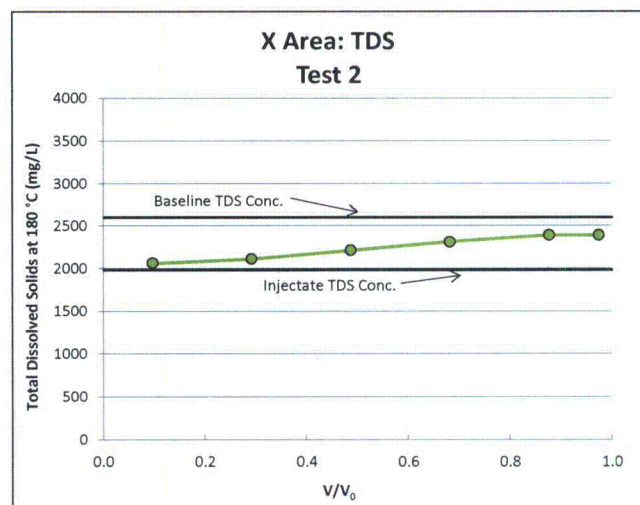
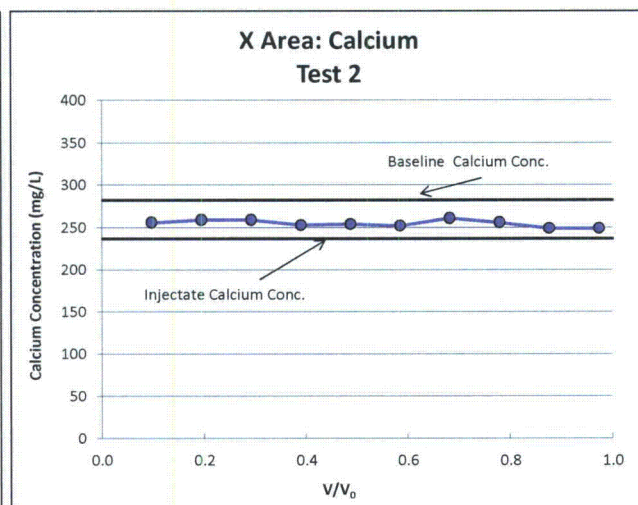
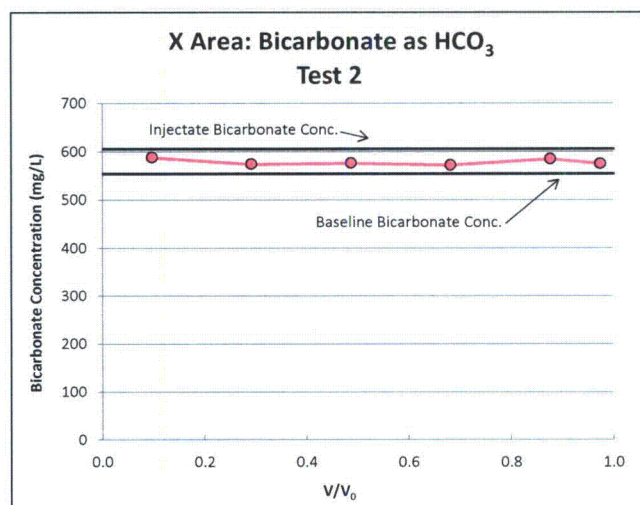
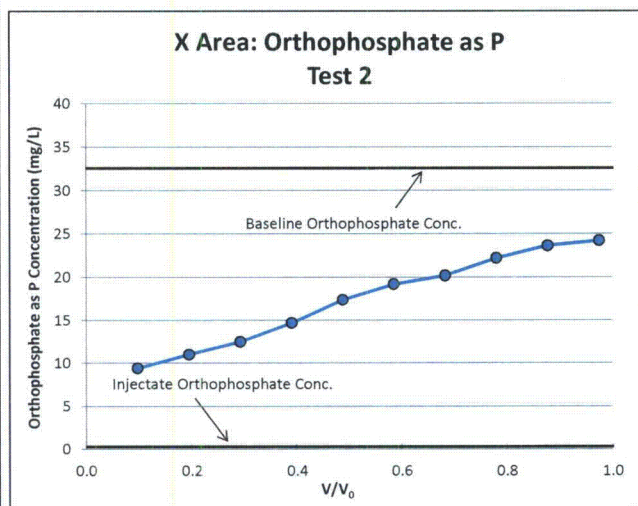
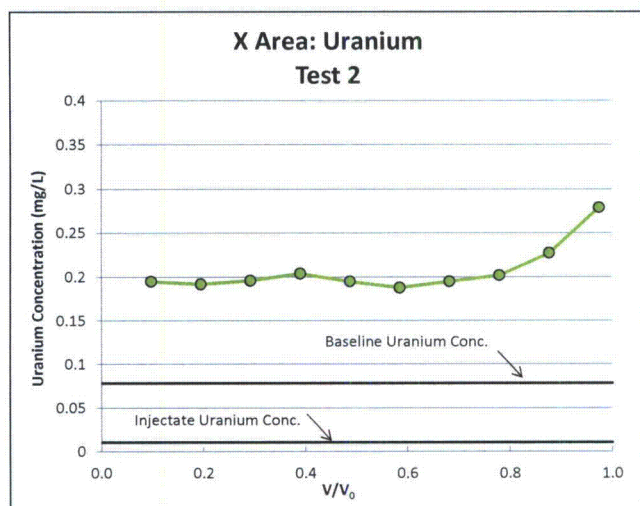
TDS = total dissolved solids

°C = degree Celsius

V/V₀ = volume extracted divided by volume injected

GRANTS RECLAMATION PROJECT
Push Pull Pilot Test Procedures and Results

FIGURE C-4
Push Pull Test Results: X Area, Test 1



Notes:

mg/L = milligrams per liter

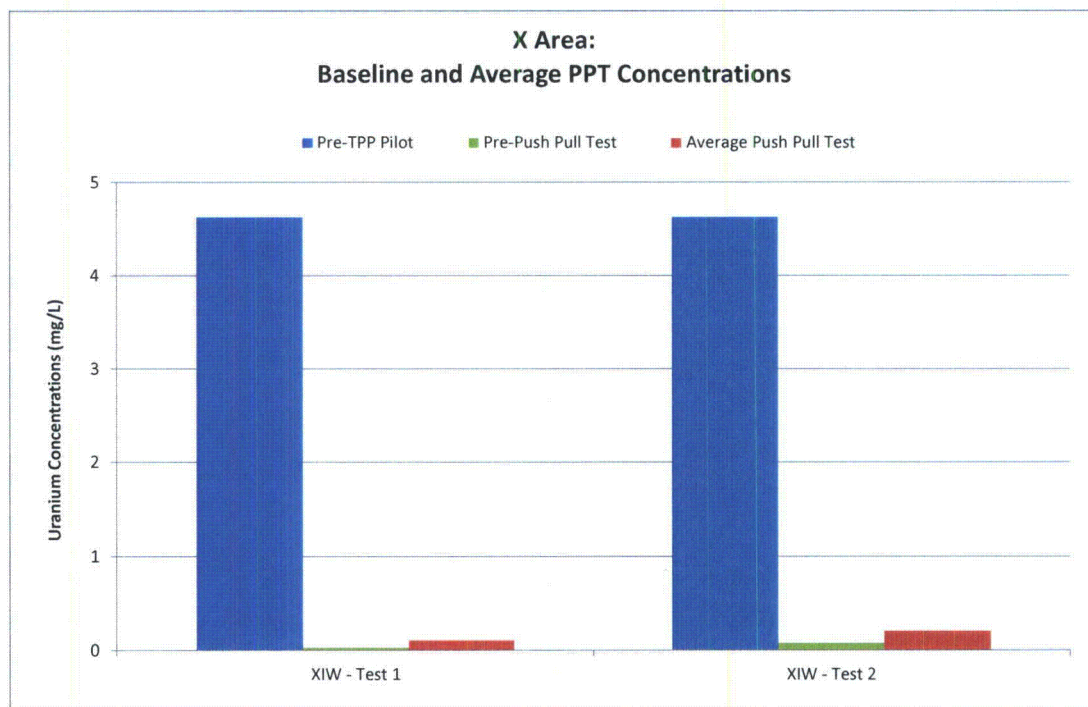
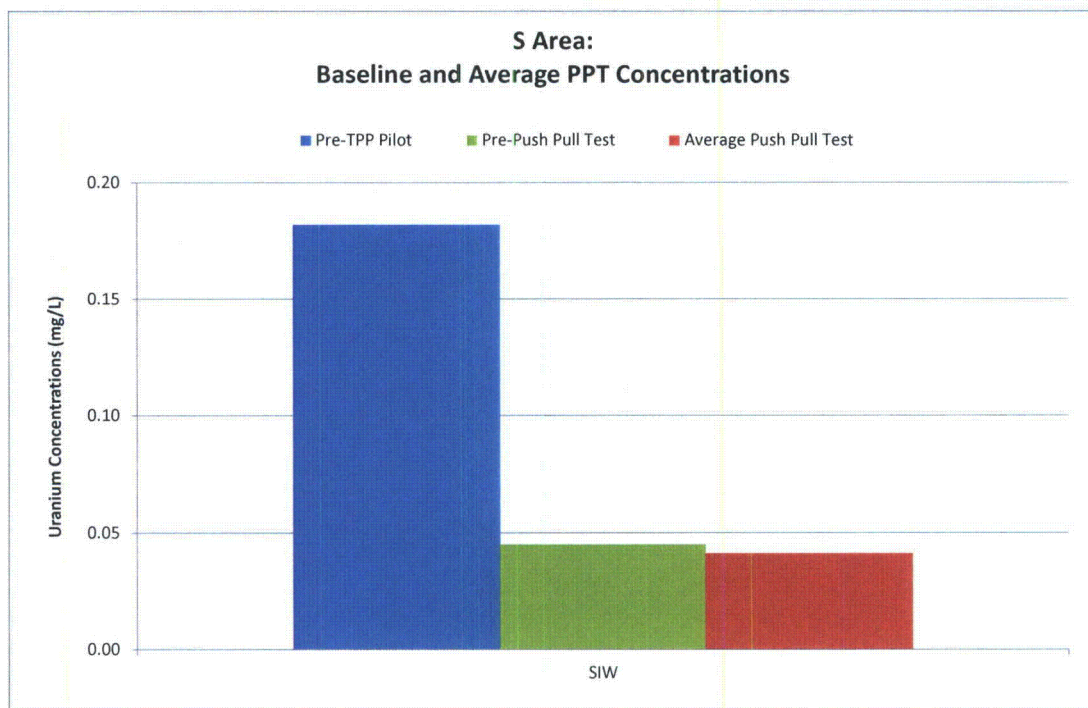
TDS = total dissolved solids

°C = degree Celsius

V/V₀ = volume extracted divided by volume injected

GRANTS RECLAMATION PROJECT
Push Pull Pilot Test Procedures and Results

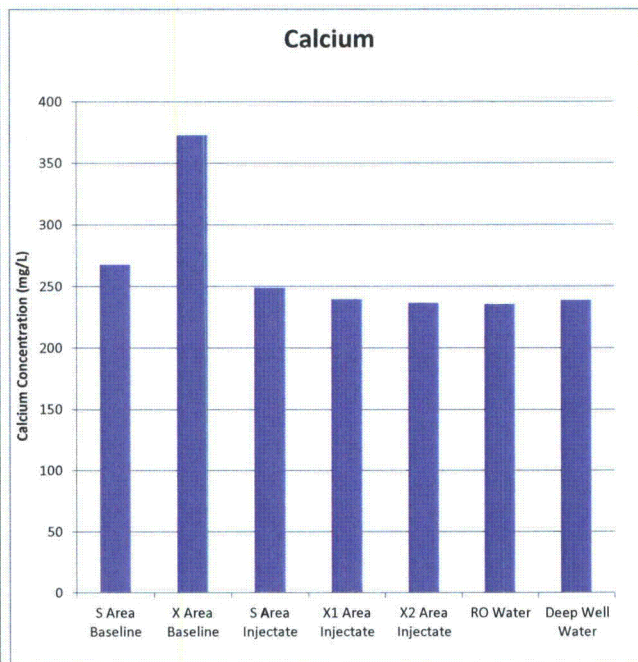
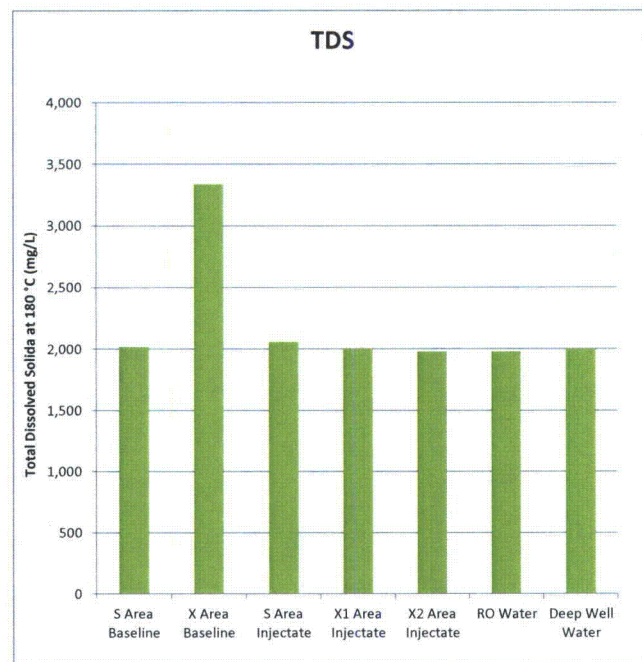
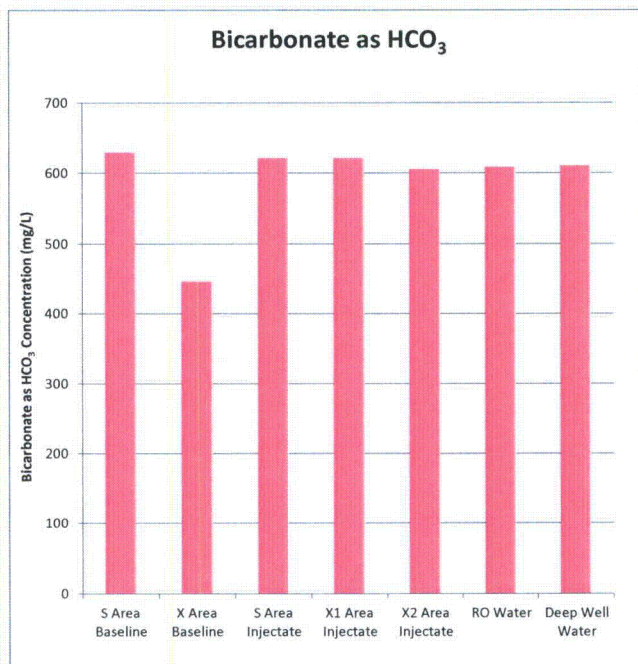
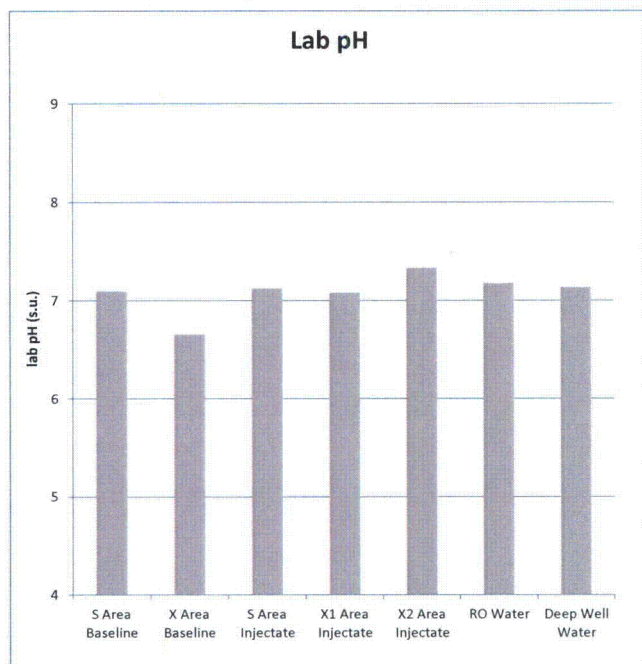
FIGURE C-5
Push Pull Test Results: X Area, Test 2



Notes:
 mg/L = milligrams per liter
 TPP = tripolyphosphate

GRANTS RECLAMATION PROJECT
 Push Pull Pilot Test Procedures and Results

FIGURE C-6
 Uranium Concentrations:
 Pre-TPP Pilot and Push Pull Test



Notes:

mg/L = milligrams per liter
 RO = reverse osmosis
 s.u. = standard units
 TDS = total dissolved solids
 °C = degrees Celsius

GRANTS RECLAMATION PROJECT
 Push Pull Pilot Test Procedures and Results

FIGURE C-7
 Push Pull Test Results:
 Bicarbonate, Calcium, pH and TDS



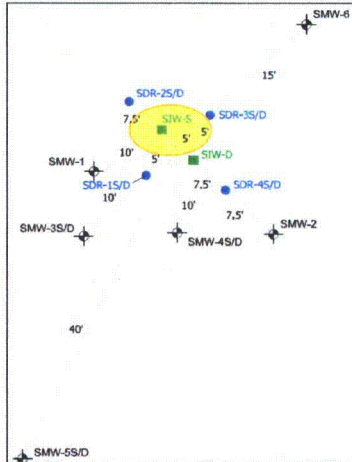
Appendix D

At-A-Glance Charts

TPP Pilot Test At-A-Glance Charts

Well ID: SIW-1S

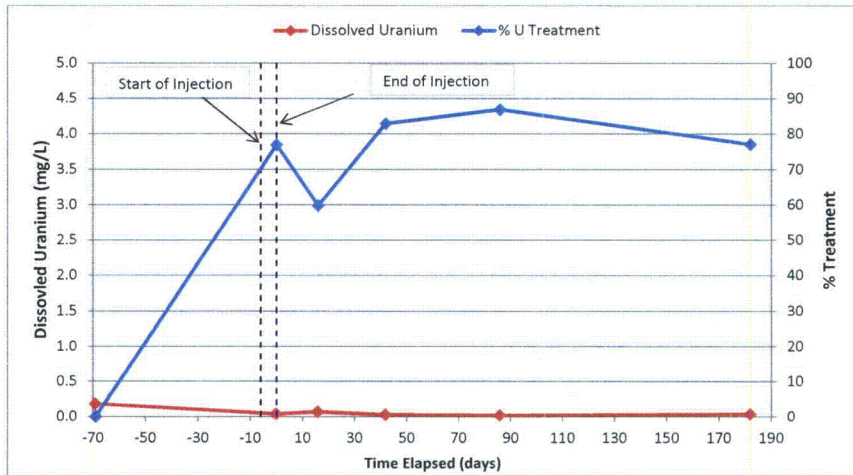
Well Location:



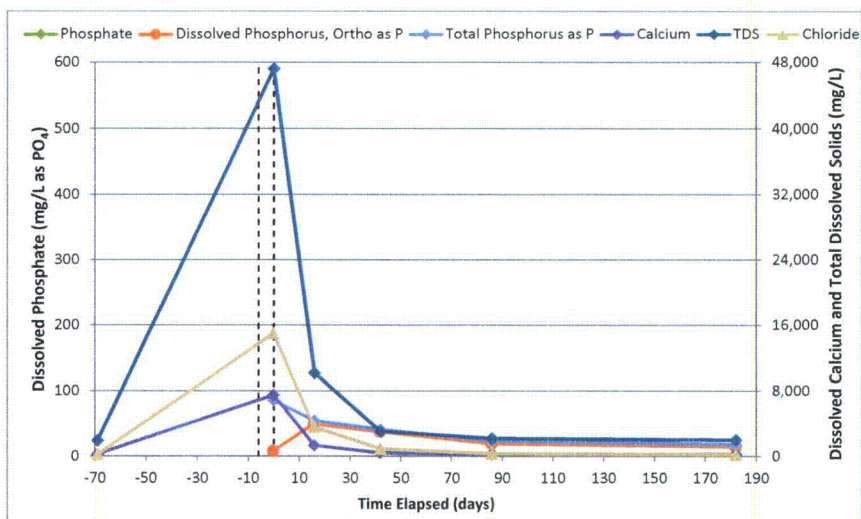
Well Construction Details:

Depth	Screened Interval	Diameter
75	55-70	4

Uranium



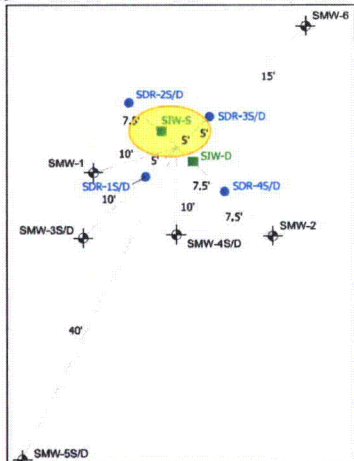
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SIW-1S

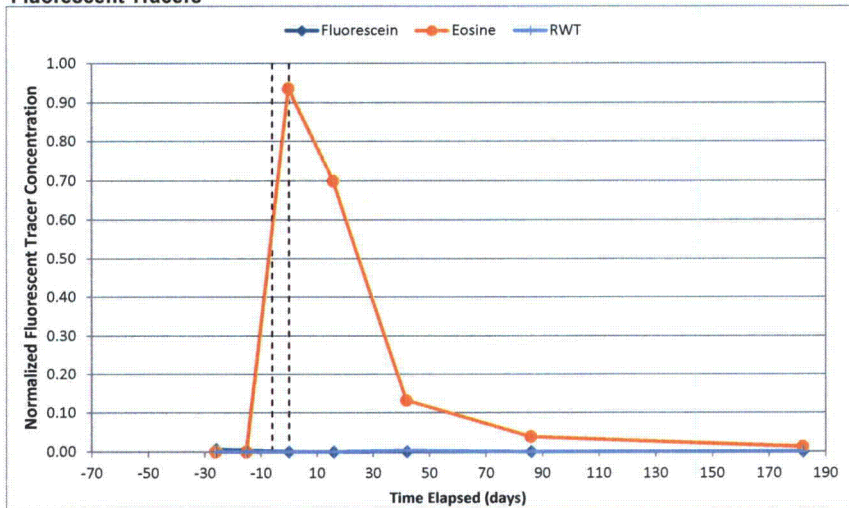
Well Location:



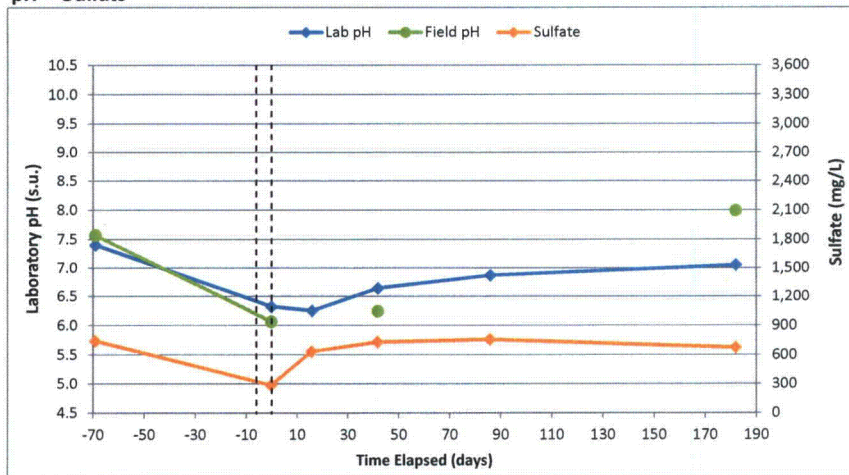
Well Construction Details:

Depth	Screened Interval	Diameter
75	55-70	4

Fluorescent Tracers



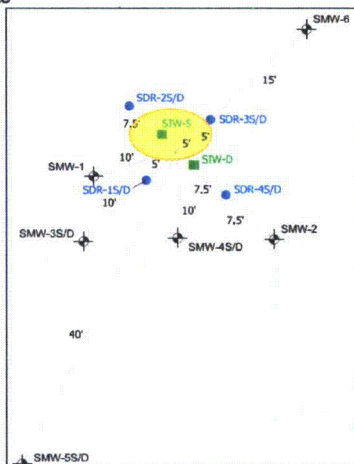
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SIW-1S

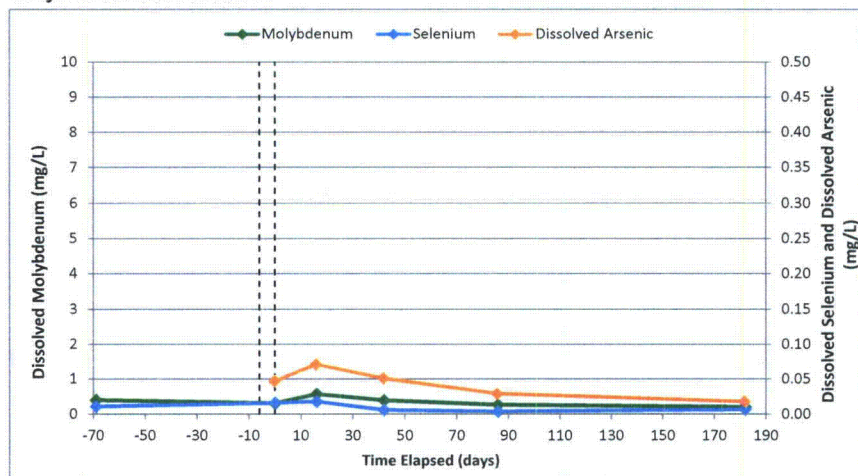
Well Location:



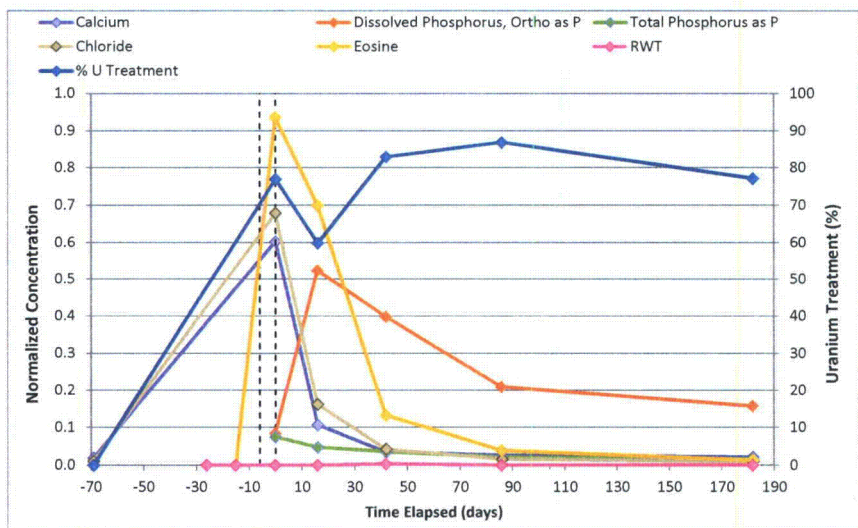
Well Construction Details:

Depth	Screened Interval	Diameter
75	55-70	4

Molybdenum and Selenium



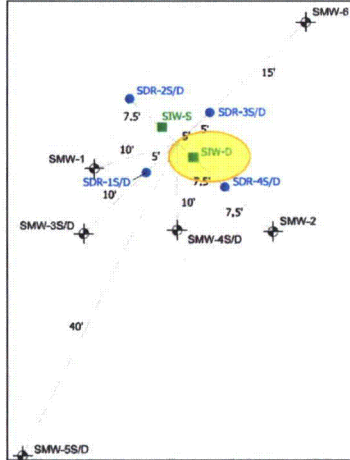
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SIW-1D

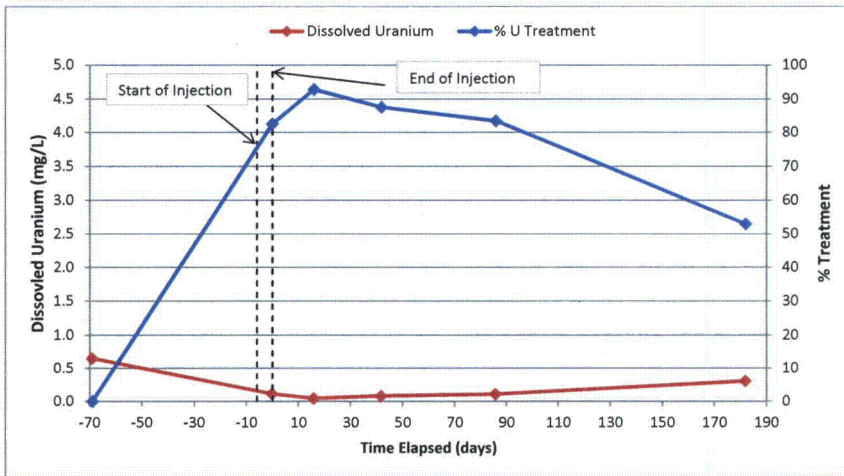
Well Location:



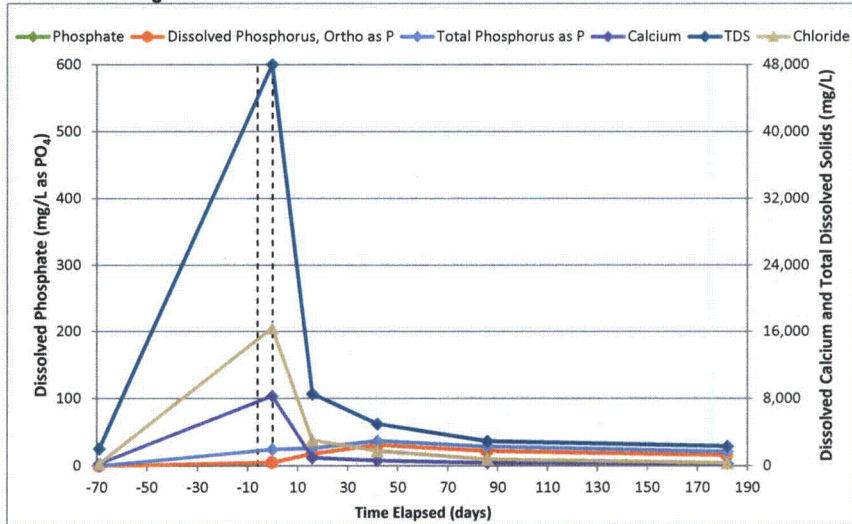
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	4

Uranium



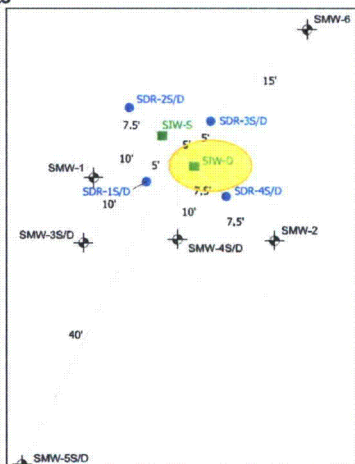
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SIW-1D

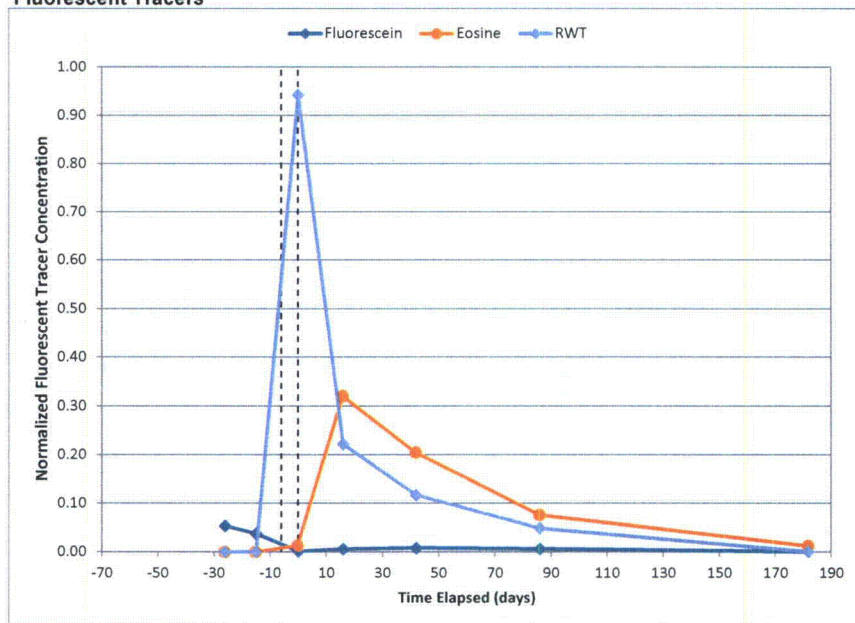
Well Location:



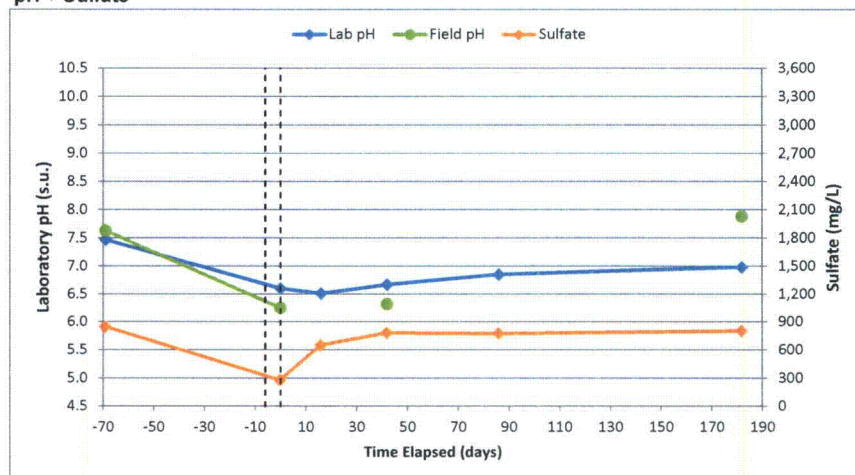
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	4

Fluorescent Tracers



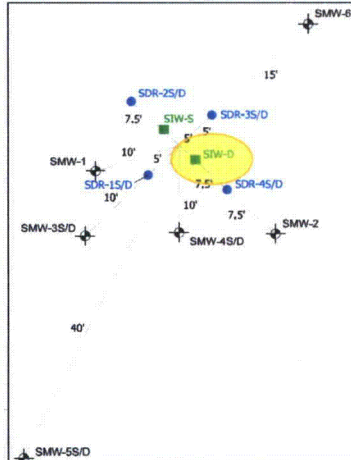
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SIW-1D

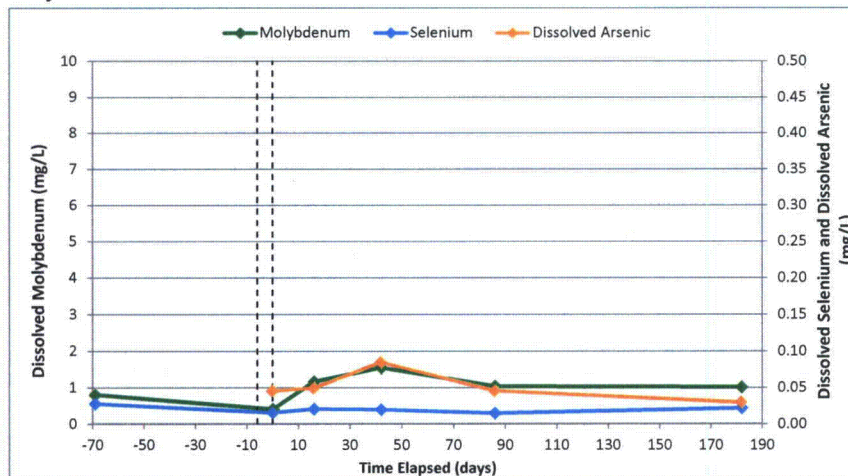
Well Location:



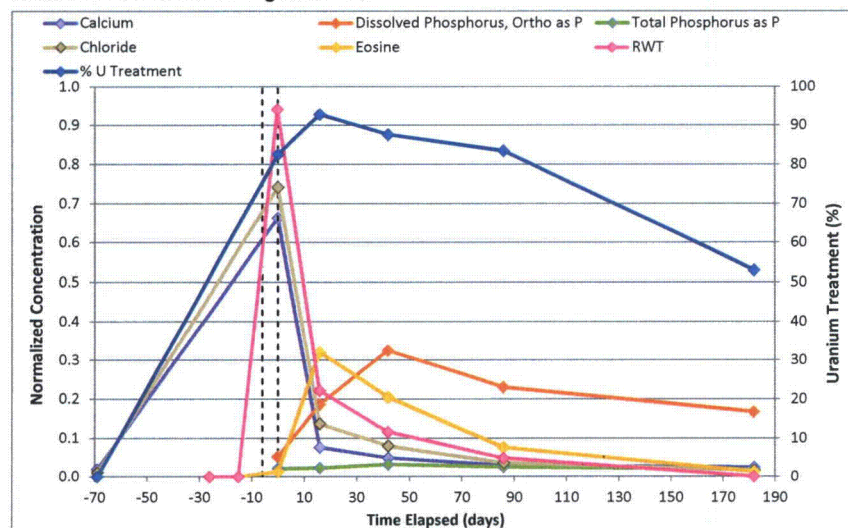
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	4

Molybdenum and Selenium

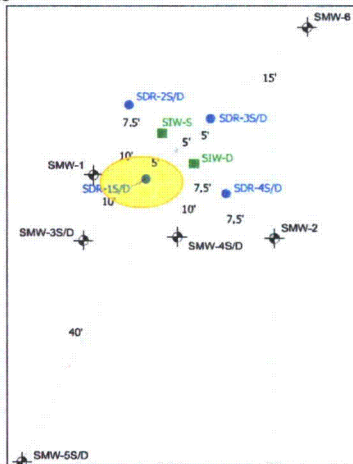


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: SDR-1S

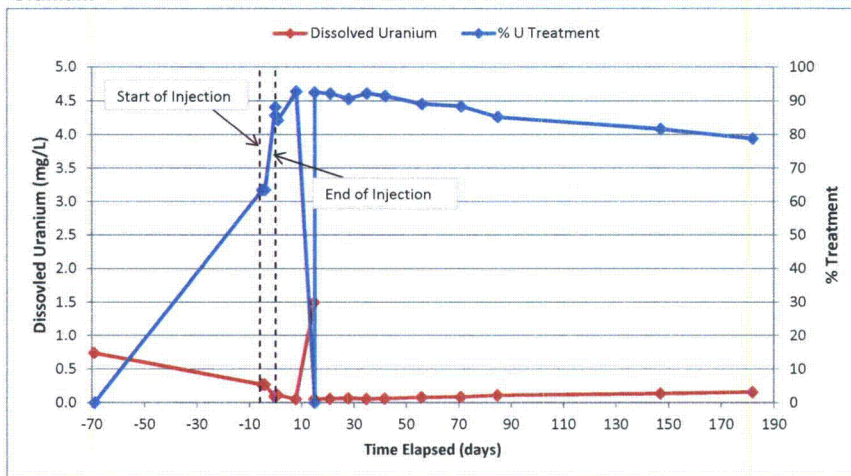
Well Location:



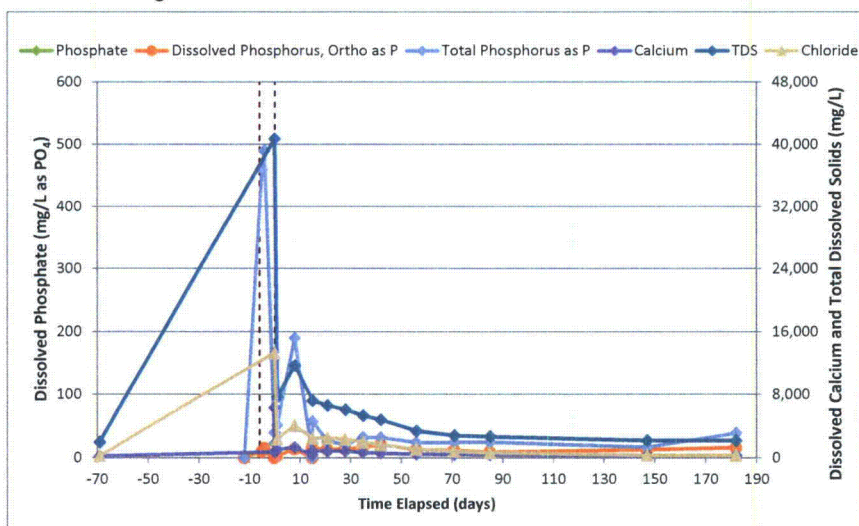
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Uranium



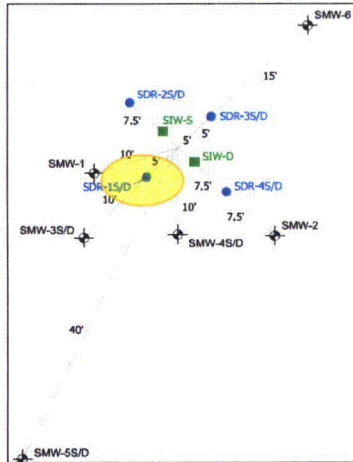
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-1S

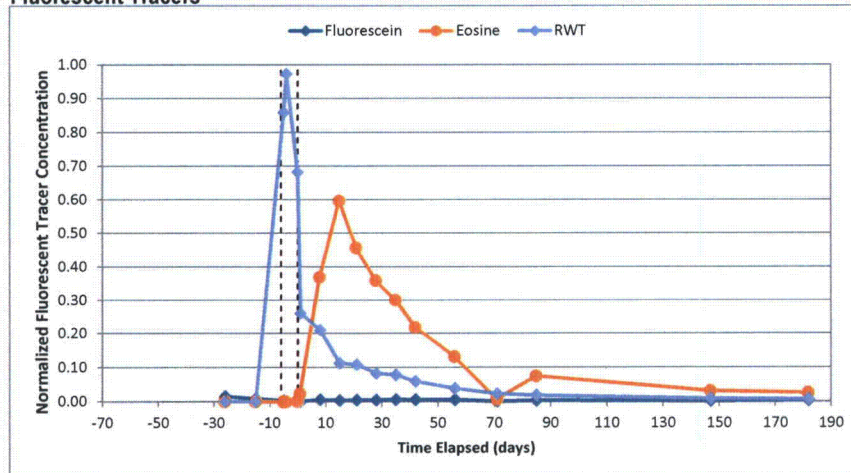
Well Location:



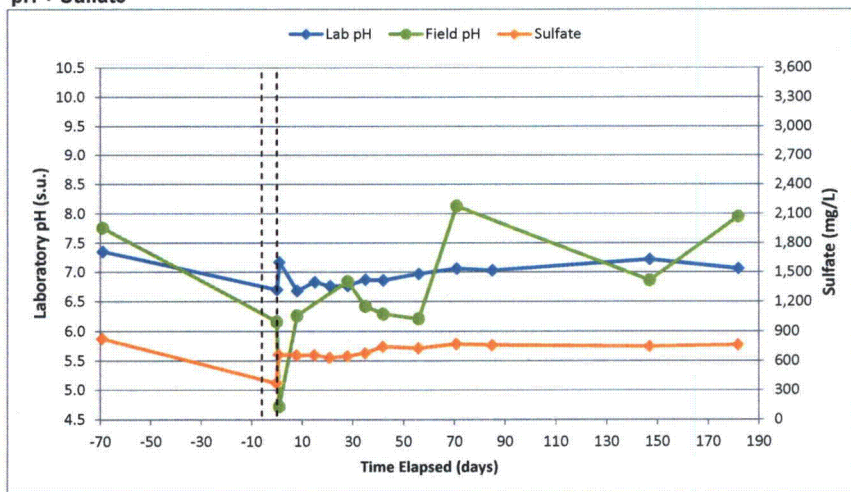
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers



pH + Sulfate



Well ID: SDR-1S

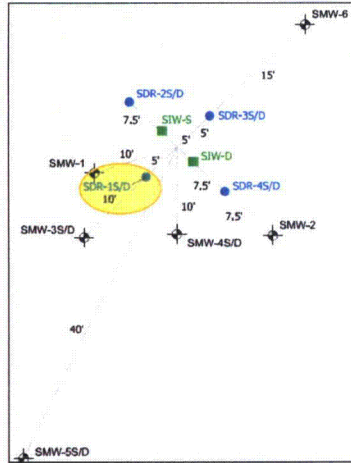
A map of the study area showing sampling locations and distances. The map includes several points labeled SDR-2S/D, SDR-3S/D, SDR-1S/D, SDR-4S/D, and SDR-D. Distances are indicated by numbers like 7.5', 10', 15', and 40'. A yellow shaded area is centered around SDR-1S/D. Four compass roses indicate North, labeled SMW-6, SMW-1, SMW-3S/D, and SMW-2.

Depth	Screened Interval	Diameter
70	55-70	2

TPP Pilot Test At-A-Glance Charts

Well ID: SDR-1D

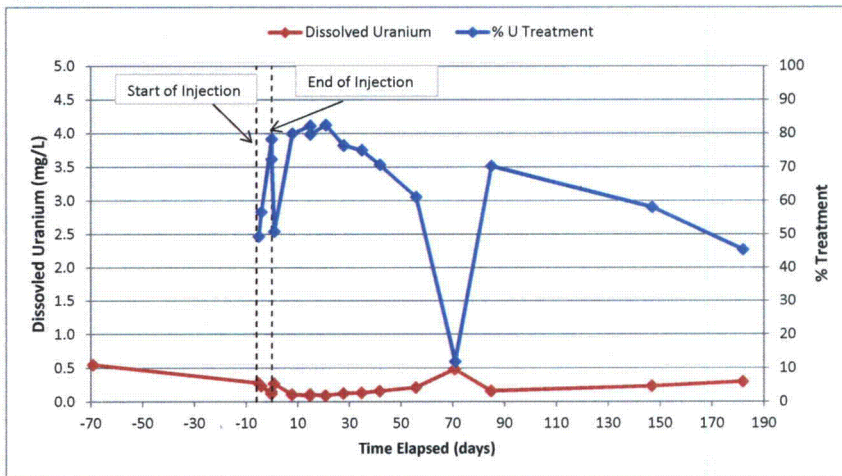
Well Location:



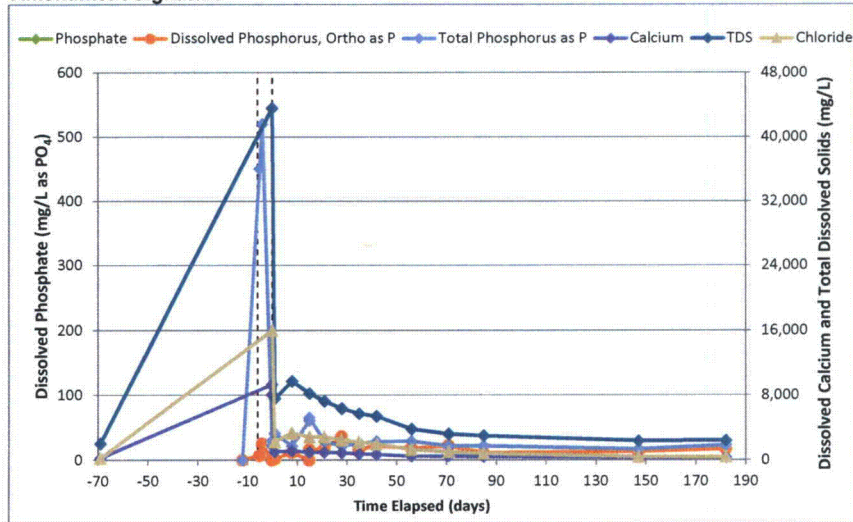
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Uranium



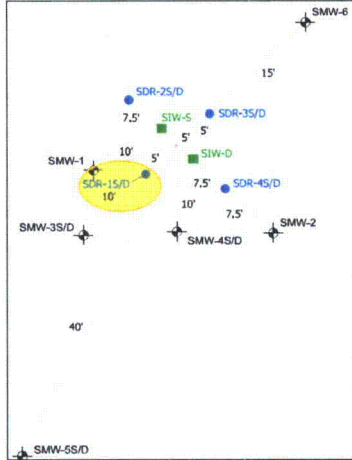
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-1D

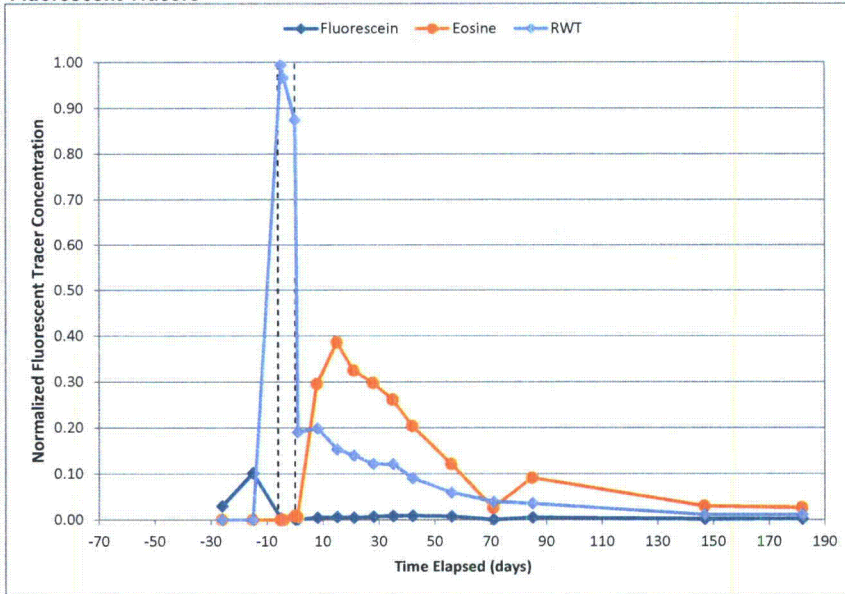
Well Location:



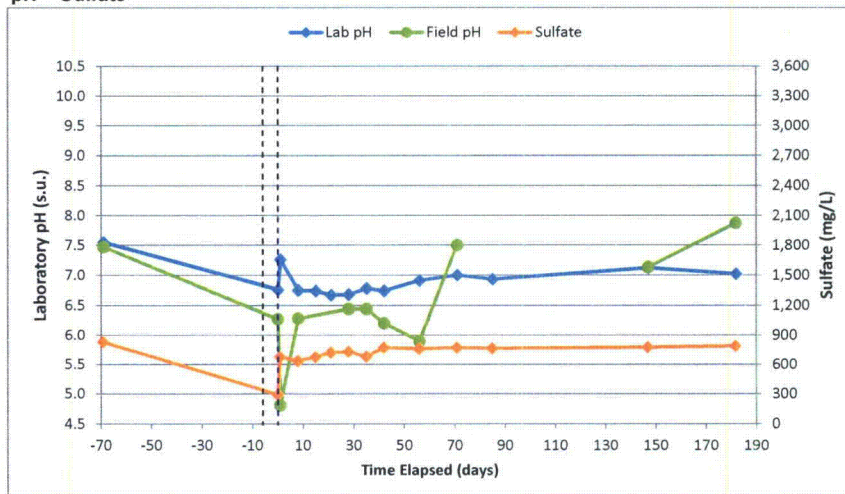
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers

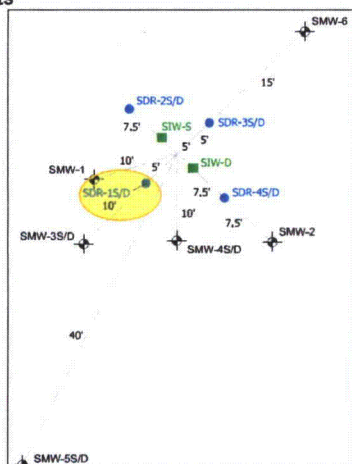


pH + Sulfate



Well ID: SDR-1D

Well Location:



Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

The graph displays the concentration of three substances over time. The x-axis represents 'Time Elapsed (days)' from -70 to 190. The left y-axis represents 'Dissolved Molybdenum (mg/L)' from 0 to 10. The right y-axis represents 'Dissolved Selenium and Dissolved Arsenic (mg/L)' from 0.00 to 0.50. A vertical dashed line is at day 0. Molybdenum (green diamonds) shows a peak of approximately 1.5 mg/L around day 60. Selenium (blue diamonds) remains low, peaking at approximately 0.04 mg/L around day 70. Dissolved Arsenic (orange diamonds) shows a peak of approximately 0.04 mg/L around day 60.

Time Elapsed (days)	Dissolved Molybdenum (mg/L)	Dissolved Selenium (mg/L)	Dissolved Arsenic (mg/L)
-70	0.5	0.01	0.01
-50	0.5	0.01	0.01
-30	0.5	0.01	0.01
-10	0.5	0.01	0.01
0	0.5	0.01	0.01
10	1.2	0.02	0.03
20	1.3	0.03	0.04
30	1.4	0.03	0.04
40	1.4	0.03	0.04
50	1.5	0.03	0.04
60	1.5	0.03	0.04
70	1.2	0.04	0.01
80	1.0	0.03	0.03
90	0.9	0.02	0.03
100	0.8	0.02	0.03
110	0.8	0.02	0.03
120	0.8	0.02	0.03
130	0.8	0.02	0.03
140	0.8	0.02	0.03
150	0.8	0.02	0.03
160	0.9	0.02	0.03
170	0.9	0.02	0.03
180	1.0	0.02	0.03
190	1.0	0.02	0.03

Figure 1 is a dual-axis line graph showing the normalized concentration of various chemical species and the percentage of uranium treatment over time. The x-axis represents 'Time Elapsed (days)' from -70 to 190. The left y-axis represents 'Normalized Concentration' from 0.0 to 1.0. The right y-axis represents 'Uranium Treatment (%)' from 0 to 100. A vertical dashed line at day -10 indicates the start of the experiment. The legend includes: Calcium (blue line with diamonds), Chloride (brown line with diamonds), Dissolved Phosphorus, Ortho as P (orange line with diamonds), Eosine (yellow line with diamonds), Total Phosphorus as P (green line with diamonds), and RWT (pink line with diamonds). The % U Treatment (blue line with diamonds) is plotted on the right y-axis. The graph shows a sharp increase in RWT and a corresponding decrease in Calcium and Chloride concentrations around day -10. Dissolved Phosphorus and Eosine concentrations also show a peak around day 10. The % U Treatment remains high (above 60%) until day 70, then drops sharply to around 10% by day 75, and remains low thereafter.

Well ID: SDR-2S

A map of the study area in the western Adriatic Sea. The map shows several sampling stations marked with colored dots and labeled: SDR-25/D (yellow dot), SIW-S (green square), SDR-35/D (blue dot), SIW-0 (green square), SDR-15/D (blue dot), SIW-45/D (blue dot), and SDR-45/D (blue dot). A yellow oval highlights the area around SDR-25/D. Depth contours are marked with values: 7.5', 10', 15', and 40'. Four compass roses indicate magnetic declination for stations SMW-1, SMW-2, SMW-4S/D, and SMW-8. A scale bar at the bottom left indicates 40'.

Depth	Screened Interval	Diameter
70	55-70	2

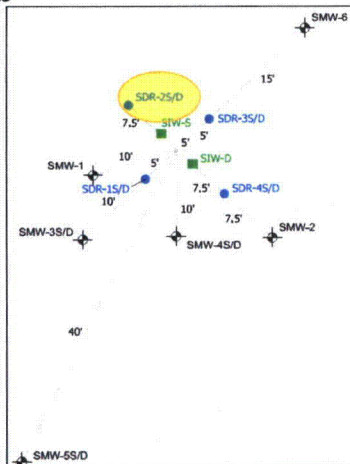
Figure 1 is a line graph showing the effect of U treatment on dissolved uranium concentration over time. The x-axis represents Time Elapsed (days) from -70 to 190. The left y-axis represents Dissolved Uranium (mg/L) from 0.0 to 5.0. The right y-axis represents % Treatment from 0 to 100. A red line with diamond markers shows Dissolved Uranium, which starts at approximately 0.2 mg/L, drops to near zero at day -10, and remains low. A blue line with diamond markers shows % U Treatment, which starts at 0%, rises sharply to about 50% at day -10, and then gradually increases to about 40% by day 150. Vertical dashed lines mark the Start of Injection at day -10 and the End of Injection at day 0.

Time Elapsed (days)	Dissolved Uranium (mg/L)	% U Treatment
-70	0.2	0
-50	0.1	0
-30	0.1	0
-10	0.1	50
0	0.1	30
10	0.1	35
20	0.1	38
30	0.1	40
150	0.1	40

TPP Pilot Test At-A-Glance Charts

Well ID: SDR-2S

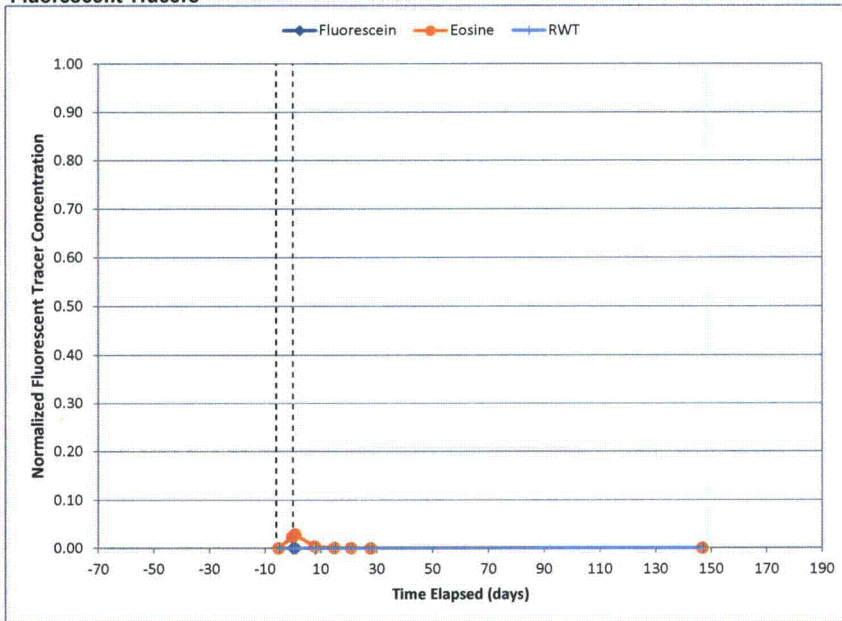
Well Location:



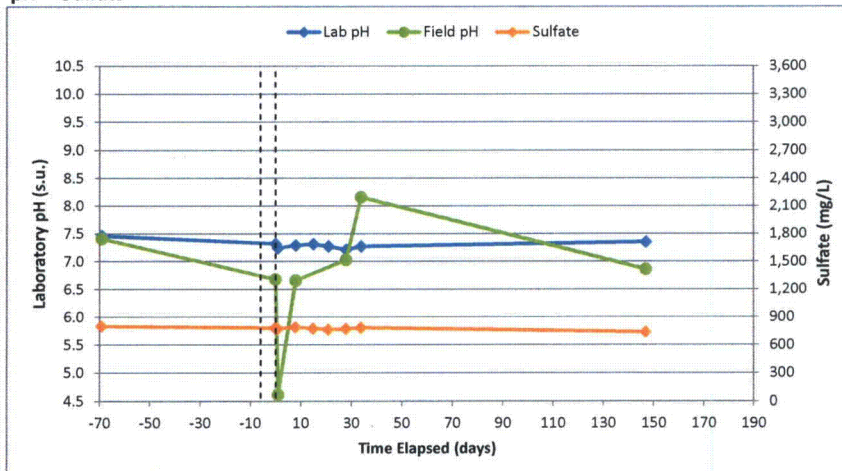
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers



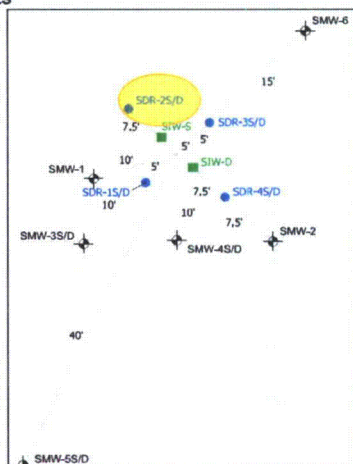
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-2S

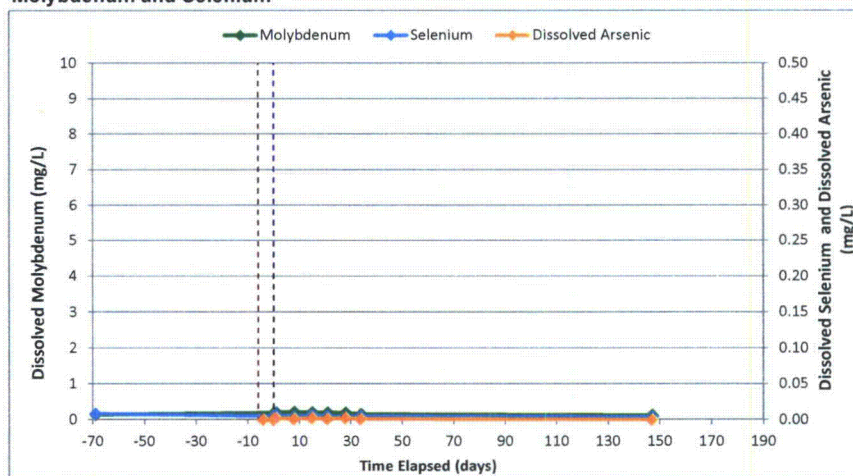
Well Location:



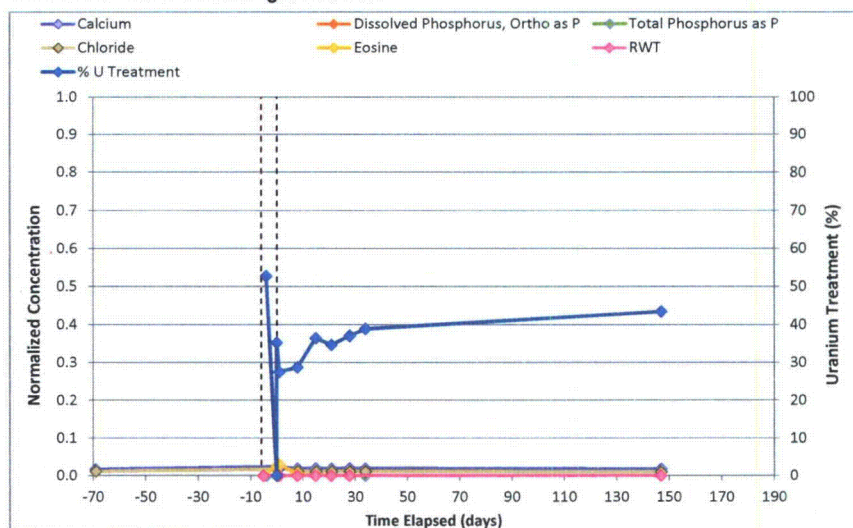
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Molybdenum and Selenium



Normalized Amendment Signature Plot



Well ID: SDR-2D

A map of the study area in the western Mediterranean Sea, showing sampling stations and distances. The map includes a coordinate grid with latitude (39°N to 41°N) and longitude (1°E to 3°E) markings. Sampling stations are indicated by black crosses with labels: SMW-1, SMW-2, SMW-3S/D, SMW-4S/D, SMW-5S/D, SMW-6, SDR-15/D, SDR-25/D, SDR-35/D, and SDR-45/D. Distances between stations are marked with numbers: 10', 5', 7.5', and 15'. A yellow oval highlights the area around SDR-25/D, SDR-15/D, and SDR-35/D. A dashed line indicates a transect from SMW-5S/D to SMW-1.

Depth	Screened Interval	Diameter
95	75-95	2

The graph displays two data series over a period of 190 days. The left y-axis represents Dissolved Uranium concentration in mg/L, ranging from 0.0 to 5.0. The right y-axis represents the percentage of U Treatment, ranging from 0 to 100. The x-axis represents Time Elapsed in days, ranging from -70 to 190. Two vertical dashed lines mark the 'Start of Injection' at approximately day -8 and the 'End of Injection' at approximately day 0. The 'Dissolved Uranium' series (red line with diamond markers) shows a steady increase from about 1.4 mg/L at day -70 to a peak of approximately 2.3 mg/L around day 30, followed by a gradual decline to about 1.7 mg/L by day 150. The '% U Treatment' series (blue line with diamond markers) remains at 0% until the end of the injection period (day 0), after which it immediately jumps to 100% and remains constant through day 150.

Time Elapsed (days)	Dissolved Uranium (mg/L)	% U Treatment
-70	1.4	0
-50	1.6	0
-30	1.8	0
-10	2.0	0
0	2.1	100
10	2.2	100
20	2.3	100
30	2.3	100
40	2.1	100
50	2.0	100
70	1.9	100
90	1.8	100
110	1.7	100
130	1.7	100
150	1.7	100

Phosphate

Dissolved Phosphorus, Ortho as P

Total Phosphorus as P

Calcium

TDS

Chloride

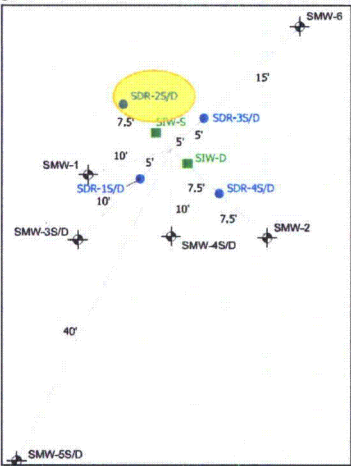
Dissolved Phosphate (mg/L as PO_4)

Dissolved Calcium and Total Dissolved Solids (mg/L)

Time Elapsed (days)

TPP Pilot Test At-A-Glance Charts
 Well ID: SDR-2D

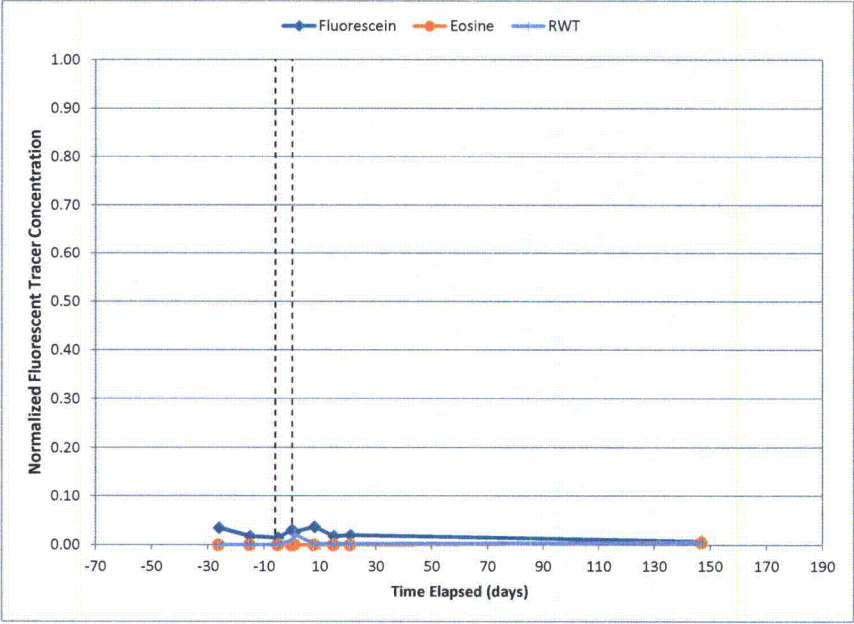
Well Location:



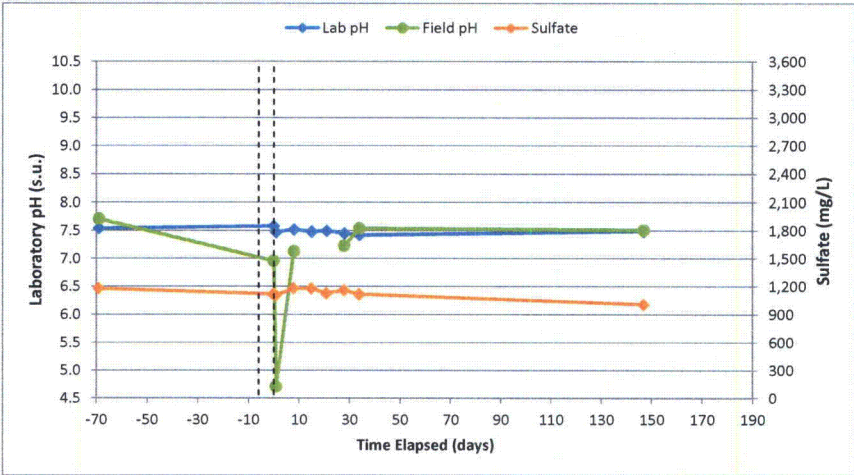
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers



pH + Sulfate



Well ID: SDR-2D

Depth	Screened Interval	Diameter
95	75-95	2

Legend: Molybdenum (green diamonds), Selenium (blue diamonds), Dissolved Arsenic (orange diamonds).

Time Elapsed (days)	Dissolved Molybdenum (mg/L)	Dissolved Selenium (mg/L)	Dissolved Arsenic (mg/L)
-70	0.3	0.00	0.00
-10	0.5	0.00	0.00
0	0.6	0.00	0.00
5	0.7	0.00	0.00
10	0.7	0.00	0.00
15	0.7	0.00	0.00
20	0.8	0.00	0.00
25	0.8	0.00	0.00
30	0.9	0.00	0.00
35	0.7	0.00	0.00
150	0.8	0.00	0.00

Well ID: SDR-3S

Depth	Screened Interval	Diameter
70	55-70	2

The graph displays two data series over a period of 190 days. The left y-axis represents Dissolved Uranium concentration in mg/L, ranging from 0.0 to 5.0. The right y-axis represents the percentage of Uranium treatment, ranging from 0 to 100. The x-axis represents Time Elapsed in days, ranging from -70 to 190. Two vertical dashed lines indicate the 'Start of Injection' at approximately day -8 and the 'End of Injection' at approximately day 0. The 'Dissolved Uranium' series (red line with diamond markers) shows a slight decrease from approximately 0.4 mg/L at day -70 to a minimum of about 0.2 mg/L around day 0, followed by a slight increase to about 0.3 mg/L by day 150. The '% U Treatment' series (blue line with diamond markers) shows a sharp increase from approximately 20% at day -70 to about 35% at day -8, followed by a sharp drop to about 20% at day 0, and then a gradual increase to about 35% by day 150.

Time Elapsed (days)	Dissolved Uranium (mg/L)	% U Treatment
-70	0.4	20
-50	0.35	20
-30	0.3	20
-10	0.25	20
0	0.2	20
10	0.3	20
30	0.25	30
50	0.2	35
70	0.2	38
90	0.2	35
110	0.25	32
130	0.25	30
150	0.3	30

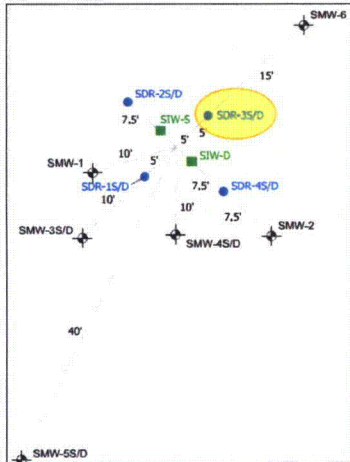
Legend: Phosphate (green diamond), Dissolved Phosphorus, Ortho as P (orange square), Total Phosphorus as P (blue circle), Calcium (purple diamond), TDS (dark blue circle), Chloride (yellow triangle).

Time Elapsed (days)	Phosphate (mg/L as PO_4)	Dissolved Phosphorus, Ortho as P (mg/L)	Total Phosphorus as P (mg/L)	Calcium (mg/L)	TDS (mg/L)	Chloride (mg/L)
-70	~10	~10	~10	~10	~10	~10
-10	~10	~10	~10	~10	~10	~10
0	~10	~10	~10	~10	~10	~10
10	~10	~10	~10	~10	~10	~10
30	~10	~10	~10	~10	~10	~10
70	~10	~10	~10	~10	~10	~10
150	~10	~10	~10	~10	~10	~10

TPP Pilot Test At-A-Glance Charts

Well ID: SDR-3S

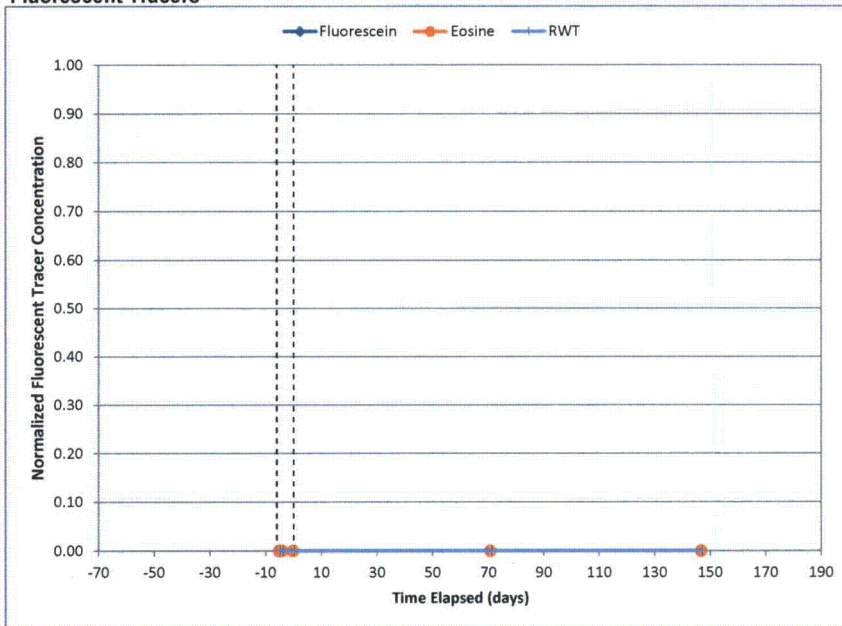
Well Location:



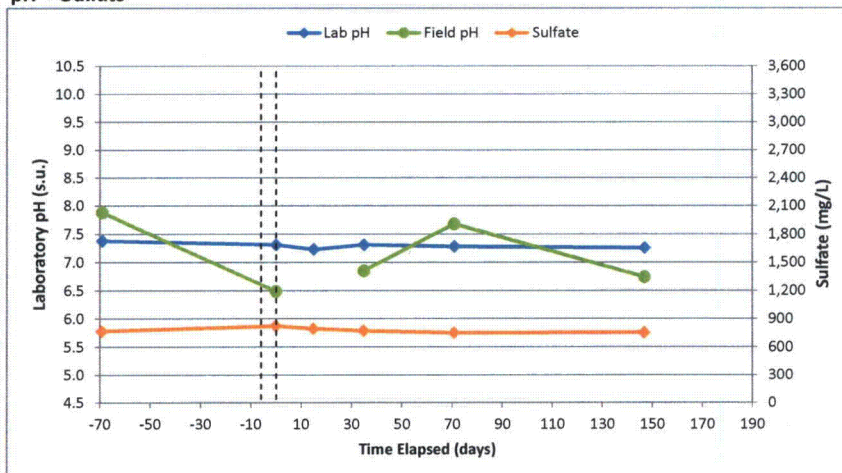
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers



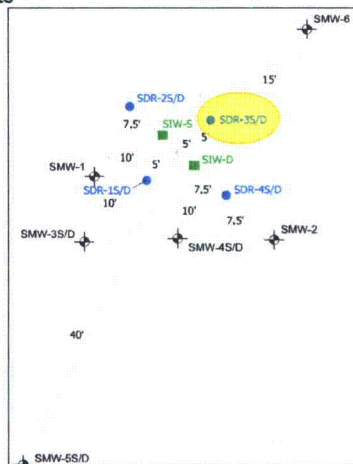
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-3S

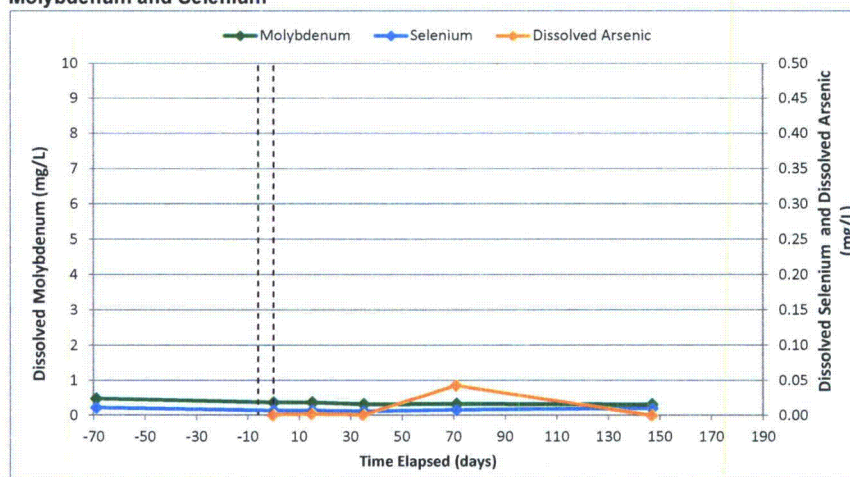
Well Location:



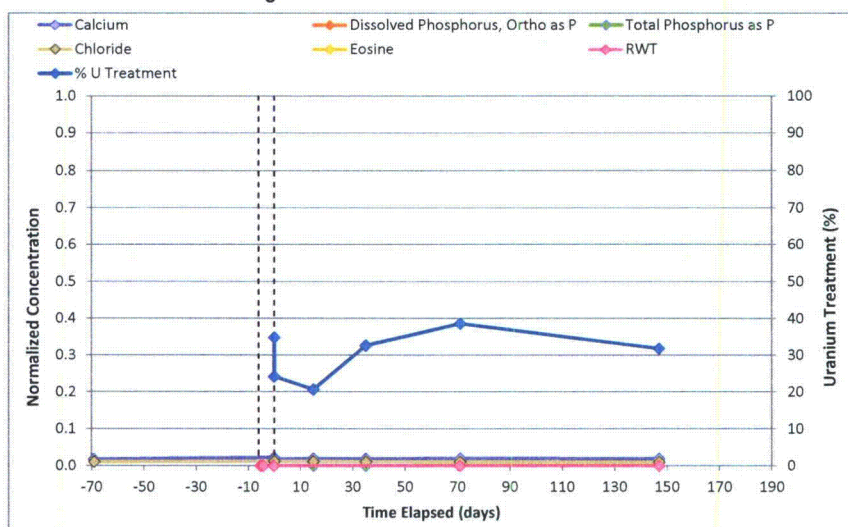
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Molybdenum and Selenium



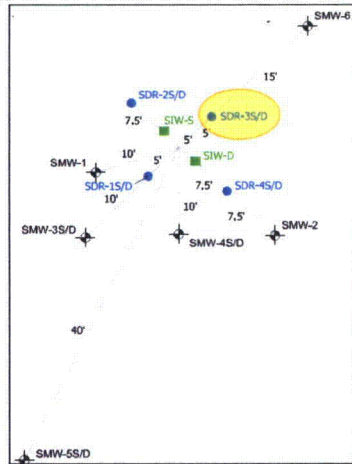
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-3D

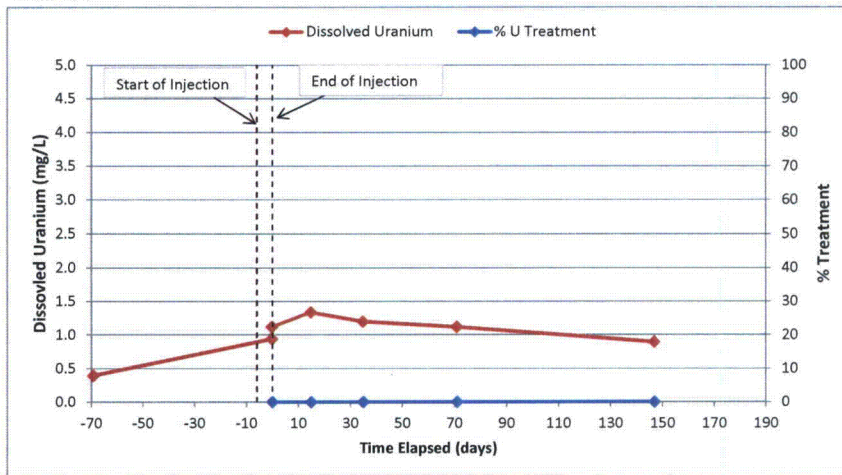
Well Location:



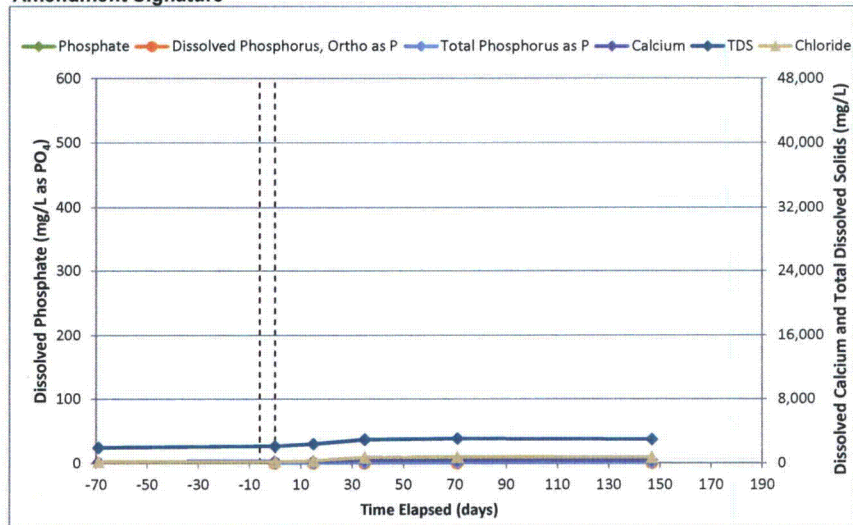
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Uranium



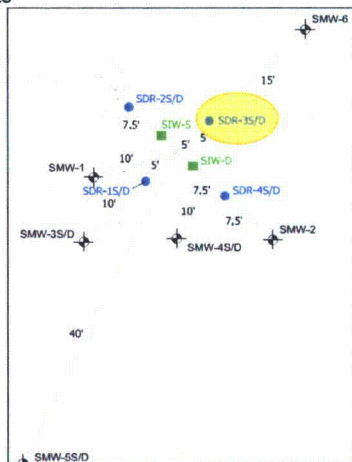
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-3D

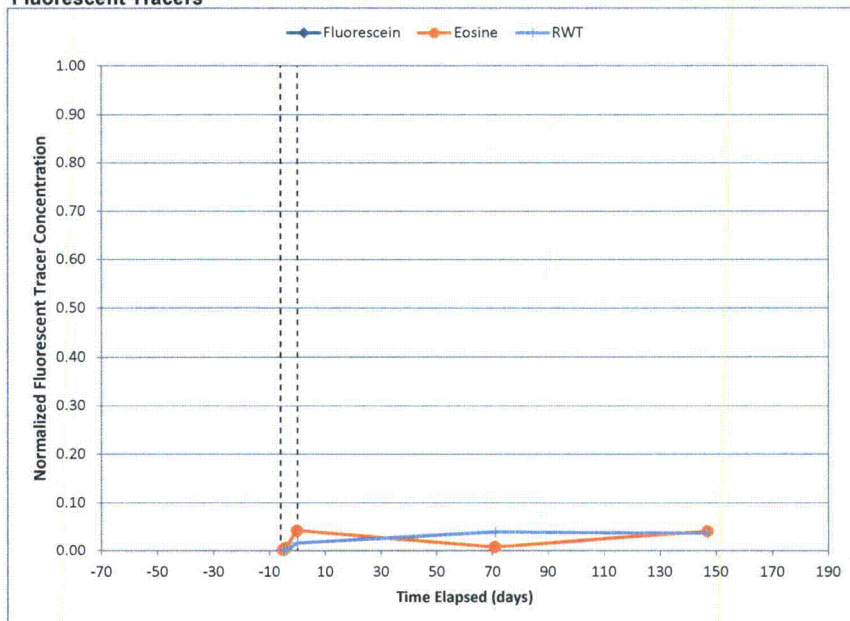
Well Location:



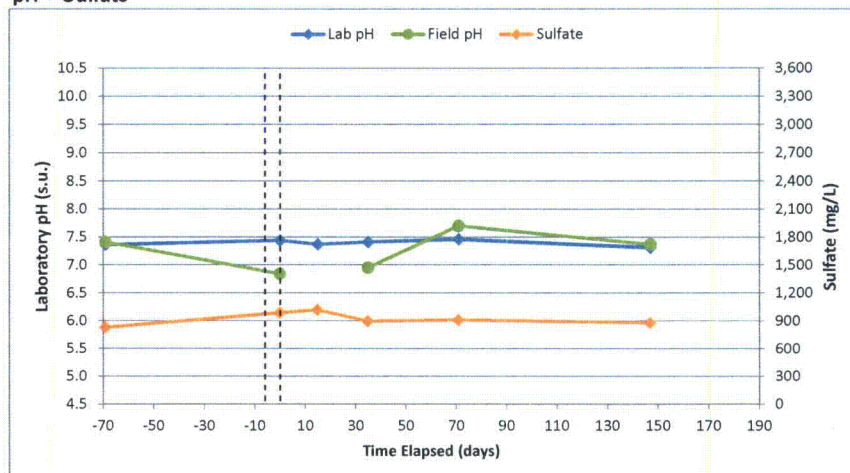
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers



pH + Sulfate



Well ID: SDR-3D

Map of the study area showing sampling locations and distances. The map includes locations SMW-1, SMW-2, SMW-3S/D, SMW-4S/D, SMW-5S/D, and SMW-6. Sampling points are marked with blue dots (SOR-25/D, SOR-15/D, SOR-15/D, SOR-4S/D, SOR-3S/D, SOR-1S/D) and green squares (SIW-5, SIW-D). Distances are indicated in minutes (7.5', 10', 15'). A yellow oval highlights the SOR-3S/D location.

Depth	Screened Interval	Diameter
95	75-95	2

Legend: Molybdenum (green line with diamonds), Selenium (blue line with diamonds), Dissolved Arsenic (orange line with diamonds).

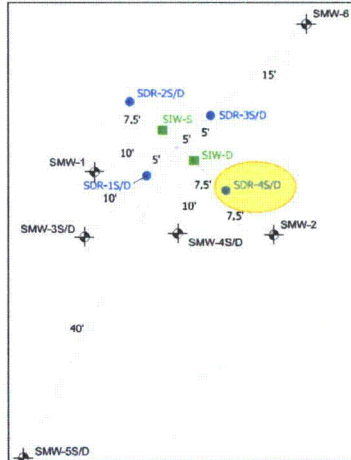
Time Elapsed (days)	Dissolved Molybdenum (mg/L)	Dissolved Selenium (mg/L)	Dissolved Arsenic (mg/L)
-70	0.5	0.02	0.01
-50	0.5	0.02	0.01
-30	0.5	0.02	0.01
-10	0.5	0.02	0.01
0	0.2	0.01	0.005
10	0.6	0.01	0.005
30	0.6	0.01	0.005
70	0.8	0.01	0.005
150	0.7	0.01	0.005

Figure 1 is a dual-axis line graph showing the normalized concentration of various chemical species and the percentage of uranium treatment over time. The x-axis represents 'Time Elapsed (days)' from -70 to 190. The left y-axis represents 'Normalized Concentration' from 0.0 to 1.0. The right y-axis represents 'Uranium Treatment (%)' from 0 to 100. A vertical dashed line at day 0 indicates the start of the experiment. Data series include Calcium (blue line with diamond markers), Chloride (brown line with diamond markers), Dissolved Phosphorus, Ortho as P (orange line with diamond markers), Eosine (yellow line with diamond markers), Total Phosphorus as P (green line with diamond markers), and RWT (pink line with diamond markers). All chemical species remain at a normalized concentration of approximately 0.05 until day 0, after which they show a slight increase, stabilizing around 0.08 by day 150. The percentage of uranium treatment (RWT) starts at 0% at day 0 and increases to approximately 10% by day 150.

TPP Pilot Test At-A-Glance Charts

Well ID: SDR-4S

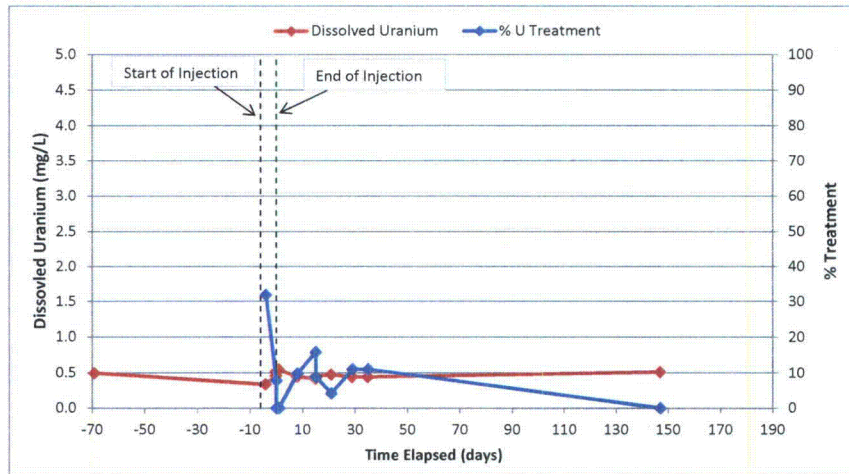
Well Location:



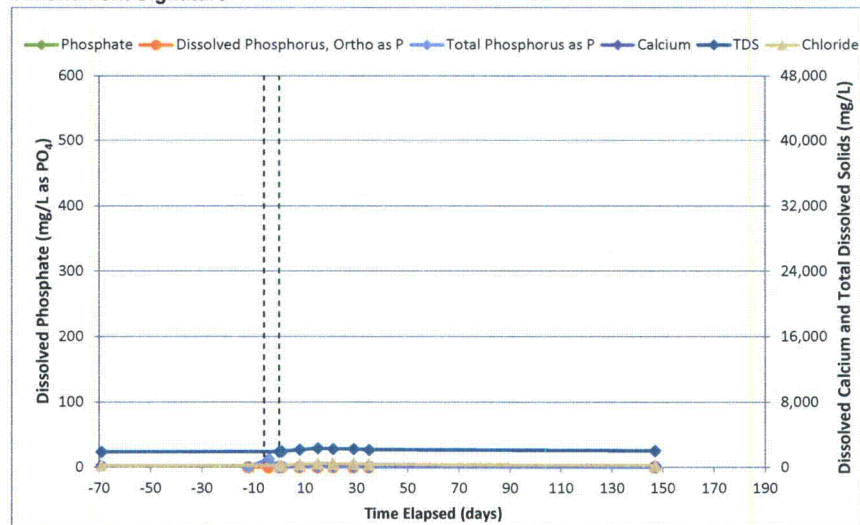
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Uranium



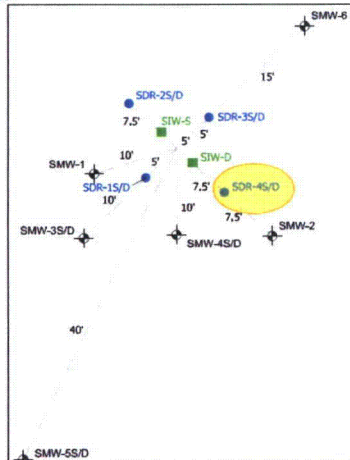
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-4S

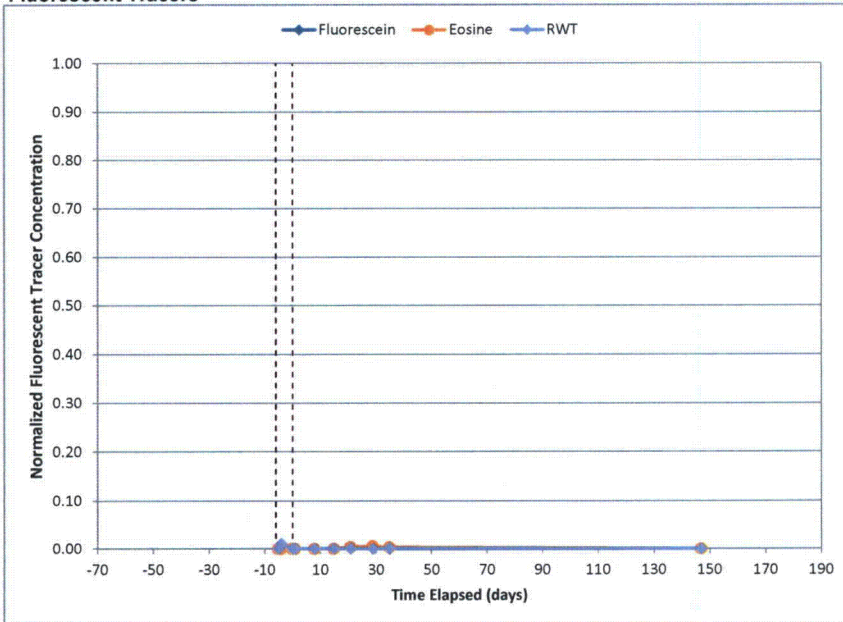
Well Location:



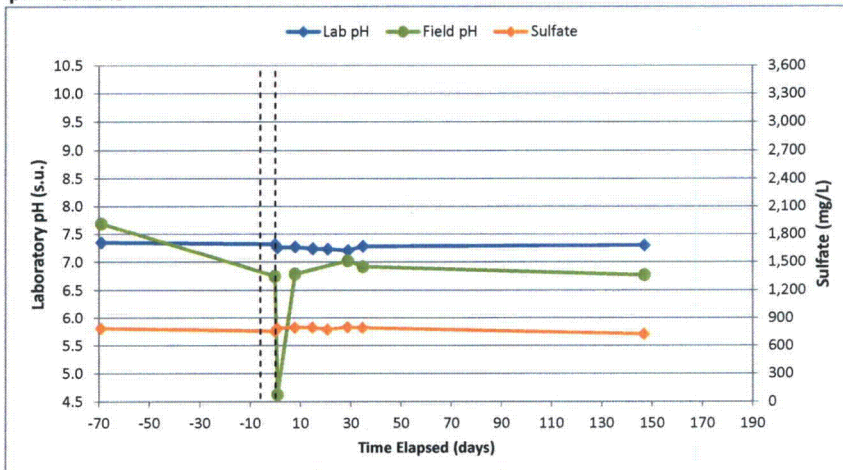
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers

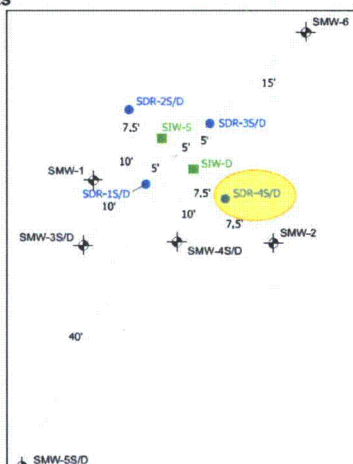


pH + Sulfate



Well ID: SDR-4S

Well Location:



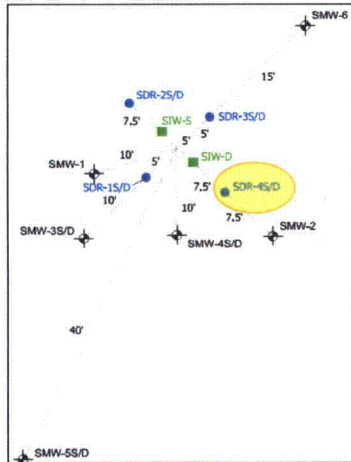
Depth	Screened Interval	Diameter
70	55-70	2

Figure 1 is a line graph showing the concentration of Molybdenum, Selenium, and Dissolved Arsenic over time. The x-axis represents Time Elapsed (days) from -70 to 190. The left y-axis represents Dissolved Molybdenum (mg/L) from 0 to 10. The right y-axis represents Dissolved Selenium and Dissolved Arsenic (mg/L) from 0.00 to 0.50. A vertical dashed line at day 0 indicates the start of the experiment. Molybdenum (green line with diamond markers) remains at approximately 0.5 mg/L until day 0, then rises sharply to 10 mg/L by day 60. Selenium (blue line with diamond markers) and Dissolved Arsenic (orange line with diamond markers) remain at very low concentrations (below 0.05 mg/L) throughout the experiment.

TPP Pilot Test At-A-Glance Charts

Well ID: SDR-4D

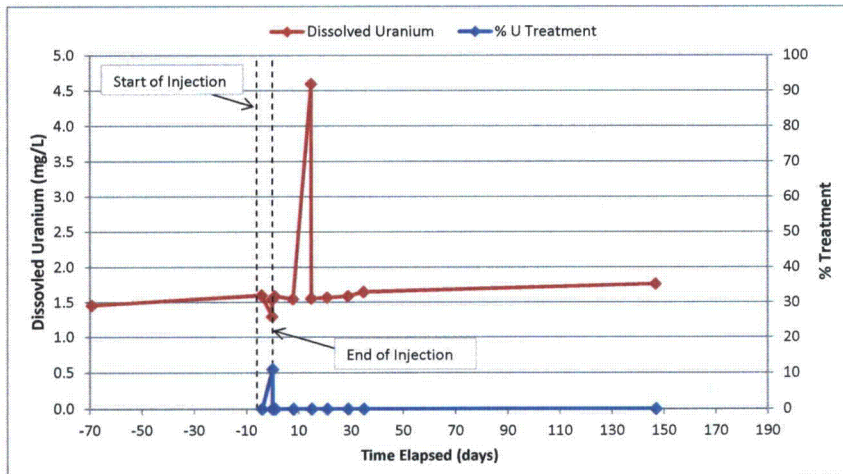
Well Location:



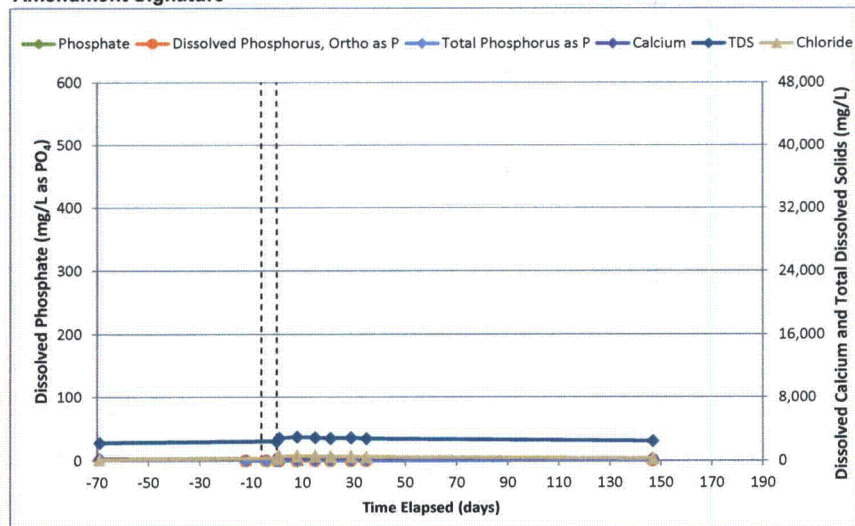
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Uranium



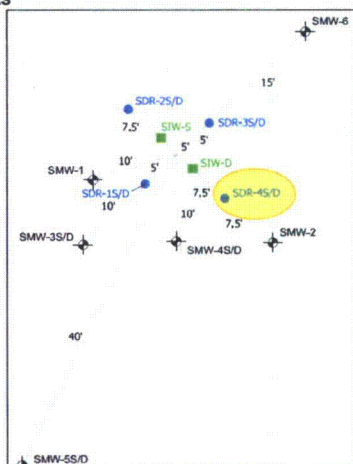
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SDR-4D

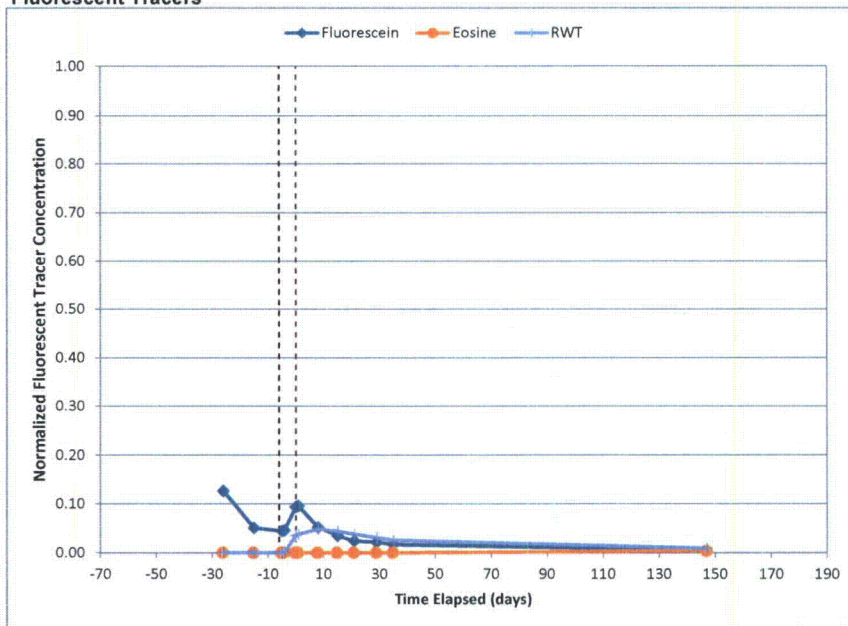
Well Location:



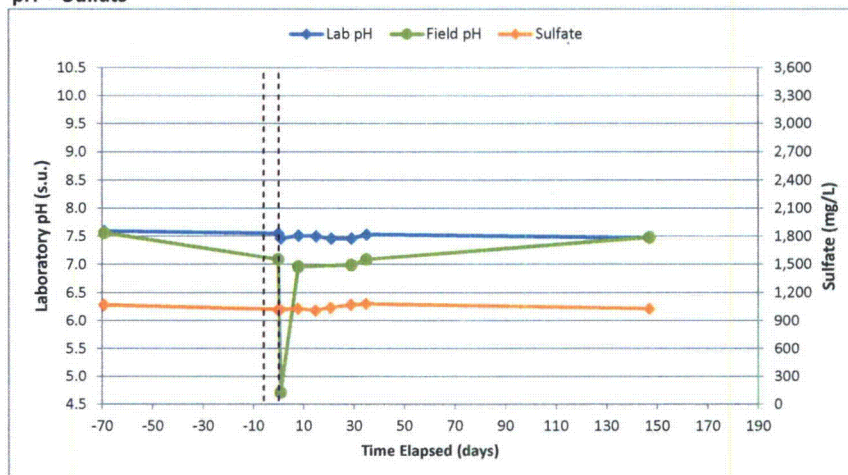
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers



pH + Sulfate



Well ID: SDR-4D

A map of the study area in the western North Pacific. The map shows several sampling stations marked with symbols and labels: SDR-25/D (blue circle), STW-5 (green square), SDR-35/D (blue circle), SDR-15/D (blue circle), STW-D (green square), SDR-45/D (green circle inside a yellow oval), and SMW-4S/D (green circle). Four moored stations are indicated by compass rose symbols: SMW-1, SMW-2, SMW-3S/D, and SMW-6. Depth contours are shown as dashed lines with labels for 5', 10', and 15' depths. A 40' depth contour is also labeled at the bottom left. The map is bounded by 130°E and 135°E longitude and 35°N and 40°N latitude.

Depth	Screened Interval	Diameter
95	75-95	2

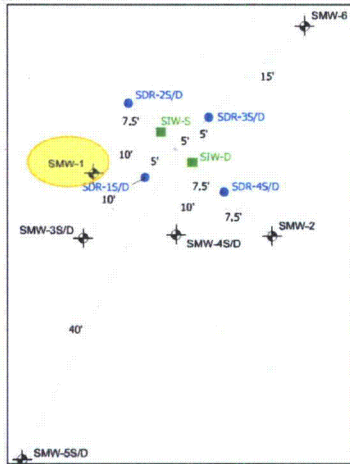
Legend: Molybdenum (green line with diamonds), Selenium (blue line with diamonds), Dissolved Arsenic (orange line with diamonds).

Time Elapsed (days)	Dissolved Molybdenum (mg/L)	Dissolved Selenium (mg/L)	Dissolved Arsenic (mg/L)
-70	0.2	0.00	0.00
-10	0.3	0.00	0.00
10	0.4	0.00	0.00
20	0.3	0.00	0.00
30	0.4	0.00	0.00
40	0.3	0.00	0.00
150	0.5	0.00	0.00

TPP Pilot Test At-A-Glance Charts

Well ID: SMW-1

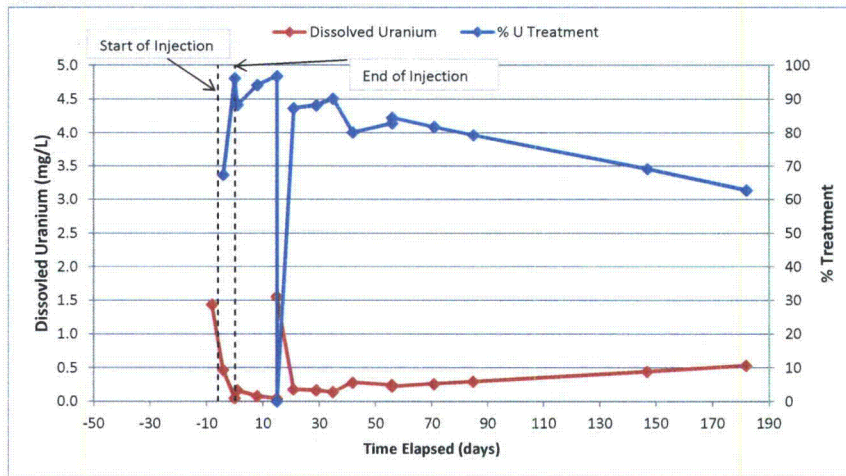
Well Location:



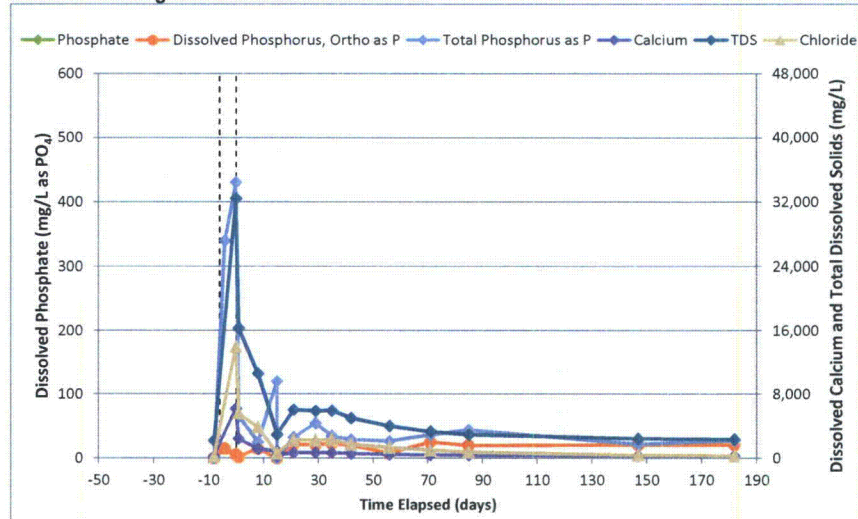
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Uranium



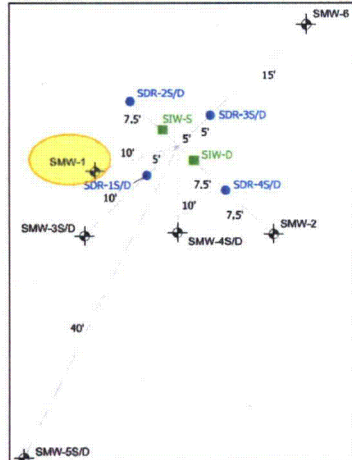
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-1

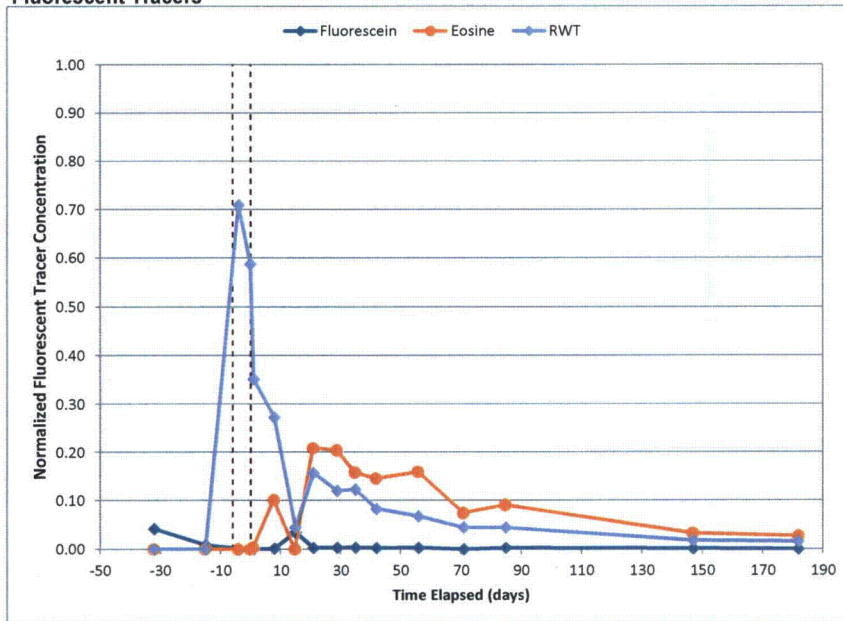
Well Location:



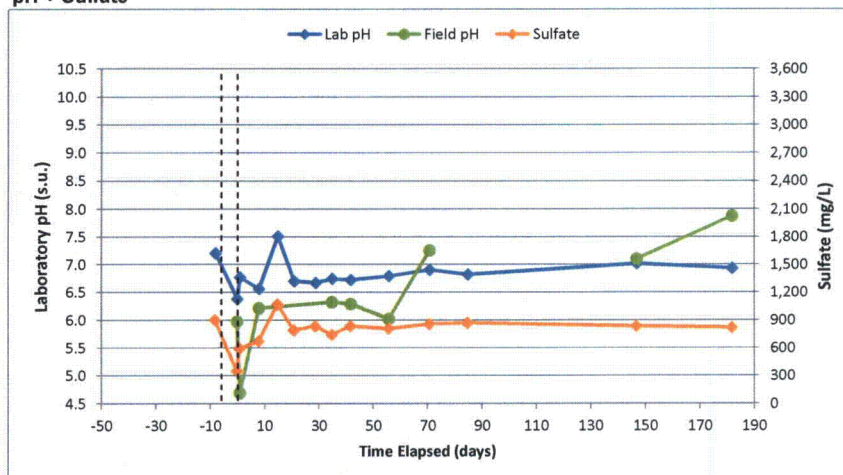
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Fluorescent Tracers



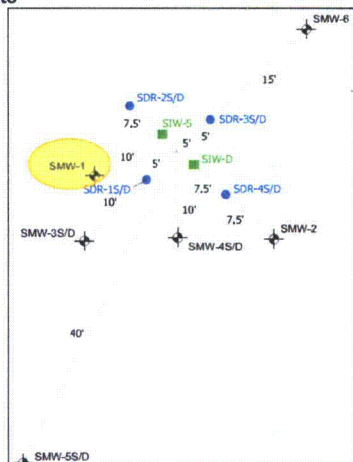
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-1

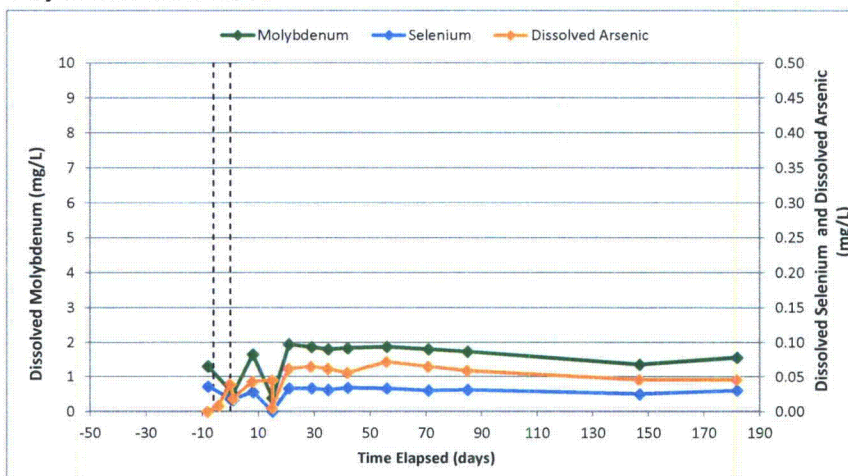
Well Location:



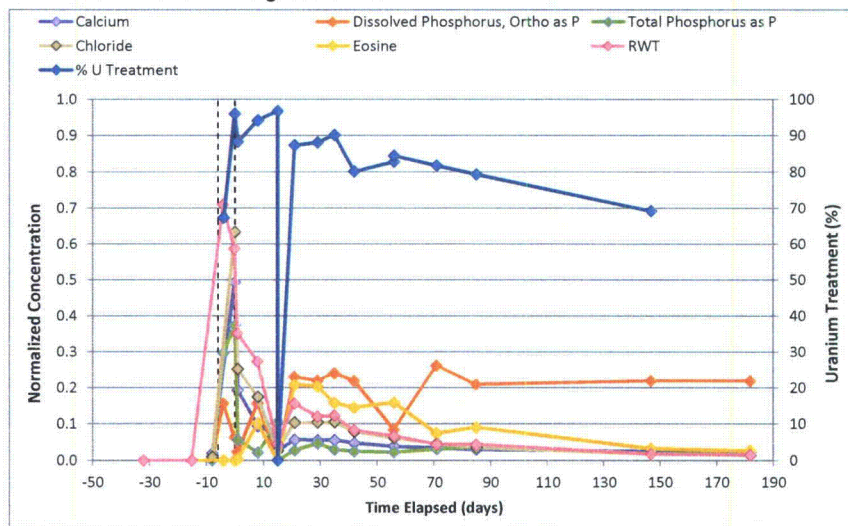
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Molybdenum and Selenium



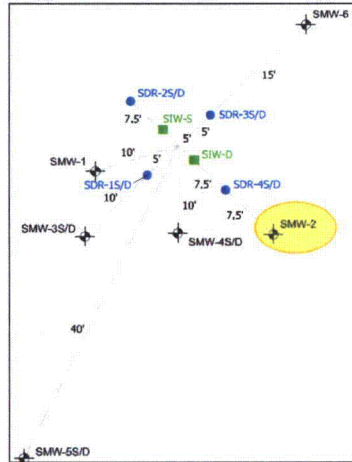
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-2

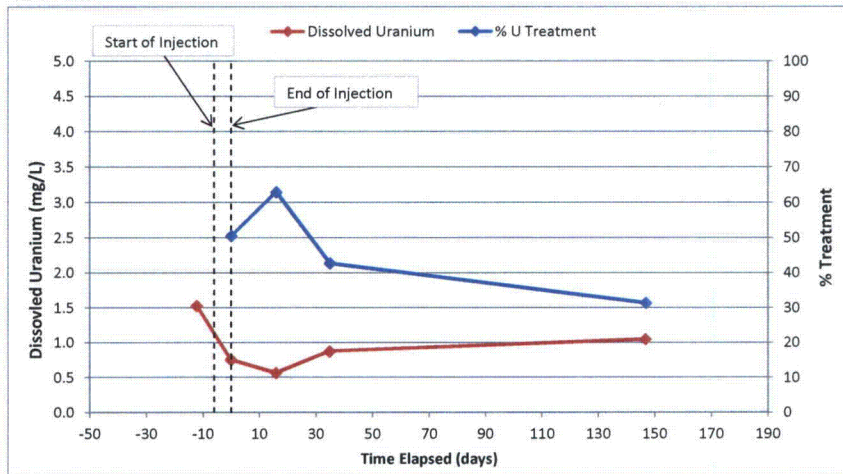
Well Location:



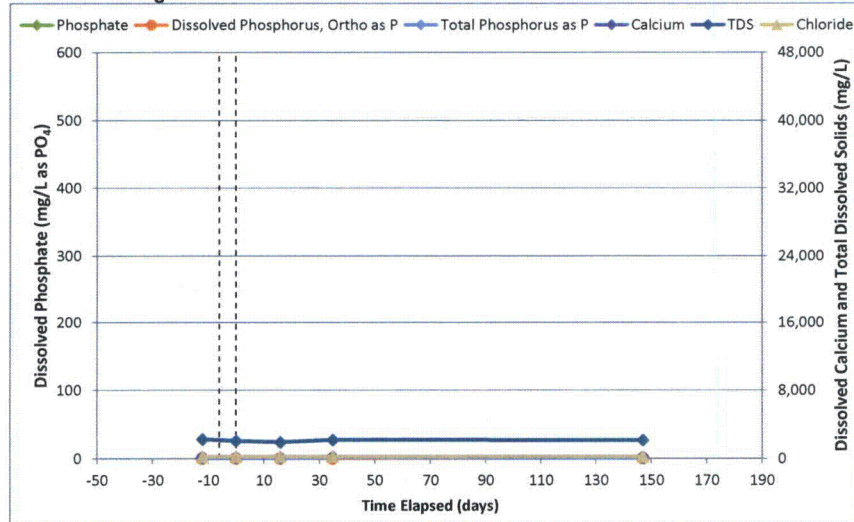
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Uranium



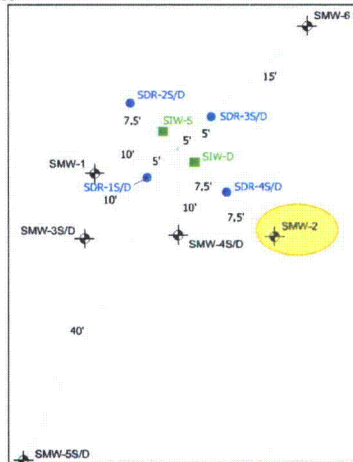
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: **SMW-2**

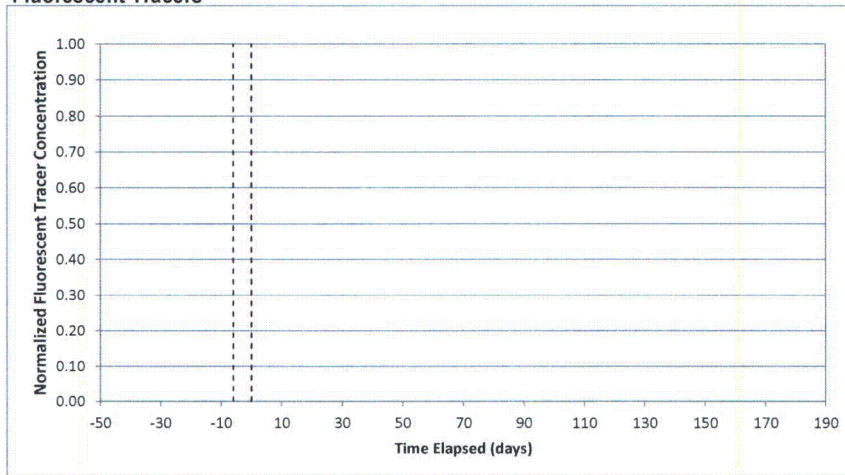
Well Location:



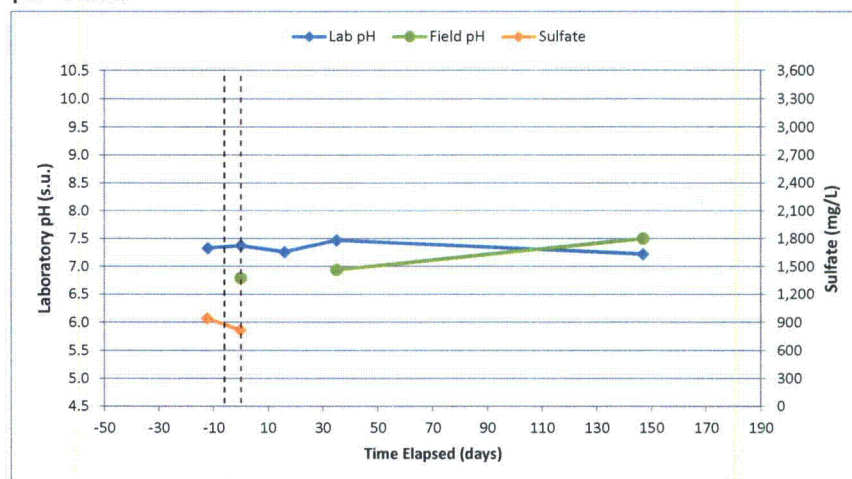
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Fluorescent Tracers



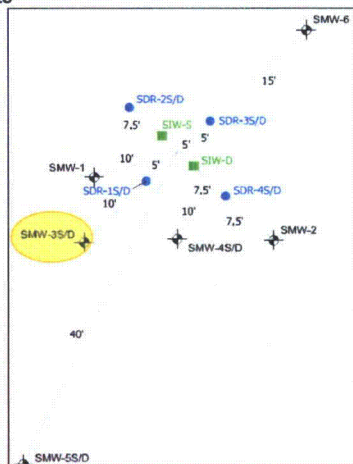
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-3S

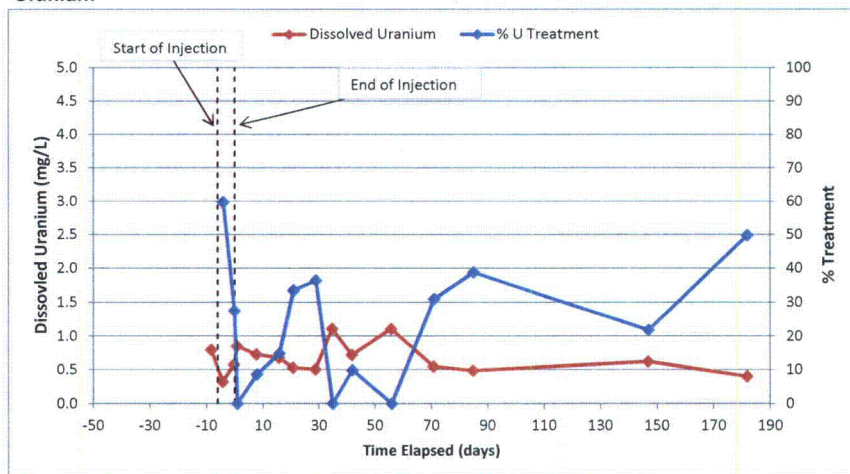
Well Location:



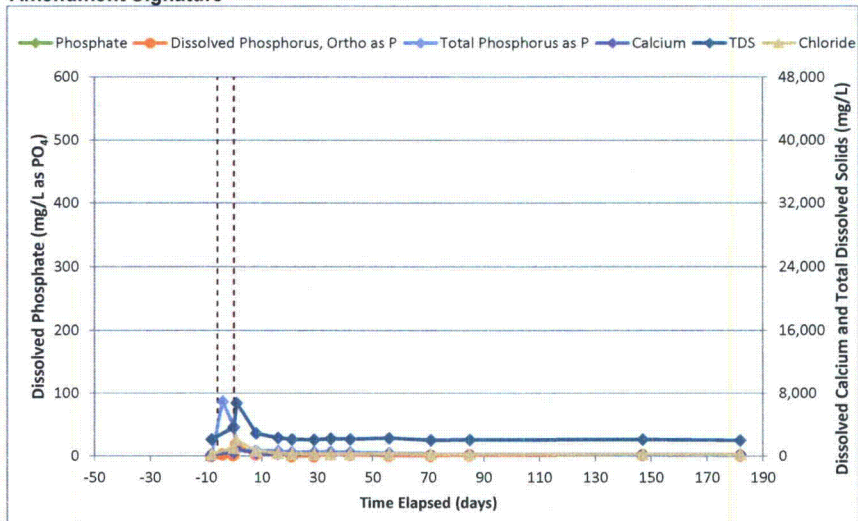
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Uranium



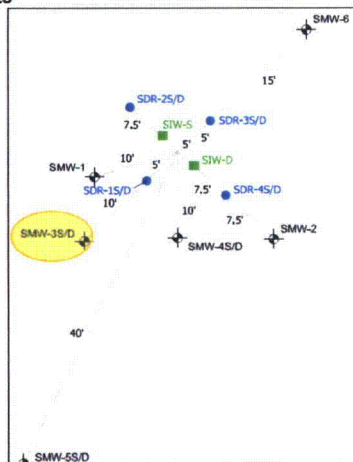
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-3S

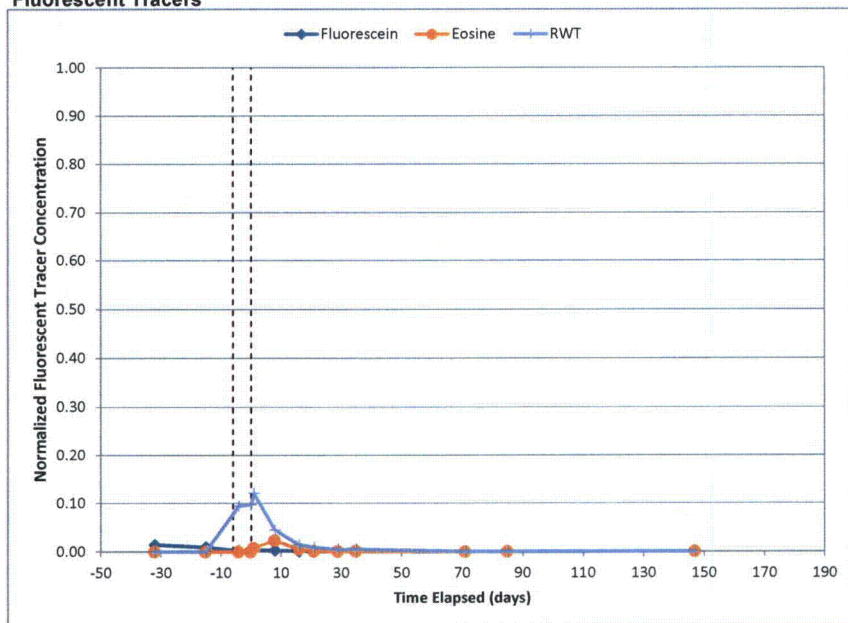
Well Location:



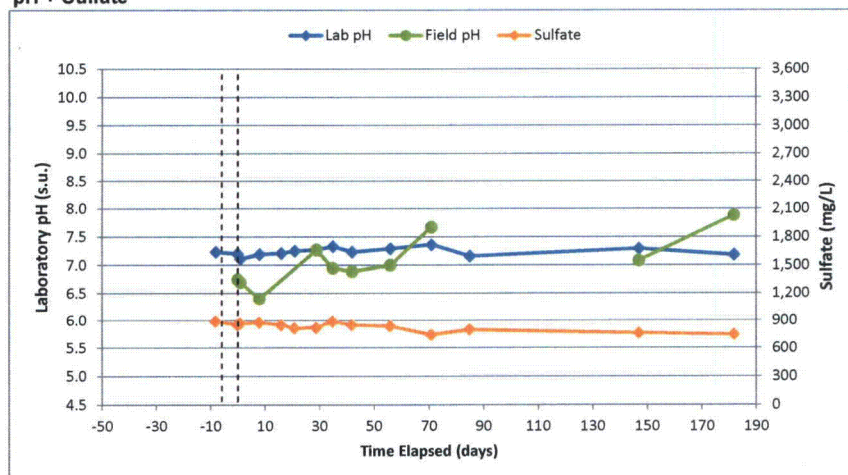
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers



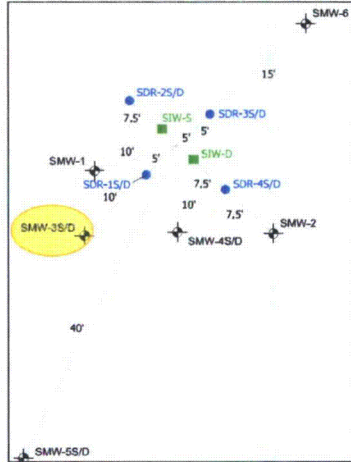
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-3S

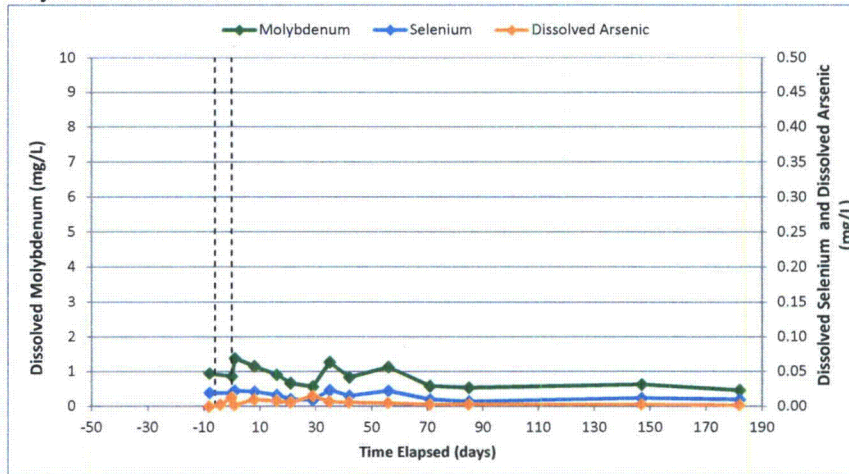
Well Location:



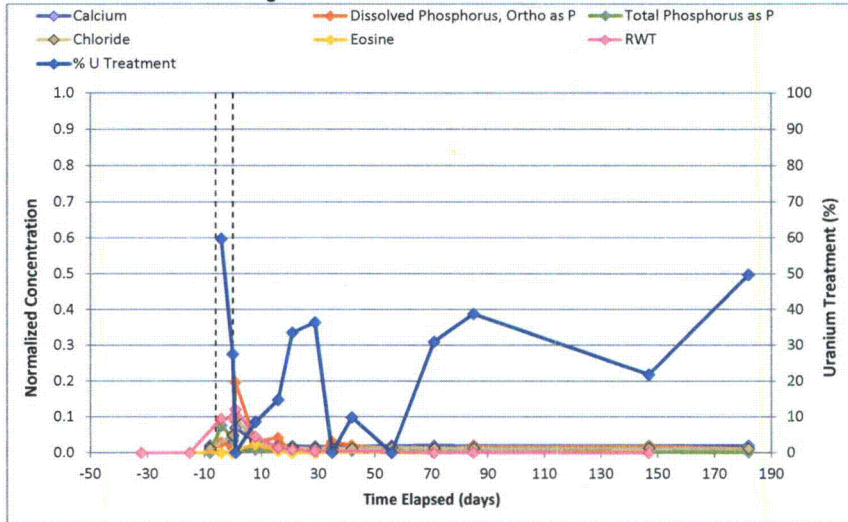
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Molybdenum and Selenium



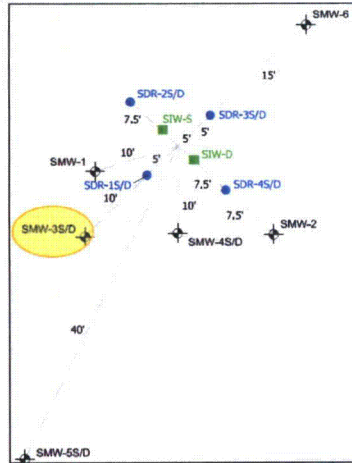
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-3D

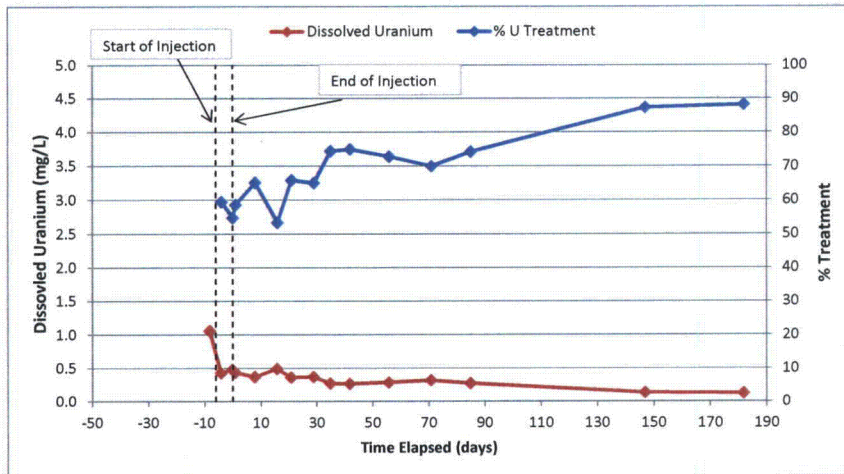
Well Location:



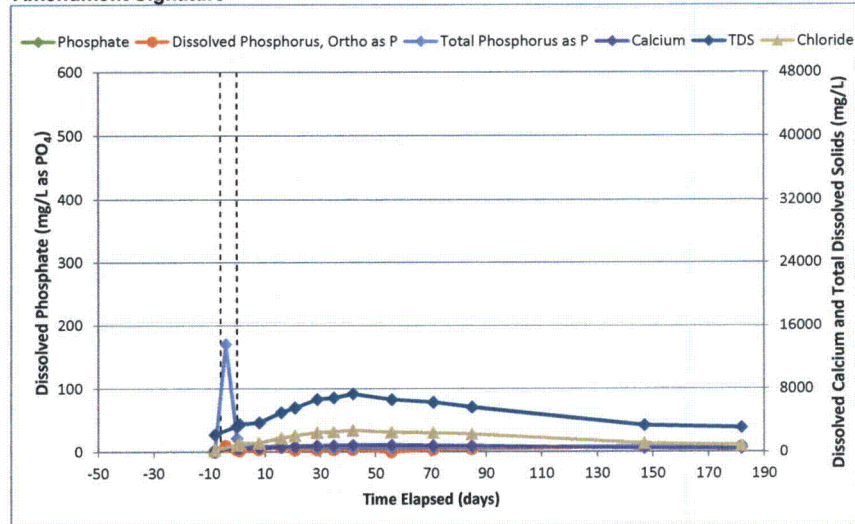
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Uranium



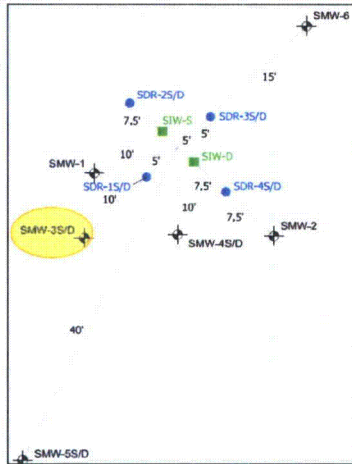
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-3D

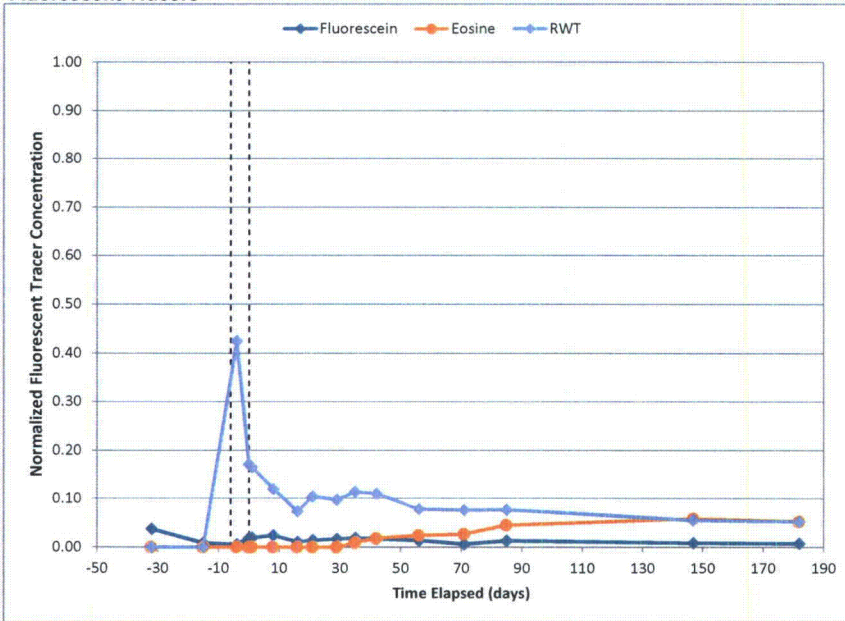
Well Location:



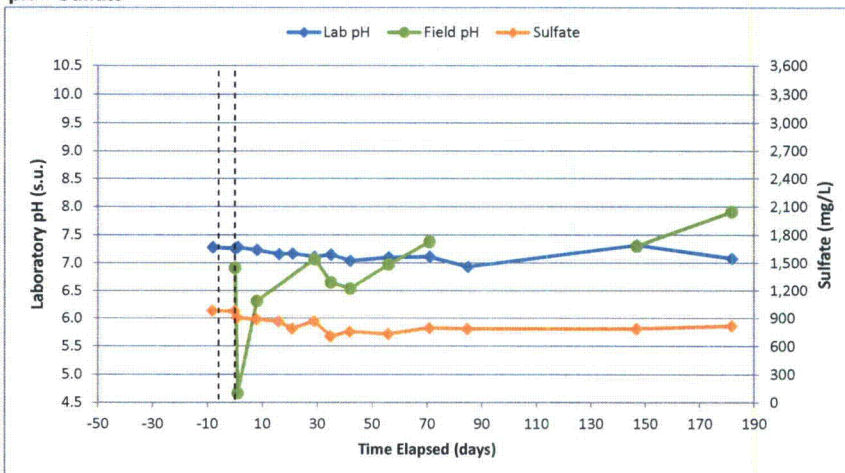
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers



pH + Sulfate



Well ID: SMW-3D

A map of the study area in the northern Adriatic Sea. The map shows a coastline with several sampling stations marked by symbols and labels. Depth contours are indicated by dashed lines with numerical values (5', 7.5', 10', 15', 40'). The stations are labeled as follows: SDR-25/D (blue circle), SIW-5 (green square), SDR-35/D (blue circle), SIW-D (green square), SDR-45/D (blue circle), SMW-1 (star), SDR-15/D (star), SMW-3S/D (star, highlighted in a yellow oval), SMW-4S/D (star), SMW-2 (star), and SMW-6 (star). The map is bounded by a dashed line representing the coastline and a solid line representing the study area boundary.

Depth	Screened Interval	Diameter
95	75-95	2

Legend: Molybdenum (green line with diamonds), Selenium (blue line with diamonds), Dissolved Arsenic (orange line with diamonds).

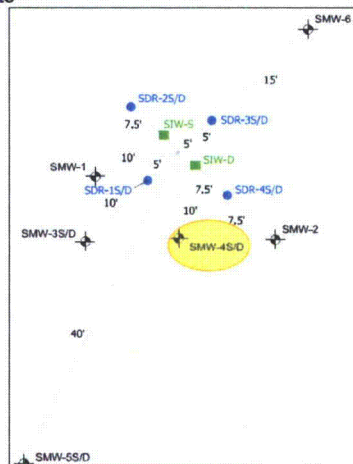
Time Elapsed (days)	Dissolved Molybdenum (mg/L)	Dissolved Selenium (mg/L)	Dissolved Arsenic (mg/L)
-10	0.8	0.02	0.02
0	0.5	0.01	0.01
10	0.5	0.01	0.01
20	0.4	0.01	0.01
30	0.4	0.01	0.01
40	0.4	0.01	0.01
50	0.4	0.01	0.01
60	0.4	0.01	0.01
70	0.4	0.01	0.01
80	0.4	0.01	0.01
90	0.4	0.01	0.01
150	0.6	0.01	0.01
180	0.8	0.01	0.01

Figure 1 is a dual-axis line graph showing the normalized concentration of various elements and the percentage of uranium treatment over time. The x-axis represents 'Time Elapsed (days)' from -50 to 190. The left y-axis represents 'Normalized Concentration' from 0.0 to 1.0. The right y-axis represents 'Uranium Treatment (%)' from 0 to 100. The legend includes: Calcium (purple diamonds), Chloride (brown diamonds), % U Treatment (blue diamonds), Dissolved Phosphorus, Ortho as P (orange diamonds), Eosine (yellow diamonds), Total Phosphorus as P (green diamonds), and RWT (pink diamonds). The % U Treatment curve starts at 0, rises sharply to about 60% by day 10, and then continues to rise more gradually to nearly 90% by day 190. The RWT curve shows a sharp peak of about 0.45 at day 0, followed by a rapid decline to near 0 by day 10. The other elements (Calcium, Chloride, Dissolved Phosphorus, Eosine, Total Phosphorus) remain at low, relatively stable concentrations throughout the experiment.

TPP Pilot Test At-A-Glance Charts

Well ID: SMW-4S

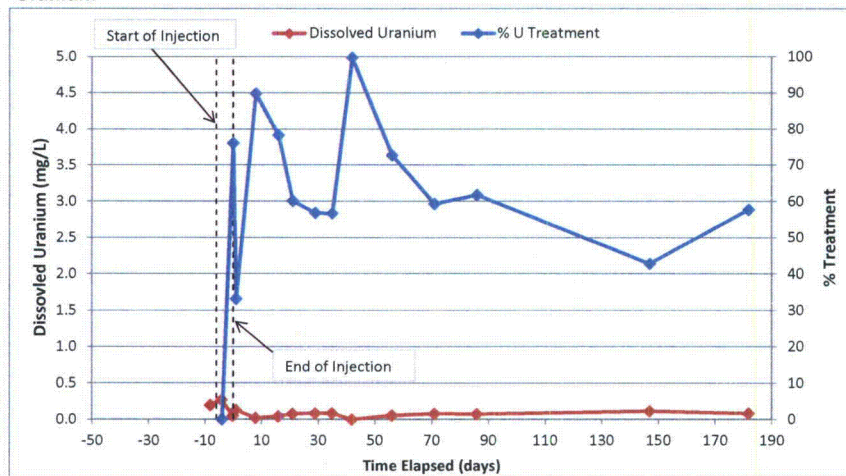
Well Location:



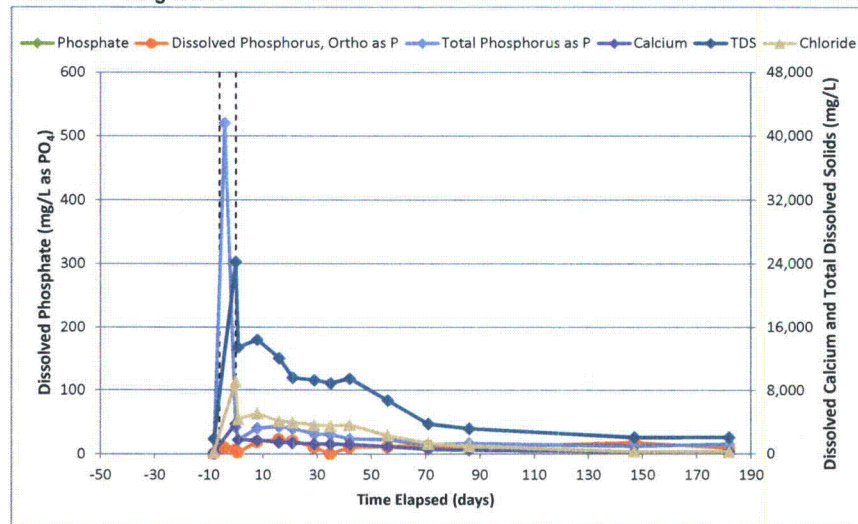
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Uranium



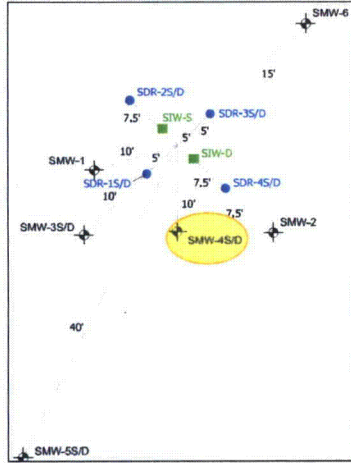
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-4S

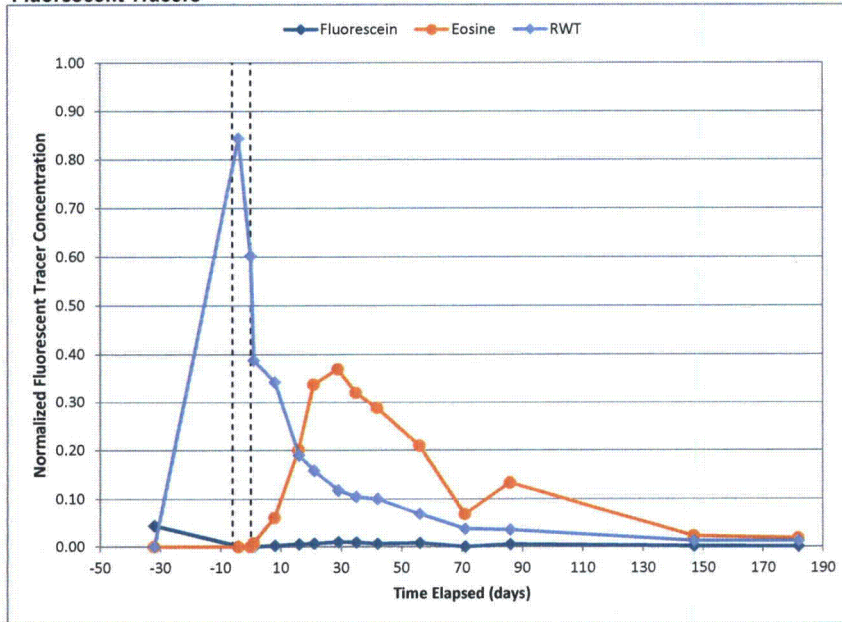
Well Location:



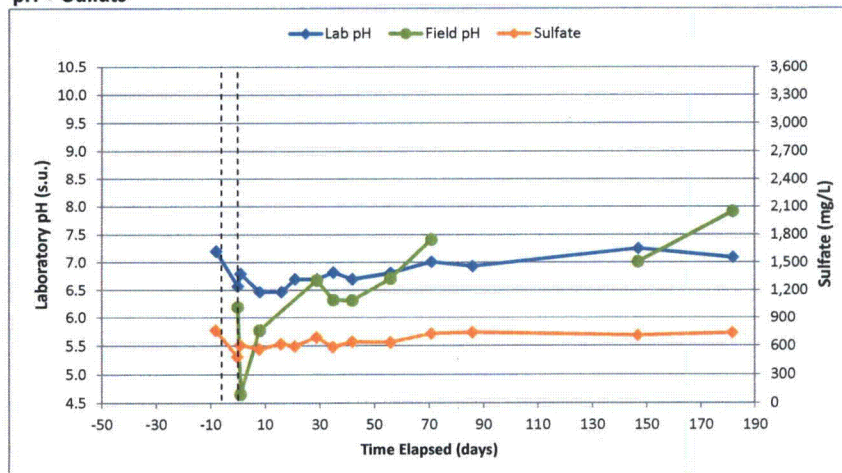
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers



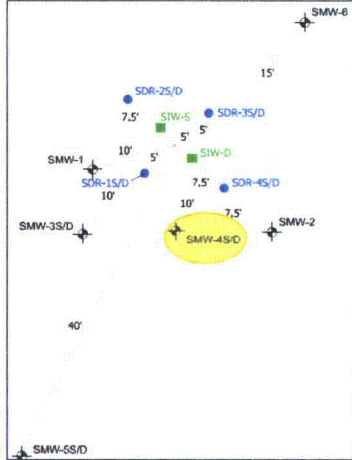
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: **SMW-4S**

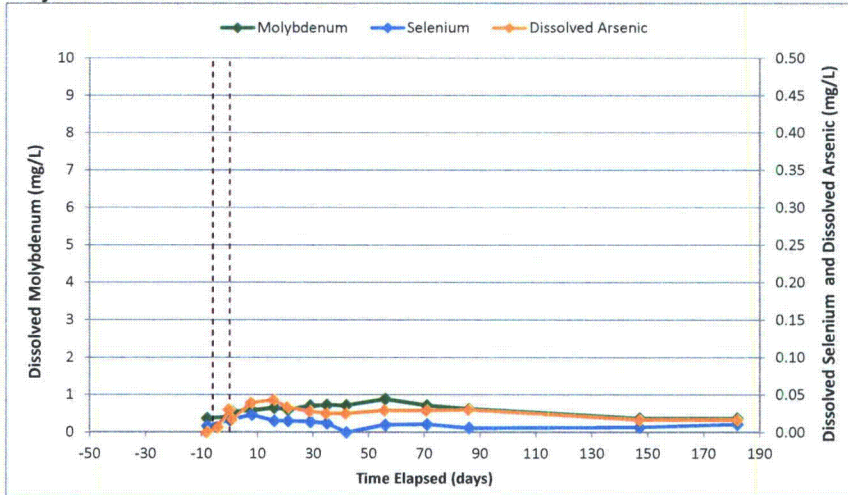
Well Location:



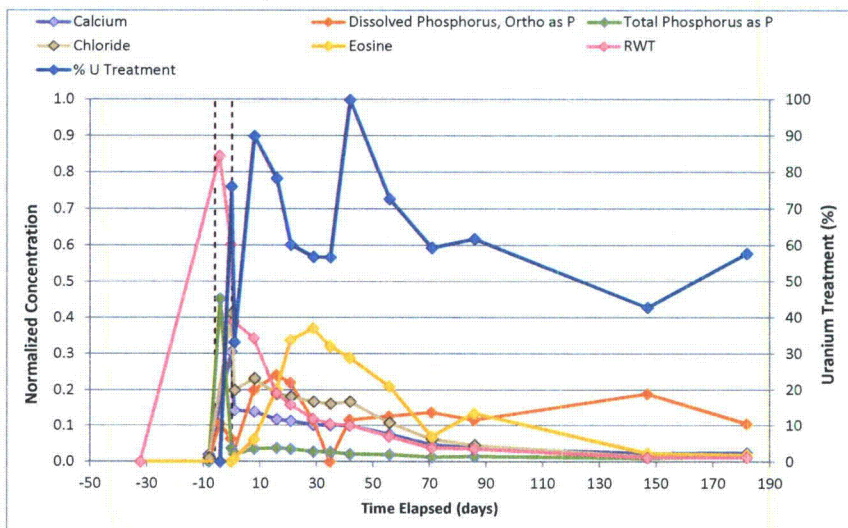
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Molybdenum and Selenium



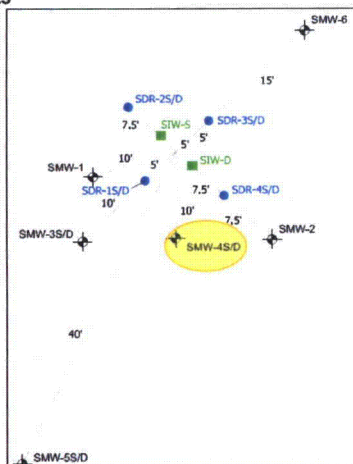
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-4D

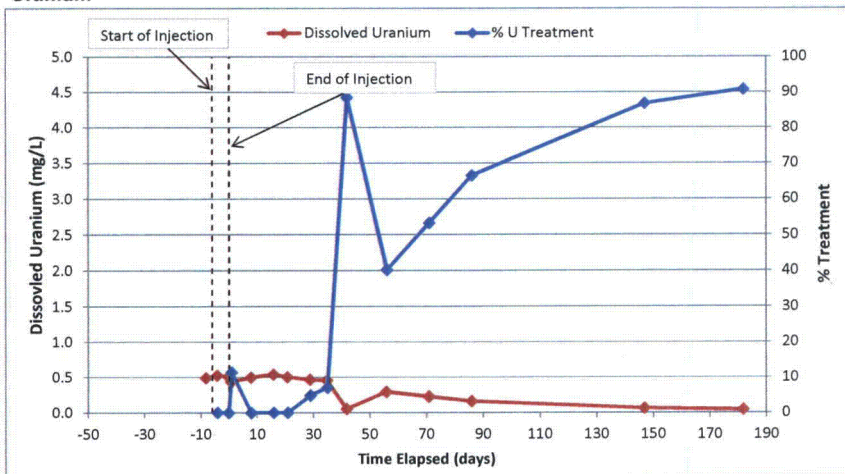
Well Location:



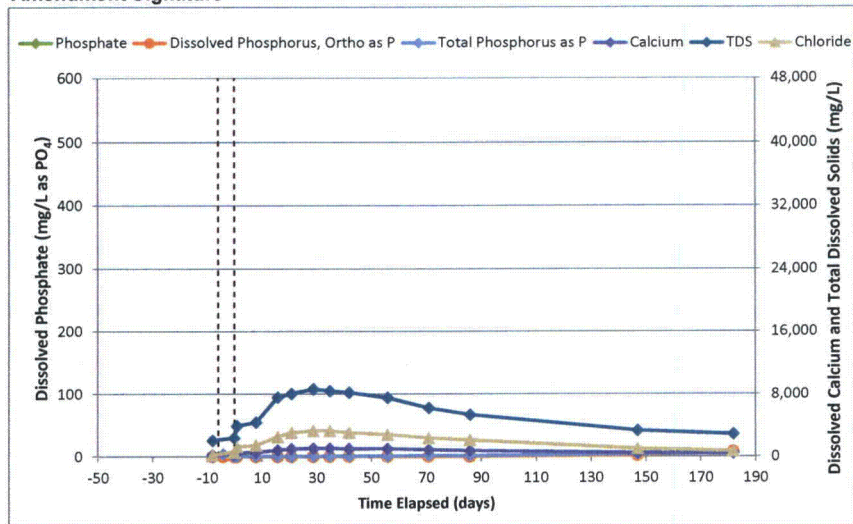
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Uranium



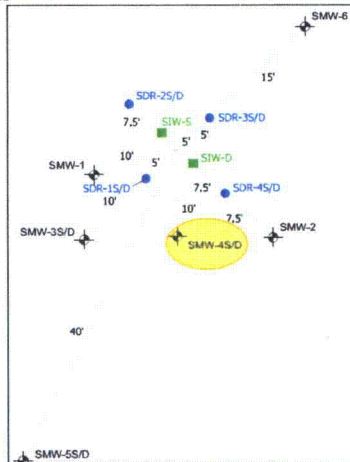
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-4D

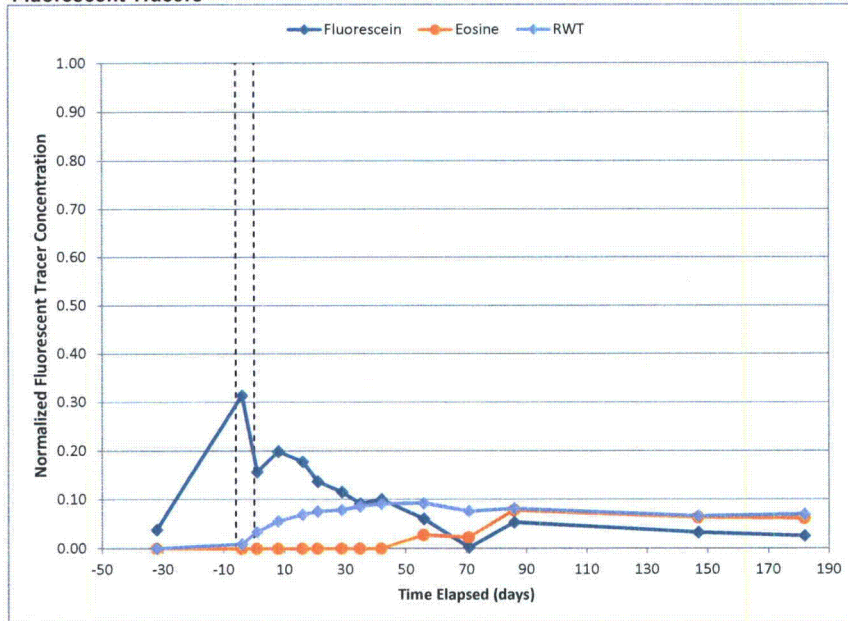
Well Location:



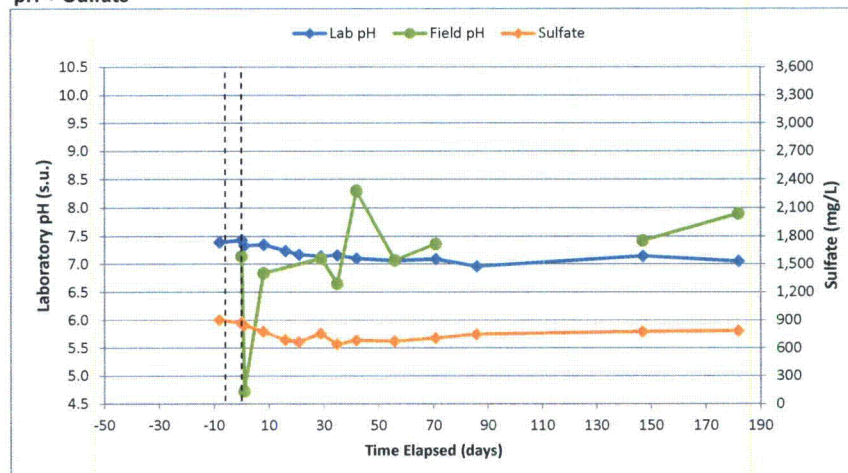
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers



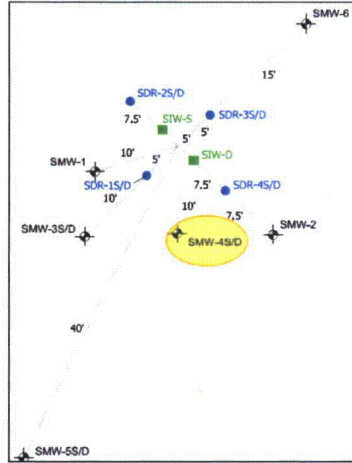
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-4D

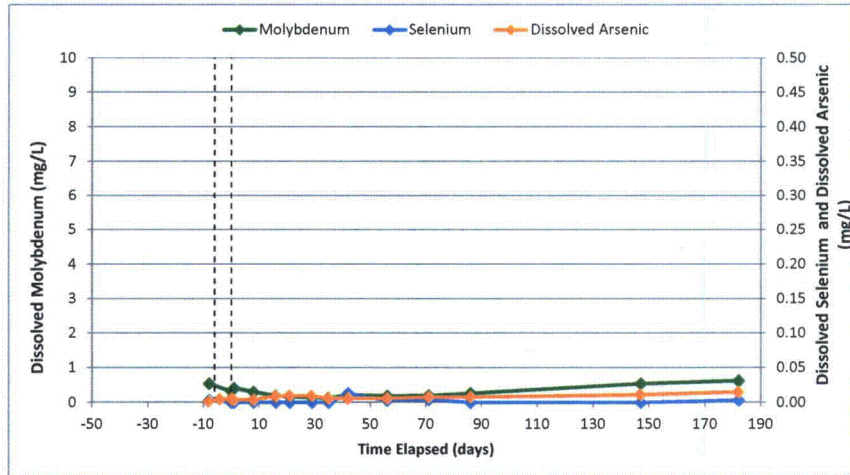
Well Location:



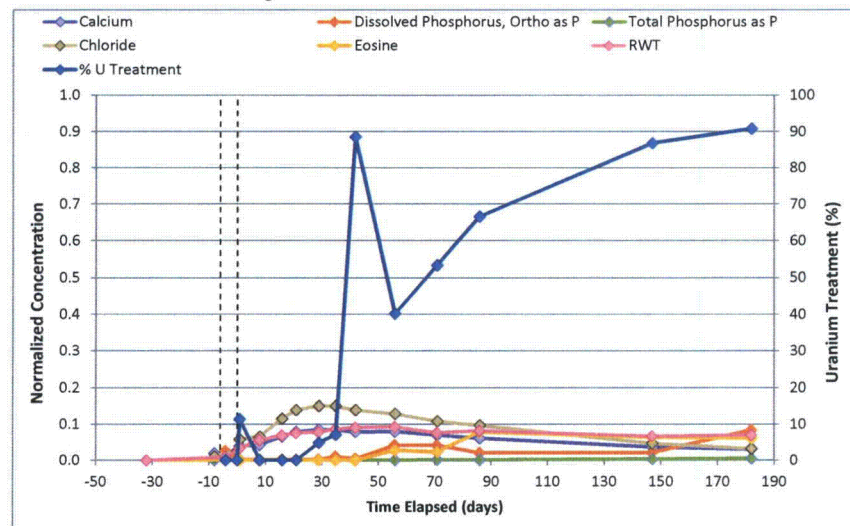
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Molybdenum and Selenium



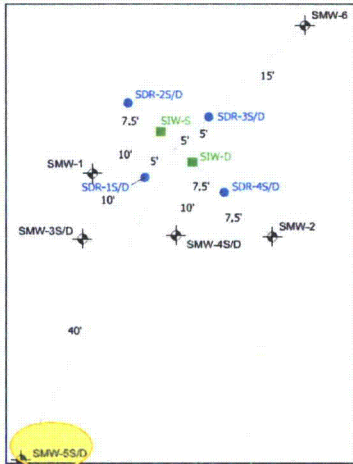
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-5S

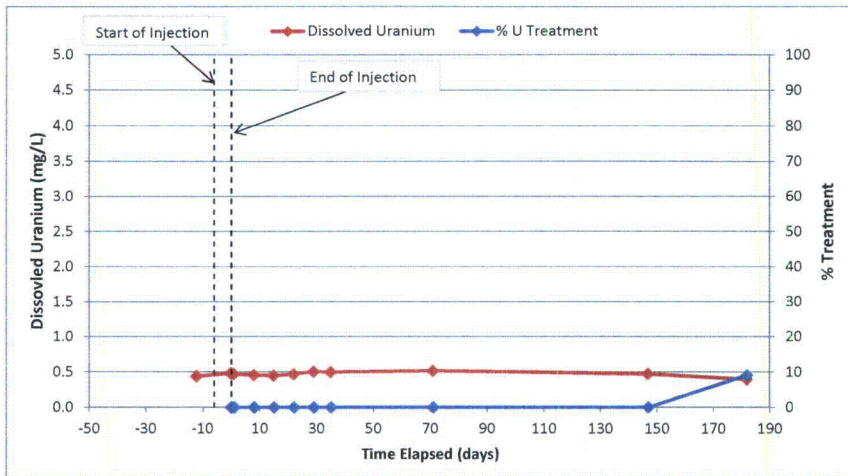
Well Location:



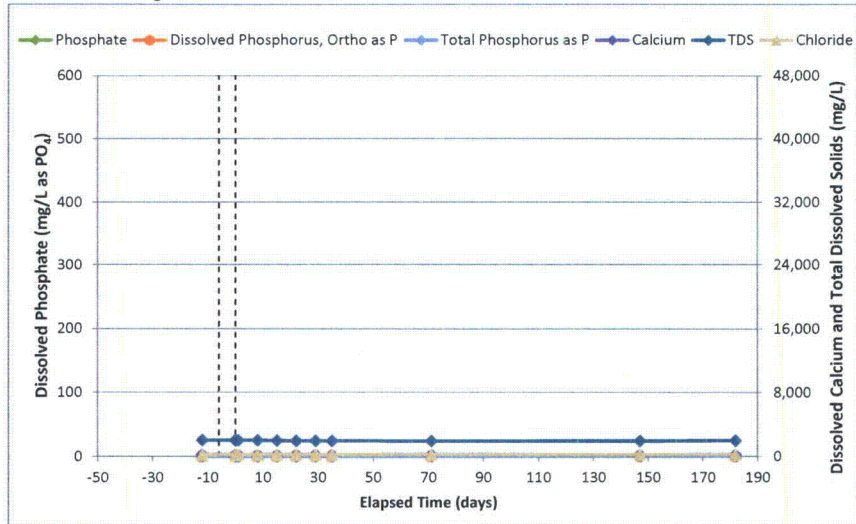
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Uranium



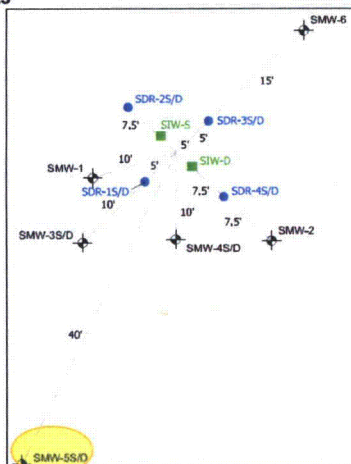
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-5S

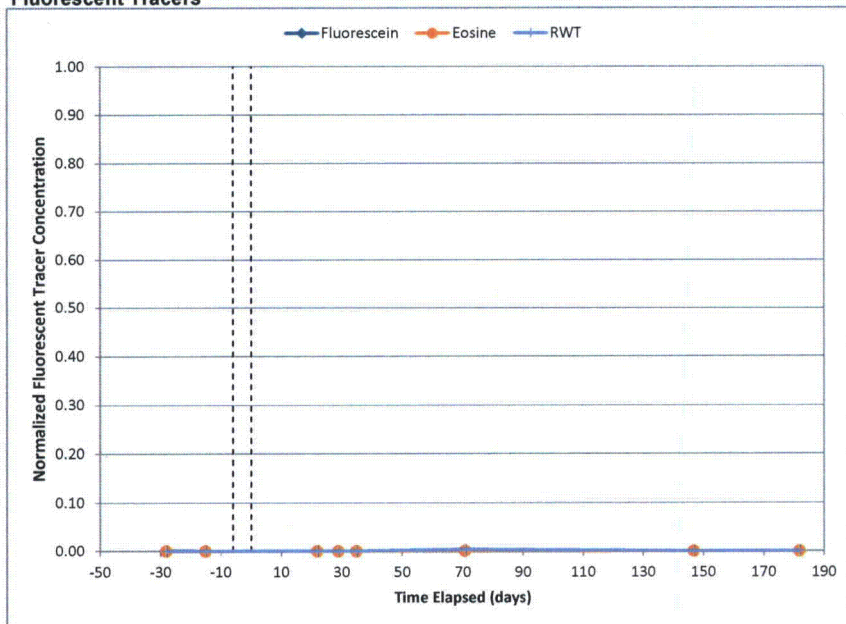
Well Location:



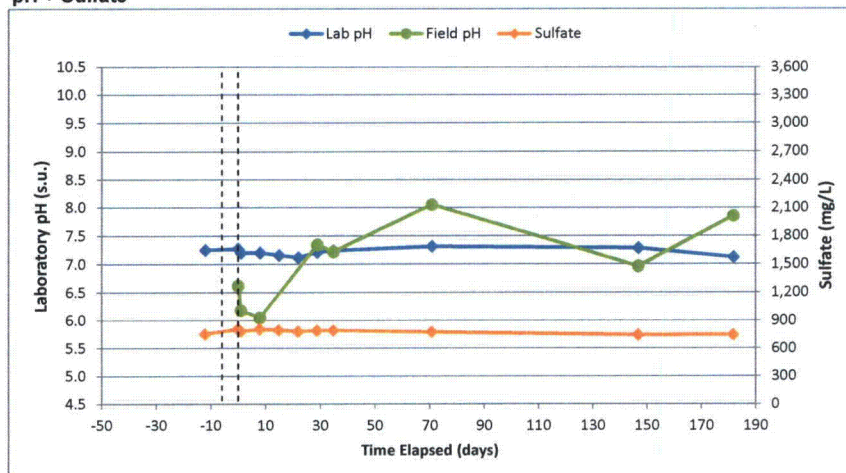
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Fluorescent Tracers



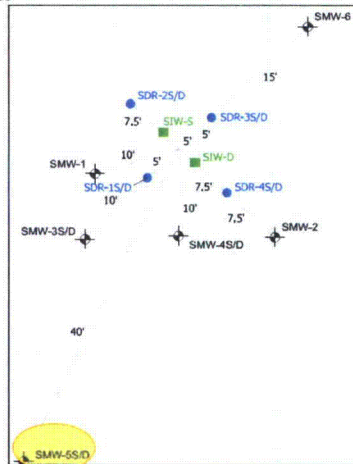
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-5S

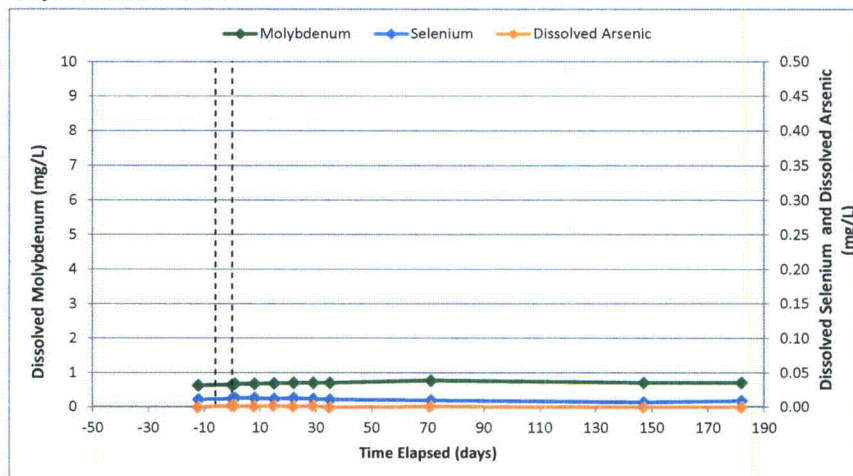
Well Location:



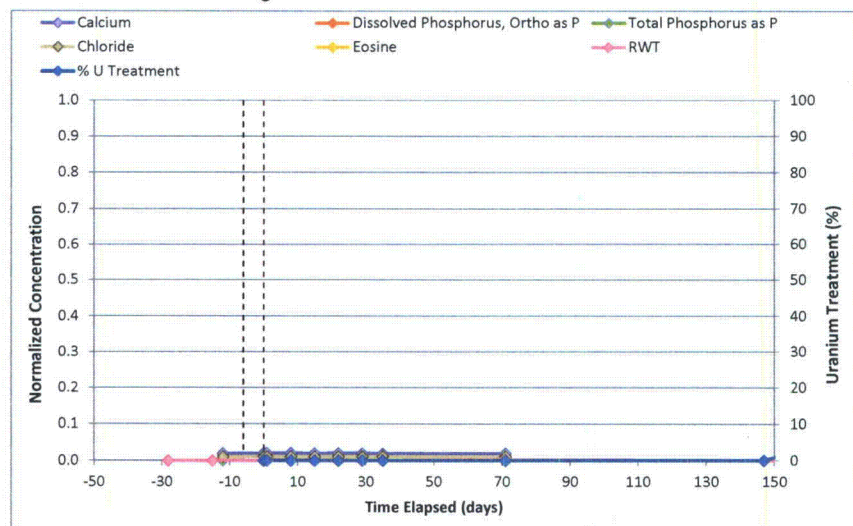
Well Construction Details:

Depth	Screened Interval	Diameter
70	55-70	2

Molybdenum and Selenium



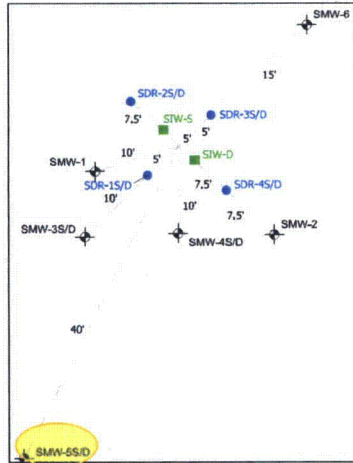
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-5D

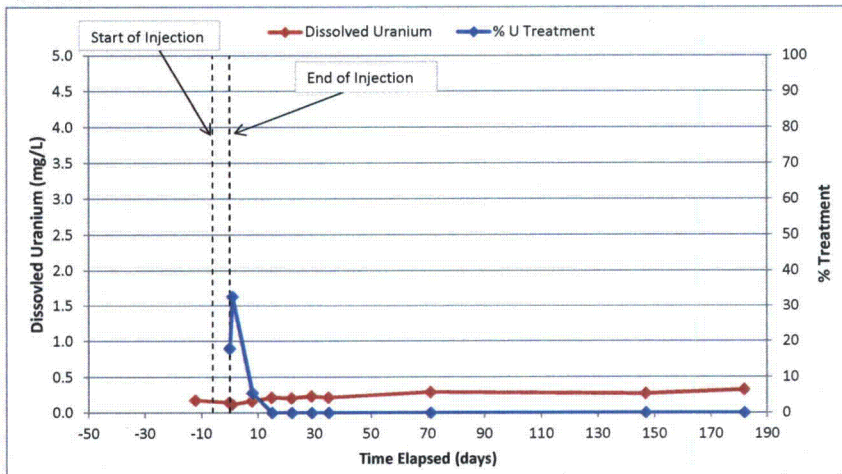
Well Location:



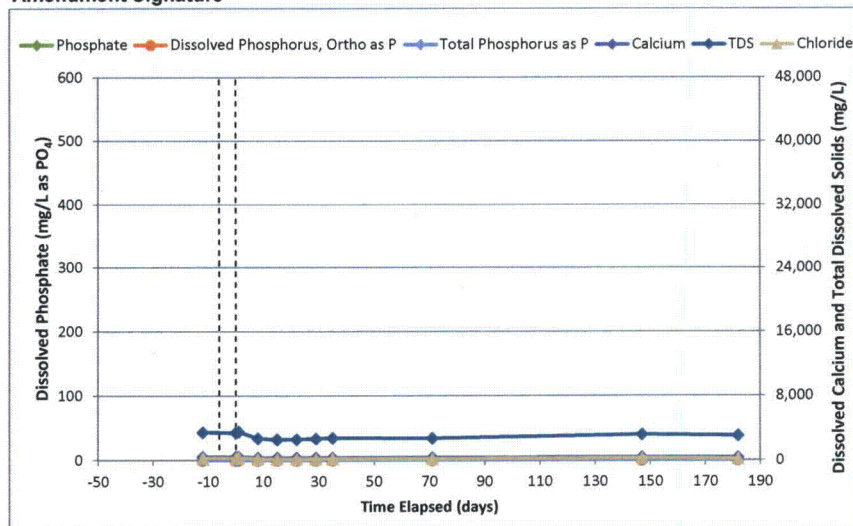
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Uranium



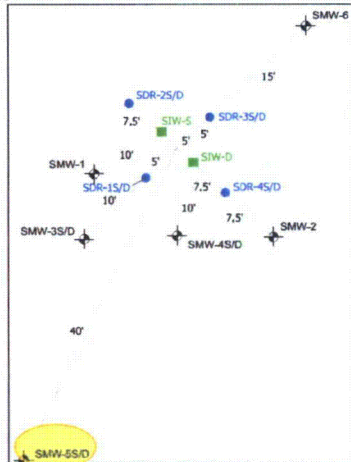
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-5D

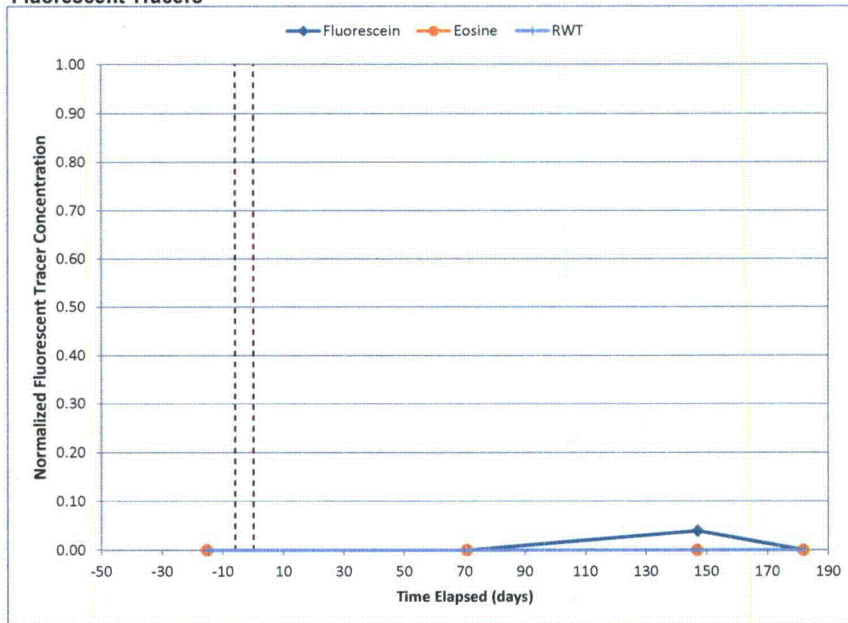
Well Location:



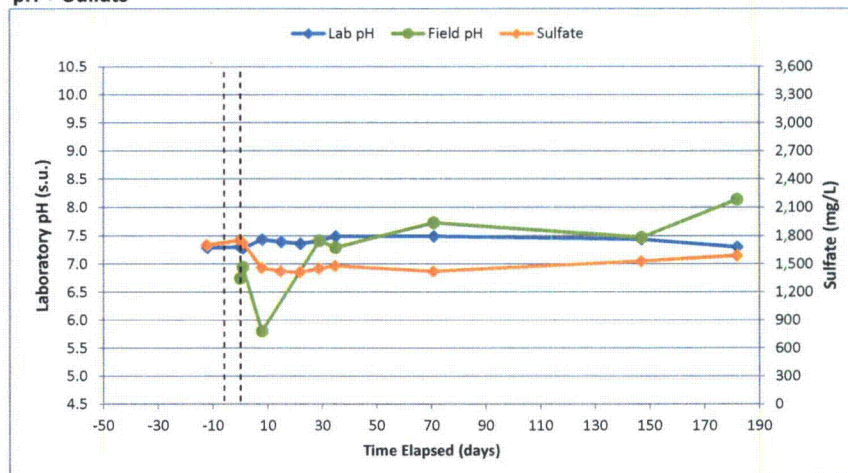
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Fluorescent Tracers



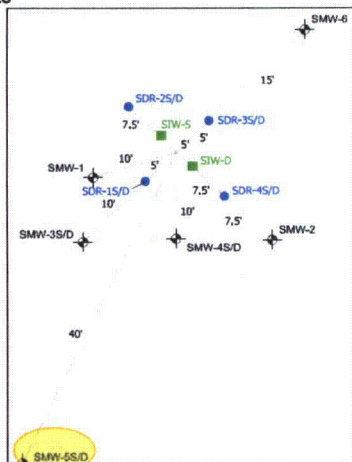
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-5D

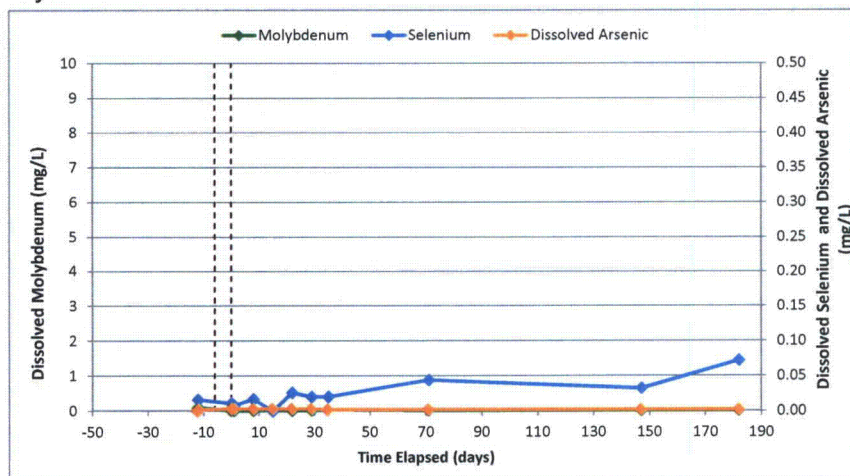
Well Location:



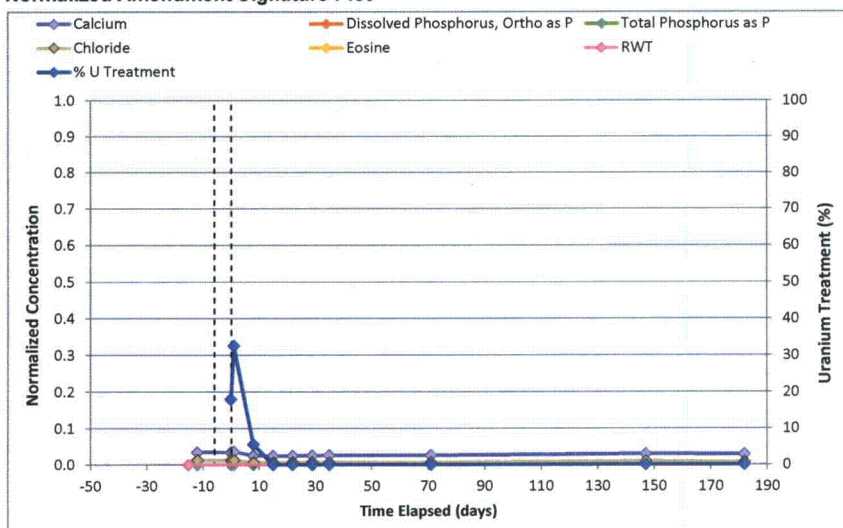
Well Construction Details:

Depth	Screened Interval	Diameter
95	75-95	2

Molybdenum and Selenium

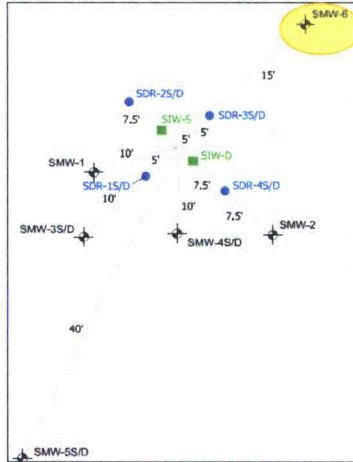


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: SMW-6

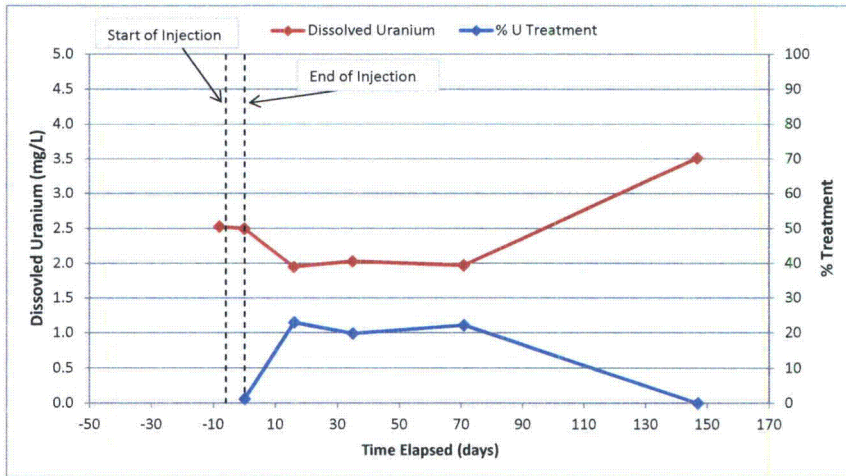
Well Location:



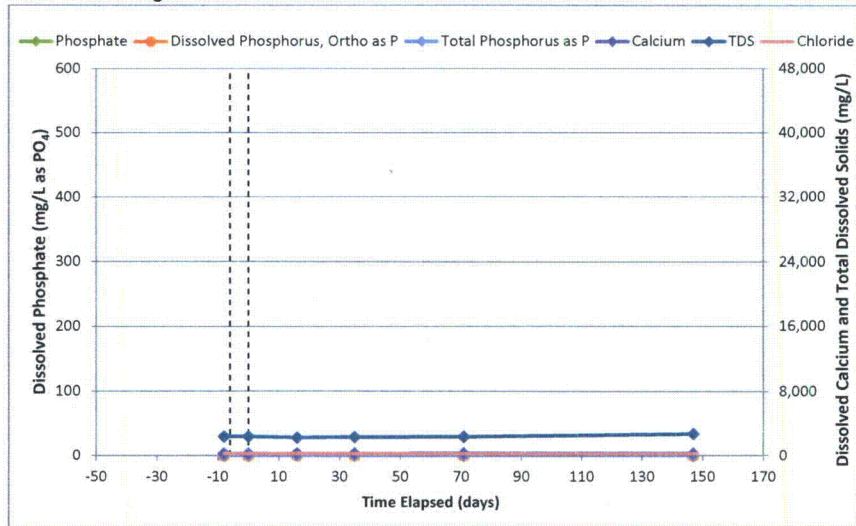
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Uranium



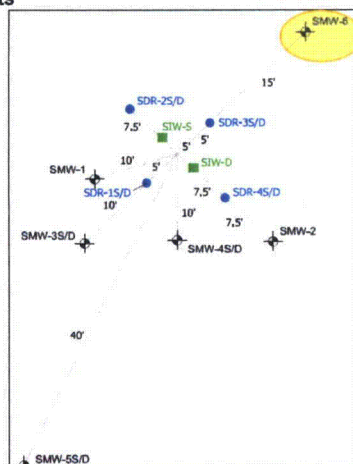
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: SMW-6

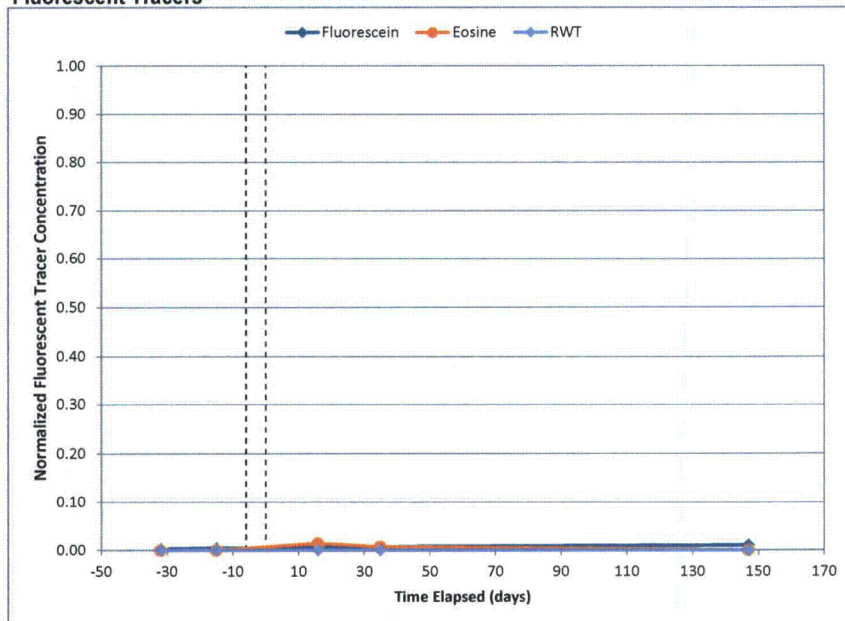
Well Location:



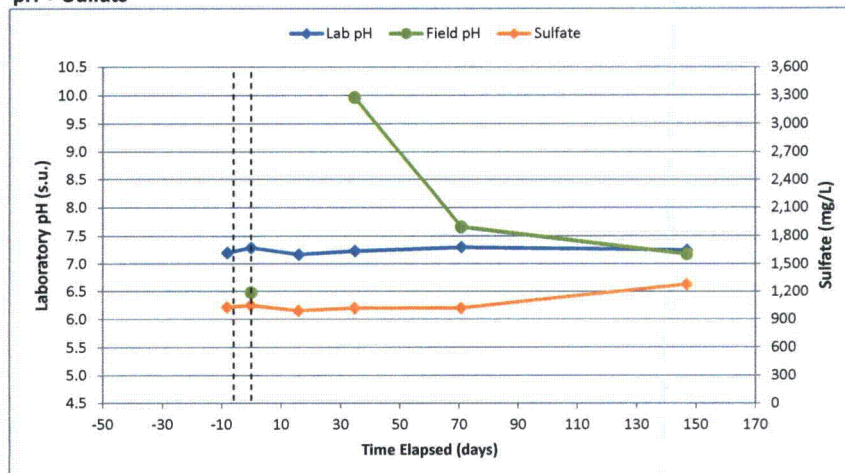
Well Construction Details:

Depth	Screened Interval	Diameter
85	65-85	2

Fluorescent Tracers



pH + Sulfate



Well ID: SMW-6

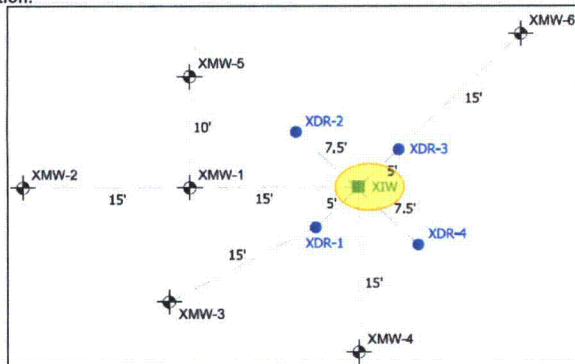
Depth	Screened Interval	Diameter
85	65-85	2

Time Elapsed (days)	Dissolved Molybdenum (mg/L)	Dissolved Selenium (mg/L)	Dissolved Arsenic (mg/L)
-10	2.5	0.05	0.00
0	2.2	0.04	0.00
15	2.2	0.03	0.00
35	2.1	0.04	0.00
70	2.1	0.04	0.00
150	3.0	0.10	0.00

TPP Pilot Test At-A-Glance Charts

Well ID: XIW

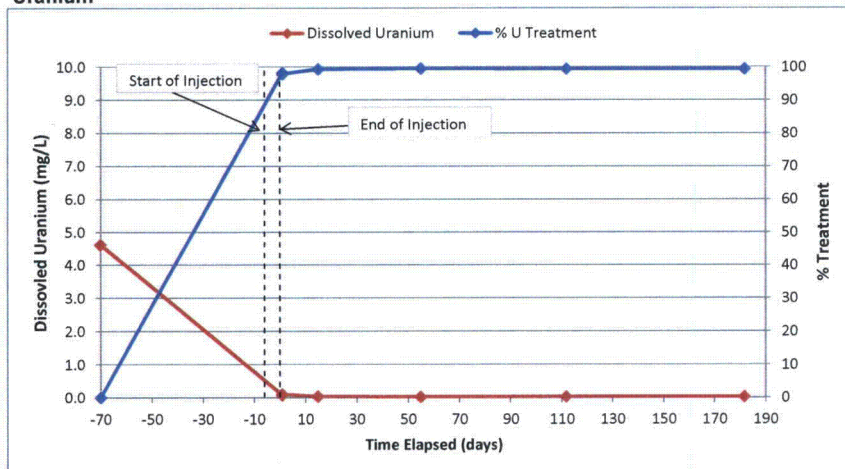
Well Location:



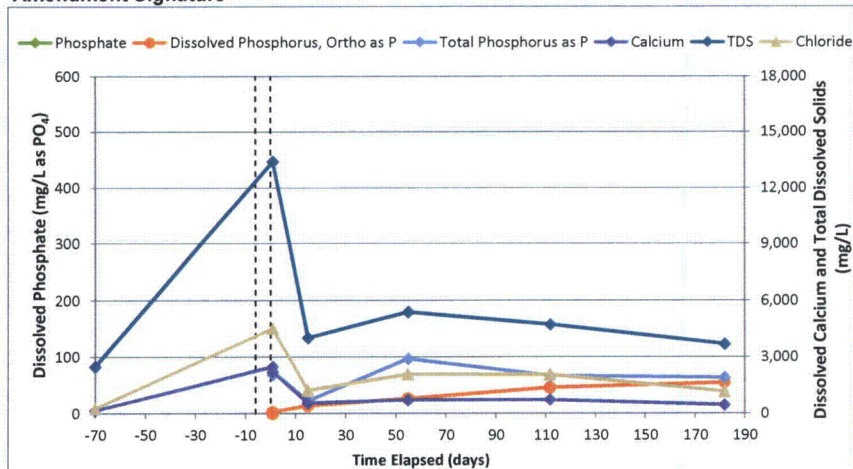
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	4

Uranium



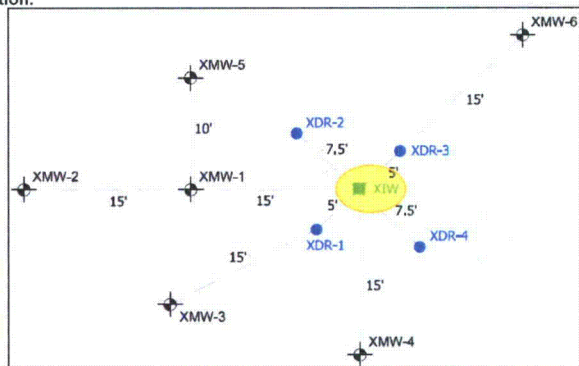
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: XIW

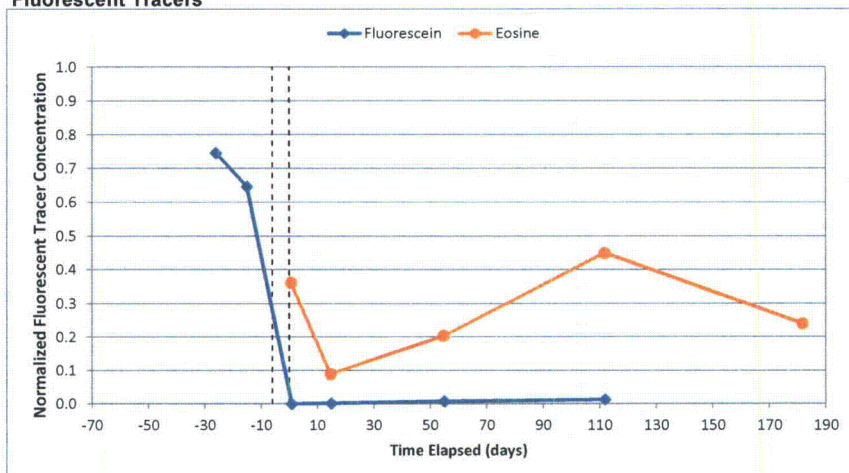
Well Location:



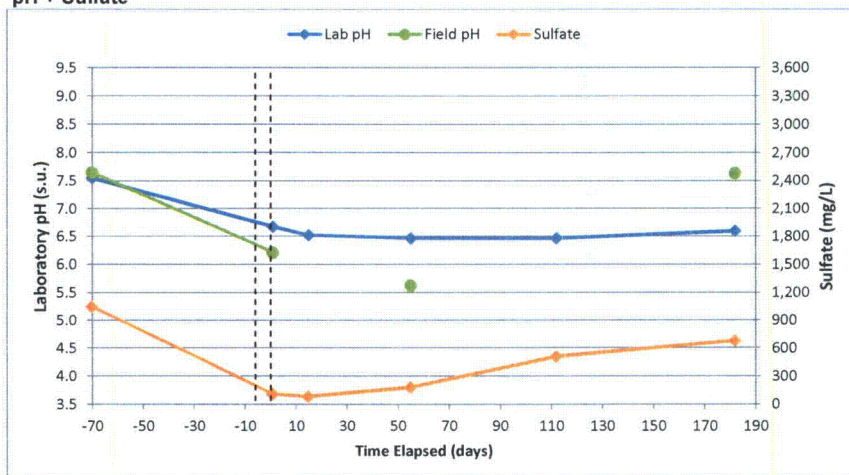
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	4

Fluorescent Tracers



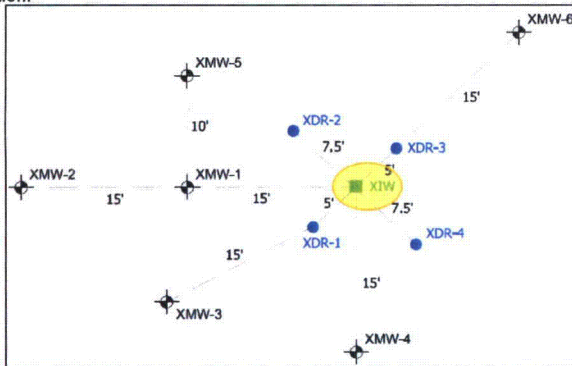
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: XIW

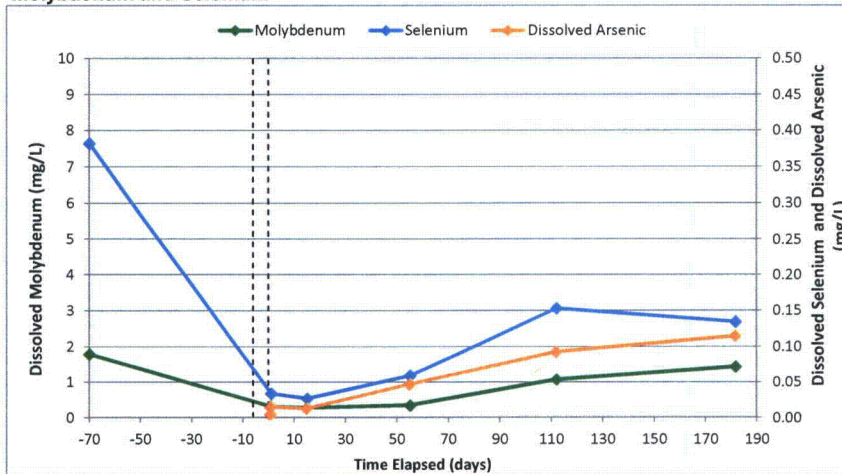
Well Location:



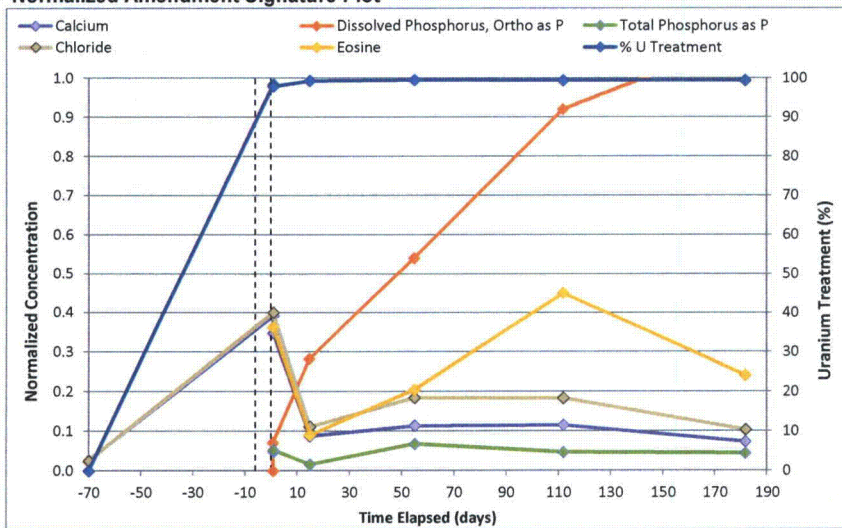
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	4

Molybdenum and Selenium



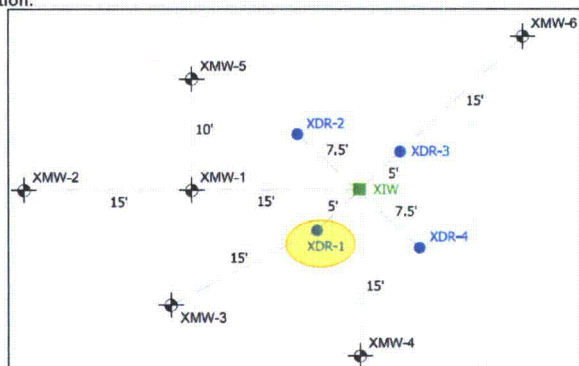
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: XDR-1

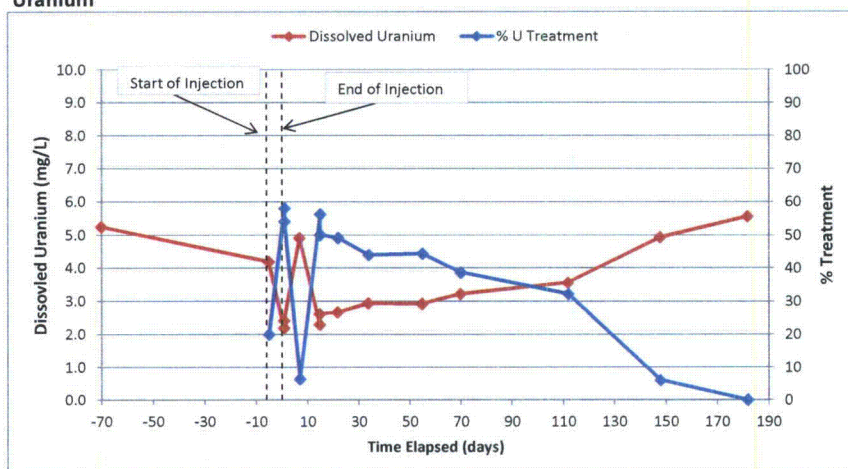
Well Location:



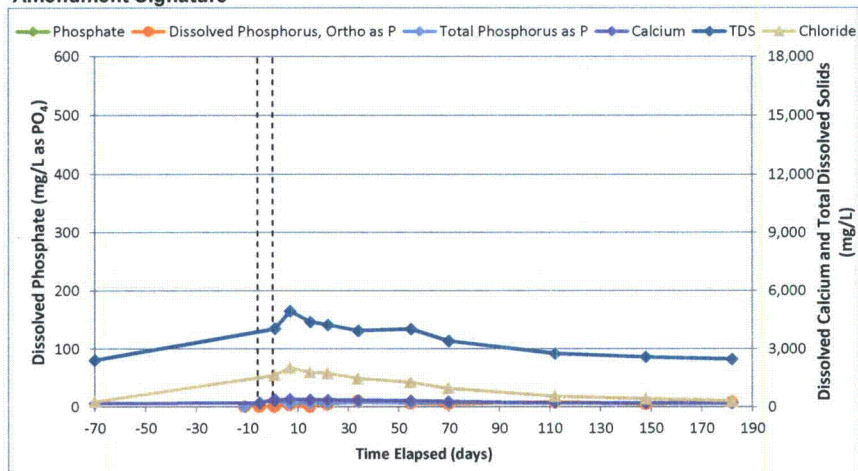
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium



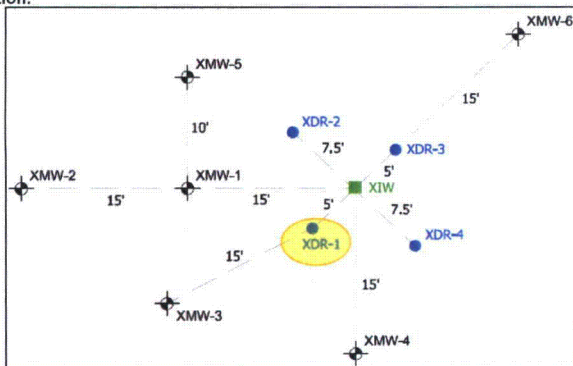
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: XDR-1

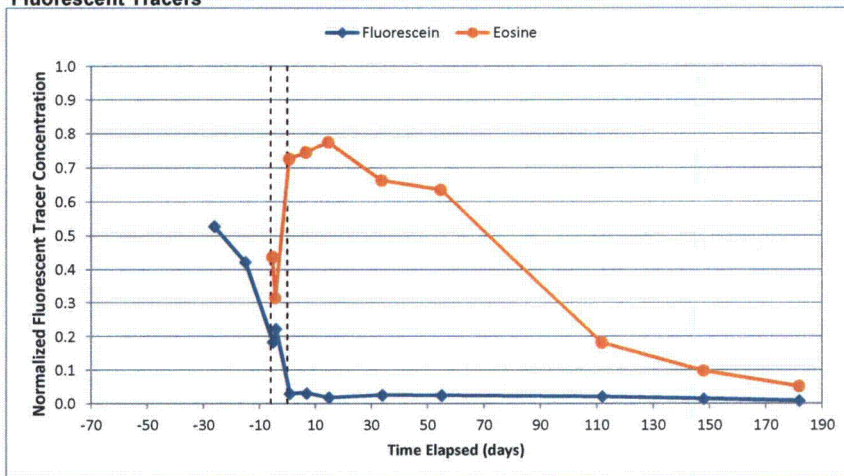
Well Location:



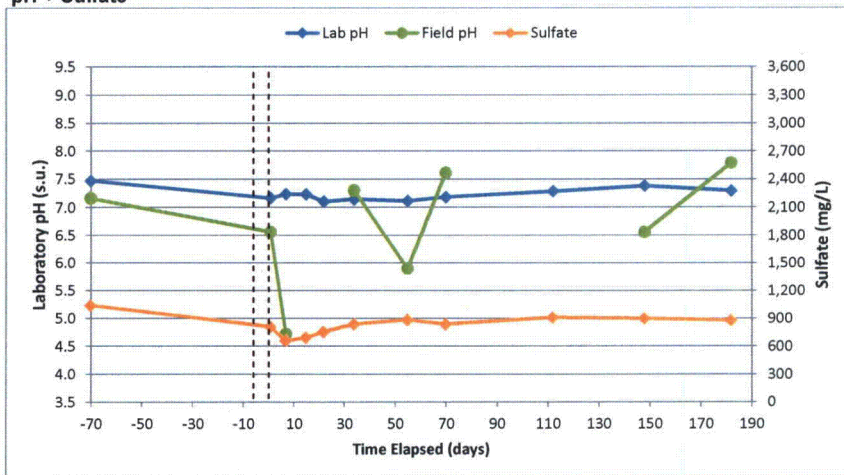
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers

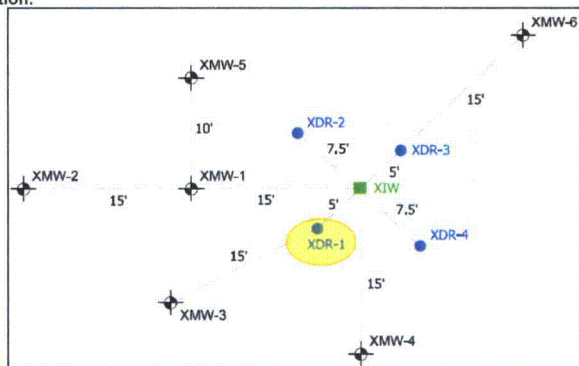


pH + Sulfate



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-1

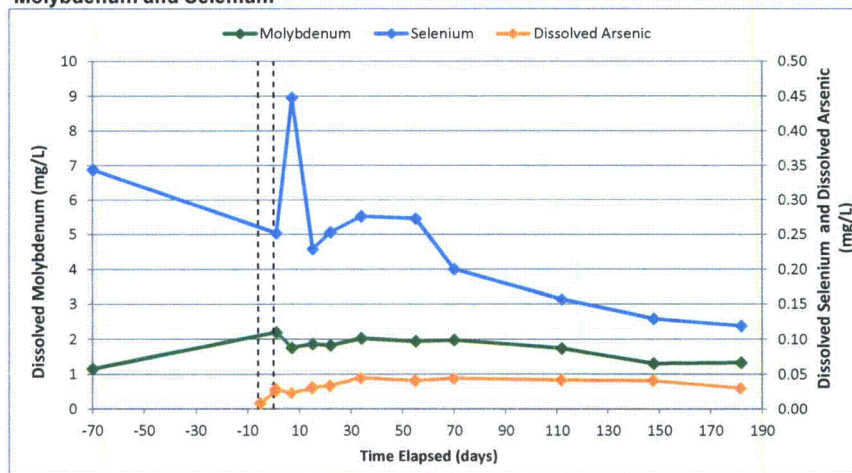
Well Location:



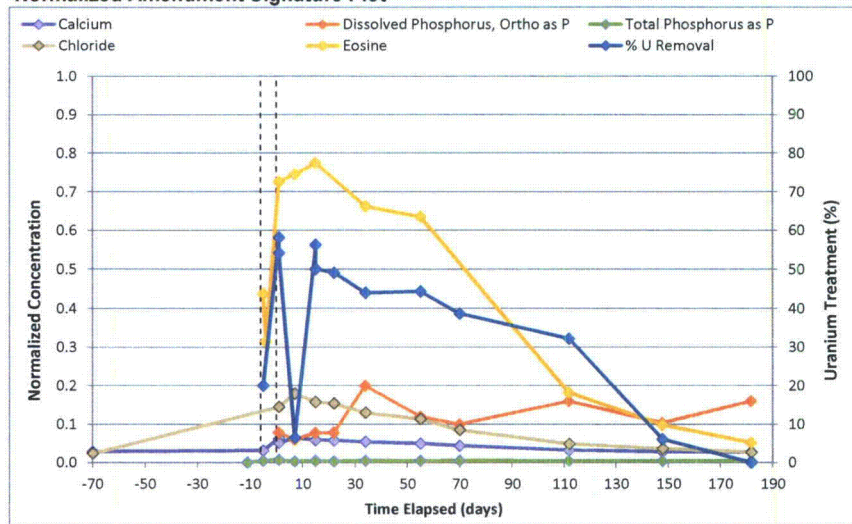
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium

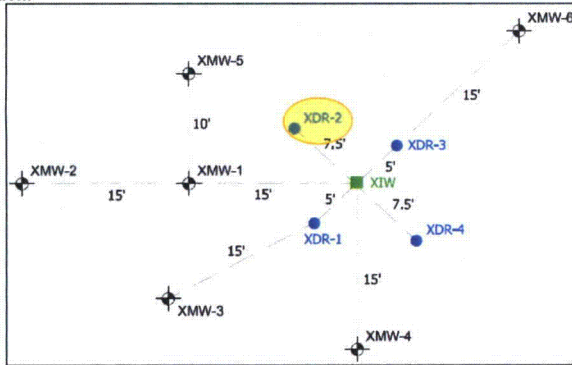


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-2

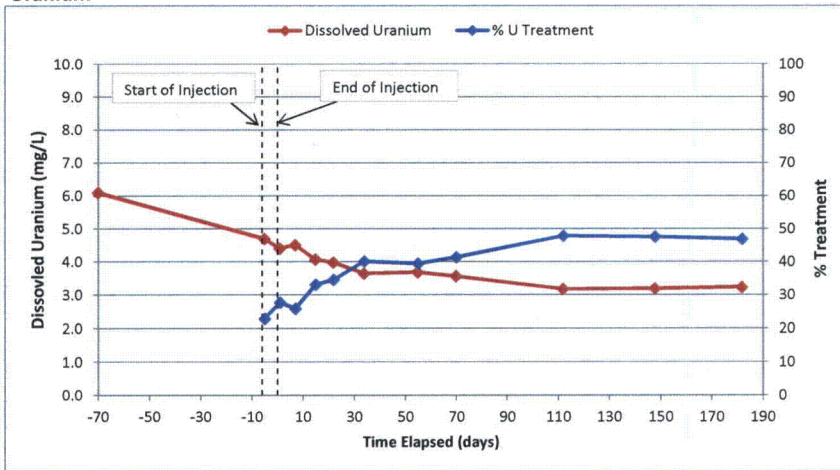
Well Location:



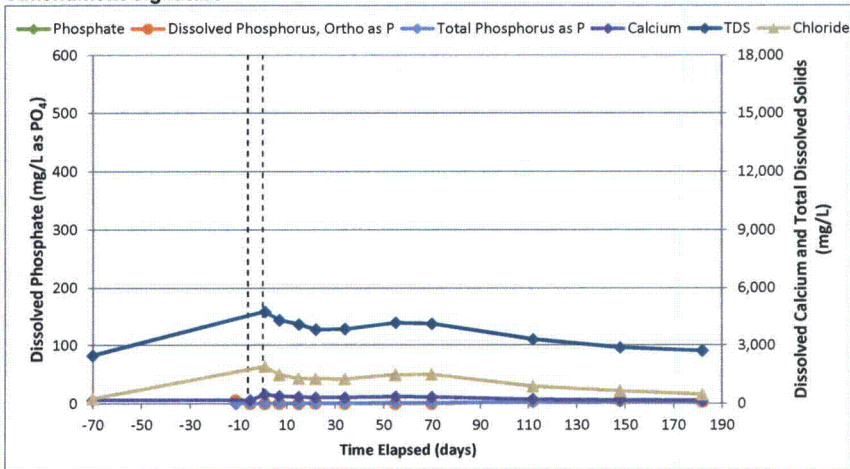
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium

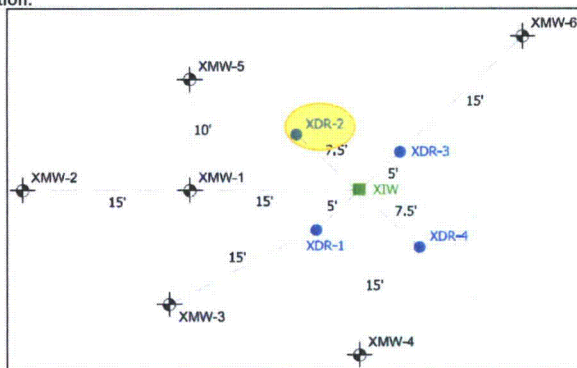


Amendment Signature



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-2

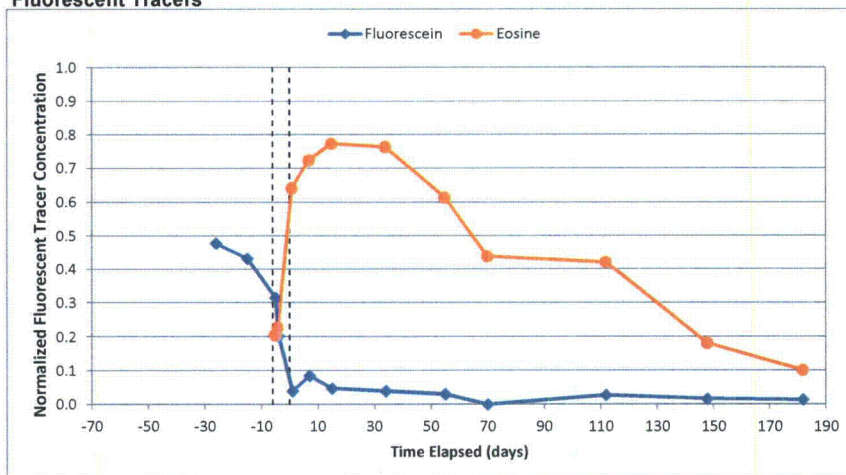
Well Location:



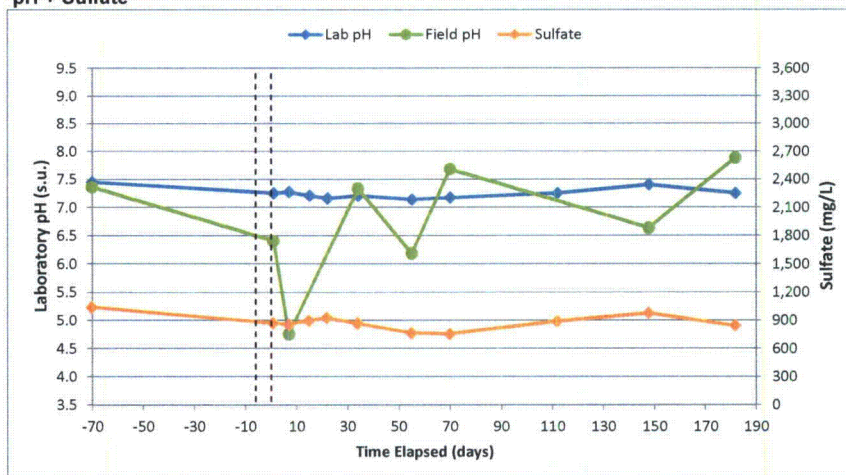
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers

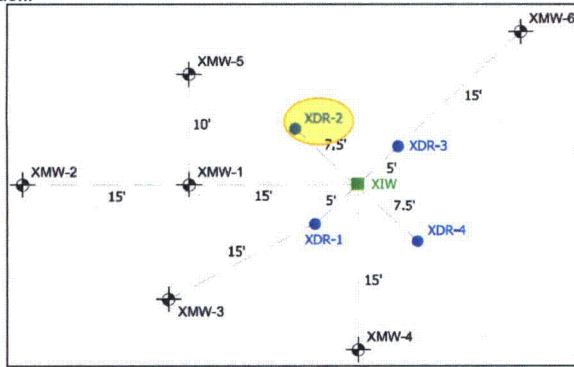


pH + Sulfate



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-2

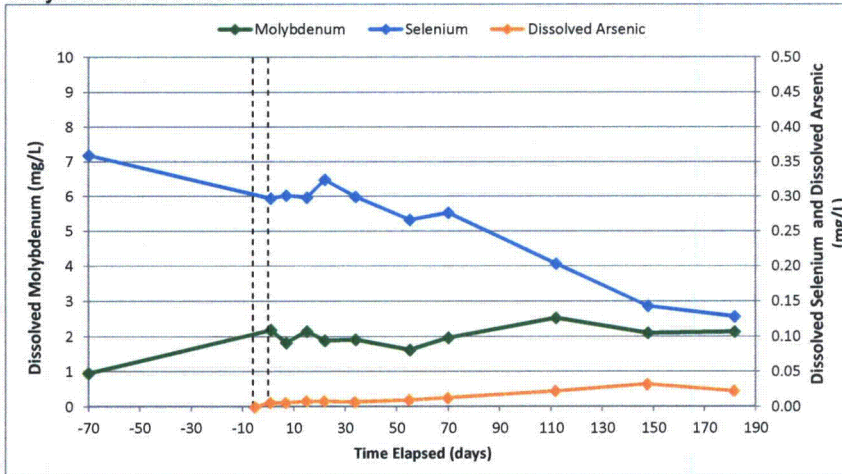
Well Location:



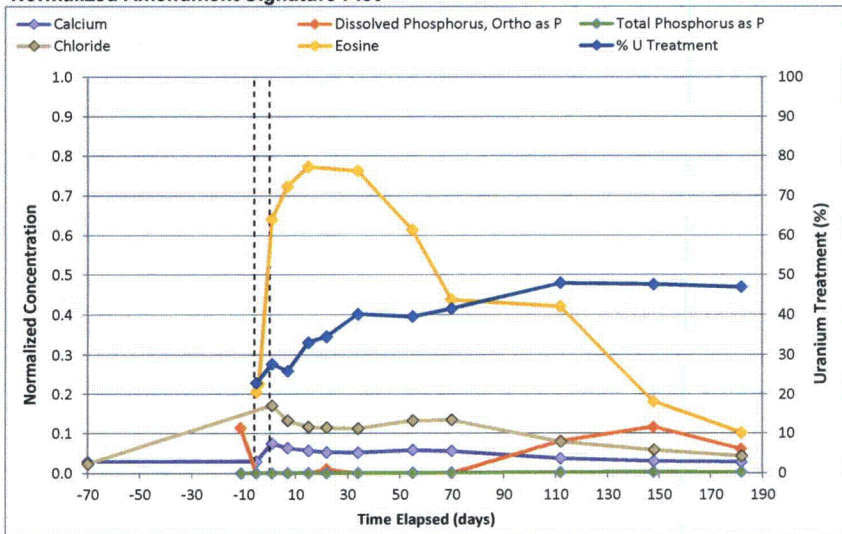
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium

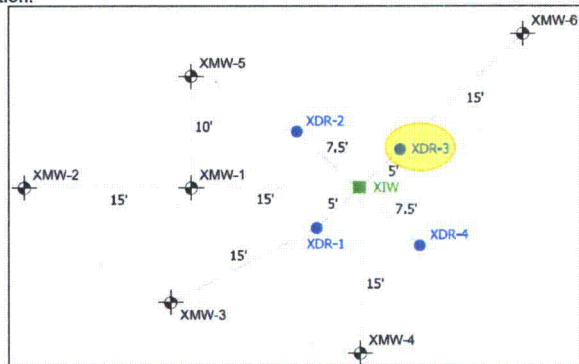


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-3

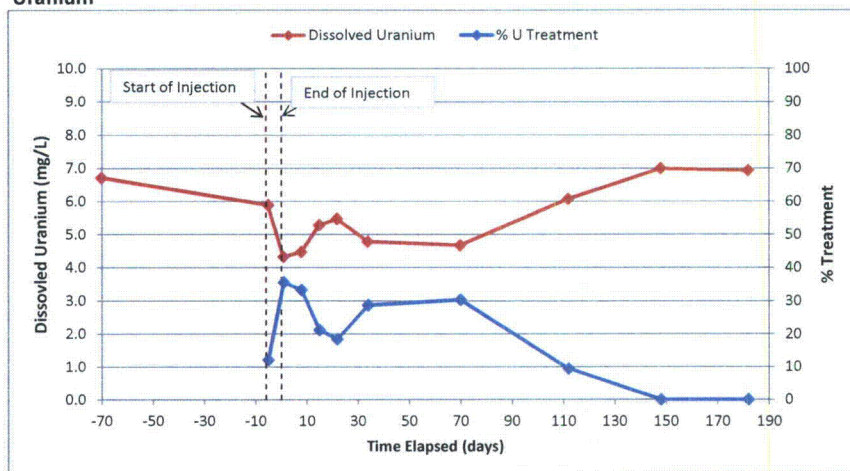
Well Location:



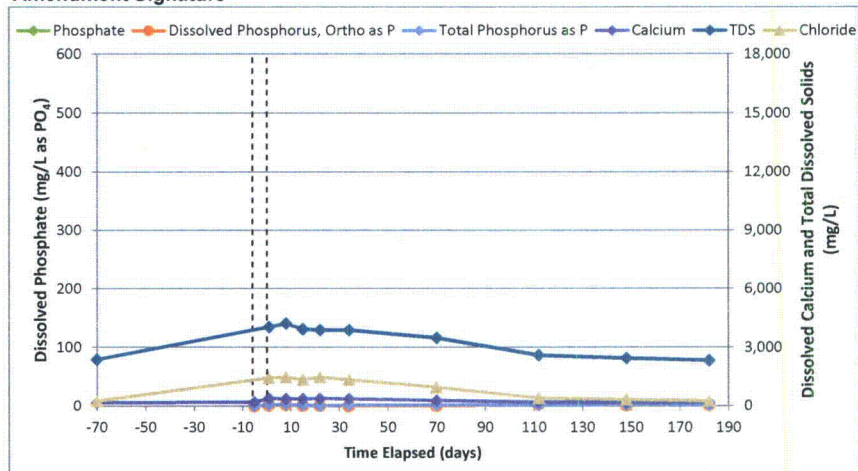
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium

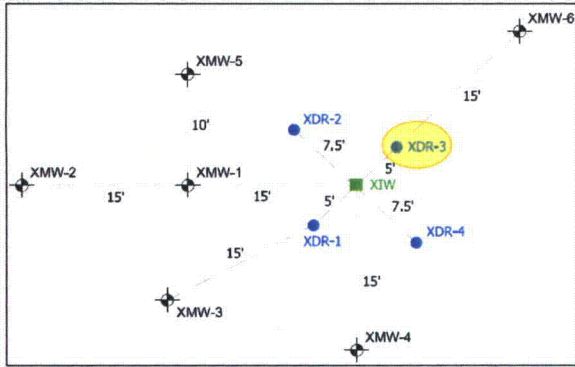


Amendment Signature



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-3

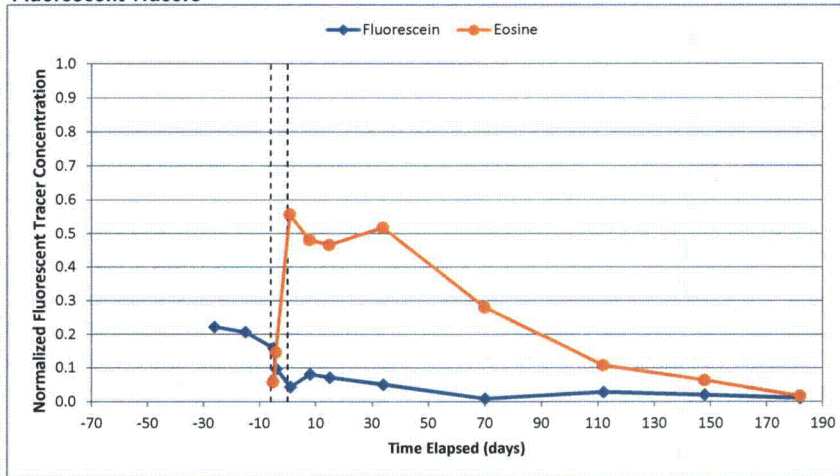
Well Location:



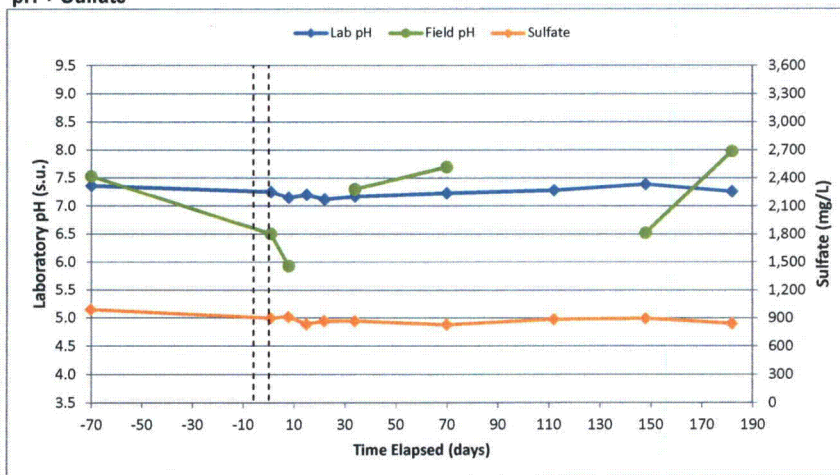
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers

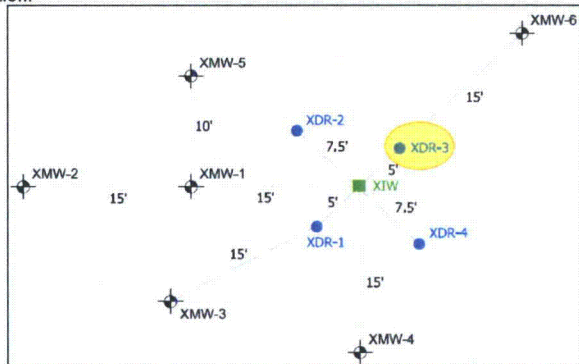


pH + Sulfate



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-3

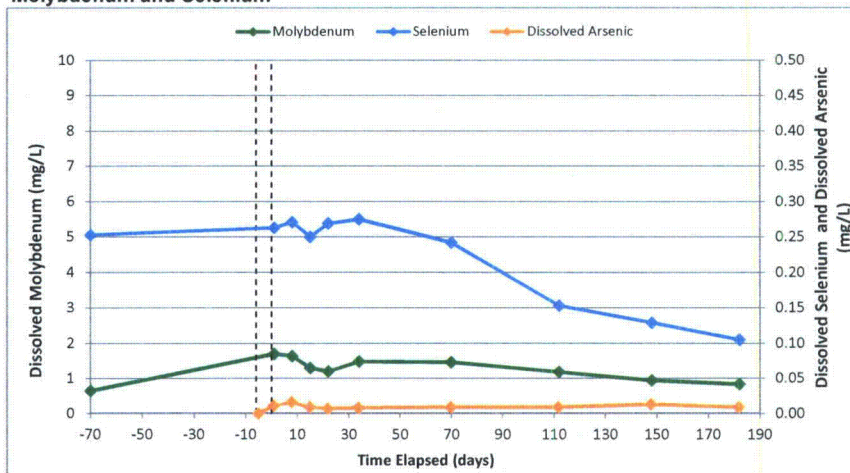
Well Location:



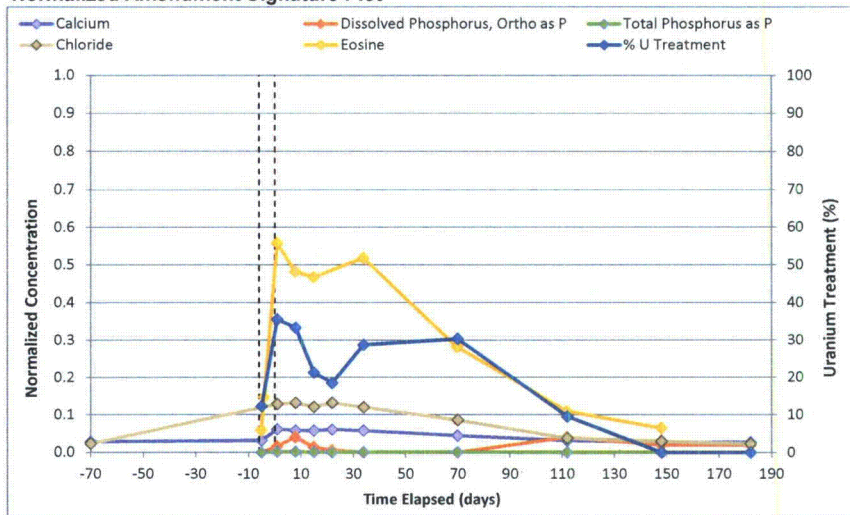
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium

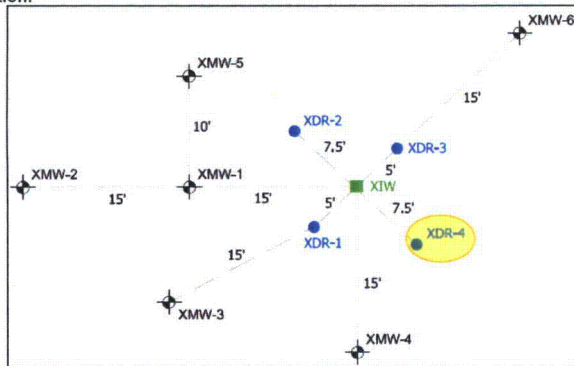


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: XDR-4

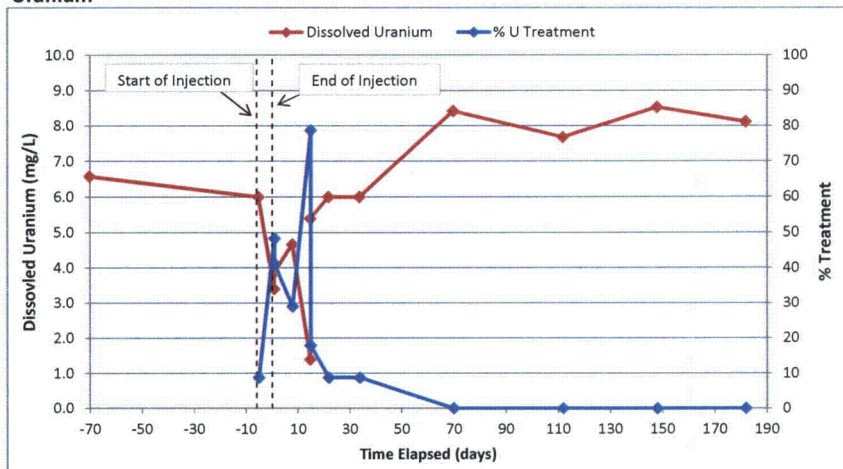
Well Location:



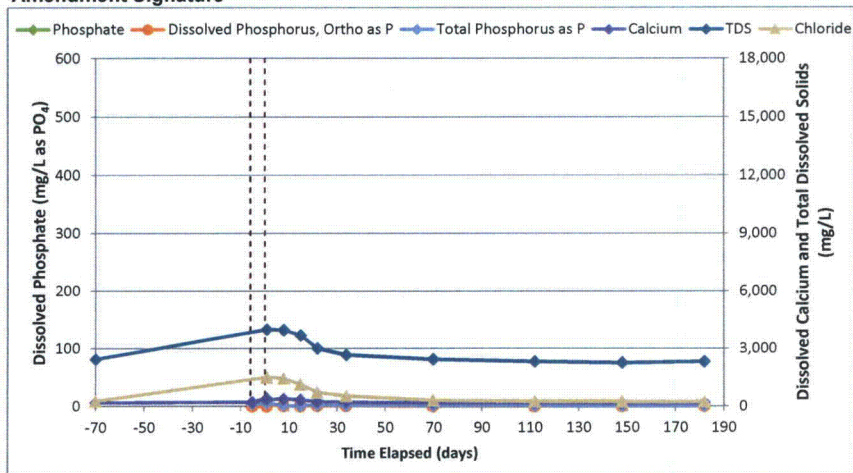
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium

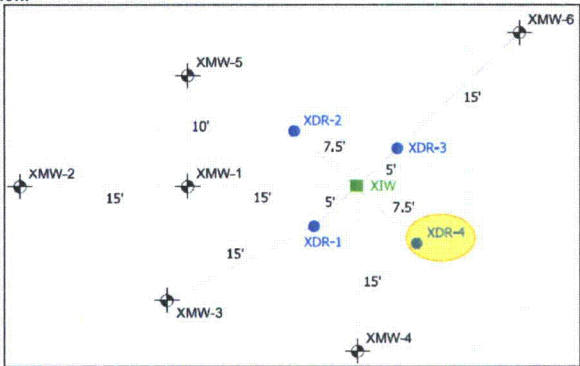


Amendment Signature



TPP Pilot Test At-A-Glance Charts
 Well ID: XDR-4

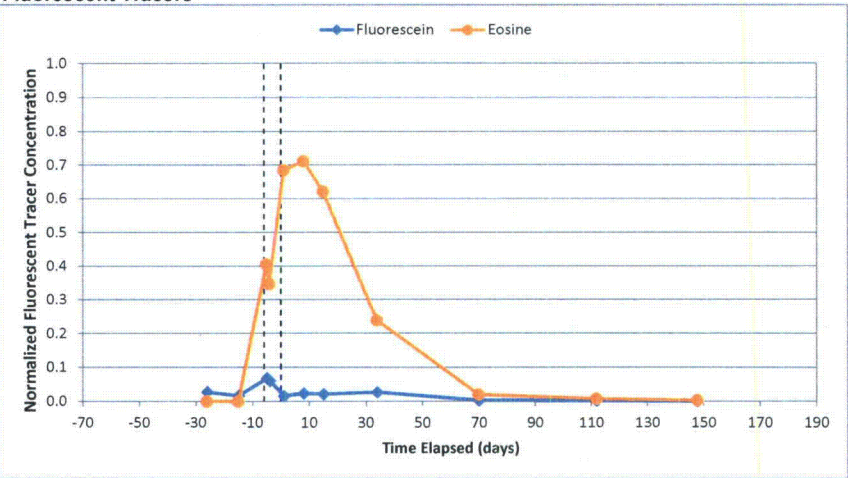
Well Location:



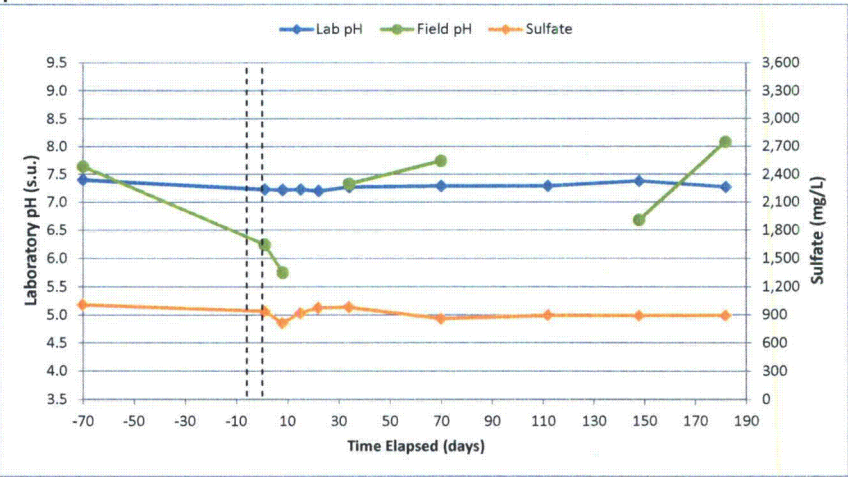
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers



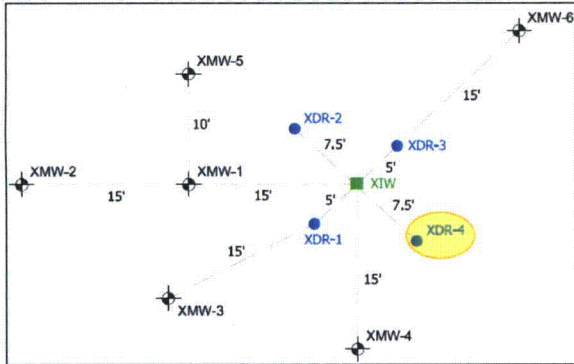
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: XDR-4

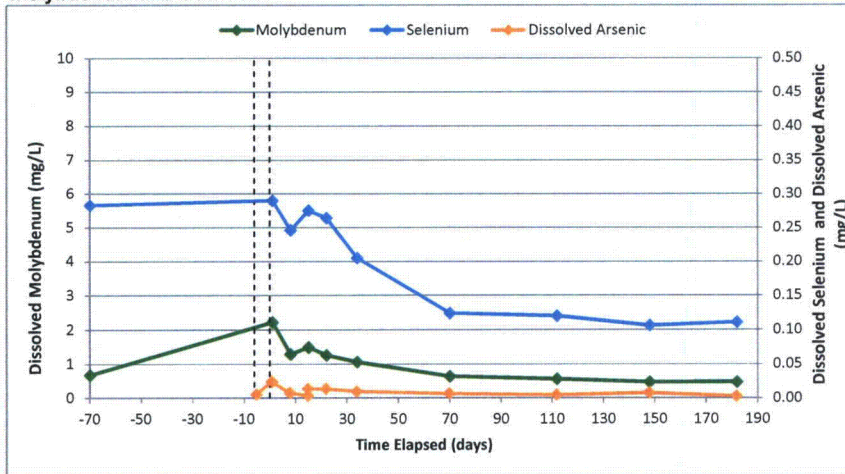
Well Location:



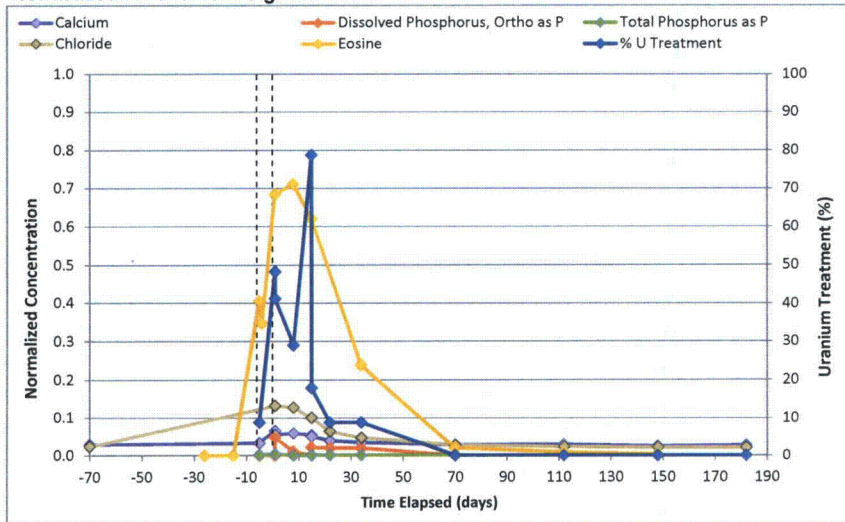
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium



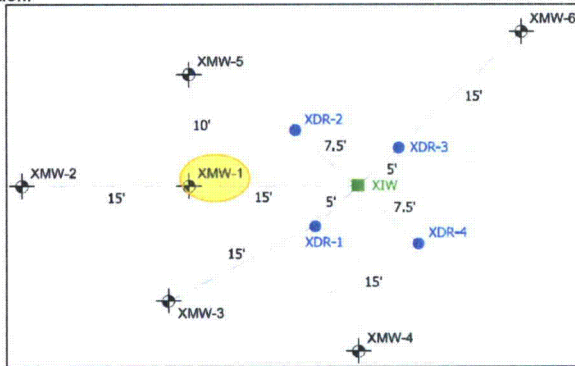
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-1

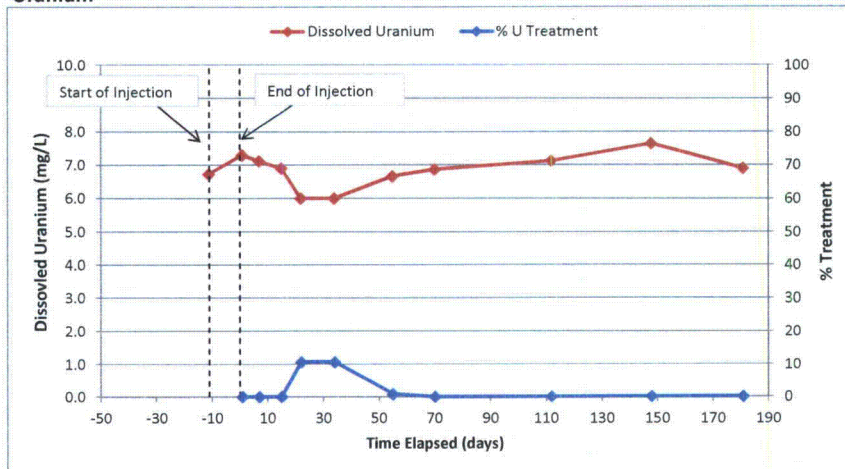
Well Location:



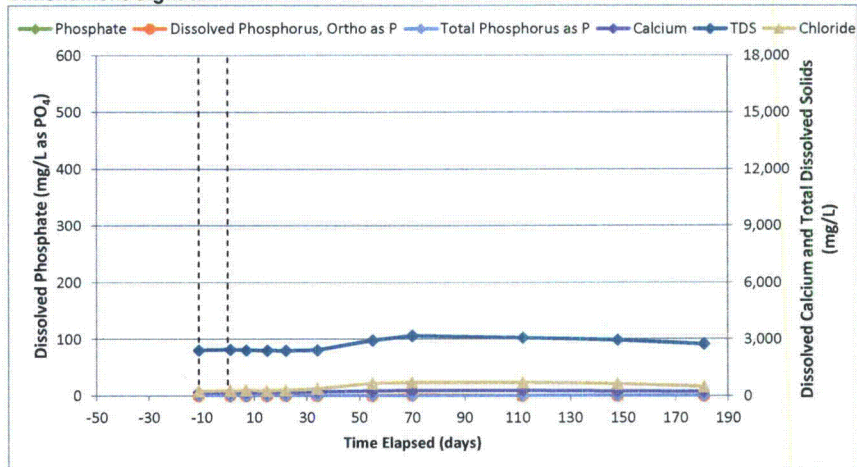
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium



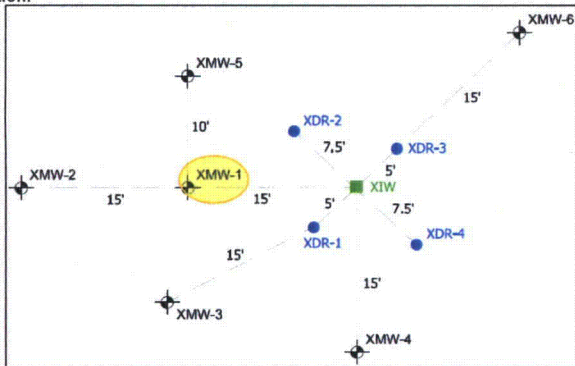
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-1

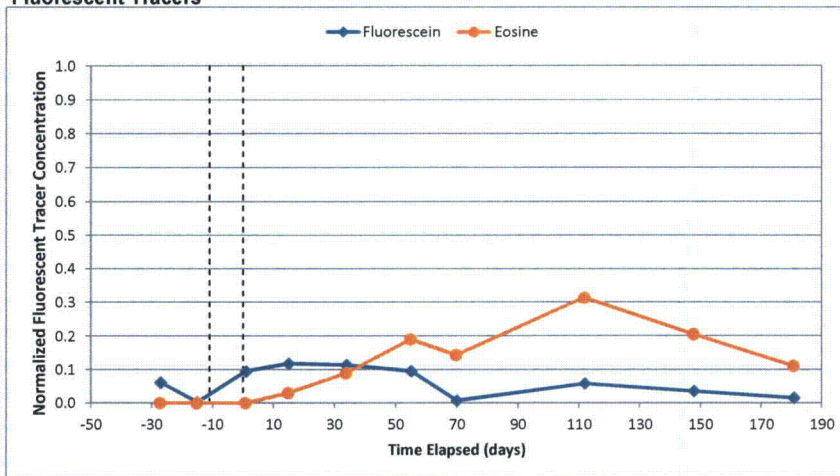
Well Location:



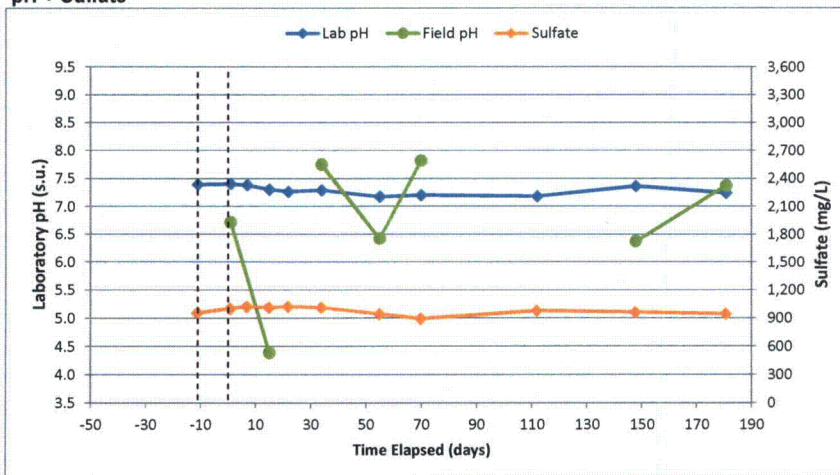
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers

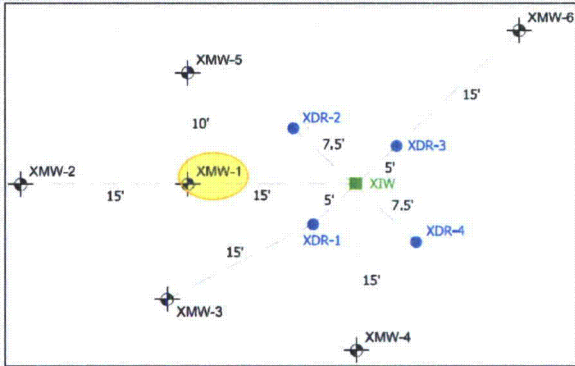


pH + Sulfate



TPP Pilot Test At-A-Glance Chart
Well ID: XMW-1

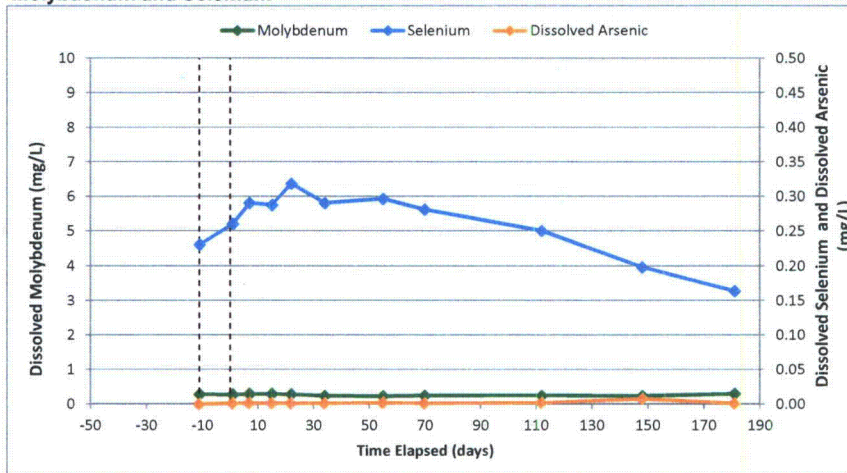
Well Location:



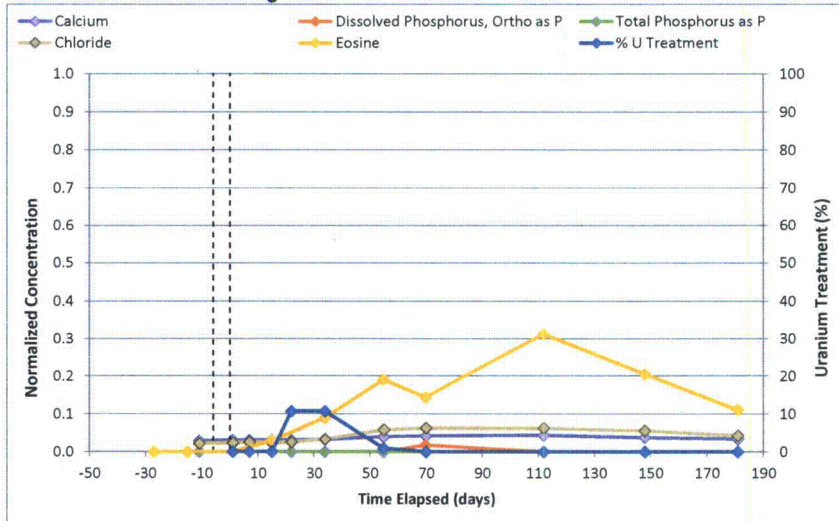
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium

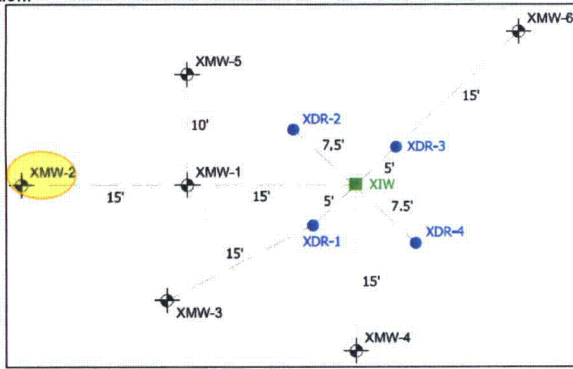


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-2

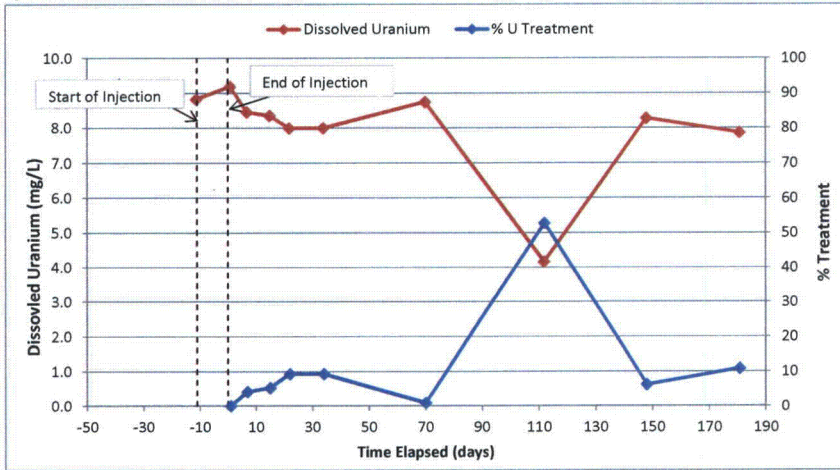
Well Location:



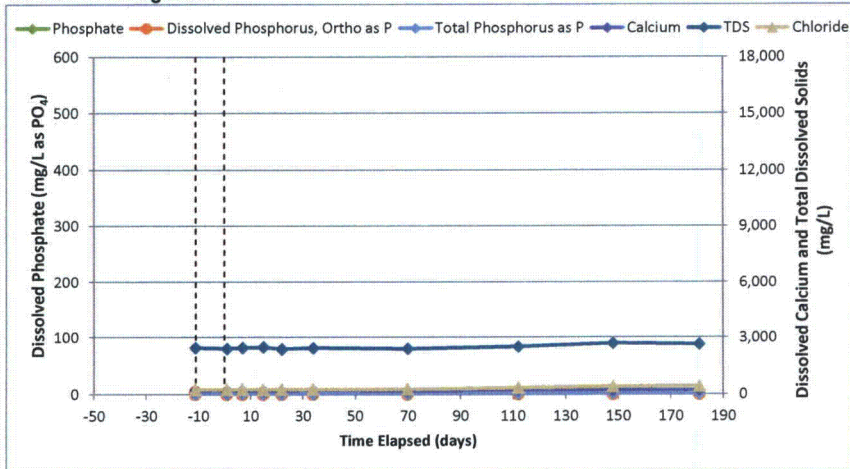
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium



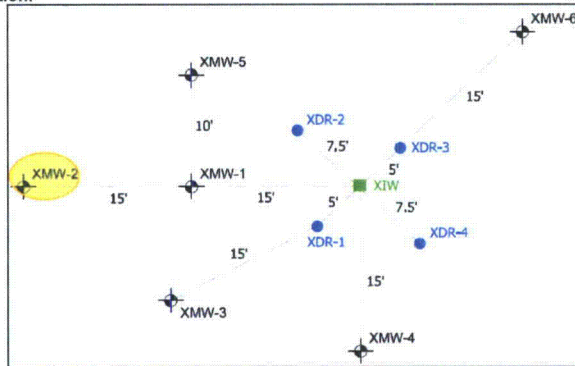
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-2

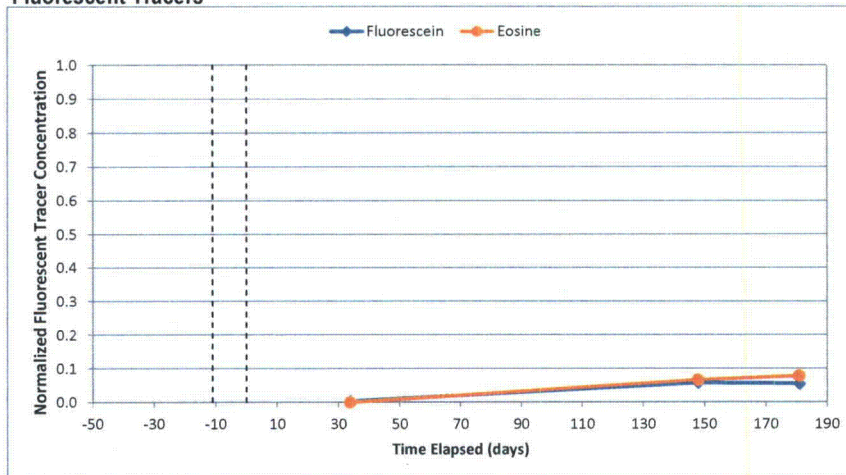
Well Location:



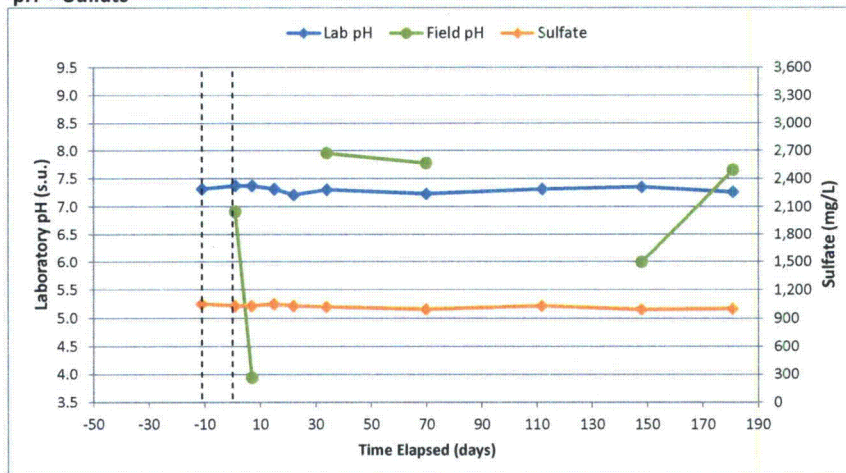
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers



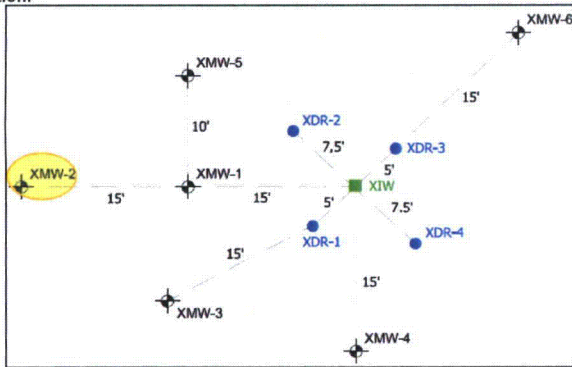
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-2

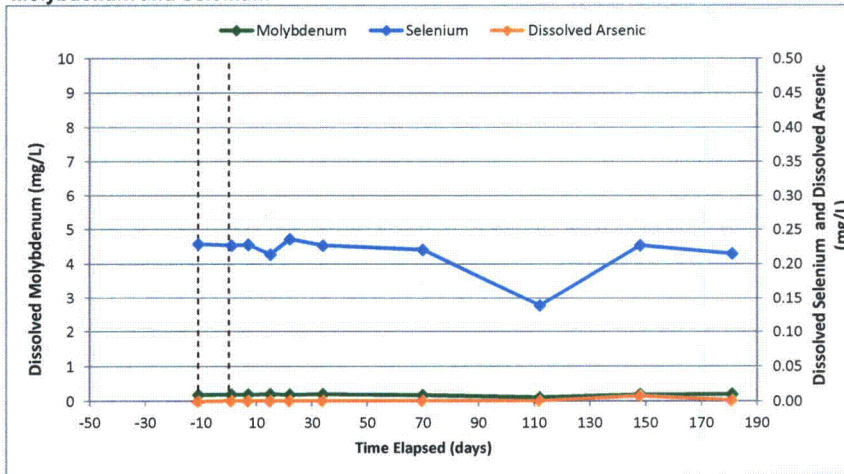
Well Location:



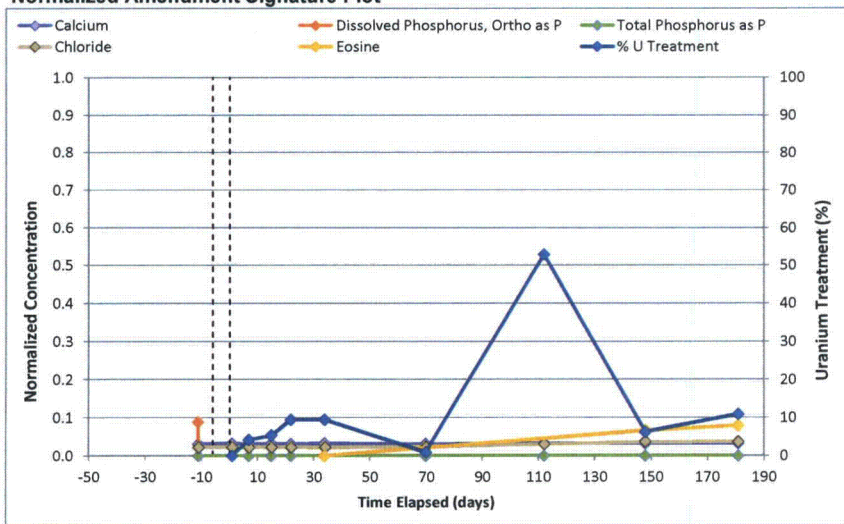
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium

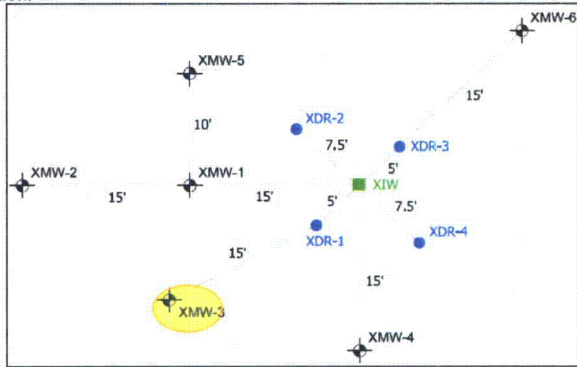


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-3

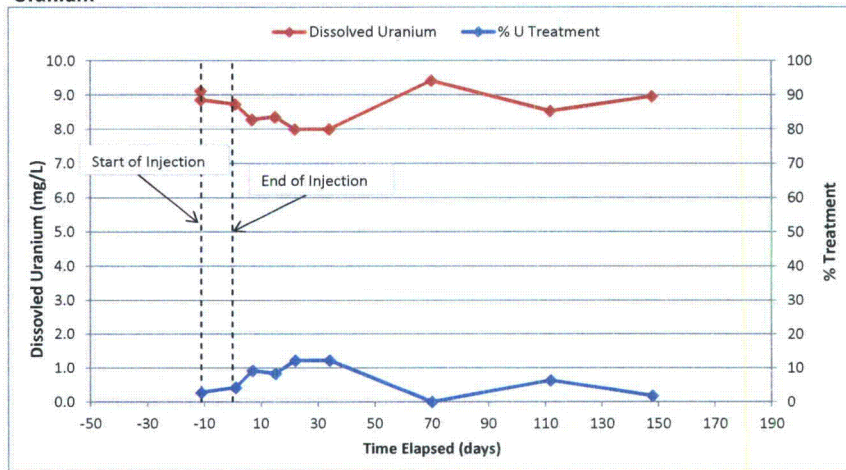
Well Location:



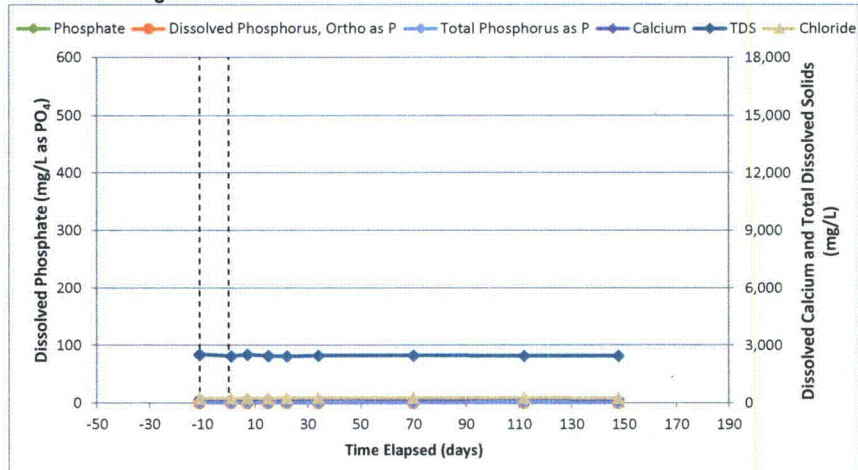
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium



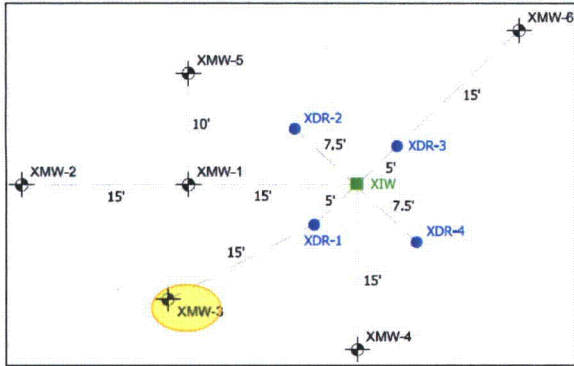
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-3

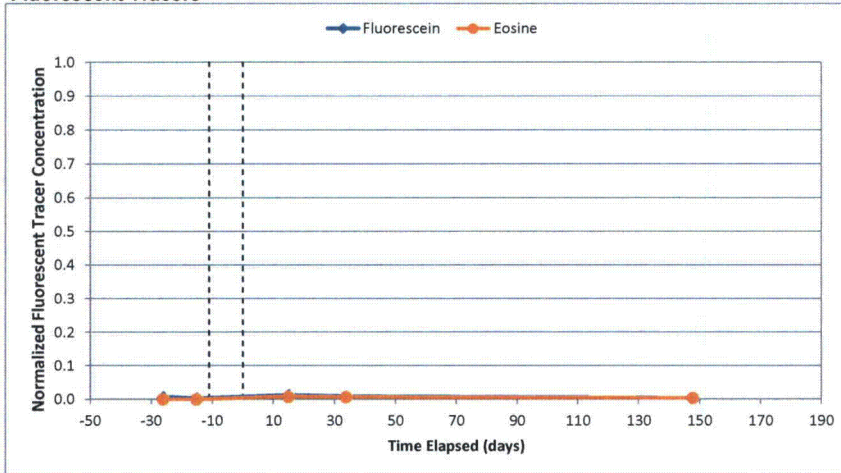
Well Location:



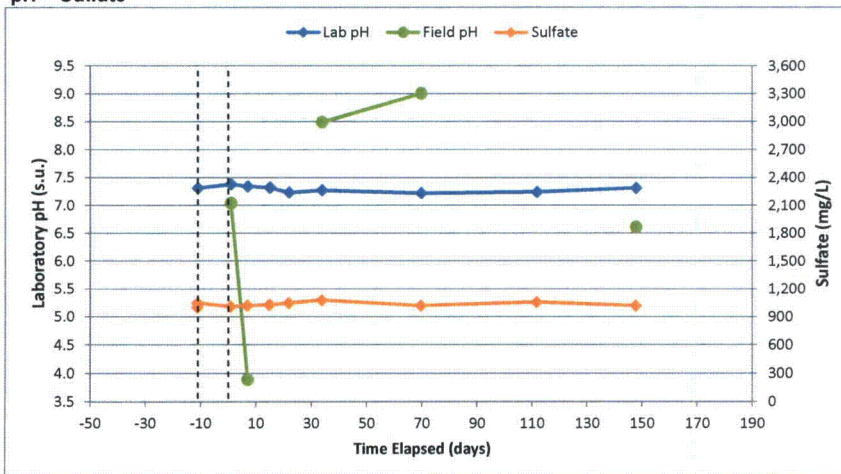
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers

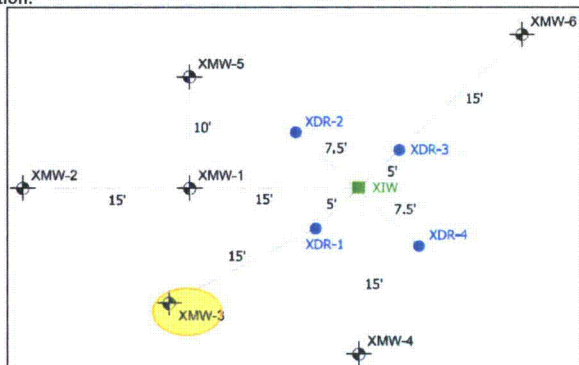


pH + Sulfate



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-3

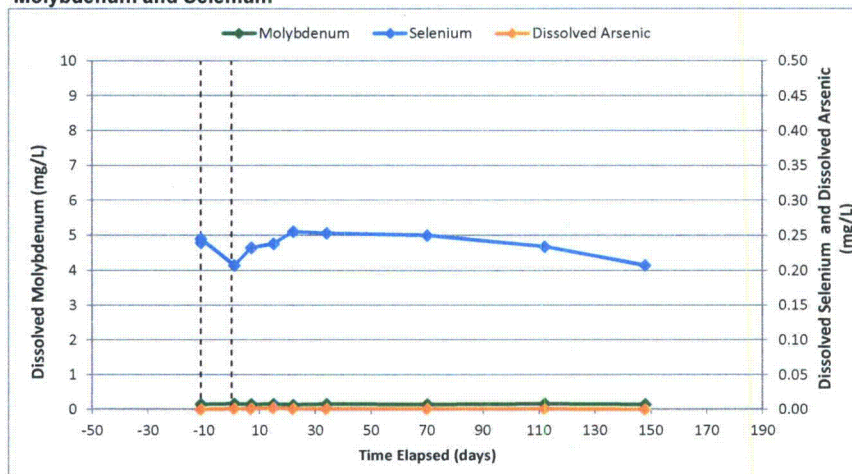
Well Location:



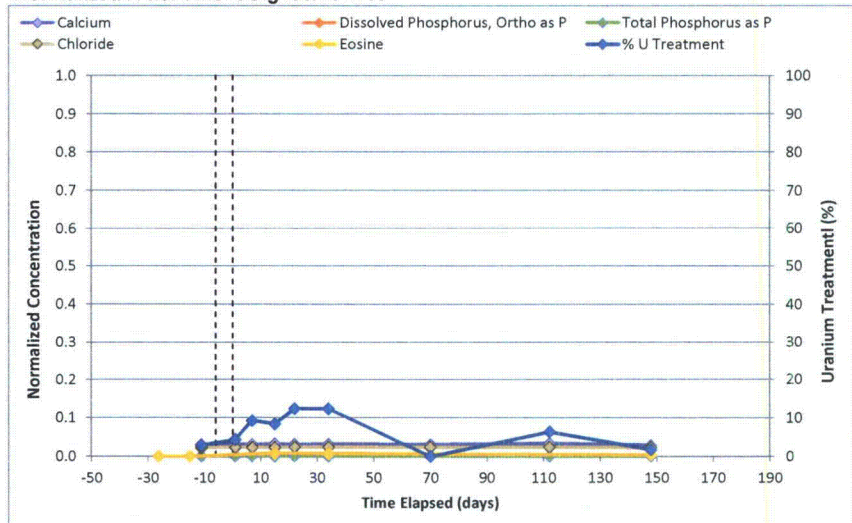
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium



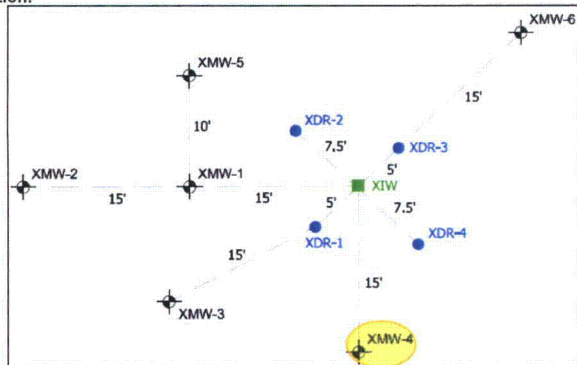
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-4

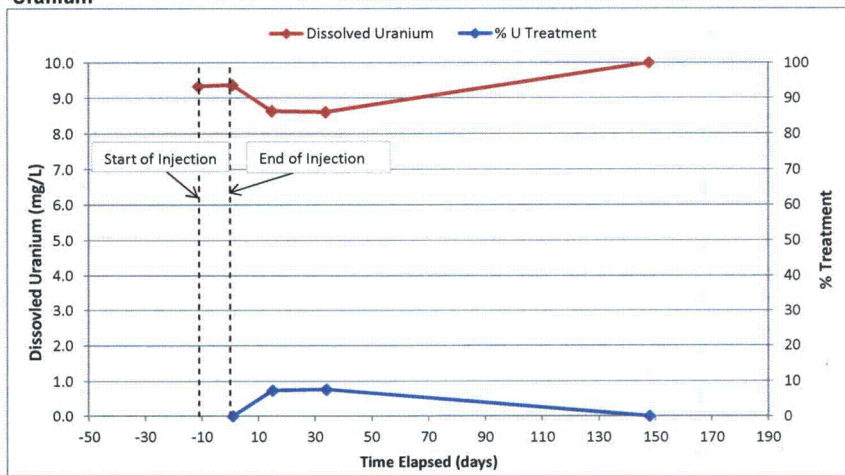
Well Location:



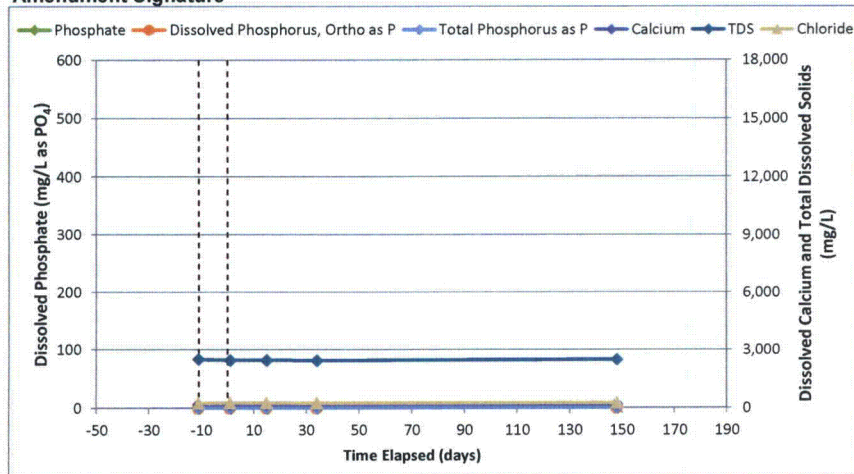
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium



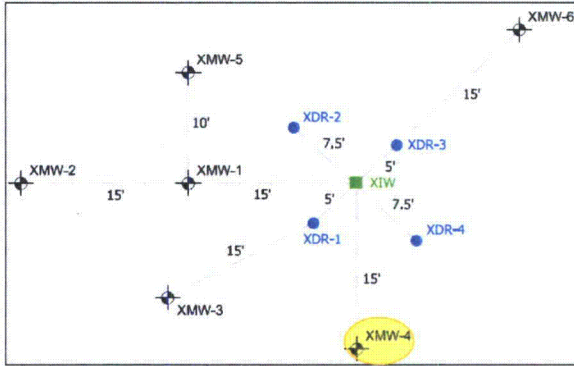
Amendment Signature



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-4

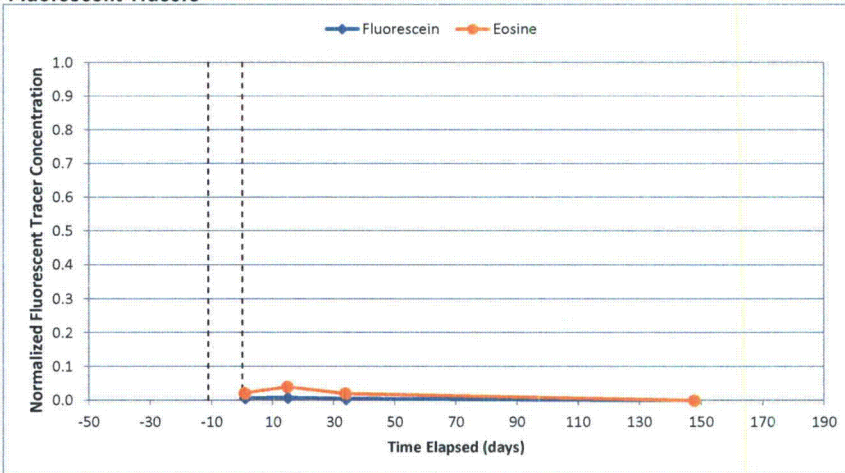
Well Location:



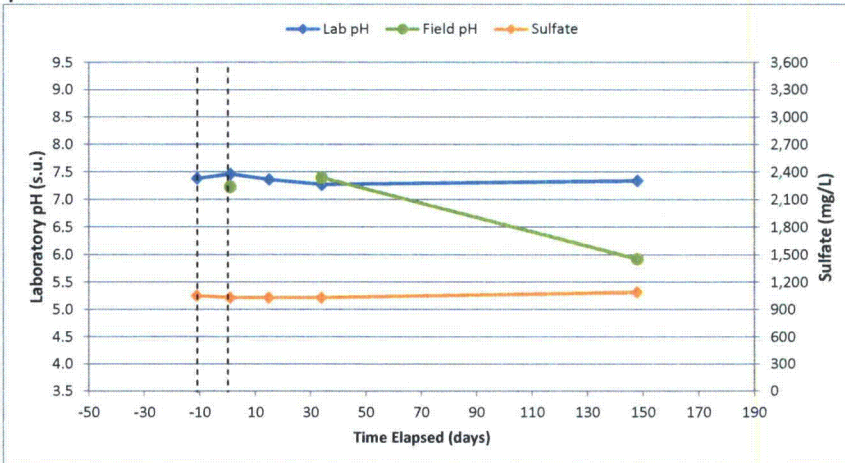
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers

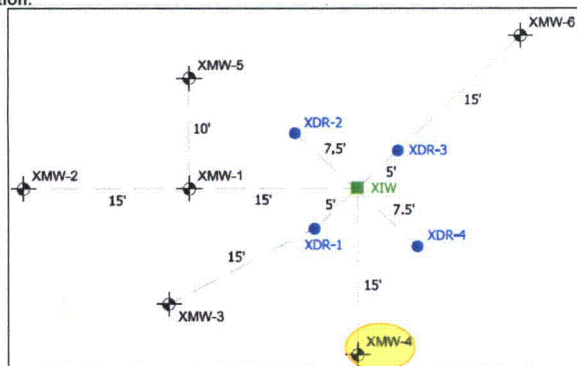


pH + Sulfate



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-4

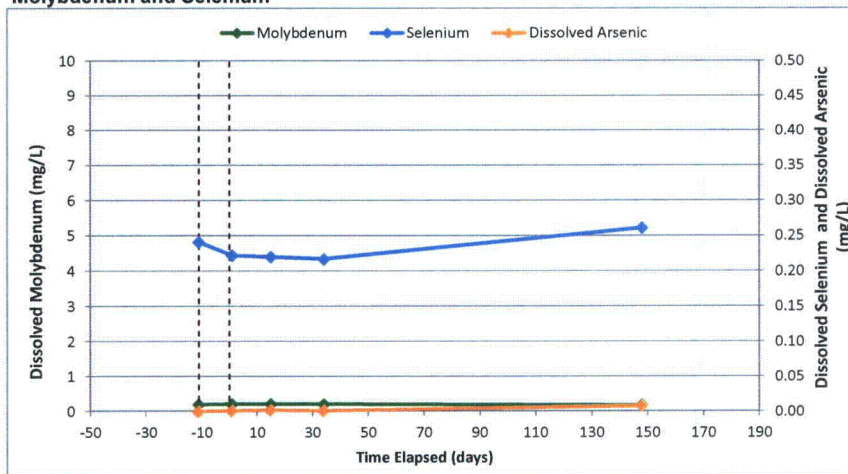
Well Location:



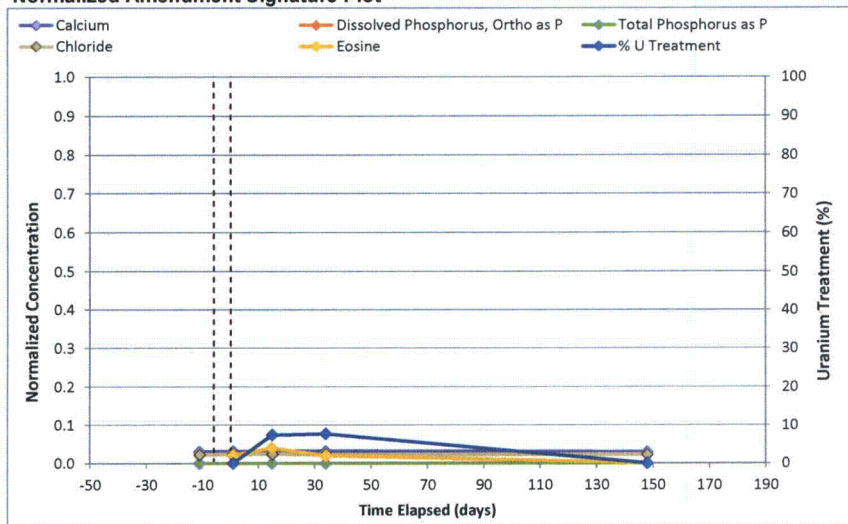
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium

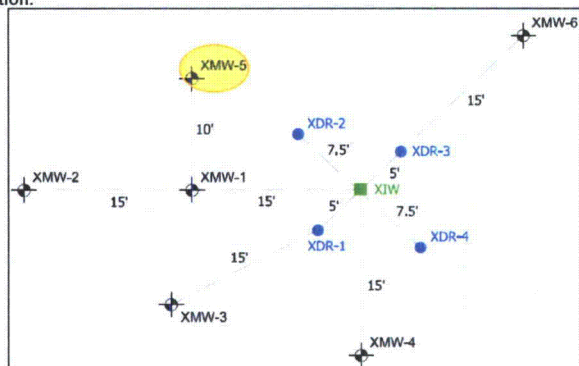


Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-5

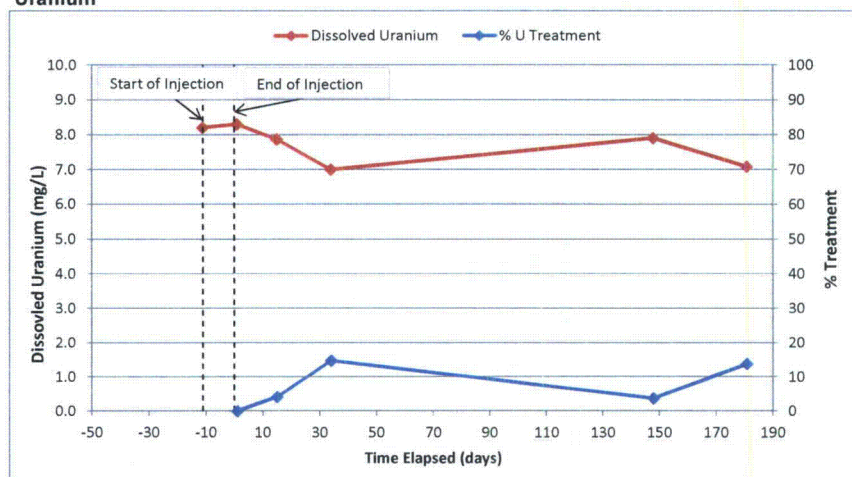
Well Location:



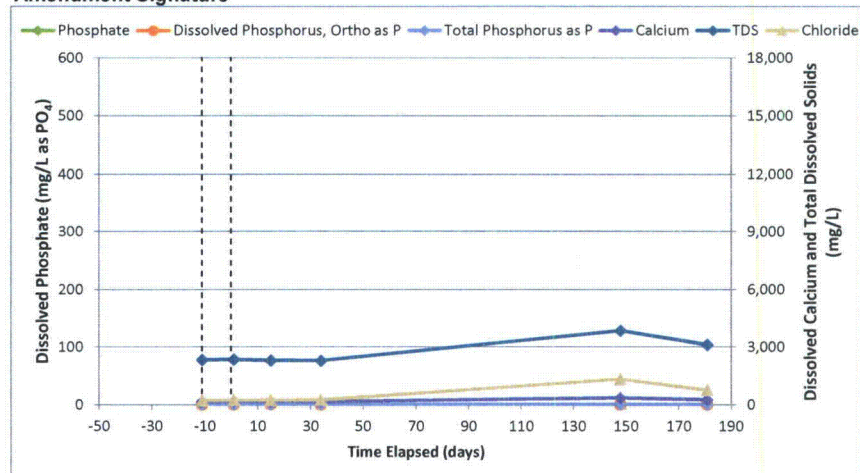
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Uranium

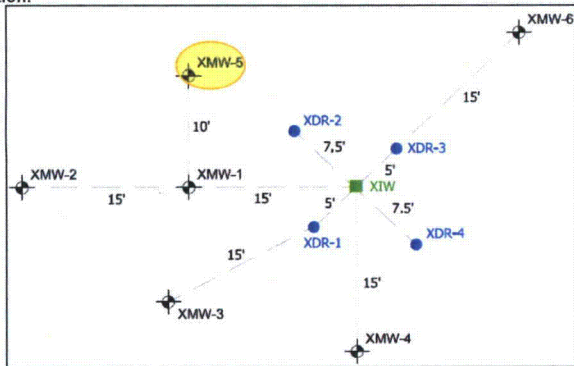


Amendment Signature



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-5

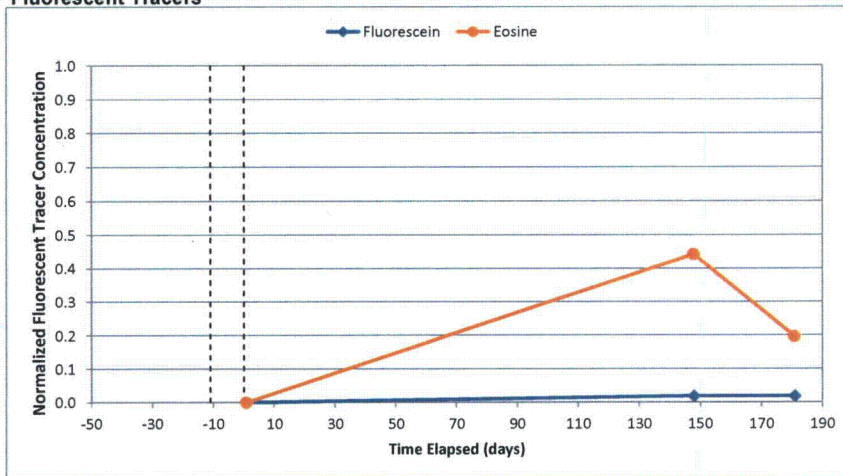
Well Location:



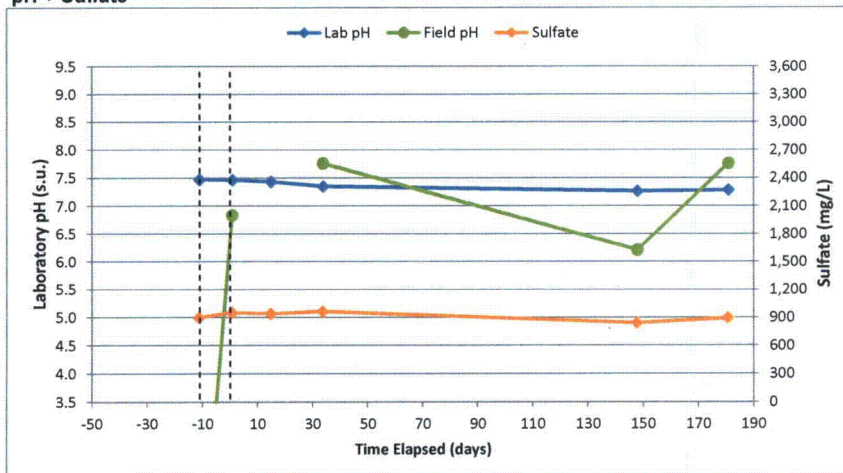
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Fluorescent Tracers



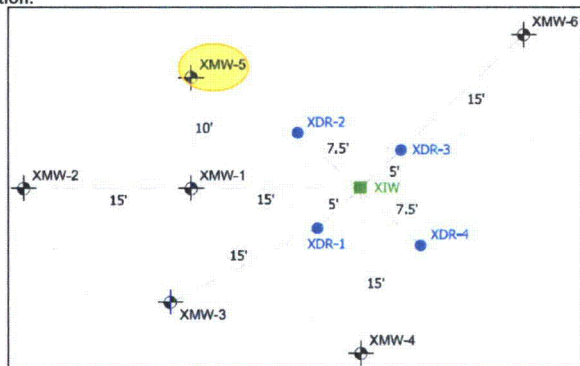
pH + Sulfate



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-5

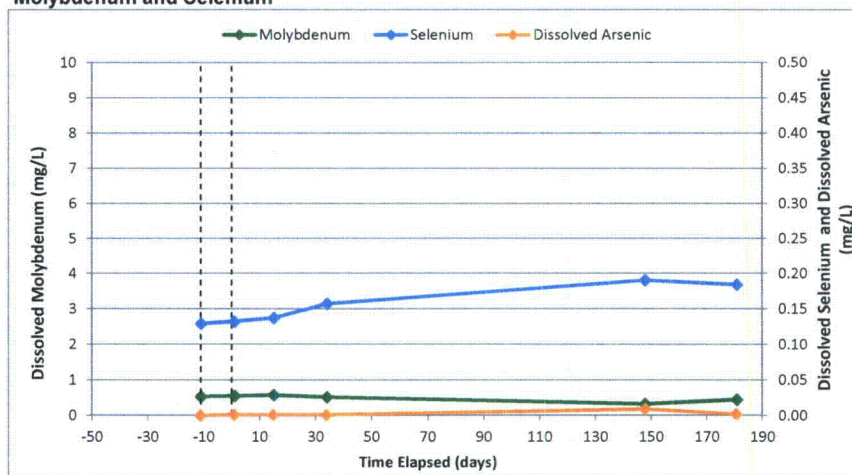
Well Location:



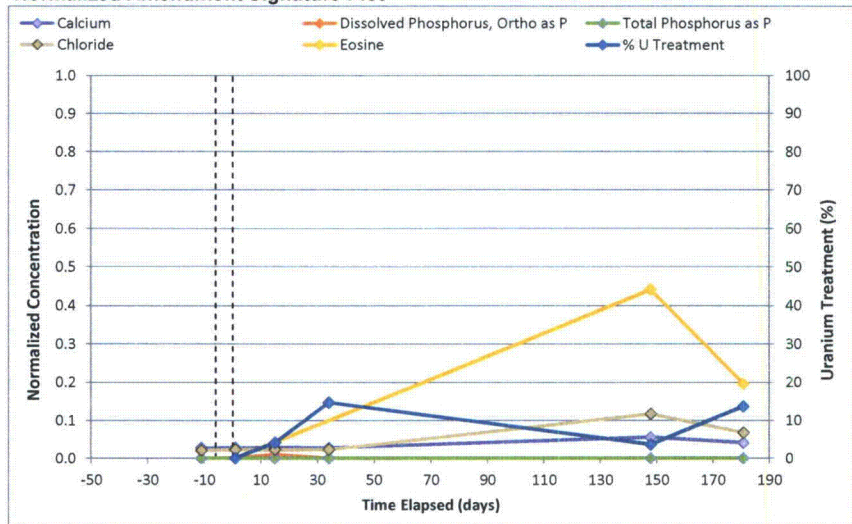
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	2

Molybdenum and Selenium



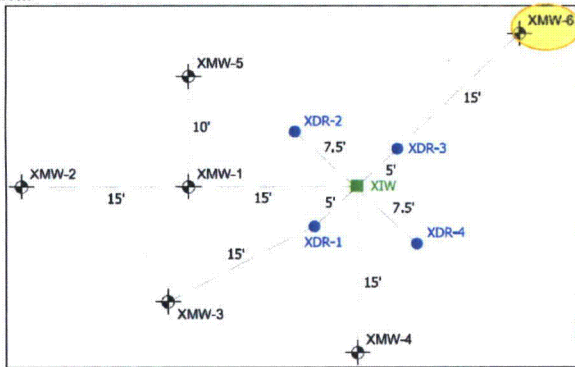
Normalized Amendment Signature Plot



TPP Pilot Test At-A-Glance Charts

Well ID: XMW-6

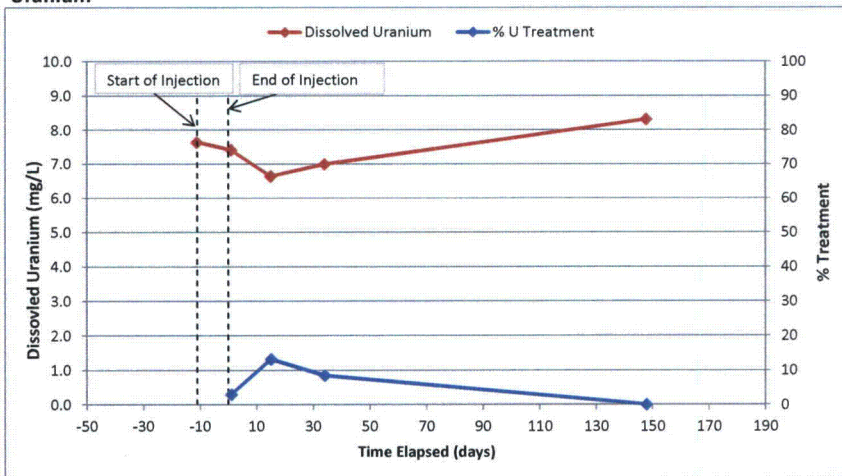
Well Location:



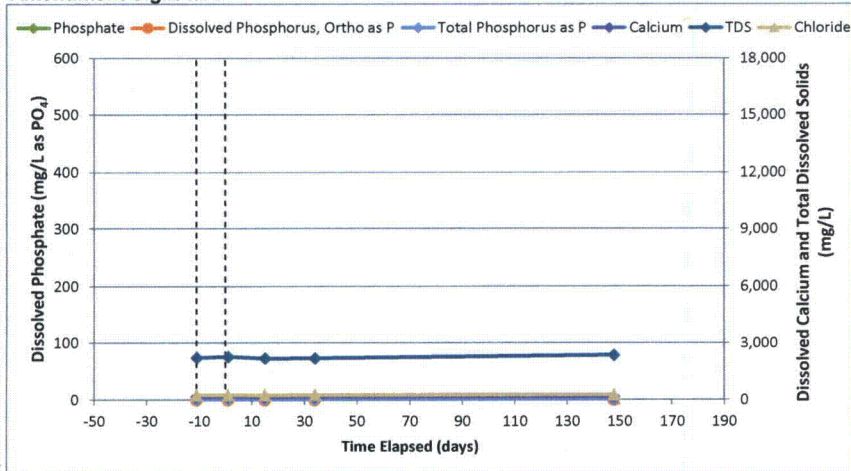
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	3

Uranium

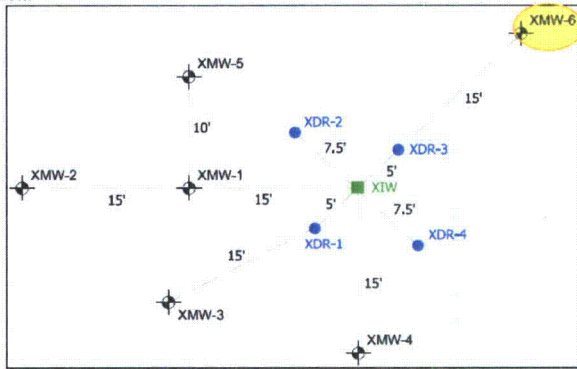


Amendment Signature



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-6

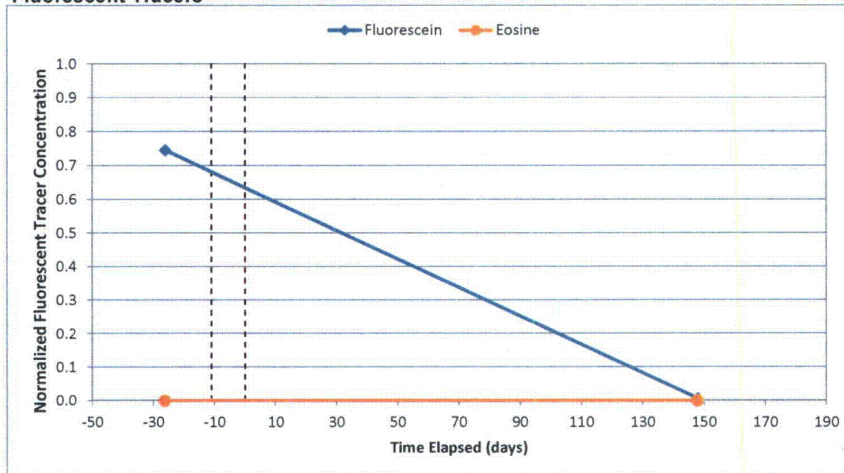
Well Location:



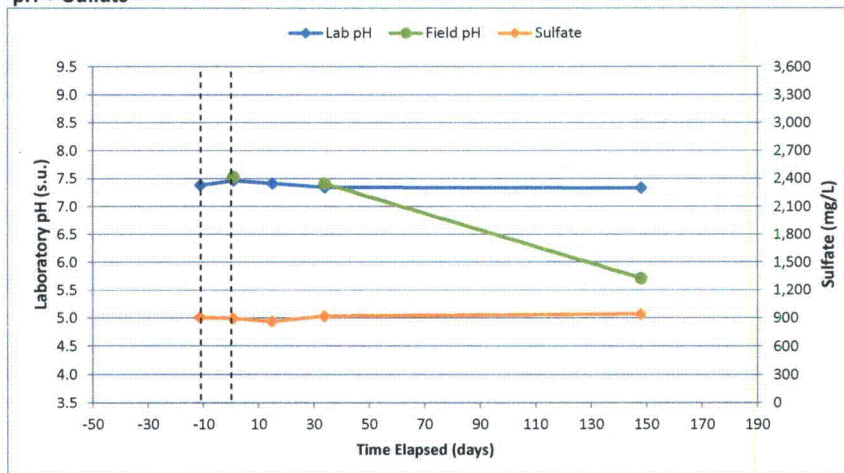
Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	3

Fluorescent Tracers

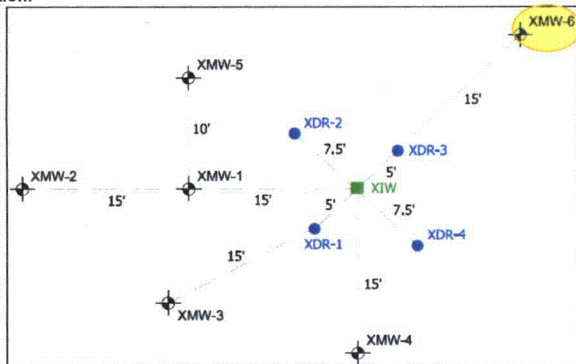


pH + Sulfate



TPP Pilot Test At-A-Glance Charts
Well ID: XMW-6

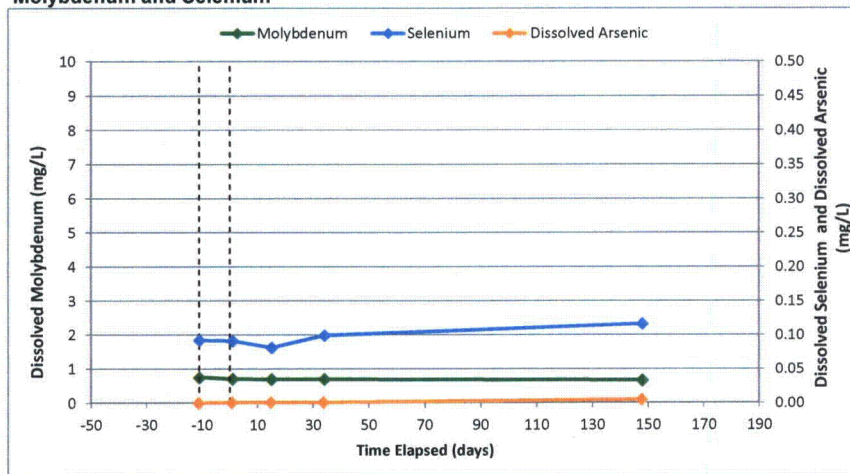
Well Location:



Well Construction Details:

Depth (ft)	Screened Interval (ft)	Diameter (in)
45	35-45	3

Molybdenum and Selenium



Normalized Amendment Signature Plot

