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AUC LLC

*The Reno Creek ISR Project
Campbell County, Wyoming*

**Preoperational Monitoring
Radiological Report**

April 2015

**AUC LLC
1536 Cole Blvd., Suite 230
Lakewood, Colorado 80401**

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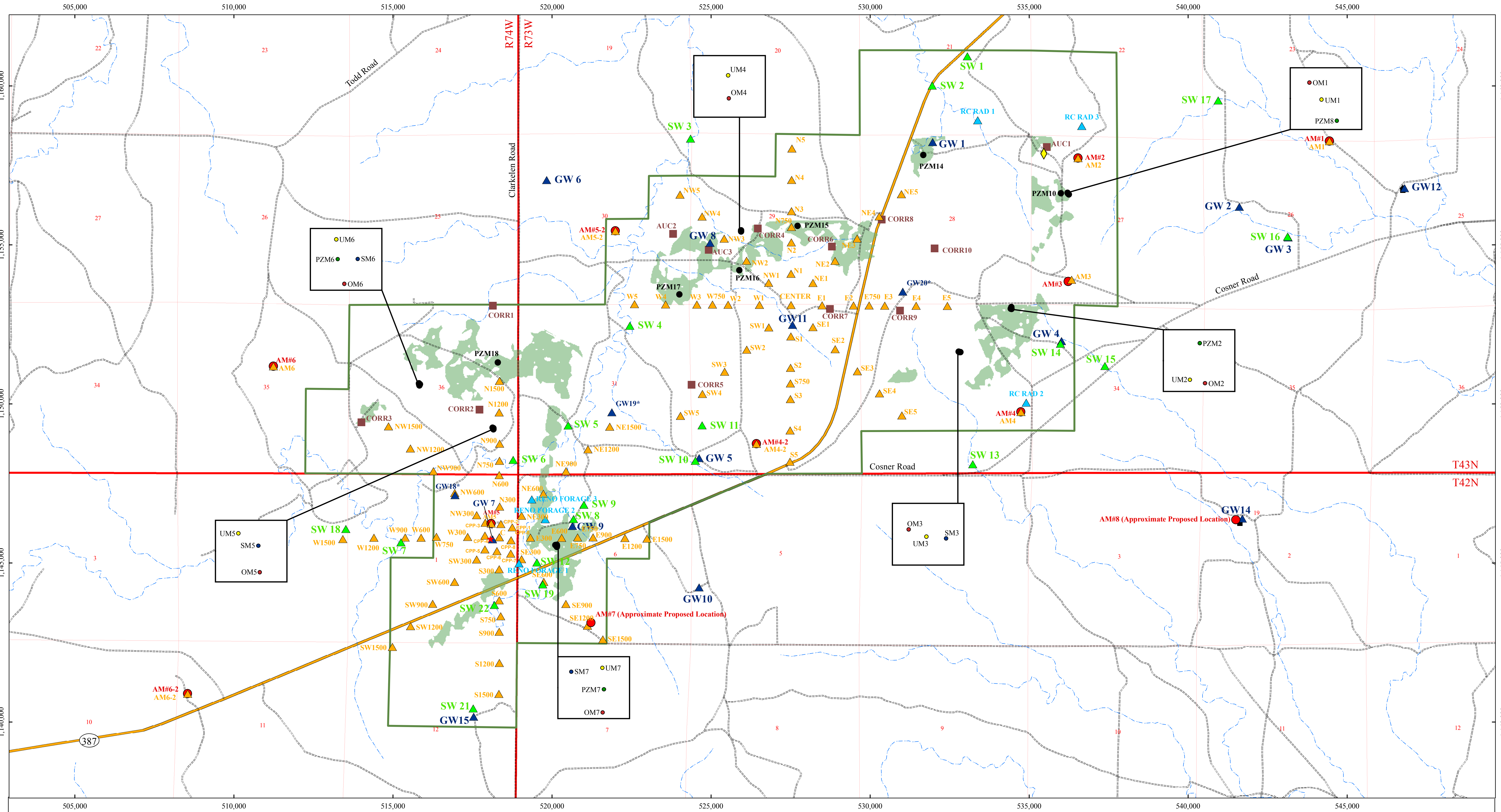
INTRODUCTION

This report presents the results for the preoperational radiological monitoring program conducted at the proposed Reno Creek Project (Proposed Project) beginning in September 2010 and continuing initially through December 2011. The first set of air, vegetation, soil and direct radiation monitoring programs were based on the initial Central Processing Plant (CPP) location positioned near the center of the Proposed Project boundary. Subsequently, the location of the CPP was relocated further to the west; therefore, a second set of air, vegetation, soil and direct radiation monitoring programs were established to reflect the finalized CPP location. Figure 2.9-1 shows the locations of all of monitoring sites used in the collection of preoperational sample data.

Sample results from the first and second sets of the preoperational baseline radiological monitoring programs are presented in this report. AUC considers the data collected during the second sampling set to be the final radiological preoperational data set, with the exception of two air monitoring stations that have been relocated. More information regarding these stations is presented in the air monitoring section.

Preoperational conditions monitored include air; water resources; vegetation and food; soils and sediment; and direct radiation. The samples collected are representative of the current radiological environment at the site, and may be used to evaluate future site conditions and potential reclamation obligations during eventual decontamination and decommissioning of operations.

Tables presented in this report retain the original naming designation from the Technical Report (TR) Application.



PROPOSED RENO CREEK PROJECT

CAMPBELL COUNTY, WYOMING

REV #	BY	DATE	DESCRIPTION
1	RHK	01/19/2012	Approved
2	RHK	06/15/2012	Revised Project Boundary
3	DCW	05/02/2014	Revised Soil Sample Locations
4	JTW	12/16/2014	Revised Air Monitor Locations

Figure 2.9-1

Baseline Radiological Sampling Locations

Prepared For:

AUC LLC

LAKEWOOD, COLORADO

Prepared By:

TREC, Inc.

Engineering & Environmental Management

900 Werner Court

Suite 150

Casper, WY, 82601

Phone (307)265-0696

Fax (307)265-2498

www.treccorp.com

Contour Interval = 10 feet

0 0.2 0.4 0.8 Miles

0 1,400 2,800 5,600 Feet

NAD 1983 StatePlane Wyoming East FIPS 4901 Feet

1:17,000

This map (or data product) is for assessment and planning purposes only. It is not intended to be used for description, conveyance, authoritative definition of legal boundary, or property title. This is not a survey product.

● Groundwater Well Sample Location

▲ Surface Water & Sediment Sample Location

▲ Stock Well Sample Location * To be sampled

▲ Soil Sample Location

● Air Particulate Monitor Location

◆ Meteorological Station

■ Soil Correlation Plot Location

▭ Proposed Reno Creek Project Boundary

— Ephemeral Stream

● Ore Body

Road Classification

— Major Road (Paved)

----- Minor Road (Unpaved)

1 AIR SAMPLES

Continuous monitoring of air particulate radionuclides and radon was initiated in the fall of 2010. Regulatory Guide 4.14 recommends collection of twelve consecutive months of quarterly monitoring data. Therefore, due to the relocation of the CPP, three of the five initial air monitoring stations were relocated to initiate collection of twelve consecutive months of quarterly monitoring data. AUC continued to collect monitoring data at all five stations during this time. Explanation for relocating the monitoring stations is detailed in AUC's response to RAI-20(b). The data listed in the tables below present the sample data from the the relocated air monitor station locations in addition to the original air monitor station locations.

AUC determined that two of the air monitoring stations still did not meet the siting criteria per Regulatory Guide 4.14; therefore, these stations were relocated to comply with the guideline. The two air monitor stations in question, AM1 and AM5-2, were relocated and renamed AM7 and AM8 (see Figure 2.9-1). These two new locations will collect twelve consecutive months of quarterly monitoring data to complete the final preoperational data set. The initial data collected from AM1 and AM5-2 will not be considered as part of the final preoperational air monitoring data set. Further detail is provided in AUC's response to RAI-20(b). To conclude, the air monitor stations that will be used to collect operational data include AM2, AM4-2, AM6-2, AM7 and AM8.

1.1 Radionuclide Particulate in Air Sampling

Air particulate samples were collected using F & J Specialty Products Models DF-40L-AC flow meter. A filter was initially collected from each air-sampling unit on approximately a weekly basis during the three month quarters. The collected set of filters for each air sampling unit was sent to a contract laboratory for analysis at the end of each calendar quarter. The sampler units had flow rates sufficient to ensure minimum detectable activities were achieved. Continuous air sampling is via filter paper collection. Sampling was conducted continuously for a minimum of 12 months, with quarterly composites from each station separately analyzed. Note that, as discussed in TR Section 2.9.6, a gradual transition to monthly filter exchange was discussed with NRC staff and implemented successfully over time.

Monitoring data for air particulate samples are provided in the tables below. The results consist of two separate data sets:

- 1) Relocated Monitoring Station Data Set: Data that will be used as the final preoperational air particulate data set
- 2) Initial Monitoring Data Set: Data collected from initial CPP sampling locations.

Relocated Monitoring Station Data Set

Table 2.9-12: Air Particulate Monitoring Results: Quarter 1

Air Station ID	Collection Date	Air Volume Sampled (L)	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (uCi/mL)
AM 1*	9/28/2012	4.38E+06	4.38.E+09	²¹⁰ Pb	105	2	2.4E-14	2.0.E-15
		4.38E+06	4.38.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.38E+06	4.38.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		4.38E+06	4.38.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 2	9/28/2012	3.28E+06	3.28.E+09	²¹⁰ Pb	77	2	2.3E-14	2.0.E-15
		3.28E+06	3.28.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		3.28E+06	3.28.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		3.28E+06	3.28.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 4-2	9/28/2012	3.76E+06	3.76.E+09	²¹⁰ Pb	75	2	2.0E-14	2.0.E-15
		3.76E+06	3.76.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		3.76E+06	3.76.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		3.76E+06	3.76.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 5-2*	9/28/2012	3.76E+06	3.76.E+09	²¹⁰ Pb	79	2	2.1E-14	2.0.E-15
		3.76E+06	3.76.E+09	²²⁶ Ra	0.4	0.3	ND	1.0E-16
		3.76E+06	3.76.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		3.76E+06	3.76.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 6-2	9/28/2012	3.69E+06	3.69.E+09	²¹⁰ Pb	68.5	2	1.9E-14	2.0.E-15
		3.69E+06	3.69.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		3.69E+06	3.69.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		3.69E+06	3.69.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 7**								
AM 8**								

* Data not included in final preoperational data set.

** Preoperational data will be collected.

Table 2.9-13: Air Particulate Monitoring Results: Quarter 2

Air Station ID	Collection Date	Air Volume Sampled (L)	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (uCi/mL)
AM 1*	12/28/2012	4.18E+06	4.18.E+09	²¹⁰ Pb	90.1	2	2.2E-14	2.0E-15
		4.18E+06	4.18.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		4.18E+06	4.18.E+09	²³⁰ Th	0.3	0.2	ND	1.0E-16
		4.18E+06	4.18.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 2	12/28/2012	3.88E+06	3.88.E+09	²¹⁰ Pb	89.6	2	2.3E-14	2.0E-15
		3.88E+06	3.88.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		3.88E+06	3.88.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		3.88E+06	3.88.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 4-2	12/28/2012	4.35E+06	4.35.E+09	²¹⁰ Pb	86.3	2	2.0E-14	2.0E-15
		4.10E+06	4.10.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.10E+06	4.10.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		4.10E+06	4.10.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 5-2*	12/28/2012	4.41E+06	4.41.E+09	²¹⁰ Pb	112	2	2.5E-14	2.0E-15
		4.41E+06	4.41.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.41E+06	4.41.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		4.41E+06	4.41.E+09	U-Nat	0.3	0.3	ND	1.0E-16
AM 6-2	12/28/2012	4.32E+06	4.32.E+09	²¹⁰ Pb	81.8	2	1.9E-14	2.0E-15
		4.32E+06	4.32.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		4.32E+06	4.32.E+09	²³⁰ Th	ND	0.2	ND	1.0E-16
		4.32E+06	4.32.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM 7**								
AM 8**								

*Data not included in final preoperational data set.

**Preoperational data will be collected.

Table 2.9-14: Air Particulate Monitoring Results: Quarter 3

Air Station ID	Collection Date	Air Volume Sampled (L)	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (μCi/mL)
AM 1*	3/29/2013	4.64E+06	4.64.E+09	²¹⁰ Pb	77.3	2	1.7E-14	2.0E-15
		4.64E+06	4.64.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		4.64E+06	4.64.E+09	²³⁰ Th	0.7	0.2	1.4E-16	1.0E-16
		4.64E+06	4.64.E+09	U-Nat	0.6	0.3	1.3E-16	1.0E-16
AM 2	3/29/2013	3.90E+06	3.90.E+09	²¹⁰ Pb	75.0	2	1.9E-14	2.0E-15
		3.90E+06	3.90.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		3.90E+06	3.90.E+09	²³⁰ Th	0.5	0.2	1.4E-16	1.0E-16
		3.90E+06	3.90.E+09	U-Nat	0.6	0.3	1.5E-16	1.0E-16
AM 4-2	3/29/2013	4.33E+06	4.33.E+09	²¹⁰ Pb	40.2	2	9.3E-15	2.0E-15
		4.33E+06	4.33.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.33E+06	4.33.E+09	²³⁰ Th	0.4	0.2	ND	1.0E-16
		4.33E+06	4.33.E+09	U-Nat	0.4	0.3	ND	1.0E-16
AM 5-2*	3/29/2013	4.40E+06	4.40.E+09	²¹⁰ Pb	46.6	2	1.1E-14	2.0E-15
		4.40E+06	4.40.E+09	²²⁶ Ra	0.4	0.3	ND	1.0E-16
		4.40E+06	4.40.E+09	²³⁰ Th	0.3	0.2	ND	1.0E-16
		4.40E+06	4.40.E+09	U-Nat	0.7	0.3	1.5E-16	1.0E-16
AM 6-2	3/29/2013	4.27E+06	4.27.E+09	²¹⁰ Pb	69.5	2	1.6E-14	2.0E-15
		4.27E+06	4.27.E+09	²²⁶ Ra	0.4	0.3	ND	1.0E-16
		4.27E+06	4.27.E+09	²³⁰ Th	0.7	0.2	1.6E-16	1.0E-16
		4.27E+06	4.27.E+09	U-Nat	0.6	0.3	1.4E-16	1.0E-16
AM 7**								
AM 8**								

*Data not included in final preoperational data set.

**Preoperational data will be collected.

Table 2.9-15: Air Particulate Monitoring Results: Quarter 4

Air Station ID	Collection Date	Air Volume Sampled (L)	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (μCi/mL)
AM 1*	6/28/2013	4.82E+06	4.82.E+09	²¹⁰ Pb	72.4	2	1.5E-14	2.0E-15
		4.82E+06	4.82.E+09	²²⁶ Ra	0.8	0.3	1.6E-16	1.0E-16
		4.82E+06	4.82.E+09	²³⁰ Th	0.8	0.2	1.6E-16	1.0E-16
		4.82E+06	4.82.E+09	U-Nat	0.6	0.3	1.3E-16	1.0E-16
AM 2	6/28/2013	3.74E+06	3.74.E+09	²¹⁰ Pb	76.9	2	2.1E-14	2.0E-15
		3.74E+06	3.74.E+09	²²⁶ Ra	0.8	0.3	2.2E-16	1.0E-16
		3.74E+06	3.74.E+09	²³⁰ Th	0.3	0.2	ND	1.0E-16
		3.74E+06	3.74.E+09	U-Nat	0.6	0.3	1.6E-16	1.0E-16
AM 4-2	6/28/2013	4.39E+06	4.39.E+09	²¹⁰ Pb	68.9	2	1.6E-14	2.0E-15
		4.39E+06	4.39.E+09	²²⁶ Ra	1.2	0.3	2.7E-16	1.0E-16
		4.39E+06	4.39.E+09	²³⁰ Th	0.5	0.2	1.1E-16	1.0E-16
		4.39E+06	4.39.E+09	U-Nat	0.9	0.3	2.1E-16	1.0E-16
AM 5-2*	6/28/2013	4.43E+06	4.43.E+09	²¹⁰ Pb	72.4	2	1.6E-14	2.0E-15
		4.43E+06	4.43.E+09	²²⁶ Ra	0.9	0.3	2.0E-16	1.0E-16
		4.43E+06	4.43.E+09	²³⁰ Th	1.1	0.2	2.5E-16	1.0E-16
		4.43E+06	4.43.E+09	U-Nat	0.8	0.3	1.9E-16	1.0E-16
AM 6-2	6/28/2013	4.38E+06	4.38.E+09	²¹⁰ Pb	45.0	2	1.0E-14	2.0E-15
		4.38E+06	4.38.E+09	²²⁶ Ra	0.6	0.3	1.3E-16	1.0E-16
		4.38E+06	4.38.E+09	²³⁰ Th	0.4	0.2	ND	1.0E-16
		4.38E+06	4.38.E+09	U-Nat	0.3	0.3	ND	1.0E-16
AM 7**	TBD							
AM 8**	TBD							

*Data not included in final preoperational data set.

**Preoperational data will be collected.

Initial Monitoring Station Data Set

Table 2.9-12: Air Particulate Monitoring Results: Quarter 1

Air Station ID	Collection Date	Air Volume Sampled (L)*	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (uCi/mL)
AM2-Composite	12/31/2010	5.77E+06	5.77.E+09	²¹⁰ Pb	131	2	2.3E-14	2.0.E-15
		5.77E+06	5.77.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		5.77E+06	5.77.E+09	²³⁰ Th	0.5	0.3	ND	1.0E-16
		5.77E+06	5.77.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM3-Composite	12/31/2010	5.07E+06	5.07.E+09	²¹⁰ Pb	107	2	2.1E-14	2.0.E-15
		5.07E+06	5.07.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		5.07E+06	5.07.E+09	²³⁰ Th	0.4	0.3	ND	1.0E-16
		5.07E+06	5.07.E+09	U-Nat	0.3	0.3	ND	1.0E-16
AM4-Composite	12/31/2010	4.76E+06	4.76.E+09	²¹⁰ Pb	110	2	2.3E-14	2.0.E-15
		4.76E+06	4.76.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.76E+06	4.76.E+09	²³⁰ Th	0.6	0.3	1.3E-16	1.0E-16
		4.76E+06	4.76.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM5-Composite	12/31/2010	4.87E+06	4.87.E+09	²¹⁰ Pb	119	2	2.4E-14	2.0.E-15
		4.87E+06	4.87.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.87E+06	4.87.E+09	²³⁰ Th	1	0.3	1.2E-16	1.0E-16
		4.87E+06	4.87.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM6-Composite	12/31/2010	4.42E+06	4.42.E+09	²¹⁰ Pb	68.2	2	1.5E-14	2.0.E-15
		4.42E+06	4.42.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.42E+06	4.42.E+09	²³⁰ Th	2.2	0.3	5.0E-16	1.0E-16
		4.42E+06	4.42.E+09	U-Nat	6	0.3	1.2E-15	1.0E-16

*Presented by mistake as m³ in the laboratory analytical reports

Table 2.9-13: Air Particulate Monitoring Results: Quarter 2

Air Station ID	Collection Date	Air Volume Sampled (L)*	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (uCi/mL)
AM2-Composite	3/25/2011	4.24E+06	4.24.E+09	²¹⁰ Pb	27	2	6.4E-15	2.0E-15
		4.24E+06	4.24.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.24E+06	4.24.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.24E+06	4.24.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM3-Composite	3/25/2011	3.85E+06	3.85.E+09	²¹⁰ Pb	47	2	1.2E-14	2.0E-15
		3.85E+06	3.85.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		3.85E+06	3.85.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		3.85E+06	3.85.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM4-Composite	3/25/2011	4.10E+06	4.10.E+09	²¹⁰ Pb	30	2	7.4E-15	2.0E-15
		4.10E+06	4.10.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.10E+06	4.10.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.10E+06	4.10.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM5-Composite	3/25/2011	4.18E+06	4.18.E+09	²¹⁰ Pb	26	2	6.2E-15	2.0E-15
		4.18E+06	4.18.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.18E+06	4.18.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.18E+06	4.18.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM6-Composite	3/25/2011	9.62E+06	9.62.E+09	²¹⁰ Pb	19.6	2	2.0E-15	2.0E-15
		9.62E+06	9.62.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		9.62E+06	9.62.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		9.62E+06	9.62.E+09	U-Nat	ND	0.3	ND	1.0E-16

Table 2.9-14: Air Particulate Monitoring Results: Quarter 3

Air Station ID	Collection Date	Air Volume Sampled (L)*	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (uCi/mL)
AM2-Composite	6/24/2011	4.50E+06	4.50.E+09	²¹⁰ Pb	43	2	9.4E-15	2.0E-15
		4.50E+06	4.50.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.50E+06	4.50.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.50E+06	4.50.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM3-Composite	6/24/2011	4.17E+06	4.17.E+09	²¹⁰ Pb	44	2	1.1E-14	2.0E-15
		4.17E+06	4.17.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.17E+06	4.17.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.17E+06	4.17.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM4-Composite	6/24/2011	4.38E+06	4.38.E+09	²¹⁰ Pb	45	2	1.0E-14	2.0E-15
		4.38E+06	4.38.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.38E+06	4.38.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.38E+06	4.38.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM5-Composite	6/24/2011	4.53E+06	4.53.E+09	²¹⁰ Pb	44	2	9.7E-15	2.0E-15
		4.53E+06	4.53.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.53E+06	4.53.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.53E+06	4.53.E+09	U-Nat	ND	0.3	ND	1.0E-16
AM6-Composite	6/24/2011	4.53E+06	4.53.E+09	²¹⁰ Pb	41.0	2	9.1E-15	2.0E-15
		4.53E+06	4.53.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.53E+06	4.53.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.53E+06	4.53.E+09	U-Nat	ND	0.3	ND	1.0E-16

Table 2.9-15: Air Particulate Monitoring Results: Quarter 4

Air Station ID	Collection Date	Air Volume Sampled (L)*	Air Volume Sampled (mL)	Analyte	Filter Conc. (pCi/filter)	Reporting Limit (pCi/filter)	Concentration (μCi/mL)	Reporting Limit (μCi/mL)
AM1-Composite	9/30/2011	5.67E+06	5.67.E+09	²¹⁰ Pb	48.9	2	8.6E-15	2.0E-15
		5.67E+06	5.67.E+09	²²⁶ Ra	0.4	0.3	ND	1.0E-16
		5.67E+06	5.67.E+09	²³⁰ Th	0.4	0.3	ND	1.0E-16
		5.67E+06	5.67.E+09	U-Nat	0.5	0.3	ND	1.0E-16
AM2-Composite	9/30/2011	4.67E+06	4.67.E+09	²¹⁰ Pb	105.0	2	2.2E-14	2.0E-15
		4.67E+06	4.67.E+09	²²⁶ Ra	0.3	0.3	ND	1.0E-16
		4.67E+06	4.67.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.67E+06	4.67.E+09	U-Nat	0.8	0.3	1.6E-16	1.0E-16
AM3-Composite	9/30/2011	4.31E+06	4.31.E+09	²¹⁰ Pb	89.3	2	2.1E-14	2.0E-15
		4.31E+06	4.31.E+09	²²⁶ Ra	ND	0.3	ND	1.0E-16
		4.31E+06	4.31.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.31E+06	4.31.E+09	U-Nat	0.4	0.3	ND	1.0E-16
AM4-Composite	9/30/2011	4.59E+06	4.59.E+09	²¹⁰ Pb	92.7	2	2.0E-16	2.0E-15
		4.59E+06	4.59.E+09	²²⁶ Ra	0.5	0.3	1.1E-16	1.0E-16
		4.59E+06	4.59.E+09	²³⁰ Th	0.3	0.3	ND	1.0E-16
		4.59E+06	4.59.E+09	U-Nat	0.4	0.3	ND	1.0E-16
AM5-Composite	9/30/2011	4.73E+06	4.73.E+09	²¹⁰ Pb	101	2	2.1E-14	2.0E-15
		4.73E+06	4.73.E+09	²²⁶ Ra	0.4	0.3	ND	1.0E-16
		4.73E+06	4.73.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.73E+06	4.73.E+09	U-Nat	0.4	0.3	ND	1.0E-16
AM6-Composite	9/30/2011	4.76E+06	4.76.E+09	²¹⁰ Pb	97.5	2	2.0E-14	2.0E-15
		4.76E+06	4.76.E+09	²²⁶ Ra	0.4	0.3	ND	1.0E-16
		4.53E+06	4.53.E+09	²³⁰ Th	ND	0.3	ND	1.0E-16
		4.53E+06	4.53.E+09	U-Nat	ND	0.3	ND	1.0E-16

1.2 Radon in Air Sampling

Passive monitoring of average ^{222}Rn air concentrations at the Proposed Project was conducted with Radtrak® alpha-track radon detectors, supplied by Landauer Inc. These radon detectors, housed at the air particulate monitoring stations, were protected from weather and animal disturbance using field containers provided by Landauer (Figure 2.9-19). The radon detectors were supplied by the vendor in sealed packages to minimize radon exposure prior to the beginning of the field monitoring period. Upon completion of the monitoring period, Landauer film-foil sealing stickers were applied to the detector openings to prevent further radon exposure during transit back to the vendor. The number of tracks over a pre-determined area was counted at Landauer using a microscope or optical reader. The radon concentration (in pCi/liter of air) is determined by the number of tracks per unit area in combination with the time of exposure. These detectors are small and require no power source. The monitors were mounted at approximately one meter off the ground from steel posts mounted in the ground. Detectors were exchanged and returned for analysis to the vendor on a quarterly basis.

Monitoring data for radon samples are provided in the tables below. The results consist of two separate data sets:

- 1) Relocated Monitoring Station Data Set: Data that will be used as the final preoperational air particulate data set.
- 2) Initial Monitoring Data Set: Data collected from initial CPP sampling locations.

Relocated Monitoring Station Data Set

Table 2.9-11: Radon Concentrations in Air

Monitoring Station ID	Start Date	End Date	Exposure (pCi/L-days)	Avg. Radon Concentration (pCi/L)
Q3 2012				
AM 1*	7/9/2012	10/5/2012	33.7	0.4
AM 2	7/9/2012	10/5/2012	29.0	0.3
AM 4-2	7/9/2012	10/5/2012	<6.0	<0.07
AM 5-2*	7/9/2012	10/5/2012	25.1	0.3
AM 6-2	7/9/2012	10/5/2012	18.7	0.2
Q4 2012				
AM 1*	10/5/2012	1/8/2013	9.8	0.1
AM 2	10/5/2012	1/8/2013	6.2	0.1
AM 4-2	10/5/2012	1/8/2013	<6.0	<0.06
AM 5-2*	10/5/2012	1/8/2013	94.7	1.0
AM 6-2	10/5/2012	1/8/2013	91.9	1.0
Q1 2013				
AM 1*	1/8/2013	4/3/2013	80.0	0.90
AM 2	1/8/2013	4/3/2013	78.4	0.90
AM 4-2	1/8/2013	4/3/2013	66.6	0.80
AM 5-2*	1/8/2013	4/3/2013	75.0	0.90
AM 6-2	1/8/2013	4/3/2013	72.6	0.80
Q2 2013				
AM 1*	4/3/2013	7/2/2013	65.4	0.70
AM 2	4/3/2013	7/2/2013	62.6	0.70
AM 4-2	4/3/2013	7/2/2013	60.9	0.70
AM 5-2*	4/3/2013	7/2/2013	61.5	0.70
AM 6-2	4/3/2013	7/2/2013	<6.0	<0.07
Q1 (TBD)				
AM 7**	---	---	---	---
AM 8**	---	---	---	---
Q2 (TBD)				
AM 7**	---	---	---	---
AM 8**	---	---	---	---
Q3 (TBD)				
AM 7**	---	---	---	---
AM 8**	---	---	---	---
Q4 (TBD)				
AM 7**	---	---	---	---
AM 8**	---	---	---	---

*Data not included in final preoperational data set.

**Preoperational Data will be collected.

Initial Monitoring Station Data Set

Radon Concentrations in Air

Monitoring Station ID	Start Date	End Date	Exposure (pCi/L-days)	Avg. Radon Concentration (pCi/L)
Q4 2010				
AM2	10/13/2010	1/7/2011	8.9	0.1
AM3	10/13/2010	1/7/2011	15.4	0.2
AM4	10/13/2010	1/7/2011	13.7	0.2
AM5	10/13/2010	1/7/2011	26.2	0.3
AM6	10/13/2010	1/7/2011	23.8	0.3
Q1 2011				
AM2	1/7/2011	5/4/2011	6.0	0.05
AM3	1/7/2011	5/4/2011	6.0	0.05
AM4	1/7/2011	5/4/2011	6.0	0.05
AM5	1/7/2011	5/4/2011	6.0	0.05
AM6	1/7/2011	5/4/2011	6.0	0.05
Q2 2011				
AM2	5/4/2011	7/6/2011	6.0	0.10
AM3	5/4/2011	7/6/2011	6.0	0.10
AM4	5/4/2011	7/6/2011	6.0	0.10
AM5	5/4/2011	7/6/2011	6.0	0.10
AM6	5/4/2011	7/6/2011	6.0	0.10
Q3 2011				
AM2	7/6/2011	10/18/2011	59.5	0.6
AM3	7/6/2011	10/18/2011	38.5	0.4
AM4	7/6/2011	10/18/2011	22.9	0.2
AM5	7/6/2011	10/18/2011	56.8	0.5
AM6	7/6/2011	10/18/2011	45.0	0.4
Q4 2011				
AM1	10/18/2011	1/4/2012	15.3	0.2
AM2	10/18/2011	1/4/2012	6.6	0.1
AM3	10/18/2011	1/4/2012	6	0.08
AM4	10/18/2011	1/4/2012	25	0.3
AM5	10/18/2011	1/4/2012	34.9	0.4
AM6	10/18/2011	1/4/2012	44.3	0.6

2 WATER RESOURCE SAMPLING

Preoperational groundwater and surface water sampling was conducted at the site, conforming to the intent of Regulatory Guide 4.14. The sections below present the results of the preoperational water resource monitoring program. A map depicting the selected well locations is shown in Figure 2.9-1.

2.1 Groundwater Monitoring Results

NRC Regulatory Guide 4.14 recommends establishing quarterly groundwater preoperational monitoring and include:

- Existing wells within two kilometers (km) of tailings area that could be used for potable water, livestock, or irrigation;
- At least one well located hydrologically up gradient from tailings area as a control/background; and
- At least three wells located hydrologically down gradient from the tailings area.

Samples were collected quarterly from new and existing monitoring wells and from agricultural or domestic use wells located within two km of the site boundary when seasonally available for sample retrieval. Many wells located within the Proposed Project area are no longer functional or were not available during all seasons of the year. Monitoring locations were selected based on anticipated hydrologic flow patterns relative to the production zone and adjacent aquifers. Figure 2.9-1 presents the locations of the groundwater monitoring locations. The analytical results are presented in the tables from Addendum 2.7-B below.

Table 2.7B-25: SM Zone Monitoring Results

Parameter	Units	Lab Detection Limit	SM5				SM6				SM3				SM7			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			10/29/2010	3/23/2011	6/7/2011	8/9/2011	2/7/2011	6/6/2011	8/17/2011	10/19/2011	7/22/2011	9/7/2011	11/15/2011	1/10/2012	9/1/2011	11/15/2011	1/10/2012	5/8/2012
Field																		
Field pH	s.u.		7.35	6.9	9.18	9.26	8.45	8.43	8.13	7.51	8.24	8.52	6.45	6.95	8.27	7.51	7.32	7.1
Field Conductivity	µmhos/cm		3186	2175	3193	3199	1282	1963	2074	2212	554	2104	2349	2212	2625	2945	2911	3058
Dissolved Oxygen	mg/L		0.08	0.64	2.04	0.94	2.71	2.08	5.14	4.89	43.6	7.16	4.3	6.5	6.06	1.56	3.28	3.29
Field Turbidity	NTU		2.81	1.4	2.4	2.2	502	7.8	5.2	32.7	28.9	1.2	47.1	25.8	Maxed out	22.7	Maxed out	10.4
Temperature	°C		16.09	6.17	11.06	13.52	8.39	34.13	26.21	11.31	12.27	11.75	8.49	9.97	11.81	9.45	10.15	14.36
ORP	mV		---	179.2	31.2	85.2	369.63	66.2	101.5	155.4	323.4	11.5	289.9	288.6	157.6	195.5	139.6	13.2
Depth to Water	Ft.		36.45	35.4	35.32	35.83	73.03	72.4	72.6	72.58	69.38	70.25	70.25	71.53	65.5	65.27	65.38	65.48
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	477	487	479	461	84	88	95	113	206	287	270	262	263	259	254	357
Alkalinity, Bicarbonate as HCO3	mg/L	5	581	594	584	562	103	107	116	138	252	350	329	320	314	316	310	436
Alkalinty, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	1	5	6	7	8	5	5	4	5	3	11	12	12	10	14	14	14
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	0.3	0.4	0.2	<0.1	<0.1	<0.1	0.4	0.3	0.2	0.2
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	0.4	1.4	<0.1	<0.1	<0.1
Sulfate	mg/L	1	1540	1730	1620	1640	832	930	900	989	68	855	1100	1100	1070	1420	1550	1590
Calcium	mg/L	1	436	473	478	444	133	146	146	156	62	257	286	283	188	285	301	359
Magnesium	mg/L	1	121	130	135	125	19	24	24	27	15	57	64	65	44	50	52	61
Potassium	mg/L	1	13	16	16	14	10	10	9	10	11	14	14	14	18	14	14	13
Sodium	mg/L	1	184	216	228	207	294	309	308	326	22	190	207	218	420	405	407	434
Nitrogen, Ammonia (As N)	mg/L	0.1	1.5	0.9	1.2	<0.1	0.4	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	0.4	0.4
Sihca as SiO2	mg/L	1	9	9	10	10	6	6	6	7	9	13	9	10	6	9	9	9
General Parameters																		
Laboratory pH	s.u.	0.1	8	7.6	7.7	7.7	8.3	8	8.1	8.1	8	7.8	7.8	7.9	8.4	8.1	8.1	8.1
Electrical Conductivity	µmhos/cm	5	3010	2860	2080	2410	1800	1690	2080	2190	553	2010	2190	1890	2620	2850	2530	2820
Total Dissolved Solids (180)	mg/L	10	3040	3000	2950	3060	1450	1520	1590	1620	430	1730	1940	1960	2190	2490	2620	2730
Data Quality																		
Cation Sum	meq/L	0.01	40.04	44.1	45.33	41.82	21.26	22.99	22.87	24.42	5.57	26.09	28.87	29.31	31.74	36.34	37.33	42.09
Anion Sum	meq/L	0.01	41.81	45.88	43.5	43.61	19.25	21.27	20.77	22.99	5.62	23.85	28.68	28.48	27.97	35.24	37.77	40.71
Cation-Anion Balance (±5%)	%	0.01	2.17	1.97	2.06	2.09	4.94	3.89	4.82	3.03	0.38	4.49	0.31	1.44	6.3	1.53	0.57	1.66
Solids, Total Dissolved (Calc)	mg/L	10	2590	2870	2770	2730	1340	1480	1450	1590	310	1570	1860	1860	1920	2360	2500	2690
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.05	1.06	1.12	1.08	1.03	1.1	1.02	1.37	1.1	1.04	1.05	1.14	1.06	1.05	1.01
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.003	<0.001	0.004	<0.001	0.002	0.004	0.003	0.005	0.008	0.002	0.005	0.009	0.004	0.007	0.013	<0.001
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	<0.05	1.16	0.58	<0.05	<0.05	0.07	<0.05	0.07	3.28	<0.05	0.27	0.11	0.17	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.72	0.51	0.57	0.65	0.08	0.22	0.24	0.31	0.13	0.96	0.18	0.16	0.17	0.83	0.8	0.86
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01	0.04	0.02	0.02	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0026	0.0005	0.0007	0.0006	0.0268	0.0272	0.0268	0.0236	0.0042	0.0026	0.001	0.0009	0.0304	0.0092	0.0063	0.0058
Uranium	pCi/L	0.0003	0.0026	0.0005	0.0007	0.0006	0.0268	0.0272	0.0268	0.0236	0.0042	0.0026	0.001	0.0009	0.0304	0.0092	0.0063	0.0058
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Metals-Suspended																		
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0032	0.0004	<0.0003	0.0005	<0.0003	<0.0003	0.0004	0.0005	<0.0003	<0.0003	<0.0003	0.0004
Uranium	pCi/L	0.20271	<0.20271	<0.20271	<0.20271	<0.20271	2.16	0.270	<0.20271	0.338	<0.20271	<0.20271	0.270	0.338	<0.20271	<0.20271	<0.20271	0.27028
Metals-Total																		
Iron	mg/L	0.05	0.97	3.26	3.43	3.47	3.01	10.8	0.17	0.33	0.51	5.41	2.18	0.28	11.9	3.77	2.88	0.64
Manganese	mg/L	0.01	0.86	0.51	0.59	0.74	0.23	0.47	0.26	0.31	0.18	0.99	0.2	0.15	0.42	0.88	0.89	0.88
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	7.1	5.7	<4	6	22.8	20	25.7									

Table 2.7B-28: OM Zone Monitoring Results

Parameter	Units	Lab Detection Limit	OM1				OM2				OM3				OM4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			11/11/2010	2/23/2011	6/14/2011	8/11/2011	7/26/2011	9/8/2011	12/15/2011	2/2/2012	7/22/2011	9/7/2011	12/15/2011	2/1/2012	2/17/2011	5/17/2011	8/30/2011	11/2/2011
Field ¹																		
Field pH	s.u.		7.62	7.37	10.12	9.17	10.47	10.54	9.96	9.49	11.4	11.55	11.87	11.45	7.31	7.19	8.05	7.09
Field Conductivity	µmhos/cm		1646	1301	1899	1892	481	455	558	516	568	625	645	637	718	1021	1047	1066
Dissolved Oxygen	mg/L		0.61	0.18	0.72	0.33	1.87	1.24	0.43	1.65	0.74	0.6	0.97	4.31	1.15	0.76	0.63	0.89
Field Turbidity	NTU		12.3	0.34	1.8	0.6	16.1	7.8	0.67	0.86	31.4	4.1	3.9	3.93	2.52	0.32	2.5	5.3
Temperature	°C		9.28	9.81	12.28	14.43	16.62	24.2	8.03	7.71	29.82	26.12	7.03	8.14	9.04	10.35	12.29	9.86
ORP	mV		229.7	127.4	18.5	141.5	275.5	50.6	47.9	-226.2	248.1	-212.1	-66.8	-33.13	282.9	224.3	101.1	120.9
Depth to Water	Ft.		179.6	179.41	179.68	179.58	144.02	138.85	138.8	137.1	138.13	136.86	136.48	136.35	94.68	94.15	94.45	94.69
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	253	225	228	224	98	81	72	86	205	173	181	186	265	265	262	260
Alkalinity, Bicarbonate as HCO3	mg/L	5	308	275	279	273	31	28	66	80	14	<5	<5	<5	323	323	320	317
Alkalinty, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	43	35	11	12	116	83	97	77	<5	<5	<5	<5
Chloride	mg/L	1	5	6	6	6	6	7	9	10	6	4	6	6	3	3	3	3
Flouride	mg/L	0.1	0.2	0.2	0.2	0.2	1.4	1.7	1.4	1.4	0.6	1.1	2	1.7	0.2	<0.1	<0.1	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	728	803	834	794	102	90	158	135	29	22	20	17	328	296	281	306
Calcium	mg/L	1	201	183	206	195	7	5	6	6	13	9	7	8	138	129	136	140
Magnesium	mg/L	1	46	42	47	44	<1	<1	<1	<1	<1	<1	<1	<1	41	40	40	41
Potassium	mg/L	1	11	11	12	12	10	9	10	10	23	19	18	18	7	7	8	8
Sodium	mg/L	1	187	203	210	218	82	76	103	100	79	77	78	81	40	34	36	41
Nitrogen, Ammonia (As N)	mg/L	0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	1.1	1.1	1.4	<0.1	<0.1	<0.1	2.6
Silica as SiO2	mg/L	1	10	12	14	13	5	5	4	4	7	7	16	20	15	16	17	18
General Parameters																		
Laboratory pH	s.u.	0.1	7.9	7.8	8	7.9	10.2	10.2	9	9.3	10.6	10.8	10.6	11.2	7.7	7.8	7.9	7.8
Electrical Conductivity	µmhos/cm	5	1680	1650	1310	1960	507	452	533	553	550	528	449	604	950	919	1050	1040
Total Dissolved Solids (180)	mg/L	10	1410	1470	1500	1660	290	260	320	340	330	350	250	250	780	790	760	750
Data Quality																		
Cation Sum	meq/L	0.01	22.26	21.68	23.6	23.13	4.29	3.78	5.16	5	4.79	4.26	4.21	4.34	12.18	11.37	11.89	12.25
Anion Sum	meq/L	0.01	20.38	21.4	22.12	21.19	4.33	3.78	5.04	4.87	4.88	4.1	4.3	4.33	12.2	11.54	11.19	11.65
Cation-Anion Balance (±5%)	%	0.01	4.42	0.64	3.25	4.37	0.5	0.05	1.1	1.3	0.97	1.93	1.11	0.02	0.07	0.72	3.01	2.54
Solids, Total Dissolved (Calc)	mg/L	10	1330	1390	1450	1420	270	240	330	320	280	240	250	240	730	670	680	710
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.06	1.03	1.17	1.05	1.08	0.97	1.06	1.19	1.46	1	1.04	1.07	1.18	1.12	1.06
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.004	<0.001	<0.001	0.003	0.008	0.002	0.006	0.005	0.026	0.015	0.017	0.019	<0.001	<0.001	<0.001	0.008
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	0.1	0.38	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.21	0.26	0.22	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	0.28	0.26	0.16
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	0.04	0.03	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0023	0.0006	<0.0003	<0.0003	0.0017	<0.0003	0.0005	0.0004	0.0022	0.0004	<0.0003	0.0004	0.0023	0.0035	0.0012	0.0007
Uranium	pCi/L	0.203	1.55	0.405	<0.20271	<0.20271	1.15	<0.20271	0.338	0.270	1.49	0.270	<0.20271	0.27028	1.55	2.36	0.811	0.473
Vanadium	mg/L	0.1	<0.1															

Table 2.7B-28: OM Zone Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	OM5				OM6				OM7			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			11/1/2010	3/30/2011	6/7/2011	8/9/2011	3/10/2011	6/2/2011	8/10/2011	10/18/2011	7/27/2011	9/6/2011	12/15/2011	2/1/2012
Field ¹														
Field pH	s.u.		7.62	7.59	9.92	10.94	7.75	10.32	10.5	7.75	11.41	10.99	11.04	10.21
Field Conductivity	µmhos/cm		1778	1270	1768	1756	760	1203	1210	1363	760	1110	1676	1683
Dissolved Oxygen	mg/L		0.11	0.44	3.21	0.36	0.21	0.09	0.29	3.15	3.48	4.51	3.1	2.03
Field Turbidity	NTU		1.28	3.2	1.63	0.5	14.57	3.4	1.3	2.2	9.93	2.4	3.17	0.83
Temperature	°C		12.48	8.46	12.37	12.07	8.06	13.52	13.52	10.58	30.94	20.1	8.72	8.13
ORP	mV		248.2	117.7	49.6	38.8	89.7	38.4	29	-166.1	240	68.7	-25.7	-74.1
Depth to Water	Ft.		37.63	38.2	37.6	37.96	120.15	119.82	120.15	119.7	126.62	126.95	127.26	127.46
Anions/Cations														
Alkalinity, Total (As CaCO3)	mg/L	5	123	117	119	116	251	267	266	276	110	73	30	31
Alkalinity, Bicarbonate as HCO3	mg/L	5	150	142	145	142	306	325	325	337	12	<5	11	17
Alkalinity, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	60	30	12	10
Chloride	mg/L	1	7	8	8	8	28	32	32	35	3	3	5	4
Fluoride	mg/L	0.1	0.2	0.3	0.3	0.2	0.6	0.7	0.5	0.8	0.2	0.2	0.2	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1
Sulfate	mg/L	1	761	792	762	743	290	304	316	334	210	360	768	773
Calcium	mg/L	1	131	128	127	120	50	57	57	68	51	69	110	109
Magnesium	mg/L	1	24	23	24	23	9	10	10	12	2	<1	5	9
Potassium	mg/L	1	8	8	8	8	6	6	6	7	36	31	37	35
Sodium	mg/L	1	256	267	261	258	218	221	231	238	75	138	254	243
Nitrogen, Ammonia (As N)	mg/L	0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	2.1	2.5	0.9	0.8
Silica as SiO2	mg/L	1	12	10	10	9	10	10	10	11	10	9	3	3
General Parameters														
Laboratory pH	s.u.	0.1	7.9	8	8	8.1	8.1	8.2	8.1	8.3	10.3	10.5	9.5	9.6
Electrical Conductivity	µmhos/cm	5	1680	1540	1450	1820	1100	1060	1340	1440	771	1080	1470	1780
Total Dissolved Solids (180)	mg/L	10	1430	1370	1370	1340	810	840	890	950	530	760	1170	1250
Data Quality														
Cation Sum	meq/L	0.01	19.87	20.09	19.88	19.36	12.84	13.46	13.86	14.86	6.91	10.22	17.88	17.64
Anion Sum	meq/L	0.01	18.5	19.06	18.48	18.04	11.87	12.61	12.84	13.49	6.7	9.22	16.71	16.85
Cation-Anion Balance (+5%)	%	0.01	3.55	2.62	3.64	3.53	3.93	3.25	3.83	4.81	1.58	5.11	3.39	2.3
Solids, Total Dissolved (Calc)	mg/L	10	1260	1300	1260	1240	760	790	820	870	460	650	1200	1200
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.05	1.09	1.08	1.07	1.06	1.09	1.09	1.16	1.17	0.98	1.04
Metals-Dissolved														
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.002	<0.001	0.003	<0.001	0.002	0.002	0.002	0.007	0.005	0.033	0.004	0.008
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	0.25	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	1.12	0.48	0.33	0.3	0.44	0.51	0.47	0.43	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	0.02	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.01	<0.005	<0.005
Uranium	mg/L	0.0003	0.0011	0.0007	0.0006	<0.0003	0.0017	0.0009	0.0009	0.0011	0.0012	<0.0003	0.0007	<0.0003
Uranium	pCi/L	0.203	0.743	0.473	0.405	<0.20271	1.15	0.608	0.608	0.743	0.811	<0.20271	0.473	<0.20271
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Metals-Suspended	mg/L													
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271
Metals-Total	mg/L													
Iron	mg/L	0.05	0.45	0.5	0.4	0.36	0.4	0.3	0.68	0.39	0.37	0.11	0.19	<0.05
Manganese	mg/L	0.01	1.16	0.47	0.34	0.32	0.46	0.49	0.54	0.45	0.02	<0.01	<0.01	<0.01
Radionuclides-Dissolved														
Gross Alpha	pCi/L	4	3.5	3	4.9	5.4	7.5	2.8	2.3	3	8.6	2.2	3	<4
Gross Beta	pCi/L	7	5.7	8	8	8	11.3	4.2	7.1	4.6	39.1	23.8	26.6	18.4
Lead 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	2.5	<1	1.2	1.3
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.6	0.6	0.3	0.6	0.9	0.7	0.5	0.6	1.1	0.4	0.8	0.9
Radium 228	pCi/L	1	<1	<1	<1	1.7	1.3	1.2	<1	2.5	<1	<1	<1	1.3
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended	pCi/L													
Lead 210	pCi/L	1	<1	<1	<1	<1	<1	1.1	<1	<1	1.6	<1	1.9	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total	pCi/L													
Radon 222	pCi/L	50	156	294	167	136	55	100	<50	96	1500	57	68	78

Table 2.7B-31: PZM Zone Monitoring Results

Parameter	Units	Lab Detection Limit	PZM2				PZM6				PZM7				PZM8					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Collection Date			7/26/2011	9/19/2011	12/20/2011	2/1/2012	11/3/2010	3/22/2011	6/2/2011		8/10/2011		7/28/2011	9/6/2011	12/20/2011	1/31/2012	12/20/2010	3/29/2011	6/14/2011	8/16/2011
Field ¹																				
Field pH	s.u.		11.09	11.20	8.59	8.31	7.64	7.77	11.13		12.60		11.88	9.46	12.14	12.19	8.31	8.10	10.19	8.86
Field Conductivity	µmhos/cm		1861	2064	1834	1845	1243	914	1167		1185		1291	965	2816	2923	1172	1525	1915	1918
Dissolved Oxygen	mg/L		1.37	0.58	1.30	1.70	1.50	2.40	0.16		0.22		1.96	0.70	0.80	1.90	2.11	0.33	0.37	0.24
Field Turbidity	NTU		5.20	4.40	4.37	2.73	4.52	2.70	4.37		0.60		7.20	6.56	9.00	4.50	0.81	3.30	0.40	0.30
Temperature	°C		19.61	19.23	10.20	9.98	10.87	10.22	13.57		15.65		21.95	22.26	9.74	10.02	4.89	11.95	12.97	13.51
ORP	mV		284.2	59.6	113.0	-197.3	60.9	34.1	-40.4		-63.1		271.4	62.3	-41.6	14.3	84.2	53.5	39.9	104.4
Depth to Water	Ft.		304.98	305.45	305.17	305.43	196.42	197.61	196.07		197.44		184.05	184.98	185.25	184.90	287.55	287.87	287.91	288.02
Anions/Cations																				
Alkalinity, Total (As CaCO3)	mg/L	5	128	90	73	79	174	170	192		200		71	37	501	446	75	78	75	75
Alkalinity, Bicarbonate as HCO3	mg/L	5	<5	<5	66	87	212	197	209		223		<5	39	<5	<5	91	96	92	91
Alkalinity, Carbonate as CO3	mg/L	5	30	25	11	<5	<5	<5	13		10		27	<5	31	34	<5	<5	<5	<5
Chloride	mg/L	1	9	7	7	7	11	7	8		8		3	2	3	3	6	7	7	7
Flouride	mg/L	0.1	0.2	<0.1	<0.1	<0.1	0.3	0.2	0.4		0.4		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	570	726	859	857	437	407	375		346		345	362	231	277	842	846	880	842
Calcium	mg/L	1	84	84	106	109	85	77	72		66		66	52	181	198	110	110	115	105
Magnesium	mg/L	1	2	<1	25	25	15	13	12		11		<1	9	<1	<1	23	24	26	23
Potassium	mg/L	1	54	48	16	13	8	7	7		7		32	19	37	31	9	9	9	8
Sodium	mg/L	1	237	268	309	314	191	186	193		188		121	126	146	127	270	320	316	318
Nitrogen, Ammonia (As N)	mg/L	0.1	0.3	0.5	<0.1	<0.1	0.6	0.4	0.5		0.3		0.2	<0.1	0.6	0.4	<0.1	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	7	4	10	11	13	12	13		13		10	10	6	5	10	11	12	11
General Parameters																				
Laboratory pH	s.u.	0.1	11.3	11	8.5	8.5	8.1	8.5	8.7		8.6		10.8	8.9	11.7	12	8.1	8.3	8	8.2
Electrical Conductivity	µmhos/cm	5	1880	2000	1630	1960	1310	1130	1030		1220		1100	974	2240	1800	1780	1700	1370	2000
Total Dissolved Solids (180)	mg/L	10	1050	1200	1380	1370	1030	890	890		860		630	680	820	920	1430	1520	1440	1460
Data Quality																				
Cation Sum	meq/L	0.01	16.02	17.09	21.14	21.52	13.93	13.14	13.15		12.49		9.37	9.31	16.31	16.2	19.38	21.6	21.86	21.16
Anion Sum	meq/L	0.01	14.66	17.12	19.55	19.6	12.88	12.28	11.91		11.43		8.86	8.49	14.91	14.76	19.21	19.55	20.05	19.24
Cation-Anion Balance (±5%)	%	0.01	4.4	0.07	3.92	4.65	3.9	3.37	4.95		4.43		2.79	4.6	4.46	4.63	0.44	4.97	4.33	4.75
Solids, Total Dissolved (Calc)	mg/L	10	1040	1190	1380	1380	850	800	780		760		620	600	900	910	1310	1360	1400	1360
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	1.01	1.01	1	0.99	---	1.11	1.14		1.13		1.02	1.13	0.91	1.01	---	1.12	1.03	1.07
Metals-Dissolved																				
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.006	0.004	0.02	0.009	<0.001	0.002	0.003		0.002		0.002	0.006	0.045	0.034	0.008	0.003	0.002	0.003
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05		<0.05		<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	<0.01	<0.01	<0.01	0.02	0.25	0.11	0.09		0.09		<0.01	<0.01	<0.01	<0.01	0.11	0.09	0.09	0.08
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01		<0.01	<0.01	<0.01	<0.01	0.09	0.02	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	0.049	0.009	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005		0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0943	0.0293	0.661	0.326	0.0139	0.0358	0.0257		0.0191		0.0016	0.0728	0.0195	0.0136	0.0664	0.0194	0.012	0.0144
Uranium	pCi/L	0.203	63.7	77.4	447	220	19.8	24.2	17.4		13.9		1.08	49.2	13.2	9.2	44.9	13.1	8.11	9.73
Vanadium	mg/L	0.1	0.4	0.2	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1		0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Metals-Suspended	mg/L																			
Uranium	mg/L	0.0003	<0.0003	0.0219	0.0007	0.0009	<0.0003	0.0007	<0.0003		<0.0003		0.0173	0.0009	0.004	0.0046	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	pCi/L	0.203	<0.20271	0.473	0.473	0.608	<0.20271	0.473	<0.20271		<0.20271		11.7	0.608	2.70	1.01	<0.20271	<0.20271	<0.20271	<0.20271
Metals-Total	mg/L																			
Iron	mg/L	0.05	0.06	0.07	<0.05	<0.05	0.28	0.12	0.07		<0.05		0.07	0.19	<0.05	<0.05	0.18	0.23	0.06	<0.05
Manganese	mg/L	0.01	<0.01	<0.01	0.02	0.03	0.27	0.11	0.1		0.09		<0.01	<0.01	<0.01	<0.01	0.11	0.1	0.1	0.09
Radionuclides-Dissolved																				
Gross Alpha	pCi/L	4	1210	1460	2760	1800	58	74.7	71.1		95.1		188	359	276	212	151	133	102	217
Gross Beta	pCi/L	7	597	635	1420	833	42.3	38.7	33		48.2		93.8	152	80.9	81.6	57.5	60.6	50	92
Lead 210	pCi/L	1	101	77.4	428	469	6.4	5.1	7.8		7.7		4.3	26.8	5.3	5.4	4	2.7	13.2	6.7
Polonium 210	pCi/L	1	10.2	6.6	1.3	126	<1	<1	2.2		<1		<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	281	385	672	700	23.4	24.1	21.4		20.2		96.3	125	203	177	50.7	46.9	51	55.5
Radium 228	pCi/L	1	1.9	1.1	1.1	1.4	1.4	<1	1.4		<1		1.9	<1	<1	<1	1.8	<1	<1	1.4
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended	pCi/L																			
Lead 210	pCi/L	1	328	321	437	214	9.1	7.9	6.9		7.2		43.7	24.7	8.7	9.9	22.6	17.7	<1	9
Polonium 210	pCi/L	1	48.3	203	73.6	6.8	3.8	3.4	<1		<1		7.3	3	<1	15.4	2.1	<1	<1	1.7
Radium 226	pCi/L	0.2	6.4	3.8	2.6	1.7	0.3	0.4	<0.2		<0.2		2.1	6	7.5	8.9	0.5	0.7	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2													

Table 2.7B-31: PZM Zone Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	PZM10				PZM14				PZM15				PZM16			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			11/11/2010	3/1/2011	6/13/2011	8/16/2011	3/29/2011	6/15/2011	8/31/2011	10/19/2011	2/23/2011	5/18/2011	8/30/2011	11/15/2011	2/16/2011	6/1/2011	8/31/2011	11/2/2011
Field ¹																		
Field pH	s.u.		9.14	8.80	10.55	8.75	8.07	10.19	9.30	8.03	8.47	8.34	9.62	8.49	7.65	10.08	9.45	7.80
Field Conductivity	µmhos/cm		1695	1316	1907	1896	777	1136	1145	1168	585	835	865	875	978	1331	1370	1383
Dissolved Oxygen	mg/L		2.99	6.39	3.79	6.43	1.51	0.38	0.57	2.87	0.20	0.22	0.14	0.84	1.34	0.18	0.33	0.14
Field Turbidity	NTU		19.40	0.33	2.10	1.30	13.50	10.43	2.50	3.30	7.29	3.77	3.70	2.50	4.45	3.73	0.56	6.13
Temperature	°C		9.50	9.93	13.71	13.68	6.47	12.89	16.35	11.09	9.43	10.86	12.11	9.23	11.26	11.60	15.72	10.04
ORP	mV		280.7	81.5	15.9	140.3	86.1	3.2	41.4	60.3	119.0	132.3	0.1	-1.2	229.2	87.6	-8.1	-1.3
Depth to Water	Ft.		288.65	289.00	288.91	289.06	198.50	198.53	198.48	198.68	226.85	225.90	227.79	225.94	137.13	137.30	137.64	137.65
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	250	57	58	59	106	106	102	101	110	111	110	109	193	190	191	191
Alkalinity, Bicarbonate as HCO3	mg/L	5	305	69	71	70	129	130	125	123	134	135	134	132	236	232	234	232
Alkalinty, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	1	6	8	7	8	5	5	4	4	3	3	2	2	3	4	3	4
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	829	862	863	829	445	433	395	431	293	352	268	267	527	492	469	514
Calcium	mg/L	1	112	112	110	104	58	57	59	60	44	48	46	48	103	108	110	112
Magnesium	mg/L	1	23	21	23	21	11	12	12	12	10	10	10	10	23	23	25	24
Potassium	mg/L	1	9	9	9	9	7	7	7	8	7	7	7	7	9	8	9	8
Sodium	mg/L	1	323	313	306	309	187	169	176	181	124	129	121	120	176	166	172	185
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2
Silica as SiO2	mg/L	1	10	8	8	8	8	9	9	9	9	10	9	9	10	10	11	10
General Parameters																		
Laboratory pH	s.u.	0.1	8.4	8	8.1	8.4	8.1	8.2	8.2	8.1	8.1	8.1	8.3	8	8	8	8.1	8
Electrical Conductivity	µmhos/cm	5	1800	1640	1350	1970	1020	873	1170	1220	785	730	887	876	1220	1140	1390	1350
Total Dissolved Solids (180)	mg/L	10	1390	1430	1470	1440	830	790	800	810	650	600	550	600	980	1030	1000	1000
Data Quality																		
Cation Sum	meq/L	0.01	21.78	21.15	20.87	20.56	12.16	11.38	11.77	12.09	8.6	9.03	8.57	8.61	14.95	14.74	15.25	15.88
Anion Sum	meq/L	0.01	22.44	19.31	19.34	18.66	11.53	11.29	10.53	11.11	8.37	9.62	7.83	7.94	14.93	14.14	13.87	14.61
Cation-Anion Balance (±5%)	%	0.01	1.47	4.54	3.79	4.83	2.67	0.39	5.54	4.22	1.36	3.18	4.49	4.03	0.04	2.09	4.72	4.13
Solids, Total Dissolved (Calc)	mg/L	10	1450	1360	1350	1320	780	750	720	770	550	620	530	530	960	920	910	970
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.05	1.09	1.09	1.06	1.05	1.11	1.05	1.18	0.97	1.04	1.13	1.02	1.12	1.1	1.03
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.035	0.031	0.026	0.023	<0.001	<0.001	0.002	0.003	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.007
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	0.026	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.38	0.41	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	mg/L	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.02	0.04	0.05	0.04	0.07	0.08	0.09	0.09	0.05	0.04	0.05	0.04	0.06	0.07	0.07	0.05
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	0.05	0.32	0.4	0.37	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	0.031	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.397	0.607	0.477	0.387	0.0191	0.0126	0.0128	0.0113	0.0413	0.0514	0.0517	0.0456	0.286	0.296	0.338	0.296
Uranium	pCi/L	0.203	268	410	322	261	12.9	8.51	8.65	7.64	27.9	34.7	34.9	30.8	193	200	228	200
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.																

Table 2.7B-31: PZM Zone Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	PZM17				PZM18			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			2/16/2011	6/1/2011	8/31/2011	11/15/2011	11/9/2010	3/22/2011	6/8/2011	8/10/2011
Field ¹										
Field pH	s.u.		8.06	10.25	8.46	8.03	10.60	10.88	11.32	10.68
Field Conductivity	µmhos/cm		739	988	1015	1031	1254	928	1170	1166
Dissolved Oxygen	mg/L		1.10	0.20	0.42	0.25	1.43	0.63	1.40	1.16
Field Turbidity	NTU		3.61	1.70	4.10	1.00	11.06	2.80	0.60	1.20
Temperature	°C		11.86	13.20	13.37	9.09	5.05	11.09	1283.00	12.01
ORP	mV		95.7	73.7	126.8	-23.5	36.0	220.0	13.9	189.3
Depth to Water	Ft.		127.14	127.35	128.04	127.65	161.75	163.21	163.24	163.34
Anions/Cations										
Alkalinity, Total (As CaCO3)	mg/L	5	93	92	90	90	79	48	42	42
Alkalinity, Bicarbonate as HCO3	mg/L	5	114	112	110	110	78	<5	8	27
Alkalinity, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	9	26	21	12
Chloride	mg/L	1	3	3	3	4	3	4	4	5
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	396	385	345	388	502	480	487	500
Calcium	mg/L	1	62	65	67	69	73	80	86	88
Magnesium	mg/L	1	13	13	14	14	7	5	5	8
Potassium	mg/L	1	7	6	7	7	14	13	12	10
Sodium	mg/L	1	143	130	131	133	171	170	168	164
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.5	<0.1	<0.1
Silica as SiO2	mg/L	1	10	10	11	10	8	5	8	9
General Parameters										
Laboratory pH	s.u.	0.1	8.1	8	8.1	8.1	10.6	10.6	10	9.6
Electrical Conductivity	µmhos/cm	5	928	863	1030	1020	1160	1110	991	1200
Total Dissolved Solids (180)	mg/L	10	710	740	710	710	860	860	890	870
Data Quality										
Cation Sum	meq/L	0.01	10.53	10.11	10.37	10.51	12.02	12.12	12.24	12.43
Anion Sum	meq/L	0.01	10.39	9.92	9.25	10.14	12.11	11.15	11.1	11.39
Cation-Anion Balance (±5%)	%	0.01	0.66	0.93	5.68	1.77	0.39	4.14	4.86	4.38
Solids, Total Dissolved (Calc)	mg/L	10	680	660	630	680	820	780	790	810
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	1.04	1.12	1.13	1.04	0	1.1	1.13	1.07
Metals-Dissolved										
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.002	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	0.003
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.06	0.07	0.07	0.06	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0304	0.0308	0.0361	0.034	0.0074	0.0017	0.004	0.0102
Uranium	pCi/L	0.203	20.5	20.8	24.4	23.0	5.00	1.15	2.70	6.89
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Metals-Suspended	mg/L									
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0023	0.0009	0.0011	0.0004
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	1.55	0.608	0.743	0.270
Metals-Total	mg/L									
Iron	mg/L	0.05	0.22	0.14	0.13	0.09	0.16	<0.05	<0.05	<0.05
Manganese	mg/L	0.01	0.06	0.07	0.08	0.06	<0.01	<0.01	<0.01	<0.01
Radionuclides-Dissolved										
Gross Alpha	pCi/L	4	60.7	72	82.9	95.5	54.8	32.2	53.5	23.9
Gross Beta	pCi/L	7	20.4	18.5	37.6	31.9	32.8	23.9	31.3	17.9
Lead 210	pCi/L	1	<1	2	11.5	2.5	2.7	1.4	4.4	2.6
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	21.6	23.1	20.7	19.2	21.7	15.4	15.9	14.8
Radium 228	pCi/L	1	1.3	<1	<1	<1	<1	<1	1.6	<1
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended	pCi/L									
Lead 210	pCi/L	1	10.3	7.2	2.8	7.3	10.5	2.9	4	3.1
Polonium 210	pCi/L	1	<1	1.3	1.2	<1	<1	<1	1.1	2
Radium 226	pCi/L	0.2	0.4	<0.2	<0.2	0.4	0.7	<0.2	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total	pCi/L									
Radon 222	pCi/L	50	13600	1660	1750	1430	3960	2190	1190	3750

Table 2.7B-31a: Non-Baseline PZA Monitoring Well Results

Parameter	Units	Lab Detection Limit	PZM1	PZM3	PZM4		PZM5	PZM9	PZM13	PZM19	PZM20	PZM4D
Collection Date			12/15/2010	8/11/2011	12/16/2011	1/27/2011	11/2/2011	12/20/2010	12/27/2011	6/8/2011	3/10/2011	7/7/2011
Field ¹												
Field pH	s.u.		8.05	8.85	0.00	7.86	7.52	11.45	7.45	9.67	0.00	0.00
Field Conductivity	µmhos/cm		1266	1408	0	630	1773	1220	3606	1279	0	0
Dissolved Oxygen	mg/L		0.92	2.18	0.00	6.00	7.92	0.35	2.46	0.68	0.00	0.00
Field Turbidity	NTU		4.81	0.00	0.00	1.13	9.89	2.86	0.50	4.90	0.00	0.00
Temperature	°C		6.67	21.77	0.00	8.27	14.89	5.93	10.97	18.07	0.00	0.00
ORP	mV		63.5	207.2	0	176.7	362.1	0	232.2	28.1	0	0
Depth to Water	Ft.		291.83	300.71	0.00	148.20	65.73	291.68	0.00	157.51	0.00	0.00
Anions/Cations												
Alkalinity, Total (As CaCO3)	mg/L	5	75	127	144	145	238	80	119	94	98	0
Alkalinity, Bicarbonate as HCO3	mg/L	5	92	155	175	174	291	<5	145	115	120	0
Alkalinity, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	<5	40	<5	<5	<5	0
Chloride	mg/L	1	6	5	3	3	15	0.1	5	4	3	0
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	0
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0
Sulfate	mg/L	1	913	546	329	330	32	754	2400	541	512	0
Calcium	mg/L	1	100	77	61	66	17	113	526	92	89	0
Magnesium	mg/L	1	23	16	13	14	3	5	102	18	16	0
Potassium	mg/L	1	8	10	6	6	9	21	15	9	8	0
Sodium	mg/L	1	321	227	125	128	109	266	325	171	172	0
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	2	<0.1	<0.1	0.8	0.3	0.5	<0.1	<0.1	0
Silica as SiO2	mg/L	1	10	11	10	10	13	4	12	10	9	0
General Parameters												
Laboratory pH	s.u.	0.1	8	8.2	7.9	8.3	8.2	10.7	7.9	7.9	8.2	8.7
Electrical Conductivity	µmhos/cm	5	1790	1480	906	916	579	1720	3110	1070	1180	0
Total Dissolved Solids (180)	mg/L	10	1500	1020	640	690	420	1340	3580	950	920	640
Data Quality												
Cation Sum	meq/L	0.01	21.06	15.29	9.74	10.22	6.05	18.19	49.15	13.7	13.37	0
Anion Sum	meq/L	0.01	21.28	14.06	9.8	10	5.86	17.48	52.53	13.25	12.72	0
Cation-Anion Balance (±5%)	%	0.01	0.53	4.2	0.29	1.08	1.56	1.97	3.32	1.67	2.5	0
Solids, Total Dissolved (Calc)	mg/L	10	1430	970	620	630	330	1210	3460	890	860	0
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	0	1.05	0	1.1	0	0	1.03	1.07	1.07	0
Metals-Dissolved												
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0
Arsenic	mg/L	0.001	0.002	0.006	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	0
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0
Iron	mg/L	0.05	0.07	<0.05	<0.05	<0.05	0.07	<0.05	0.37	<0.05	<0.05	0
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0
Manganese	mg/L	0.01	0.08	0.06	0.03	0.03	0.06	<0.01	0.42	0.11	0.06	0
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0
Uranium	mg/L	0.0003	0.0047	0.016	0.0638	0.0819	0.0018	0.003	<0.0003	0.0418	0.0922	0
Uranium	pCi/L	0.203	3.18	10.81	43.11	55.34	1.22	2.03	<0.20271	28.24	62.30	0
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0
Zinc	mg/L	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0
Metals-Suspended												
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0006	<0.0003	0.0004	<0.0003	0
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	0.405	<0.20271	0.270	<0.20271	0
Metals-Total												
Iron	mg/L	0.05	0.31	2.79	0.54	0.13	0.24	0.06	1.11	0.76	0.07	0
Manganese	mg/L	0.01	0.1	0.11	0.03	0.04	0.07	<0.01	0.48	0.12	0.06	0
Radionuclides-Dissolved												
Gross Alpha	pCi/L	4	42	28.9	52.1	78.6	3.4	186	2	35.5	63.9	0
Gross Beta	pCi/L	7	25.3	10	19.6	25.8	6	70.8	7.6	19.3	45.2	0
Lead 210	pCi/L	1	4.8	<1	4.5	3	1.5	5.6	0	1.3	<1	0
Polonium 210	pCi/L	1	2.7	<1	<1	<1	<1	1.3	0	<1	<1	0
Radium 226	pCi/L	0.2	23.5	3.1	2.5	7.9	0.282	107	0.3	1.4	1.3	0.7
Radium 228	pCi/L	1	1.5	<1	<1	<1	1.35	1.4	5.2	1.4	<1	0
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0	<0.2	<0.2	0
Radionuclides-Suspended												
Lead 210	pCi/L	1	5.8	1.5	5	15.4	1.3	8.1	0	<1	<1	0
Polonium 210	pCi/L	1	<1	<1	1.1	<1	<1	<1	0	<1	<1	0
Radium 226	pCi/L	0.2	0.3	<0.2	<0.2	7.9	<0.2	0.7	0	<0.2	<0.2	0
Thorium 230	pCi/L	0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	0	<0.2	<0.2	0
Radionuclides-Total												
Radon 222	pCi/L	50	11900	8460	0	67300	2150	38600	22900	396	2690	0

Table 2.7B-34: UM Zone Monitoring Results

Parameter	Units	Lab Detection	UM1				UM2				UM3R				UM4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			11/16/2010	2/22/2011	6/6/2011	8/16/2011	7/26/2011	9/19/2011	12/20/2011	2/2/2012	11/29/2011	1/12/2012	3/7/2012	5/8/2012	2/17/2011	5/17/2011	8/30/2011	12/14/2011
Field																		
Field pH	s.u.		8.67	8.35	9.24	8.24	10.85	10.86	10.83	10.72	9.9	11.45	11.32	11.13	7.5	8.17	10.07	7.97
Field Conductivity ¹	µmhos/cm		465	362	609	513	970	1022	1068	1048	1582	1385	1365	1310	1270	1916	1986	1287
Dissolved Oxygen	mg/L		10.63	0.71	1.17	2.87	0.52	3.96	2.68	2.77	1.19	5	1.63	1	0.19	0.35	1	1.55
Field Turbidity	NTU		5.22	4.56	12.9	14.2	5	3.1	8.27	3.56	3	18.4	5.76	1.4	3.4	1.07	0.93	2.53
Temperature	°C		8.16	6.97	17.28	22.78	15.56	21.79	9.86	7.96	10.88	7.25	8.15	11.25	8.58	10.36	14.67	5.41
ORP	mV		164.3	112.5	34.3	164.6	267.2	102.7	210.83	70	249	-36.9	-143.5	-238	15.7	126	-64.3	-11.5
Depth to Water	Ft.		302.5	296.24	295.75	296.06	318.13	314.03	314.03	314.89	304.86	318.5	318.58	318.88	155.88	155.75	158.1	156.13
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	181	194	203	202	103	77	68	44	24	46	36	134	138	167	248	141
Alkalinity, Bicarbonate as HCO3	mg/L	5	208	236	240	246	<5	<5	83	14	29	6	<5	23	168	203	299	172
Alkalinty, Carbonate as CO3	mg/L	5	6	<5	<5	<5	48	46	<5	20	<5	25	21	69	<5	<5	<5	<5
Chloride	mg/L	1	18	25	28	30	13	16	16	16	5	8	8	7	38	38	32	29
Flouride	mg/L	0.1	0.2	0.7	0.7	0.6	0.4	0.3	0.4	0.3	0.3	0.6	0.5	0.6	0.3	0.3	0.3	0.3
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	26	51	64	61	231	277	371	354	591	471	452	456	852	764	661	464
Calcium	mg/L	1	9	14	17	16	17	19	27	24	69	35	28	35	114	110	114	62
Magnesium	mg/L	1	2	2	3	3	<1	<1	<1	<1	12	<1	<1	<1	19	19	20	11
Potassium	mg/L	1	3	4	4	4	26	26	28	27	33	31	29	26	10	9	10	7
Sodium	mg/L	1	89	112	117	121	134	157	178	171	209	221	214	235	340	317	352	231
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.4	0.6	0.4	0.4	0.4	0.5	0.4	<0.1	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	8	8	9	9	4	6	6	7	6	4	7	9	14	15	18	12
General Parameters																		
Laboratory pH	s.u.	0.1	8.6	8.3	8.4	8.3	10.9	10.4	9.7	9.8	8.2	10.3	10.2	10.7	7.6	8.3	8.4	7.9
Electrical Conductivity	µmhos/cm	5	459	533	655	638	985	1000	1030	1090	1410	1380	1340	1180	1770	1640	2010	1180
Total Dissolved Solids (180)	mg/L	10	250	380	390	400	520	580	690	710	1050	810	800	820	1500	1600	1620	920
Data Quality																		
Cation Sum	meq/L	0.01	4.53	5.84	6.3	6.38	7.42	8.42	9.78	9.33	14.32	12.17	11.4	12.63	22.31	21.08	22.86	14.16
Anion Sum	meq/L	0.01	4.67	5.8	6.21	6.19	7.26	7.77	9.54	8.83	13.03	11.06	10.36	12.39	21.58	20.33	19.94	13.29
Cation-Anion Balance (±5%)	%	0.01	1.43	0.36	0.67	1.5	1.11	4.02	1.26	2.78	4.7	4.76	4.76	0.93	1.66	1.8	6.81	3.15
Solids, Total Dissolved (Calc)	mg/L	10	260	320	350	370	490	550	630	630	940	800	760	840	1460	1360	1350	900
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.19	1.11	1.08	1.07	1.05	1.03	1.13	1.12	1.01	1.05	0.98	1.03	1.18	1.2	1.02
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	<0.001	<0.001	<0.001	0.002	0.006	0.004	0.015	0.01	0.011	0.022	<0.001	<0.001	0.003	0.003	0.016	0.008
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	0.13	0.06	0.11	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.02	0.02	0.03	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.69	0.68	0.59	0.17
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	0.03	0.02	0.02	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.008	0.0068	0.0063	0.0075	<0.0003	0.0005	0.0005	<0.0003	0.0031	0.0008	<0.0003	<0.0003	0.0021	0.0035	0.0014	0.0004
Uranium	pCi/L	0.203	5.4056	4.59476	4.25691	5.06775	<0.20271	0.33785	0.33785	<0.20271	2.09467	0.54056	<0.20271	<0.20271	1.41897	2.36495	0.94598	0.27028
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	0.06	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01
Metals-Suspended	mg/L																	
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271
Metals-Total	mg/L																	
Iron	mg/L	0.05	0.5	0.16	0.45	0.58	0.1	0.09	0.1	<0.05	<0.05	0.08	<0.05	0.11	0.26	0.18	0.09	1.16
Manganese	mg/L	0.01	0.02	0.02	0.03	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.72	0.71	0.66	0.2
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	14	21.7	21.2	24.2	2.7	6.7	3	3.6	2.2	3	2	2	6.3	<4	6	3.9
Gross Beta	pCi/L	7	5.3	9.1	9.2	13.7	26.4	24.2	20.8	19.5	29.1	21	22.1	17.5	<7	<7	9.5	5.6
Lead 210	pCi/L	1	1.1	3	3.8	4.7	<1	2.3	1.9	<1	<1	<1	<1	<1	<1	1.3	<1	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	2.4	4.8	4.5	2.7	0.5	1.9	1.6	2.3	1.6	<0.2	0.4	0.4	0.8	0.6	1.6	0.7
Radium 228	pCi/L	1	<1	<1	<1	<1	<1	<1	1.7	<1	<1	<1	<1	1.5	1.1	<1	1.9	<1
Thorium 230	pCi/L	0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended	pCi/L																	
Lead 210	pCi/L	1	4.1	2.3	1.8	2.6	<1	4.7	<1	2	<1	<1	1.5	1.2	<1	<1	<1	2.1
Polonium 210	pCi/L	1	<1	<1	<1	1.2	<1	2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total	pCi/L																	
Radon 222	pCi/L	50	1240	398	307	267	1220	4640	2110	302	<50	<50	<50	<50	114	<50	<50	<50

Table 2.7B-34: UM Zone Monitoring Results (cont.)

Parameter	Units	Lab Detection	UM5				UM6				UM7			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			11/2/2010	3/23/2011	6/7/2011	8/9/2011	3/31/2011	6/2/2011	8/10/2011	10/18/2011	7/27/2011	9/7/2011	12/29/2011	3/7/2012
Field														
Field pH	s.u.		7.97	8.58	10.17	11.11	9.48	11.16	11.57	9.55	10.86	11.12	10.56	10.61
Field Conductivity ¹	µmhos/cm		552	288	670	675	403	575	590	613	729	671	636	628
Dissolved Oxygen	mg/L		7.9	0.48	0.39	0.39	0.91	0.18	0.57	9.6	1.28	1.1	2.83	3.43
Field Turbidity	NTU		9.36	4.1	2.5	1.4	15.5	7.7	1.7	2.94	2.5	2.9	54	4.2
Temperature	°C		14.64	7.88	15.97	17.86	6.14	13.52	16.53	10.06	16.72	18.84	10.76	9.36
ORP	mV		36.8	102.2	8.5	-25	209.8	81	94.2	-4.5	277.6	23.1	190.8	61
Depth to Water	Ft.		165.58	165.91	165.53	165.86	211.65	211.1	211.34	211.06	188.67	186.2	186.36	186.3
Anions/Cations														
Alkalinity, Total (As CaCO3)	mg/L	5	231	197	330	343	48	44	44	41	64	49	30	29
Alkalinity, Bicarbonate as HCO3	mg/L	5	282	235	383	408	50	41	42	45	<5	6	28	21
Alkalinity, Carbonate as CO3	mg/L	5	<5	<5	10	<5	<5	6	6	<5	37	26	<5	7
Chloride	mg/L	1	14	15	17	17	18	21	19	18	15	15	16	15
Flouride	mg/L	0.1	0.6	0.8	0.5	0.5	0.5	0.6	0.6	0.9	0.4	0.3	0.4	0.6
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	31	15	<1	2	164	205	177	171	187	164	192	204
Calcium	mg/L	1	17	12	28	26	16	17	16	17	8	5	6	7
Magnesium	mg/L	1	3	2	5	5	<1	<1	<1	<1	2	<1	<1	<1
Potassium	mg/L	1	8	4	6	6	4	4	4	4	25	18	19	18
Sodium	mg/L	1	106	93	124	134	101	105	104	102	103	94	104	102
Nitrogen, Ammonia (As N)	mg/L	0.1	0.8	0.2	1.4	0.9	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	12	8	15	14	11	11	10	10	5	6	6	6
General Parameters														
Laboratory pH	s.u.	0.1	8.2	8.4	8.6	8.4	8.8	9.1	9.2	8.8	10.5	10	9.1	9.5
Electrical Conductivity	µmhos/cm	5	576	430	596	706	549	537	627	641	737	585	614	635
Total Dissolved Solids (180)	mg/L	10	420	290	490	500	400	400	390	410	400	350	370	370
Data Quality														
Cation Sum	meq/L	0.01	5.89	4.9	7.31	7.67	5.39	5.62	5.5	5.45	5.62	4.83	5.32	5.2
Anion Sum	meq/L	0.01	5.69	4.71	7.14	7.4	5.14	5.78	5.13	4.94	5.6	4.83	5.16	5.27
Cation-Anion Balance (±5%)	%	0.01	1.7	1.93	1.22	1.75	2.42	1.41	3.52	4.91	0.2	<0.01	1.57	0.72
Solids, Total Dissolved (Calc)	mg/L	10	320	260	380	410	340	380	360	350	380	330	360	370
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.12	1.29	1.22	1.18	1.05	1.08	1.17	1.05	1.06	1.03	1
Metals-Dissolved														
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	<0.001	<0.001	0.003	<0.001	<0.001	0.002	<0.001	0.01	0.002	0.005	0.009	0.003
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	0.06	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.06	<0.01	0.12	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0014	0.0004	0.0009	0.0012	0.0004	0.0005	<0.0003	0.0004	0.0008	0.0005	<0.0003	<0.0003
Uranium	pCi/L	0.203	0.94598	0.27028	0.60813	0.81084	0.27028	0.33785	<0.20271	0.27028	0.54056	0.33785	<0.20271	<0.20271
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.1	0.03	0.02	<0.01	<0.01	<0.01	<0.01
Metals-Suspended	mg/L													
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	2.0271	<0.20271
Metals-Total	mg/L													
Iron	mg/L	0.05	0.23	0.13	0.07	0.08	0.85	0.21	0.07	0.06	<0.05	0.34	<0.05	0.11
Manganese	mg/L	0.01	0.07	0.02	0.13	0.17	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Radionuclides-Dissolved														
Gross Alpha	pCi/L	4	3.3	2.4	2	3.2	2	2	2	2	5	24.6	2	2
Gross Beta	pCi/L	7	6.7	4.8	4.7	5.8	3.8	3	3	3.9	21.1	20.6	17	13.8
Lead 210	pCi/L	1	<1	<1	<1	1.1	<1	<1	<1	<1	2.7	<1	1.3	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.234	0.4	0.5	0.3	0.3	0.3	<0.2	0.3	1.1	6.3	0.4	0.3
Radium 228	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended	pCi/L													
Lead 210	pCi/L	1	1.3	<1	<1	<1	<1	<1	<1	1.1	3.4	<1	1.2	2.7
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	1.9	<1	1.7	<1
Radium 226	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.7	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total	pCi/L													
Radon 222	pCi/L	50	133	<50	<50	<50	202	63	<50	<50	3610	1200	1250	376

Table 2.7B-38: Stock/Domestic Well Monitoring Results

			GW1				GW2				GW3				GW4			
Parameter	Units	Lab Detection Limit	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			6/25/2011	8/17/2011	10/19/2011	1/11/2012	9/30/2010	8/17/2011	10/19/2011	1/11/2012	9/30/2010	8/17/2011	10/19/2011	1/10/2012	6/30/2011	8/17/2011	10/19/2011	1/10/2012
Field																		
Field pH	s.u.		8.66	---	7.16	7.14	7.90	---	7.60	7.89	8.30	---	8.09	7.42	8.37	---	8.04	7.86
Field Conductivity	µmhos/cm		1235	---	1164	1447	3000	---	2806	2436	2700	---	2544	2763	1894	---	1879	1844
Dissolved Oxygen	mg/L		7.34	---	7.52	7.37	---	---	3.47	3.22	---	---	9.60	5.16	2.39	---	4.47	3.01
Field Turbidity	NTU		6.00	---	0.90	1.20	---	---	19.50	0.30	0.32	---	0.60	3.10	0.60	---	6.80	2.20
Temperature	°C		12.66	---	10.35	9.22	12.46	---	11.88	9.22	11.73	---	11.14	10.28	13.65	---	11.28	11.94
ORP	mV		64.60	---	270.00	322.90	---	---	41.40	262.60	---	---	68.30	275.40	107.60	---	206.50	242.60
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	225	229	231	223	53	44	51	60	63	60	60	52	77	53	61	75
Alkalinity, Bicarbonate as HCO3	mg/L	5	274	279	282	272	64	53	62	74	76	73	73	64	94	65	74	91
Alkalinty, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	1	4	3	5	6	5	8	7	5	3	4	5	7	6	7	7	7
Fluoride	mg/L	0.1	<0.1	0.5	0.5	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	472	271	398	639	1560	866	1520	1310	1270	1240	1290	1520	848	812	853	866
Calcium	mg/L	1	197	142	170	240	231	118	246	193	173	187	190	250	119	109	116	122
Magnesium	mg/L	1	52	34	45	64	42	28	43	31	30	32	31	44	21	20	21	21
Potassium	mg/L	1	5	4	5	5	12	9	13	11	10	11	11	13	8	8	9	9
Sodium	mg/L	1	23	18	21	26	362	299	453	430	329	408	408	443	292	286	303	312
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.2	<0.1	0.2	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	10	9	10	10	8	3	8	9	9	9	9	10	10	5	5	9
General Parameters																		
Laboratory pH	s.u.	0.1	8.1	8	8	8	8	7.9	7.8	8	8.2	8.1	8	7.8	8.1	7.7	7.9	8
Electrical Conductivity	µmhos/cm	5	1380	1000	1220	1480	2710	1910	2980	2350	2380	2540	2610	2310	2010	1920	1980	1630
Total Dissolved Solids (180)	mg/L	10	990	730	880	1140	2360	1460	2400	2000	1980	2050	2020	2360	1430	1430	1400	1420
Data Quality																		
Cation Sum	meq/L	0.01	15.23	10.77	13.22	18.52	31.02	21.37	35.86	31.13	25.68	29.94	30.01	35.65	20.59	19.76	20.95	21.61
Anion Sum	meq/L	0.01	15.9	10.31	13.07	17.94	33.81	19.13	32.92	28.69	27.94	27.35	28.14	32.84	19.37	18.16	19.16	19.74
Cation-Anion Balance (±5%)	%	0.01	2.16	2.18	0.57	1.56	4.29	5.5	4.27	4.07	4.22	4.52	3.2	4.1	3.04	4.23	4.45	4.52
Solids, Total Dissolved (Calc)	mg/L	10	890	620	790	1120	2240	1360	2320	2030	1860	1930	1980	2320	1340	1280	1350	1390
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	1.11	1.18	1.11	1.02	---	1.07	1.03	0.99	---	1.06	1.02	<0.01	1.07	1.12	1.04	1.02
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	<0.001	<0.001	0.002	0.003	<0.001	<0.001	0.002	0.002	<0.001	0.002	0.003	0.005	<0.001	<0.001	0.002	0.004
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.16	0.08	0.17	0.28	0.24	0.12	0.3	0.29	0.27	0.27	0.29	0.26	0.15	0.15	0.15	0.14
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0019	0.002	0.0024	0.0028	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0009	<0.0003	0.0114	0.0037	0.0042	0.0097
Uranium	pCi/L	0.203	1.284	1.351	1.622	1.892	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	0.608	<0.20271	7.703	2.500	2.838	6.554
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	0.04	0.06	<0.01	<0.01	0.04	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.13	0.05	0.05
Metals-Suspended																		
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0016	0.001	0.0006
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	1.081	0.676	0.405
Metals-Total																		
Iron	mg/L	0.05	0.45	0.42	0.22	0.26	9.88	9.16	4.62	0.1	0.1	0.09	0.09	0.47	0.31	5.82	4.53	0.92
Manganese	mg/L	0.01	0.18	0.12	0.18	0.3	0.27	0.14	0.3	0.31	0.3	0.29	0.28	0.27	0.14	0.16	0.15	0.15
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	2	2.6	3	3	3.6	<4	6	5	5.1	7.6	5	5	17.7	18.7	12.3	18.2
Gross Beta	pCi/L	7	7.8	6.9	4	4	9.3	12	10	8	8.3	13.8	<7	13.7	10.3	8.6	15.7	13.3
Lead 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	8.1	<1	<1	<1	<1	1.2
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.6	0.6	0.8	1.1	0.6	0.3	1.2	0.5	0.6	0.9	0.9	1.4	2	3.5	2.8	2.8
Radium 228	pCi/L	1	<1	1.1	1.7	1.5	1.6	<1	2.5	<1	2.2	2.3	1.1	1.7	2.3	<1	<1	<1
Thorium 230	pCi/L	0.2	<0.2	<0.2	0.7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended																		
Lead 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.7	1.2	2.9	1.3	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	<1
Radium 226	pCi/L	0.2	<0.2	0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total																		
Radon 222	pCi/L	50	567	260	566	486	---	100	468	664	---	472	667	476	5640	2330	1510	4530

Table 2.7B-38: Stock/Domestic Well Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	GW5				GW6				GW7				GW9			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			9/30/2010	8/17/2011	10/19/2011	Not Operational	9/30/2010	8/17/2011	10/18/2011	Not Operational	9/30/2010	8/17/2011	10/13/2011	1/10/2012	6/30/2011	8/17/2011	10/18/2011	1/11/2012
Field																		
Field pH	s.u.		7.53	---	7.13	---	8.40	---	7.93	---	8.00	0.00	7.38	7.44	8.13	---	7.43	7.48
Field Conductivity	µmhos/cm		1633	---	1587	---	1620	---	1900	---	1166	0	1369	1276	2568	---	1913	1714
Dissolved Oxygen	mg/L		---	---	6.04	---	---	---	10.30	---	---	0.00	6.92	3.55	1.86	---	5.18	3.53
Field Turbidity	NTU		5.37	---	3.10	---	2.17	---	0.80	---	4.66	0.00	0.70	1.50	0.80	---	0.80	0.60
Temperature	°C		12.86	---	11.17	---	12.43	---	5.90	---	12.86	0.00	11.83	11.87	11.84	---	11.65	8.80
ORP	mV		---	---	250.80	---	---	---	334.10	---	---	205.00	299.30	230.80	293.60	---	252.40	227.90
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	304	288	293	---	244	237	225	---	171	166	225	230	226	145	170	157
Alkalinity, Bicarbonate as HCO3	mg/L	5	371	351	358	---	280	289	274	---	199	203	274	281	276	177	208	191
Alkalinty, Carbonate as CO3	mg/L	5	<5	<5	<5	---	9	<5	<5	---	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	1	2	3	3	---	5	6	6	---	3	2	9	9	5	4	5	4
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	---	0.4	0.3	0.5	---	0.3	0.3	0.5	0.6	<0.1	<0.1	0.2	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	---	0.2	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	634	609	624	---	592	592	577	---	388	375	418	418	1180	637	841	747
Calcium	mg/L	1	206	225	222	---	155	175	169	---	82	87	93	91	280	143	201	181
Magnesium	mg/L	1	65	64	68	---	33	31	34	---	17	17	16	15	48	26	36	34
Potassium	mg/L	1	9	9	10	---	8	8	9	---	7	7	7	7	10	9	10	10
Sodium	mg/L	1	52	51	54	---	130	145	152	---	122	143	197	197	265	171	216	199
Nitrogen, Ammonia (As N)	mg/L	0.1	0.2	<0.1	0.2	---	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	16	16	17	---	8	8	9	---	8	9	8	9	13	11	12	12
General Parameters																		
Laboratory pH	s.u.	0.1	8.1	7.8	8	---	8.5	8.3	8.3	---	8.4	8.1	8.2	8.3	8	8	8	8.1
Electrical Conductivity	µmhos/cm	5	1550	1650	1680	---	1490	1590	1640	---	1080	1170	1350	1140	2710	1570	2010	1740
Total Dissolved Solids (180)	mg/L	10	1280	1310	1340	---	1190	1220	1200	---	770	810	900	910	2170	1200	1530	1320
Data Quality																		
Cation Sum	meq/L	0.01	18.13	18.96	19.26	---	16.28	17.82	18.08	---	10.92	12.08	14.65	14.48	29.76	16.95	22.65	20.7
Anion Sum	meq/L	0.01	19.39	18.5	18.94	---	17.38	17.25	16.71	---	11.58	11.22	13.47	13.6	29.24	16.26	21.05	18.8
Cation-Anion Balance (±5%)	%	0.01	3.36	1.23	0.82	---	3.25	1.62	3.93	---	2.94	3.71	4.21	3.14	0.86	2.05	3.67	4.78
Solids, Total Dissolved (Calc)	mg/L	10	1150	1150	1170	---	1070	1110	1090	---	720	740	880	880	1940	1090	1420	1280
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	1.14	1.15	---	---	1.1	1.1	---	---	1.09	1.02	1.03	1.12	1.1	1.08	1.03
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	<0.001	<0.001	0.002	---	<0.001	<0.001	0.007	---	0.003	0.002	<0.001	0.007	<0.001	<0.001	0.004	0.003
Barium	mg/L	0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	---	0.002	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	0.37	0.27	0.93	---	<0.05	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.29	<0.05	0.43	0.09
Lead	mg/L	0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.2	0.21	0.22	---	0.15	0.16	0.08	---	0.1	0.09	0.09	0.08	0.52	0.16	0.28	0.19
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	---	<0.05	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	---	<0.005	<0.005	<0.005	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	<0.0003	<0.0003	0.0007	---	0.0004	<0.0003	0.0007	---	0.0745	0.0587	0.0172	0.0015	0.001	0.0469	0.0252	0.0417
Uranium	pCi/L	0.203	<0.20271	<0.20271	0.473	---	0.270	<0.20271	0.473	---	50.340	39.664	11.622	1.014	0.676	31.690	17.028	28.177
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	---	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Metals-Suspended																		
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	---	<0.0003	<0.0003	<0.0003	---	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	---				---								
Metals-Total																		
Iron	mg/L	0.05	3.8	3.27	4.28	---	0.39	0.17	0.13	---	0.44	0.44	0.45	0.46	0.96	0.45	0.64	0.51
Manganese	mg/L	0.01	0.23	0.23	0.23	---	0.18	0.17	0.1	---	0.11	0.1	0.1	0.09	0.52	0.17	0.28	0.19
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	5.3	4.1	3	---	9.2	5.9	3	---	64.2	39.5	12.7	2	4.3	50.9	17.4	43.6
Gross Beta	pCi/L	7	10.8	9	7.5	---	12.8	<7	5	---	22.2	18.3	9.2	4	10.1	26.1	11.8	19.8
Lead 210	pCi/L	1	<1	<1	<1	---	<1	<1	1.3	---	<1	1.5	<1	<1	<1	1.7	8.9	<1
Polonium 210	pCi/L	1	<1	<1	<1	---	<1	<1	<1	---	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.6	1.4	0.8	---	0.5	0.7	0.5	---	0.7	0.5	0.5	0.5	1.6	3	3	2.9
Radium 228	pCi/L	1	2.7	2.8	1.3	---	<1	<1	<1	---	1.5	<1	<1	1.1	3.1	<1	<1	2.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	---	<0.2	<0.2	<0.2	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Suspended																		
Lead 210	pCi/L	1	<1	<1	<1	---	<1	<1	<1	---	1.4	<1	<1	1.5	<1	1.3	<1	1.6
Polonium 210	pCi/L	1	<1	<1	<1	---	<1	<1	<1	---	<1	<1	<1	1.5	<1	<1	<1	<1
Radium 226	pCi/L	0.2	<0.2	<0.2	<0.2	---	<0.2	<0.2	<0.2	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	---	<0.2	<0.2	<0.2	---	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total																		
Radon 222	pCi/L	50	---	522	522	---	---	<50	<50	---	---	930	434	341	1110	5180	3730	4020

Table 2.7B-38: Stock/Domestic Well Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	GW10				GW11				GW12				GW14			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			12/27/2011	3/6/2012	5/8/2012	7/3/2012	12/28/2012	Not Operational	5/8/2012	7/3/2012	12/27/2011	3/6/2012	5/8/2012	7/3/2012	12/27/2011	3/6/2012	5/8/2012	7/3/2012
Field																		
Field pH	s.u.		7.53	7.37	7.51	7.34	6.58	---	6.52	6.26	7.18	7.13	7.07	7.02	8.72	8.63	8.55	8.42
Field Conductivity	µmhos/cm		979	964	953	974	2376	---	2350	2380	2604	2574	2455	2582	476	479	461	453
Dissolved Oxygen	mg/L		1.59	2.48	2.40	2.06	4.13	---	4.06	2.99	3.17	4.27	4.96	2.24	1.40	2.79	2.96	1.20
Field Turbidity	NTU		0.50	0.90	0.12	0.20	1.20	---	0.30	0.70	0.50	0.90	0.20	0.20	1.30	3.70	1.30	5.30
Temperature	°C		12.35	13.06	12.78	14.81	9.89	---	11.74	14.93	8.36	9.66	11.97	13.67	13.68	14.36	15.13	18.62
ORP	mV		284.80	313.80	241.50	226.00	283.60	---	255.00	321.50	288.20	295.60	289.20	242.80	138.80	242.50	244.60	218.00
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	150	147	224	154	345	---	481	345	372	360	542	376	167	162	204	169
Alkalinity, Bicarbonate as HCO3	mg/L	5	184	179	273	188	420	---	587	421	454	440	661	458	192	195	238	191
Alkalinty, Carbonate as CO3	mg/L	5	<5	<5	<5	<5	<5	---	<5	<5	<5	<5	<5	<5	6	<5	6	7
Chloride	mg/L	1	3	2	2	3	12	---	12	12	16	14	15	17	7	6	6	7
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	0.2	---	0.2	0.2	0.2	<0.1	<0.1	<0.1	0.4	0.5	0.3	0.3
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	1	---	1.3	1.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	327	315	338	325	1200	---	1190	1270	1240	1180	1290	1300	58	62	56	61
Calcium	mg/L	1	75	78	81	73	412	---	405	384	394	406	415	389	5	5	6	5
Magnesium	mg/L	1	16	16	17	16	100	---	100	102	64	64	67	66	<1	<1	<1	<1
Potassium	mg/L	1	6	7	7	7	11	---	9	10	12	13	11	12	2	2	2	2
Sodium	mg/L	1	116	107	129	119	77	---	73	80	184	178	202	204	100	96	108	103
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	0.8	0.7	0.4	0.5	<0.1	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	10	10	10	10	19	---	17	18	11	11	11	11	10	9	9	9
General Parameters																		
Laboratory pH	s.u.	0.1	8.2	8	8.3	8.2	7.8	---	7.8	7.8	7.9	7.8	8.1	8	8.7	8.4	8.6	8.7
Electrical Conductivity	µmhos/cm	5	941	1010	928	979	2030	---	2210	2360	2260	2640	2360	2550	468	476	453	471
Total Dissolved Solids (180)	mg/L	10	690	700	710	690	2110	---	2260	2210	2250	2300	2350	2340	280	300	300	290
Data Quality																		
Cation Sum	meq/L	0.01	10.24	9.98	11.22	10.29	32.38	---	31.8	31.3	33.25	33.58	35.33	34.01	4.64	4.46	5.04	4.77
Anion Sum	meq/L	0.01	9.89	9.72	11.57	9.92	32.24	---	34.77	33.72	33.7	32.17	38.09	34.97	4.76	4.72	5.43	4.85
Cation-Anion Balance (±5%)	%	0.01	1.72	1.32	1.53	1.83	0.22	---	4.46	3.71	0.68	2.15	3.75	1.38	1.2	2.77	3.69	0.81
Solids, Total Dissolved (Calc)	mg/L	10	640	620	710	640	2040	---	2080	2090	2140	2080	2330	2220	280	280	310	290
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	1.08	1.13	1	1.08	1.03	---	1.09	1.06	1.05	1.11	1.01	1.05	1	1.07	0.97	1
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	0.003	<0.001	<0.001	<0.001	0.005	---	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	0.63	---	0.56	0.34	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.09	0.12
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	0.03	0.03	0.03	0.03	0.77	---	0.81	0.81	0.71	0.71	0.7	0.69	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	0.014	0.012	0.01	0.014	<0.005	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.171	0.152	0.174	0.185	0.0071	---	0.0079	0.0075	<0.0003	<0.0003	<0.0003	0.0008	<0.0003	<0.0003	0.0015	<0.0003
Uranium	pCi/L	0.203	115.545	102.706	117.572	125.005	4.797	---	5.338	5.068	<0.20271	<0.20271	<0.20271	0.541	<0.20271	<0.20271	1.014	<0.20271
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	<0.01	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01
Metals-Suspended																		
Uranium	mg/L	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	---	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	pCi/L	0.203	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	---	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271
Metals-Total																		
Iron	mg/L	0.05	0.1	0.1	0.09	0.13	0.75	---	0.79	1.03	0.42	0.11	0.06	<0.05	0.09	0.09	0.16	0.17
Manganese	mg/L	0.01	0.03	0.03	0.03	0.03	0.78	---	0.86	0.86	0.76	0.72	0.71	0.72	<0.01	<0.01	<0.01	<0.01
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	151	154	148	135	5	---	7.7	2.3	4.1	<4	<4	2	2	2	2	2
Gross Beta	pCi/L	7	51.3	35.2	52.7	39.9	13.6	---	16.1	8.8	20	<7	<7	5.3	3.2	3	3	3
Lead 210	pCi/L	1	2.9	3.9	2.2	2.1	1.4	---	1.1	<1	<1	<1	<1	<1	<1	1.2	<1	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1	<1	---	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.7	0.7	0.7	0.6	1.3											

Table 2.7B-38: Stock/Domestic Well Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	GW15				GW17				GW18				GW19			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			12/28/2011	Not Operational	Not Operational	Not Operational	12/29/2011	3/6/2012	5/8/2012	7/3/2012	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Field																		
Field pH	s.u.		9.80	---	---	---	7.71	7.50	7.64	7.57	---	---	---	---	---	---	---	---
Field Conductivity	µmhos/cm		628	---	---	---	1077	1074	1067	1093	---	---	---	---	---	---	---	---
Dissolved Oxygen	mg/L		1.87	---	---	---	2.44	2.29	1.64	2.56	---	---	---	---	---	---	---	---
Field Turbidity	NTU		8.40	---	---	---	1.50	1.10	0.70	4.80	---	---	---	---	---	---	---	---
Temperature	°C		14.02	---	---	---	10.31	14.92	12.32	14.08	---	---	---	---	---	---	---	---
ORP	mV		1.70	---	---	---	145.10	171.50	140.70	120.90	---	---	---	---	---	---	---	---
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	226	---	---	---	78	70	133	72	---	---	---	---	---	---	---	---
Alkalinity, Bicarbonate as HCO3	mg/L	5	156	---	---	---	95	85	162	88	---	---	---	---	---	---	---	---
Alkalinity, Carbonate as CO3	mg/L	5	59	---	---	---	<5	<5	<5	<5	---	---	---	---	---	---	---	---
Chloride	mg/L	1	11	---	---	---	8	3	2	4	---	---	---	---	---	---	---	---
Flouride	mg/L	0.1	0.6	---	---	---	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	---	---	---	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Sulfate	mg/L	1	64	---	---	---	477	454	477	468	---	---	---	---	---	---	---	---
Calcium	mg/L	1	5	---	---	---	113	105	108	100	---	---	---	---	---	---	---	---
Magnesium	mg/L	1	<1	---	---	---	36	34	37	37	---	---	---	---	---	---	---	---
Potassium	mg/L	1	4	---	---	---	10	9	9	9	---	---	---	---	---	---	---	---
Sodium	mg/L	1	139	---	---	---	69	71	82	79	---	---	---	---	---	---	---	---
Nitrogen, Ammonia (As N)	mg/L	0.1	2.4	---	---	---	0.2	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Silica as SiO2	mg/L	1	3	---	---	---	3	2	2	2	---	---	---	---	---	---	---	---
General Parameters																		
Laboratory pH	s.u.	0.1	9.6	---	---	---	7.6	7.7	7.9	7.9	---	---	---	---	---	---	---	---
Electrical Conductivity	µmhos/cm	5	632	---	---	---	1040	1110	1020	1090	---	---	---	---	---	---	---	---
Total Dissolved Solids (180)	mg/L	10	370	---	---	---	810	820	850	830	---	---	---	---	---	---	---	---
Data Quality																		
Cation Sum	meq/L	0.01	6.41	---	---	---	11.81	11.34	12.2	11.68	---	---	---	---	---	---	---	---
Anion Sum	meq/L	0.01	6.19	---	---	---	11.7	10.91	12.66	11.28	---	---	---	---	---	---	---	---
Cation-Anion Balance (±5%)	%	0.01	1.72	---	---	---	0.47	1.91	1.82	1.7	---	---	---	---	---	---	---	---
Solids, Total Dissolved (Calc)	mg/L	10	360	---	---	---	760	720	800	740	---	---	---	---	---	---	---	---
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	1.03	---	---	---	1.07	1.14	1.06	1.12	---	---	---	---	---	---	---	---
Metals-Dissolved																		
Aluminum	mg/L	0.1	<0.1	---	---	---	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Arsenic	mg/L	0.001	0.008	---	---	---	<0.001	<0.001	<0.001	<0.001	---	---	---	---	---	---	---	---
Barium	mg/L	0.1	<0.1	---	---	---	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Boron	mg/L	0.1	<0.1	---	---	---	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Cadmium	mg/L	0.001	<0.001	---	---	---	<0.001	<0.001	<0.001	<0.001	---	---	---	---	---	---	---	---
Chromium	mg/L	0.01	<0.01	---	---	---	<0.01	<0.01	<0.01	<0.01	---	---	---	---	---	---	---	---
Copper	mg/L	0.01	<0.01	---	---	---	<0.01	<0.01	<0.01	<0.01	---	---	---	---	---	---	---	---
Iron	mg/L	0.05	<0.05	---	---	---	<0.05	0.06	<0.05	<0.05	---	---	---	---	---	---	---	---
Lead	mg/L	0.01	<0.01	---	---	---	<0.01	<0.01	<0.01	<0.01	---	---	---	---	---	---	---	---
Manganese	mg/L	0.01	<0.01	---	---	---	0.41	0.37	0.44	0.43	---	---	---	---	---	---	---	---
Mercury	mg/L	0.001	<0.001	---	---	---	<0.001	<0.001	<0.001	<0.001	---	---	---	---	---	---	---	---
Molybdenum	mg/L	0.01	0.02	---	---	---	<0.01	<0.01	<0.01	<0.01	---	---	---	---	---	---	---	---
Nickel	mg/L	0.05	<0.05	---	---	---	<0.05	<0.05	<0.05	<0.05	---	---	---	---	---	---	---	---
Selenium	mg/L	0.005	<0.005	---	---	---	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---	---	---	---
Uranium	mg/L	0.0003	<0.0003	---	---	---	0.0018	0.0027	0.0014	0.001	---	---	---	---	---	---	---	---
Uranium	pCi/L	0.203	<0.20271	---	---	---	1.216	1.824	0.946	0.676	---	---	---	---	---	---	---	---
Vanadium	mg/L	0.1	<0.1	---	---	---	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---	---
Zinc	mg/L	0.01	<0.01	---	---	---	<0.01	<0.01	<0.01	<0.01	---	---	---	---	---	---	---	---
Metals-Suspended																		
Uranium	mg/L	0.0003	<0.0003	---	---	---	<0.0003	0.0004	<0.0003	<0.0003	---	---	---	---	---	---	---	---
Uranium	pCi/L	0.203	<0.20271	---	---	---	<0.20271	0.27028	<0.20271	<0.20271	---	---	---	---	---	---	---	---
Metals-Total																		
Iron	mg/L	0.05	1.16	---	---	---	5.61	4.95	6.11	6.23	---	---	---	---	---	---	---	---
Manganese	mg/L	0.01	0.02	---	---	---	0.43	0.39	0.48	0.48	---	---	---	---	---	---	---	---
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	2	---	---	---	3.5	3.1	2	2.7	---	---	---	---	---	---	---	---
Gross Beta	pCi/L	7	3.6	---	---	---	8.4	9	10.6	8.7	---	---	---	---	---	---	---	---
Lead 210	pCi/L	1	1.6	---	---	---	<1	2	<1	<1	---	---	---	---	---	---	---	---
Polonium 210	pCi/L	1	<1	---	---	---	<1	<1	<1	<1	---	---	---	---	---	---	---	---
Radium 226	pCi/L	0.2	<0.2	---	---	---	0.9	1	1.1	1.1	---	---	---	---	---	---	---	---
Radium 228	pCi/L	1	<1	---	---	---	<1	1.4	1.8	1.35	---	---	---	---	---	---	---	---
Thorium 230	pCi/L	0.2	<0.2	---	---	---	1.1	<0.2	<0.2	<0.2	---	---	---	---	---	---	---	---
Radionuclides-Suspended																		
Lead 210	pCi/L	1	1.4	---	---	---	1.1	1.4	1.1	1.7	---	---	---	---	---	---	---	---
Polonium 210	pCi/L	1	<1	---	---	---	<1	<1	<1	<1	---	---	---	---	---	---	---	---
Radium 226	pCi/L	0.2	<0.2	---	---	---	<0.2	<0.2	<0.2	<0.2	---	---	---	---	---	---	---	---
Thorium 230	pCi/L	0.2	<0.2	---	---	---	<0.2	<0.2	<0.2	<0.2	---	---	---	---	---	---	---	---
Radionuclides-Total																		
Radon 222	pCi/L	50	202	---	---	---	141	87	<50	79	---	---	---	---	---	---	---	---

Table 2.7B-38: Stock/Domestic Well Monitoring Results (cont.)

Parameter	Units	Lab Detection Limit	GW20			
			Q1	Q2	Q3	Q4
Collection Date			TBD	TBD	TBD	TBD
Field						
Field pH	s.u.		---	---	---	---
Field Conductivity	µmhos/cm		---	---	---	---
Dissolved Oxygen	mg/L		---	---	---	---
Field Turbidity	NTU		---	---	---	---
Temperature	°C		---	---	---	---
ORP	mV		---	---	---	---
Anions/Cations						
Alkalinity, Total (As CaCO3)	mg/L	5	---	---	---	---
Alkalinity, Bicarbonate as HCO3	mg/L	5	---	---	---	---
Alkalinity, Carbonate as CO3	mg/L	5	---	---	---	---
Chloride	mg/L	1	---	---	---	---
Flouride	mg/L	0.1	---	---	---	---
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	---	---	---	---
Sulfate	mg/L	1	---	---	---	---
Calcium	mg/L	1	---	---	---	---
Magnesium	mg/L	1	---	---	---	---
Potassium	mg/L	1	---	---	---	---
Sodium	mg/L	1	---	---	---	---
Nitrogen, Ammonia (As N)	mg/L	0.1	---	---	---	---
Silica as SiO2	mg/L	1	---	---	---	---
General Parameters						
Laboratory pH	s.u.	0.1	---	---	---	---
Electrical Conductivity	µmhos/cm	5	---	---	---	---
Total Dissolved Solids (180)	mg/L	10	---	---	---	---
Data Quality						
Cation Sum	meq/L	0.01	---	---	---	---
Anion Sum	meq/L	0.01	---	---	---	---
Cation-Anion Balance (±5%)	%	0.01	---	---	---	---
Solids, Total Dissolved (Calc)	mg/L	10	---	---	---	---
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	---	---	---
Metals-Dissolved						
Aluminum	mg/L	0.1	---	---	---	---
Arsenic	mg/L	0.001	---	---	---	---
Barium	mg/L	0.1	---	---	---	---
Boron	mg/L	0.1	---	---	---	---
Cadmium	mg/L	0.001	---	---	---	---
Chromium	mg/L	0.01	---	---	---	---
Copper	mg/L	0.01	---	---	---	---
Iron	mg/L	0.05	---	---	---	---
Lead	mg/L	0.01	---	---	---	---
Manganese	mg/L	0.01	---	---	---	---
Mercury	mg/L	0.001	---	---	---	---
Molybdenum	mg/L	0.01	---	---	---	---
Nickel	mg/L	0.05	---	---	---	---
Selenium	mg/L	0.005	---	---	---	---
Uranium	mg/L	0.0003	---	---	---	---
Uranium	pCi/L	0.203	---	---	---	---
Vanadium	mg/L	0.1	---	---	---	---
Zinc	mg/L	0.01	---	---	---	---
Metals-Suspended						
Uranium	mg/L	0.0003	---	---	---	---
Uranium	pCi/L	0.203	---	---	---	---
Metals-Total						
Iron	mg/L	0.05	---	---	---	---
Manganese	mg/L	0.01	---	---	---	---
Radionuclides-Dissolved						
Gross Alpha	pCi/L	4	---	---	---	---
Gross Beta	pCi/L	7	---	---	---	---
Lead 210	pCi/L	1	---	---	---	---
Polonium 210	pCi/L	1	---	---	---	---
Radium 226	pCi/L	0.2	---	---	---	---
Radium 228	pCi/L	1	---	---	---	---
Thorium 230	pCi/L	0.2	---	---	---	---
Radionuclides-Suspended						
Lead 210	pCi/L	1	---	---	---	---
Polonium 210	pCi/L	1	---	---	---	---
Radium 226	pCi/L	0.2	---	---	---	---
Thorium 230	pCi/L	0.2	---	---	---	---
Radionuclides-Total						
Radon 222	pCi/L	50	---	---	---	---

2.2 Surface Water

Within the Proposed Project area, surface water samples were collected from 21 sampling locations at upstream and downstream locations from proposed production areas. Sampling began in early fall of 2010 and continued through January of 2012. All locations are existing stock ponds, CBM outfalls, or areas in drainages where ponding occasionally occurs. Of the 21 sampling sites, 16 were dry at least six months during the four quarterly sampling efforts. This is due to the seasonal weather variations and ephemeral nature of areas where ponding can occur. To date at least four quarterly sampling efforts for baseline studies have been conducted for all 21 sites. Locations of these sample sites are shown on Figure 2.9-1 and analytical results are provided in the tables from TR Addendum 2.7-A below.

Table 2.7A-13: Surface Water Monitoring Results

Parameter	Units	Lab Detection Limit	SW1				SW2				SW3				SW4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			Dry	Dry	3/15/2011	6/13/2011	Dry	Dry	3/17/2011	Dry	9/21/2010	Dry	3/16/2011	Dry	Dry	Dry	3/15/2011	Dry
Field																		
Field pH	s.u.		---	---	7.28	8.36	---	---	6.59	---	8.82	---	8.34	---	---	---	6.89	---
Field Conductivity	µmhos/cm		---	---	203	3025	---	---	66	---	2920	---	208	---	---	---	38	---
Dissolved Oxygen	mg/L		---	---	7.69	959	---	---	9.18	---	6.48	---	11.35	---	---	---	7.64	---
Field Turbidity	NTU		---	---	4.2	48.2	---	---	1.8	---	maxed out	---	maxed out	---	---	---	41.9	---
Temperature	°C		---	---	8.2	25.23	---	---	5.22	---	21.6	---	4.52	---	---	---	11.46	---
ORP	mV		---	---	373.9	109	---	---	424.4	---	358	---	387.3	---	---	---	357	---
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	---	---	37	352	---	---	37	---	1600	---	207	---	---	---	20	---
Alkalinity, Bicarbonate as HCO3	mg/L	5	---	---	46	429	---	---	46	---	1690	---	244	---	---	---	25	---
Alkalinity, Carbonate as CO3	mg/L	5	---	---	<5	<5	---	---	<5	---	129	---	<5	---	---	---	<5	---
Chloride	mg/L	1	---	---	3	33	---	---	8	---	30	---	4	---	---	---	<1	---
Flouride	mg/L	0.1	---	---	<0.1	0.3	---	---	<0.1	---	2.8	---	0.4	---	---	---	<0.1	---
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	---	<0.1	---	<0.1	---	---	---	<0.1	---
Sulfate	mg/L	1	---	---	98	1550	---	---	2	---	<1	---	6	---	---	---	<1	---
Calcium	mg/L	1	---	---	31	349	---	---	11	---	17	---	8	---	---	---	5	---
Magnesium	mg/L	1	---	---	8	165	---	---	2	---	20	---	3	---	---	---	<1	---
Potassium	mg/L	1	---	---	7	16	---	---	7	---	22	---	9	---	---	---	8	---
Sodium	mg/L	1	---	---	11	189	---	---	4	---	647	---	74	---	---	---	<1	---
Nitrogen, Ammonia (As N)	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	---	0.3	---	0.3	---	---	---	<0.1	---
Silica as SiO2	mg/L	1	---	---	4	10	---	---	7	---	8	---	15	---	---	---	5	---
General Parameters																		
Laboratory pH	s.u.	0.1	---	---	7.6	8.3	---	---	7.4	---	8.9	---	8.5	---	---	---	7.3	---
Electrical Conductivity	µmhos/cm	5	---	---	291	3050	---	---	102	---	2590	---	337	---	---	---	49	---
Total Dissolved Solids (180)	mg/L	10	---	---	210	2820	---	---	100	---	1950	---	540	---	---	---	60	---
Total Suspended Solids	mg/L	5	---	---	11	56	---	---	<5	---	430	---	720	---	---	---	16	---
Turbidity	NTU	0.1	---	---	3.6	59.3	---	---	1.5	---	2990	---	2040	---	---	---	37.9	---
Data Quality																		
Cation Sum	meq/L	0.01	---	---	2.87	39.66	---	---	1.01	---	31.17	---	4.12	---	---	---	0.51	---
Anion Sum	meq/L	0.01	---	---	2.94	40.19	---	---	1.13	---	33.01	---	4.4	---	---	---	0.52	---
Cation-Anion Balance (±5%)	%	0.01	---	---	0.97	0.66	---	---	-5.61	---	2.86	---	3.19	---	---	---	0.98	---
Solids, Total Dissolved (Calc)	mg/L	10	---	---	180	2510	---	---	60	---	1700	---	230	---	---	---	30	---
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	---	1.17	1.12	---	---	1.67	---	0	---	2.35	---	---	---	2	---
Metals-Dissolved																		
Aluminum	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	---	0.8	---	2.1	---	---	---	0.3	---
Arsenic	mg/L	0.001	---	---	<0.001	0.003	---	---	<0.001	---	0.02	---	0.004	---	---	---	<0.001	---
Barium	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	---	0.2	---	<0.1	---	---	---	<0.1	---
Boron	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	---	<0.1	---	<0.1	---	---	---	<0.1	---
Cadmium	mg/L	0.001	---	---	<0.001	<0.001	---	---	<0.001	---	<0.001	---	<0.001	---	---	---	<0.001	---
Chromium	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	---	<0.01	---	<0.01	---	---	---	<0.01	---
Copper	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	---	0.02	---	<0.01	---	---	---	<0.01	---
Iron	mg/L	0.05	---	---	<0.05	<0.05	---	---	<0.05	---	0.46	---	1.52	---	---	---	0.21	---
Lead	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	---	<0.01	---	<0.01	---	---	---	<0.01	---
Manganese	mg/L	0.01	---	---	<0.01	0.17	---	---	<0.01	---	0.05	---	0.02	---	---	---	<0.01	---
Mercury	mg/L	0.001	---	---	<0.001	<0.001	---	---	<0.001	---	<0.001	---	<0.001	---	---	---	<0.001	---
Molybdenum	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	---	<0.01	---	<0.01	---	---	---	<0.01	---
Nickel	mg/L	0.05	---	---	<0.05	<0.05	---	---	<0.05	---	<0.05	---	<0.05	---	---	---	<0.05	---
Selenium	mg/L	0.005	---	---	<0.005	<0.005	---	---	<0.005	---	0.006	---	<0.005	---	---	---	<0.005	---
Uranium	mg/L	0.0003	---	---	0.0014	0.0247	---	---	<0.0003	---	0.0092	---	0.0012	---	---	---	<0.0003	---
Uranium	pCi/L	0.203	---	---	0.946	16.7	---	---	<0.20271	---	6.22	---	0.811	---	---	---	<0.20271	---
Vanadium	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	---	<0.1	---	<0.1	---	---	---	<0.1	---
Zinc	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	---	<0.01	---	<0.01	---	---	---	<0.01	---
Metals-Suspended																		
Uranium	mg/L	0.0003	---	---	<0.0003	<0.0003	---	---	<0.0003	---	0.0021	---	0.0011	---	---	---	<0.0003	---
Uranium	pCi/L	0.203	---	---	<0.20271	<0.20271	---	---	<0.20271	---	1.419	---	0.743	---	---	---	<0.20271	---
Metals-Total																		
Iron	mg/L	0.05	---	---	0.06	3.99	---	---	<0.05	---	45.5	---	44	---	---	---	1.08	---
Manganese	mg/L	0.01	---	---	0.02	0.65	---	---	<0.01	---	1.12	---	0.51	---	---	---	<0.01	---
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	---	---	2	18.4	---	---	2	---	9.8	---	3.3	---	---	---	2	---
Gross Beta	pCi/L	7	---	---	5.8	19.5	---	---	6	---	15.5	---	9.9	---	---	---	6.1	---
Lead 210	pCi/L	1	---	---	<1	1.2	---	---	1.5	---	<1	---	2.4	---	---	---	<1	---
Polonium 210	pCi/L	1	---	---	<1	<1	---	---	<1	---	<1	---	<1	---	---	---	<1	---
Radium 226	pCi/L	0.2	---	---	<0.2	0.3	---	---	<0.2	---	0.5	---	1.7	---	---	---	<0.2	---
Radium 228	pCi/L	1	---	---	<1	<1	---	---	<1	---	<1	---	2.4	---	---	---	<1	---
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	---	<0.2	---	<0.2	---	---	---	<0.2	---
Radionuclides-Suspended																		
Lead 210	pCi/L	1	---	---	1.2	<1	---	---	1.4	---	6.3	---	4.9	---	---	---	1.7	---
Polonium 210	pCi/L	1	---	---	<1	<1	---	---	<1	---	<1	---	<1	---	---	---	<1	---
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	---	2.8	---	2.4	---	---	---	<0.2	---
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	---	0.3	---	0.9	---	---	---	<0.2	---
Radionuclides-Total																		
Radon 222	pCi/L	50	---	---	<50	65	---	---	<50	---	---	---	<50	---	---	---	<50	---

Table 2.7A-13: Surface Water Monitoring Results (Continued)

Parameter	Units	Lab Detection Limit	SW5				SW6				SW7				SW8			
			Q1 Dry	Q2 Dry	Q3 Dry	Q4 Dry	Q1 Dry	Q2 Dry	Q3 Dry	Q4 Dry	Q1 Dry	Q2 Dry	Q3 3/16/2011	Q4 6/22/2011	Q1 Dry	Q2 Dry	Q3 3/16/2011	Q4 Dry
Collection Date																		
Field																		
Field pH	s.u.		---	---	---	---	---	---	---	---	---	---	7.73	8.76	---	---	7.82	---
Field Conductivity	µmhos/cm		---	---	---	---	---	---	---	---	---	---	157	334	---	---	742	---
Dissolved Oxygen	mg/L		---	---	---	---	---	---	---	---	---	---	11.61	8.49	---	---	12.46	---
Field Turbidity	NTU		---	---	---	---	---	---	---	---	---	---	33	4.4	---	---	7.3	---
Temperature	°C		---	---	---	---	---	---	---	---	---	---	5.88	22.83	---	---	6.33	---
ORP	mV		---	---	---	---	---	---	---	---	---	---	384.2	72.5	---	---	391	---
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	---	---	---	---	---	---	---	---	---	---	35	126	---	---	110	---
Alkalinity, Bicarbonate as HCO3	mg/L	5	---	---	---	---	---	---	---	---	---	---	43	148	---	---	134	---
Alkalinty, Carbonate as CO3	mg/L	5	---	---	---	---	---	---	---	---	---	---	<5	<5	---	---	<5	---
Chloride	mg/L	1	---	---	---	---	---	---	---	---	---	---	2	<1	---	---	3	---
Flouride	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	---
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	---
Sulfate	mg/L	1	---	---	---	---	---	---	---	---	---	---	79	44	---	---	473	---
Calcium	mg/L	1	---	---	---	---	---	---	---	---	---	---	27	38	---	---	110	---
Magnesium	mg/L	1	---	---	---	---	---	---	---	---	---	---	6	10	---	---	18	---
Potassium	mg/L	1	---	---	---	---	---	---	---	---	---	---	12	10	---	---	7	---
Sodium	mg/L	1	---	---	---	---	---	---	---	---	---	---	7	9	---	---	120	---
Nitrogen, Ammonia (As N)	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	---
Silica as SiO2	mg/L	1	---	---	---	---	---	---	---	---	---	---	5	8	---	---	6	---
General Parameters																		
Laboratory pH	s.u.	0.1	---	---	---	---	---	---	---	---	---	---	7.5	8.4	---	---	8.1	---
Electrical Conductivity	µmhos/cm	5	---	---	---	---	---	---	---	---	---	---	234	359	---	---	1090	---
Total Dissolved Solids (180)	mg/L	10	---	---	---	---	---	---	---	---	---	---	180	220	---	---	870	---
Total Suspended Solids	mg/L	5	---	---	---	---	---	---	---	---	---	---	26	<5	---	---	<5	---
Turbidity	NTU	0.1	---	---	---	---	---	---	---	---	---	---	22	2.6	---	---	3.9	---
Data Quality																		
Cation Sum	meq/L	0.01	---	---	---	---	---	---	---	---	---	---	2.41	3.31	---	---	12.41	---
Anion Sum	meq/L	0.01	---	---	---	---	---	---	---	---	---	---	2.41	3.44	---	---	12.12	---
Cation-Anion Balance (±5%)	%	0.01	---	---	---	---	---	---	---	---	---	---	---	1.89	---	---	1.18	---
Solids, Total Dissolved (Calc)	mg/L	10	---	---	---	---	---	---	---	---	---	---	150	190	---	---	800	---
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	---	---	---	---	---	---	---	---	---	1.2	1.16	---	---	1.09	---
Metals-Dissolved																		
Aluminum	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	0.4	---
Arsenic	mg/L	0.001	---	---	---	---	---	---	---	---	---	---	<0.001	0.005	---	---	<0.001	---
Barium	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	---
Boron	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	---
Cadmium	mg/L	0.001	---	---	---	---	---	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	---
Chromium	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	<0.01	<0.01	---	---	<0.01	---
Copper	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	<0.01	<0.01	---	---	<0.01	---
Iron	mg/L	0.05	---	---	---	---	---	---	---	---	---	---	0.1	0.22	---	---	0.28	---
Lead	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	<0.01	<0.01	---	---	<0.01	---
Manganese	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	0.05	0.04	---	---	<0.01	---
Mercury	mg/L	0.001	---	---	---	---	---	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	---
Molybdenum	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	<0.01	<0.01	---	---	<0.01	---
Nickel	mg/L	0.05	---	---	---	---	---	---	---	---	---	---	<0.05	<0.05	---	---	<0.05	---
Selenium	mg/L	0.005	---	---	---	---	---	---	---	---	---	---	<0.005	<0.005	---	---	<0.005	---
Uranium	mg/L	0.0003	---	---	---	---	---	---	---	---	---	---	0.0014	0.0037	---	---	0.0266	---
Uranium	pCi/L	0.203	---	---	---	---	---	---	---	---	---	---	0.946	2.500	---	---	17.974	---
Vanadium	mg/L	0.1	---	---	---	---	---	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	---
Zinc	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	<0.01	<0.01	---	---	<0.01	---
Metals-Suspended	mg/L																	
Uranium	mg/L	0.0003	---	---	---	---	---	---	---	---	---	---	0.0005	<0.0003	---	---	<0.0003	---
Uranium	pCi/L	0.203	---	---	---	---	---	---	---	---	---	---	0.338	<0.20271	---	---	<0.20271	---
Metals-Total	mg/L																	
Iron	mg/L	0.05	---	---	---	---	---	---	---	---	---	---	0.86	0.46	---	---	0.25	---
Manganese	mg/L	0.01	---	---	---	---	---	---	---	---	---	---	0.07	0.06	---	---	0.12	---
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	---	---	---	---	---	---	---	---	---	---	2	3.2	---	---	15.9	---
Gross Beta	pCi/L	7	---	---	---	---	---	---	---	---	---	---	9.4	9.4	---	---	8.9	---
Lead 210	pCi/L	1	---	---	---	---	---	---	---	---	---	---	<1	<1	---	---	<1	---
Polonium 210	pCi/L	1	---	---	---	---	---	---	---	---	---	---	<1	<1	---	---	<1	---
Radium 226	pCi/L	0.2	---	---	---	---	---	---	---	---	---	---	<0.2	<0.2	---	---	0.5	---
Radium 228	pCi/L	1	---	---	---	---	---	---	---	---	---	---	<1	<1	---	---	<1	---
Thorium 230	pCi/L	0.2	---	---	---	---	---	---	---	---	---	---	<0.2	<0.2	---	---	<0.2	---
Radionuclides-Suspended	pCi/L																	
Lead 210	pCi/L	1	---	---	---	---	---	---	---	---	---	---	<1	<1	---	---	<1	---
Polonium 210	pCi/L	1	---	---	---	---	---	---	---	---	---	---	<1	<1	---	---	<1	---
Radium 226	pCi/L	0.2	---	---	---	---	---	---	---	---	---	---	<0.2	<0.2	---	---	<0.2	---
Thorium 230	pCi/L	0.2	---	---	---	---	---	---	---	---	---	---	<0.2	<0.2	---	---	<0.2	---
Radionuclides-Total	pCi/L																	
Radon 222	pCi/L	50	---	---	---	---	---	---	---	---	---	---	<50	<50	---	---	258	---

Table 2.7A-13: Surface Water Monitoring Results (Continued)

Parameter	Units	Lab Detection Limit	SW9				SW10				SW11				SW12			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			Dry	Dry	3/16/2011	6/22/2011	Dry	Dry	3/15/2011	6/22/2011	9/21/2010	12/29/2010	3/15/2011	6/22/2011	Dry	Dry	3/16/2011	Dry
Field																		
Field pH	s.u.		---	---	7.76	9.33	---	---	6.88	9.35	9.23	9.58	7.22	8.86	---	---	8.09	---
Field Conductivity	µmhos/cm		---	---	59	250	---	---	73	869	1620	928	54	289	---	---	271	---
Dissolved Oxygen	mg/L		---	---	11.06	8.3	---	---	8.69	11.06	6.96	14.69	8.33	7.68	---	---	11.24	---
Field Turbidity	NTU		---	---	11.2	35.4	---	---	11.5	maxed out	412	234	17.7	36.8	---	---	3.7	---
Temperature	°C		---	---	7.19	26.06	---	---	5.59	24.64	16.2	0.49	3.68	24.36	---	---	9.49	---
ORP	mV		---	---	379.2	60.9	---	---	384.5	77.9	341	358.7	397.7	73.7	---	---	380.7	---
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	---	---	38	124	---	---	34	456	856	1030	46	81	---	---	50	---
Alkalinity, Bicarbonate as HCO3	mg/L	5	---	---	46	130	---	---	41	414	672	917	56	99	---	---	61	---
Alkalinty, Carbonate as CO3	mg/L	5	---	---	<5	11	---	---	<5	70	183	170	<5	<5	---	---	<5	---
Chloride	mg/L	1	---	---	2	<1	---	---	<1	6	10	13	<1	7	---	---	4	---
Flouride	mg/L	0.1	---	---	<0.1	0.2	---	---	<0.1	0.6	0.9	1.1	<0.1	<0.1	---	---	<0.1	---
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	<0.1	---
Sulfate	mg/L	1	---	---	4	5	---	---	16	3	3	6	2	52	---	---	135	---
Calcium	mg/L	1	---	---	6	18	---	---	13	8	6	8	5	36	---	---	52	---
Magnesium	mg/L	1	---	---	2	4	---	---	3	4	6	7	<1	6	---	---	11	---
Potassium	mg/L	1	---	---	6	7	---	---	7	8	10	11	4	10	---	---	10	---
Sodium	mg/L	1	---	---	6	25	---	---	2	194	369	417	12	4	---	---	5	---
Nitrogen, Ammonia (As N)	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	2	---	---	<0.1	---
Silica as SiO2	mg/L	1	---	---	9	5	---	---	4	10	8	9	7	8	---	---	6	---
General Parameters																		
Laboratory pH	s.u.	0.1	---	---	7.7	9	---	---	7.5	9.3	9.5	9.4	7.5	8.3	---	---	7.9	---
Electrical Conductivity	µmhos/cm	5	---	---	83	260	---	---	112	914	1460	1690	91	310	---	---	373	---
Total Dissolved Solids (180)	mg/L	10	---	---	80	160	---	---	90	530	1010	1180	80	190	---	---	300	---
Total Suspended Solids	mg/L	5	---	---	12	8	---	---	<5	40	156	58	<5	<5	---	---	<5	---
Turbidity	NTU	0.1	---	---	8.5	33	---	---	6.4	157	329	255	17.8	31.3	---	---	2.9	---
Data Quality																		
Cation Sum	meq/L	0.01	---	---	0.89	2.5	---	---	1.11	9.36	17.04	19.4	0.97	2.73	---	---	3.95	---
Anion Sum	meq/L	0.01	---	---	0.89	2.6	---	---	1.12	9.39	17.51	21.23	1.05	2.91	---	---	3.9	---
Cation-Anion Balance (±5%)	%	0.01	---	---	---	-1.96	---	---	0.4	0.2	1.36	4.52	-3.96	-3.19	---	---	0.67	---
Solids, Total Dissolved (Calc)	mg/L	10	---	---	50	130	---	---	60	500	920	1080	50	160	---	---	250	---
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	---	1.6	1.23	---	---	1.5	1.06	---	---	1.6	1.19	---	---	1.22	---
Metals-Dissolved																		
Aluminum	mg/L	0.1	---	---	<0.1	0.3	---	---	<0.1	1.8	1.3	1.1	0.9	0.4	---	---	<0.1	---
Arsenic	mg/L	0.001	---	---	<0.001	0.006	---	---	<0.001	0.008	0.014	0.014	<0.001	0.003	---	---	<0.001	---
Barium	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	<0.1	---
Boron	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	<0.1	---
Cadmium	mg/L	0.001	---	---	<0.001	<0.001	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	---	<0.001	---
Chromium	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.01	---
Copper	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.01	---
Iron	mg/L	0.05	---	---	<0.05	0.23	---	---	0.09	0.87	0.69	0.55	0.51	0.25	---	---	<0.05	---
Lead	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.01	---
Manganese	mg/L	0.01	---	---	0.12	<0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	---	---	0.02	---
Mercury	mg/L	0.001	---	---	<0.001	<0.001	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	---	<0.001	---
Molybdenum	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.01	---
Nickel	mg/L	0.05	---	---	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	---
Selenium	mg/L	0.005	---	---	<0.005	<0.005	---	---	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	---	---	<0.005	---
Uranium	mg/L	0.0003	---	---	0.0006	0.0017	---	---	<0.0003	0.0026	0.0057	0.01	<0.0003	0.0009	---	---	0.0019	---
Uranium	pCi/L	0.203	---	---	0.405	1.149	---	---	<0.20271	1.757	3.851	6.757	<0.20271	0.608	---	---	1.284	---
Vanadium	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	---	<0.1	---
Zinc	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.01	---
Metals-Suspended	mg/L																	
Uranium	mg/L	0.0003	---	---	<0.0003	<0.0003	---	---	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	---	---	<0.0003	---
Uranium	pCi/L	0.203	---	---	<0.20271	<0.20271	---	---	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	---	---	<0.20271	---
Metals-Total	mg/L																	
Iron	mg/L	0.05	---	---	0.4	2.19	---	---	0.15	4.5	6.1	7.22	0.9	2.05	---	---	0.1	---
Manganese	mg/L	0.01	---	---	<0.01	0.03	---	---	<0.01	0.12	0.18	0.15	<0.01	0.06	---	---	0.02	---
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	---	---	2	2.1	---	---	2	5	12	8.9	2	2	---	---	2	---
Gross Beta	pCi/L	7	---	---	4.3	6.9	---	---	5.7	8.1	5.3	8.6	3	8.6	---	---	8.5	---
Lead 210	pCi/L	1	---	---	9.5	<1	---	---	<1	<1	<1	<1	1.2	<1	---	---	1.2	---
Polonium 210	pCi/L	1	---	---	<1	<1	---	---	<1	<1	<1	<1	<1	<1	---	---	<1	---
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	---	---	0.3	0.4	0.544	<0.2	<0.2	<0.2	---	---	<0.2	---
Radium 228	pCi/L	1	---	---	<1	<1	---	---	<1	1.6	1.2	<1	<1	1.2	---	---	<1	---
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	---	---	<0.2	---
Radionuclides-Suspended	pCi/L																	
Lead 210	pCi/L	1	---	---	<1	<1	---	---	<1	1.1	1.2	<1	<1	1.2	---	---	<1	---
Polonium 210	pCi/L	1	---	---	<1	<1	---	---	<1	<1	<1	<1	<1	<1	---	---	<1	---
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	<0.2	0.4	0.342	<0.2	<0.2	---	---	<0.2	---
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	<0.2	0.6	<0.2	<0.2	<0.2	---	---	<0.2	---
Radionuclides-Total	pCi/L																	
Radon 222	pCi/L	50	---	---	<50	<50	---	---	<50	<50	0	<50	<50	<50	---	---	<50	---

Table 2.7A-13: Surface Water Monitoring Results (Continued)

Parameter	Units	Lab Detection Limit	SW13				SW14				SW15				SW16			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			Dry	Dry	3/17/2011	6/23/2011	Dry	Dry	3/17/2011	6/23/2011	Dry	Dry	3/17/2011	Dry	9/21/2010	12/29/2010	3/17/2011	6/28/2011
Field																		
Field pH	s.u.		---	---	6.38	9.22	---	---	6.53	9.68	---	---	6.35	---	8.94	8.25	6.64	9.2
Field Conductivity	µmhos/cm		---	---	54	286	---	---	210	1635	---	---	24	---	3500	1568	641	1841
Dissolved Oxygen	mg/L		---	---	10.42	8.82	---	---	9.18	10.90	---	---	4.45	---	8.51	8.84	13.07	8.45
Field Turbidity	NTU		---	---	16.4	5.9	---	---	4.34	14.9	---	---	3.3	---	7	283	2.5	4.9
Temperature	°C		---	---	4.59	22.64	---	---	7.2	25.14	---	---	4.27	---	18	0.29	2.69	21.48
ORP	mV		---	---	455.6	64.8	---	---	217.25	-128.9	---	---	432.7	---	350	350.3	451.9	158.3
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	---	---	39	121	---	---	41	65	---	---	17	---	75	79	71	43
Alkalinity, Bicarbonate as HCO3	mg/L	5	---	---	47	141	---	---	50	60	---	---	21	---	91	97	87	48
Alkalinty, Carbonate as CO3	mg/L	5	---	---	<5	<5	---	---	<5	9	---	---	<5	---	<5	<5	<5	<5
Chloride	mg/L	1	---	---	<1	4	---	---	3	5	---	---	<1	---	6	5	2	11
Flouride	mg/L	0.1	---	---	<0.1	0.2	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	<0.1	<0.1	<0.1
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	---	---	4	23	---	---	114	711	---	---	<1	---	1680	1560	549	846
Calcium	mg/L	1	---	---	11	40	---	---	24	102	---	---	5	---	252	221	98	114
Magnesium	mg/L	1	---	---	2	10	---	---	5	20	---	---	<1	---	44	35	12	23
Potassium	mg/L	1	---	---	7	7	---	---	10	13	---	---	5	---	25	14	7	15
Sodium	mg/L	1	---	---	<1	3	---	---	35	247	---	---	<1	---	500	423	134	264
Nitrogen, Ammonia (As N)	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	0.4	<0.1	<0.1
Silica as SiO2	mg/L	1	---	---	4	3	---	---	4	2	---	---	2	---	2	8	4	4
General Parameters																		
Laboratory pH	s.u.	0.1	---	---	7.6	8.4	---	---	7.5	9.0	---	---	7	---	8.1	7.8	7	8.7
Electrical Conductivity	µmhos/cm	5	---	---	88	301	---	---	337	1760	---	---	41	---	3110	2680	1080	1940
Total Dissolved Solids (180)	mg/L	10	---	---	90	170	---	---	260	1180	---	---	30	---	2780	2420	870	1430
Total Suspended Solids	mg/L	5	---	---	16	<5	---	---	6	5	---	---	<5	---	16	438	<5	6
Turbidity	NTU	0.1	---	---	14.7	5.2	---	---	6.1	13.6	---	---	1.9	---	4.3	274	2	3.7
Data Quality																		
Cation Sum	meq/L	0.01	---	---	0.9	3.1	---	---	3.32	17.76	---	---	0.35	---	38.57	32.69	11.8	19.46
Anion Sum	meq/L	0.01	---	---	0.91	3.03	---	---	3.35	16.26	---	---	0.38	---	36.57	34.29	12.97	18.78
Cation-Anion Balance (±5%)	%	0.01	---	---	-0.55	1.15	---	---	0.35	4.41	---	---	-4.11	---	2.65	2.38	4.7	1.77
Solids, Total Dissolved (Calc)	mg/L	10	---	---	160	160	---	---	220	1140	---	---	20	---	2550	2310	840	1300
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	---	1.8	1.06	---	---	1.18	1.04	---	---	1.5	---	0	0	1.04	1.1
Metals-Dissolved																		
Aluminum	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	<0.1	<0.1	<0.1
Arsenic	mg/L	0.001	---	---	0.002	0.002	---	---	0.002	0.004	---	---	<0.001	---	<0.001	0.002	<0.001	0.004
Barium	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	---	---	<0.001	<0.001	---	---	<0.001	0.001	---	---	<0.001	---	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	0.01	---	---	<0.01	---	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	0.01	---	---	<0.01	---	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	---	---	0.1	0.06	---	---	0.13	0.06	---	---	<0.05	---	<0.05	<0.05	<0.05	<0.05
Lead	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	0.01	---	---	<0.01	---	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	---	---	<0.01	<0.01	---	---	0.11	0.02	---	---	0.02	---	<0.01	0.07	0.07	0.03
Mercury	mg/L	0.001	---	---	<0.001	<0.001	---	---	<0.001	0.001	---	---	<0.001	---	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	0.01	---	---	<0.01	---	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	---	---	<0.05	<0.05	---	---	<0.05	0.05	---	---	<0.05	---	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	---	---	<0.005	<0.005	---	---	<0.005	0.005	---	---	<0.005	---	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	---	---	0.0004	0.0015	---	---	0.002	0.0053	---	---	<0.0003	---	0.0011	0.0005	<0.0003	0.0004
Uranium	pCi/L	0.203	---	---	0.270	1.014	---	---	1.351	---	---	---	<0.20271	---	0.743	0.338	<0.20271	0.270
Vanadium	mg/L	0.1	---	---	<0.1	<0.1	---	---	<0.1	0.1	---	---	<0.1	---	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	---	---	<0.01	<0.01	---	---	<0.01	0.01	---	---	0.04	---	<0.01	<0.01	<0.01	<0.01
Metals-Suspended	mg/L																	
Uranium	mg/L	0.0003	---	---	<0.0003	<0.0003	---	---	0.0005	<0.0003	---	---	<0.0003	---	<0.0003	0.0004	<0.0003	<0.0003
Uranium	pCi/L	0.203	---	---	<0.20271	<0.20271	---	---	0.338	<0.20271	---	---	<0.20271	---	<0.20271	0.270	<0.20271	<0.20271
Metals-Total	mg/L																	
Iron	mg/L	0.05	---	---	0.5	0.26	---	---	0.25	0.06	---	---	0.06	---	0.19	8.25	0.17	0.2
Manganese	mg/L	0.01	---	---	0.02	0.05	---	---	0.13	0.03	---	---	0.03	---	0.04	0.26	0.13	0.03
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	---	---	2	2	---	---	2	2	---	---	2	---	6	2	2	2
Gross Beta	pCi/L	7	---	---	5.4	6	---	---	8.3	3.8	---	---	3.8	---	12.6	3	4.3	14.1
Lead 210	pCi/L	1	---	---	<1	<1	---	---	<1	1	---	---	1	---	<1	<1	1.1	<1
Polonium 210	pCi/L	1	---	---	<1	<1	---	---	<1	1	---	---	1	---	<1	<1	<1	<1
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	0.2	---	---	0.2	---	<0.2	0.3	<0.2	<0.2
Radium 228	pCi/L	1	---	---	<1	<1	---	---	<1	1	---	---	1	---	<1	<1	<1	<1
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	0.2	---	---	0.2	---	<0.2	0.4	<0.2	<0.2
Radionuclides-Suspended	pCi/L																	
Lead 210	pCi/L	1	---	---	<1	<1	---	---	<1	1	---	---	1	---	<1	<1	1.6	<1
Polonium 210	pCi/L	1	---	---	<1	<1	---	---	<1	1	---	---	1	---	<1	<1	<1	<1
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	0.2	---	---	0.2	---	<0.2	0.386	<0.2	<0.2
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	---	---	<0.2	0.2	---	---	0.2	---	<0.2	0.8	<0.2	<0.2
Radionuclides-Total	pCi/L																	
Radon 222	pCi/L	50	---	---	<50	<50	---	---	<50	<50	---	---	<50	---	---	<50	<50	<50

Table 2.7A-13: Surface Water Monitoring Results (Continued)

Parameter	Units	Lab Detection Limit	SW17				SW18				SW19				SW21			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Collection Date			Dry	Dry	3/17/2011	6/28/2011	9/21/2010	12/29/2010	3/16/2011	6/22/2011	6/23/2011	8/18/2011	10/6/2011	Dry	6/23/2011	Dry	Dry	Dry
Field																		
Field pH	s.u.		---	---	7.1	8.21	9.2	9.44	9.07	8.87	8.77	8.4	6.95	---	8.66	---	---	---
Field Conductivity	µmhos/cm		---	---	56	204	1130	781	438	685	1954	2571	3835	---	226	---	---	---
Dissolved Oxygen	mg/L		---	---	10.32	5.35	6.42	9.9	12.52	9.6	7.96	8.49	9.15	---	6.68	---	---	---
Field Turbidity	NTU		---	---	52.1	63.3	119	70.6	78.5	8.9	1.1	1.5	29.3	---	6.7	---	---	---
Temperature	°C		---	---	7.25	19.03	17.6	0.78	4.72	20.05	19	20.62	11.89	---	21.43	---	---	---
ORP	mV		---	---	421.6	208.7	381	402	379.2	47.4	71.9	192.1	136.8	---	79	---	---	---
Anions/Cations																		
Alkalinity, Total (As CaCO3)	mg/L	5	---	---	38	99	315	469	219	203	162	88	168	---	104	---	---	---
Alkalinity, Bicarbonate as HCO3	mg/L	5	---	---	47	121	279	478	237	230	198	106	205	---	127	---	---	---
Alkalinity, Carbonate as CO3	mg/L	5	---	---	<5	<5	52	46	15	9	<5	<5	<5	---	<5	---	---	---
Chloride	mg/L	1	---	---	<1	5	11	16	38	5	8	11	28	---	9	---	---	---
Flouride	mg/L	0.1	---	---	<0.1	<0.1	0.9	1.3	0.5	0.5	<0.1	0.2	0.2	---	<0.1	---	---	---
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	---	---	---
Sulfate	mg/L	1	---	---	<1	<1	175	253	122	117	977	1480	2590	---	<1	---	---	---
Calcium	mg/L	1	---	---	9	26	21	30	23	248	227	30	248	---	453	---	---	---
Magnesium	mg/L	1	---	---	2	6	10	15	9	11	114	175	250	---	4	---	---	---
Potassium	mg/L	1	---	---	10	13	16	20	13	12	11	26	42	---	15	---	---	---
Sodium	mg/L	1	---	---	<1	4	206	292	130	93	93	141	221	---	2	---	---	---
Nitrogen, Ammonia (As N)	mg/L	0.1	---	---	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.2	---	<0.1	---	---	---
Silica as SiO2	mg/L	1	---	---	11	35	3	6	5	5	15	<1	15	---	25	---	---	---
General Parameters																		
Laboratory pH	s.u.	0.1	---	---	7.6	7.8	9.3	8.9	8.9	8.6	7.9	8.3	7.9	---	8.1	---	---	---
Electrical Conductivity	µmhos/cm	5	---	---	86	204	1010	1360	683	731	2080	2570	3930	---	229	---	---	---
Total Dissolved Solids (180)	mg/L	10	---	---	130	240	770	1040	640	460	1730	2350	4000	---	190	---	---	---
Total Suspended Solids	mg/L	5	---	---	28	24	40	16	104	<5	<5	10	23	---	12	---	---	---
Turbidity	NTU	0.1	---	---	54.3	73.6	97.2	71.9	51.3	5.9	1.5	1.3	23.5	---	6.2	---	---	---
Data Quality																		
Cation Sum	meq/L	0.01	---	---	0.93	2.26	11.21	15.87	7.84	6.66	24.99	33.57	53.85	---	2.29	---	---	---
Anion Sum	meq/L	0.01	---	---	1	2.1	10.28	15.16	8	6.68	23.83	32.8	58.14	---	2.34	---	---	---
Cation-Anion Balance (±5%)	%	0.01	---	---	-3.63	3.67	4.33	2.27	1	0.1	2.38	1.15	3.82	---	-1.08	---	---	---
Solids, Total Dissolved (Calc)	mg/L	10	---	---	50	110	630	910	470	390	1530	2130	3700	---	120	---	---	---
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	---	---	2.6	2.18	---	---	1.36	1.18	1.13	1.1	1.08	---	1.58	---	---	---
Metals-Dissolved																		
Aluminum	mg/L	0.1	---	---	0.9	1.2	0.2	0.2	<0.1	0.3	<0.1	<0.1	<0.1	---	<0.1	---	---	---
Arsenic	mg/L	0.001	---	---	0.003	0.008	0.016	0.015	0.005	0.003	0.002	0.003	0.004	---	0.008	---	---	---
Barium	mg/L	0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	---	---	---
Boron	mg/L	0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.4	0.5	---	<0.1	---	---	---
Cadmium	mg/L	0.001	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	---	---	---
Chromium	mg/L	0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	---	---	---
Copper	mg/L	0.01	---	---	<0.01	<0.01	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	---	---	---
Iron	mg/L	0.05	---	---	0.52	1.62	0.21	0.13	0.08	0.2	<0.05	<0.05	<0.05	---	1.42	---	---	---
Lead	mg/L	0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	---	---	---
Manganese	mg/L	0.01	---	---	<0.01	0.21	<0.01	<0.01	<0.01	<0.01	0.03	0.04	1.48	---	0.18	---	---	---
Mercury	mg/L	0.001	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	---	---	---
Molybdenum	mg/L	0.01	---	---	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	---	---	---
Nickel	mg/L	0.05	---	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	<0.05	---	---	---
Selenium	mg/L	0.005	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	---	<0.005	---	---	---
Uranium	mg/L	0.0003	---	---	<0.0003	<0.0003	0.0137	0.0131	0.0067	0.0068	0.0059	0.0023	0.0031	---	<0.0003	---	---	---
Uranium	pCi/L	0.203	---	---	<0.20271	<0.20271	9.257	8.852	4.527	4.595	3.987	1.554	2.095	---	<0.20271	---	---	---
Vanadium	mg/L	0.1	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	---	---	---
Zinc	mg/L	0.01	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	<0.01	---	---	---
Metals-Suspended																		
Uranium	mg/L	0.0003	---	---	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0004	---	<0.0003	---	---	---
Uranium	pCi/L	0.203	---	---	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	<0.20271	0.270	---	<0.20271	---	---	---
Metals-Total																		
Iron	mg/L	0.05	---	---	2.28	7.03	2.52	2.31	2.13	0.52	0.14	0.06	1.62	---	2.12	---	---	---
Manganese	mg/L	0.01	---	---	0.04	0.27	0.07	0.11	0.07	0.03	0.05	0.09	1.67	---	0.23	---	---	---
Radionuclides-Dissolved																		
Gross Alpha	pCi/L	4	---	---	2	2	15.6	12.9	2.7	5.9	5	5.4	2	---	2	---	---	---
Gross Beta	pCi/L	7	---	---	9.6	10.2	18.3	16.9	9.5	12.6	7.5	18.8	44.3	---	14.6	---	---	---
Lead 210	pCi/L	1	---	---	1.8	<1	1.3	1.4	<1	<1	1.1	<1	<1	---	<1	---	---	---
Polonium 210	pCi/L	1	---	---	<1	<1	<1	1.6	<1	<1	<1	<1	<1	---	<1	---	---	---
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	0.3	0.314	<0.2	<0.2	<0.2	<0.2	0.3	---	<0.2	---	---	---
Radium 228	pCi/L	1	---	---	<1	<1	2.1	<1	<1	<1	<1	<1	5.5	---	<1	---	---	---
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	<0.2	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	---	<0.2	---	---	---
Radionuclides-Suspended																		
Lead 210	pCi/L	1	---	---	<1	1.4	<1	<1	<1	<1	<1	<1	1.2	---	<1	---	---	---
Polonium 210	pCi/L	1	---	---	<1	<1	<1	<1	<1	<1	<1	<1	<1	---	<1	---	---	---
Radium 226	pCi/L	0.2	---	---	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	---	<0.2	---	---	---
Thorium 230	pCi/L	0.2	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	---	<0.2	---	---	---
Radionuclides-Total																		
Radon 222	pCi/L	50	---	---	<50	<50	---	<50	<50	40	<50	<50	<50	---	<50	---	---	---

Table 2.7A-13: Surface Water Monitoring Results (Continued)

Parameter	Units	Lab Detection Limit	SW22			
			Q1	Q2	Q3	Q4
Collection Date			6/23/2011	8/18/2011	11/6/2011	1/12/2012
Field						
Field pH	s.u.		t	9.83	9.25	9.16
Field Conductivity	µmhos/cm		606	744	840	907
Dissolved Oxygen	mg/L		9.07	15.03	8.82	19.05
Field Turbidity	NTU		28.8	16.2	48.8	24.2
Temperature	°C		22.21	22.24	13.32	1.78
ORP	mV		68.8	158.9	37.7	88.6
Anions/Cations						
Alkalinity, Total (As CaCO3)	mg/L	5	268	322	377	471
Alkalinity, Bicarbonate as HCO3	mg/L	5	248	188	289	453
Alkalinty, Carbonate as CO3	mg/L	5	39	101	84	60
Chloride	mg/L	1	5	7	9	12
Flouride	mg/L	0.1	0.7	0.9	1.1	1.2
Nitrogen, Nitrate-Nitrite (as N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	1	36	29	23	22
Calcium	mg/L	1	14	5	7	15
Magnesium	mg/L	1	5	3	3	5
Potassium	mg/L	1	7	7	7	8
Sodium	mg/L	1	117	163	178	216
Nitrogen, Ammonia (As N)	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Silica as SiO2	mg/L	1	4	3	6	5
General Parameters						
Laboratory pH	s.u.	0.1	9.2	10	9.6	9.3
Electrical Conductivity	µmhos/cm	5	637	762	805	982
Total Dissolved Solids (180)	mg/L	10	390	460	510	580
Total Suspended Solids	mg/L	5	6	20	11	8
Turbidity	NTU	0.1	28.8	16.5	46.9	21
Data Quality						
Cation Sum	meq/L	0.01	6.39	7.77	8.55	10.74
Anion Sum	meq/L	0.01	6.3	7.34	8.33	10.28
Cation-Anion Balance (±5%)	%	0.01	0.69	2.8	1.26	2.17
Solids, Total Dissolved (Calc)	mg/L	10	350	410	460	570
Calculated TDS/TDS Ratio (0.80-1.20)	dec. %	0.01	1.11	1.12	1.11	1.02
Metals-Dissolved						
Aluminum	mg/L	0.1	0.4	0.5	0.9	0.3
Arsenic	mg/L	0.001	0.005	0.01	0.011	0.027
Barium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.05	0.33	0.43	0.67	0.31
Lead	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.01	<0.01	<0.01	0.02	<0.01
Mercury	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.05	<0.05	<0.05	<0.05	<0.05
Selenium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.0003	0.0012	0.0015	0.0018	0.0017
Uranium	pCi/L	0.203	0.811	1.014	1.216	1.149
Vanadium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Zinc	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Metals-Suspended	mg/L					
Uranium	mg/L	0.0003	<0.0003	<0.0003	0.0005	<0.0003
Uranium	pCi/L	0.203	<0.20271	<0.20271	0.338	<0.20271
Metals-Total	mg/L					
Iron	mg/L	0.05	1.5	0.67	1.89	0.94
Manganese	mg/L	0.01	0.04	0.03	0.05	0.03
Radionuclides-Dissolved						
Gross Alpha	pCi/L	4	2	3.1	3	3
Gross Beta	pCi/L	7	5.1	6.9	42.5	4
Lead 210	pCi/L	1	<1	1.1	<1	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	0.3	<0.2	<0.2	<0.2
Radium 228	pCi/L	1	<1	<1	<1	<1
Thorium 230	pCi/L	0.2	<0.2	0.4	<0.2	<0.2
Radionuclides-Suspended	pCi/L					
Lead 210	pCi/L	1	<1	<1	1.5	<1
Polonium 210	pCi/L	1	<1	<1	<1	<1
Radium 226	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2
Thorium 230	pCi/L	0.2	<0.2	<0.2	<0.2	<0.2
Radionuclides-Total	pCi/L					
Radon 222	pCi/L	50	<50	<50	<50	<50

3 VEGETATION, FOOD, AND FISH SAMPLES

3.1 Vegetation Samples

NRC Regulatory Guide 4.14, Table 1, recommends sampling of all food products grown on and within three km of the site at the time of harvest, plus vegetation from grazing areas near the site with the highest predicted air particulate concentration during operation.

AUC has collected and analyzed two of the required preoperational vegetation samples and is providing the sample data in the tables below. The third required sample set has been collected and the sample analysis results will later be updated in this report. A detailed discussion of the vegetation sampling locations and procedure can be found in correspondence from Jim Viellenave dated January 12, 2015 to Mr. Chad Glenn. These sampling events supplement the three vegetation samples collected based on the initial CPP location. The data from the initial vegetation sampling are also presented below.

Monitoring data for vegetation samples are provided in the tables below. The results consist of two separate data sets:

- 1) Relocated CPP Data Set: Data that will be used as the final preoperational air particulate data set.
- 2) Initial CPP Monitoring Data Set: Data collected from the initial CPP sampling locations.

Relocated Data Set

Round 1 Forage Vegetation Sample Results

Sample ID: Reno Forage 1	Date Collected: 10/15/2014	Sample Size: 4.5 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	2.61E-04	1.83E-05	1.0E-06	μCi/kg
Polonium 210	3.90E-06	3.60E-06	1.0E-06	μCi/kg
Radium 226	2.13E-05	2.30E-06	5.0E-08	μCi/kg
Thorium 230	5.90E-06	2.20E-06	2.0E-07	μCi/kg
Thorium229 Tracer (30-120)	79.8	NA	0.2	%
Uranium	5.10E-06	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Reno Forage 2	Date Collected: 10/15/2014	Sample Size: 4.1 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	2.09E-04	1.61E-05	1.0E-06	μCi/kg
Polonium 210	ND	NA	1.0E-06	μCi/kg
Radium 226	2.51E-05	2.30E-06	5.0E-08	μCi/kg
Thorium 230	4.00E-06	1.60E-06	2.0E-07	μCi/kg
Thorium229 Tracer (30-120)	92.3	NA	0.2	%
Uranium	4.10E-06	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Reno Forage 3	Date Collected: 10/15/2014	Sample Size: 3.7 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	2.09E-04	1.61E-05	1.0E-06	μCi/kg
Polonium 210	ND	NA	1.0E-06	μCi/kg
Radium 226	2.51E-05	2.30E-06	5.0E-08	μCi/kg
Thorium 230	4.00E-06	1.60E-06	2.0E-07	μCi/kg
Thorium229 Tracer (30-120)	92.3	NA	0.2	%
Uranium	4.10E-06	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Round 2 Forage Vegetation Sample Results

Sample ID: Reno Forage 1	Date Collected: 11/7/2014	Sample Size: 3.7 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	1.4E-04	1.2E-05	1.0E-06	μCi/kg
Polonium 210	2.9E-06	2.3E-06	1.0E-06	μCi/kg
Radium 226	9.7E-06	1.4E-06	5.0E-08	μCi/kg
Thorium 230	3.6E-06	1.3E-06	2.0E-07	μCi/kg
Thorium229 Tracer (30-120)	95.3	NA	0.2	%
Uranium	8.8E-06	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Reno Forage 2	Date Collected: 11/7/2014	Sample Size: 3.9 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	2.6E-04	3.6E-05	1.0E-06	μCi/kg
Polonium 210	1.1E-05	1.1E-05	1.0E-06	μCi/kg
Radium 226	2.5E-05	2.1E-06	5.0E-08	μCi/kg
Thorium 230	5.2E-06	1.6E-06	2.0E-07	μCi/kg
Thorium229 Tracer (30-120)	92.7	NA	0.2	%
Uranium	9.2E-06	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Reno Forage 3	Date Collected: 11/7/2014	Sample Size: 3.7 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	4.4E-04	5.1E-05	1.0E-06	μCi/kg
Polonium 210	1.4E-05	1.3E-05	1.0E-06	μCi/kg
Radium 226	4.5E-05	3.2E-06	5.0E-08	μCi/kg
Thorium 230	1.5E-05	3.3E-06	2.0E-07	μCi/kg
Thorium229 Tracer (30-120)	89.5	NA	0.2	%
Uranium	2.9E-05	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Round 3 Forage Vegetation Sample Results (TBD)

Sample ID: Reno Forage 1	Date Collected: TBD	Sample Size: --- kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	---	---	---	μCi/kg
Polonium 210	---	---	---	μCi/kg
Radium 226	---	---	---	μCi/kg
Thorium 230	---	---	---	μCi/kg
Thorium229 Tracer (30-120)	---	---	---	%
Uranium	---	---	---	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Reno Forage 2	Date Collected: TBD	Sample Size: --- kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	---	---	---	μCi/kg
Polonium 210	---	---	---	μCi/kg
Radium 226	---	---	---	μCi/kg
Thorium 230	---	---	---	μCi/kg
Thorium229 Tracer (30-120)	---	---	---	%
Uranium	---	---	---	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Reno Forage 3	Date Collected: TBD	Sample Size: --- kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	---	---	---	μCi/kg
Polonium 210	---	---	---	μCi/kg
Radium 226	---	---	---	μCi/kg
Thorium 230	---	---	---	μCi/kg
Thorium229 Tracer (30-120)	---	---	---	%
Uranium	---	---	---	μCi/kg

ND = Non Detect
 NA= Not Applicable

Initial Monitoring Data Set

Round 1 Forage Vegetation Sample Results

Sample ID: RC RAD-1	Date Collected: 9/13/2010			
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	9.35E-5	8.0E-6	1.0E-06	μCi/kg
Polonium 210	ND	---	1.0E-06	μCi/kg
Radium 226	9.3E-6	4.0E-7	5.0E-08	μCi/kg
Thorium 230	2.0E-7	5.0E-7	2.0E-07	μCi/kg
Uranium	1.9E-6	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: RC RAD-2	Date Collected: 9/13/2010			
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	2.66E-5	1.4E-5	1.0E-06	μCi/kg
Polonium 210	1.56E-6	1.6E-6	1.0E-06	μCi/kg
Radium 226	1.06E-5	4.0E-7	5.0E-08	μCi/kg
Thorium 230	1.3E-6	1.0E-6	2.0E-07	μCi/kg
Uranium	2.4E-6	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: RC RAD-3	Date Collected: 9/13/2010			
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	1.32E-4	1.7E-5	1.0E-06	μCi/kg
Polonium 210	1.15E-6	1.4E-6	1.0E-06	μCi/kg
Radium 226	6.8E-6	3.0E-7	5.0E-08	μCi/kg
Thorium 230	ND	---	2.0E-07	μCi/kg
Uranium	1.1E-6	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable -

Round 2 Forage Vegetation Sample Results

Sample ID: RC RAD-1		Date Collected: 6/15/2011		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	1.0E-4	8.5E-6	1.0E-06	μCi/kg
Polonium 210	ND	---	1.0E-06	μCi/kg
Radium 226	1.1E-5	1.3E-6	5.0E-08	μCi/kg
Thorium 230	1.4E-6	7.0E-7	2.0E-07	μCi/kg
Uranium	3.7E-6	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: RC RAD-2		Date Collected: 6/15/2011		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	1.1E-4	8.2E-6	1.0E-06	μCi/kg
Polonium 210	2.5E-6	4.2E-6	1.0E-06	μCi/kg
Radium 226	1.2E-5	1.3E-6	5.0E-08	μCi/kg
Thorium 230	2.3E-6	1.0E-6	2.0E-07	μCi/kg
Uranium	3.6E-6	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: RC RAD-3		Date Collected: 6/15/2011		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	7.4E-5	1.7E-5	1.0E-06	μCi/kg
Polonium 210	ND	---	1.0E-06	μCi/kg
Radium 226	1.3E-5	1.5E-6	5.0E-08	μCi/kg
Thorium 230	1.2E-6	7.0E-8	2.0E-07	μCi/kg
Uranium	2.4E-6	NA	2.0E-07	μCi/kg

ND = Non Detect
 NA= Not Applicable

3.2 Livestock Samples

NRC Regulatory Guide 4.14, Table 1, recommends collecting at least three livestock samples at time of harvest or slaughter or removal of animals from grazing raised within three kilometers of the CPP. AUC procured three meat samples from a local rancher with pastures adjacent to the proposed CPP site and had the samples analyzed per Regulatory Guide 4.14, Table 1 requirements.

Livestock Sampling Results

Sample ID: Meat Sample 1	Date Collected: 1/2015	Sample Size: 4.5 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	1.3E-5	6.2E-6	1.0E-6	μCi/kg
Polonium 210	ND	NA	1.0E-6	μCi/kg
Radium 226	2.4E-6	7.0E-7	5.0E-8	μCi/kg
Thorium 230	2.8E-6	1.1E-6	2.0E-7	μCi/kg
Thorium229 Tracer (30-120)	77.7	NA	---	%
Uranium	1.2E-5	NA	2.0E-7	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Meat Sample 2	Date Collected: 1/2015	Sample Size: 4.5 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	4.8E-6	4.8E-6	1.0E-6	μCi/kg
Polonium 210	ND	NA	1.0E-6	μCi/kg
Radium 226	3.1E-6	7.0E-7	5.0E-8	μCi/kg
Thorium 230	1.6E-6	9.0E-7	2.0E-7	μCi/kg
Thorium229 Tracer (30-120)	67.4	NA	---	%
Uranium	5.4E-6	NA	2.0E-7	μCi/kg

ND = Non Detect
 NA= Not Applicable

Sample ID: Meat Sample 3	Date Collected: 1/2015	Sample Size: 4.5 kg		
Analyses	Result	Precision (±)	Reporting Limit	Units
Lead 210	1.2E-5	6.0E-6	1.0E-6	μCi/kg
Polonium 210	2.0E-6	3.5E-6	1.0E-6	μCi/kg
Radium 226	2.7E-6	7.0E-7	5.0E-8	μCi/kg
Thorium 230	1.0E-6	6.0E-7	2.0E-7	μCi/kg
Thorium229 Tracer (30-120)	86.2	NA	---	%
Uranium	4.1E-6	NA	2.0E-7	μCi/kg

ND = Non Detect
 NA= Not Applicable

3.4 Fish Samples

No quantitative surveys for aquatic species were required or conducted specifically for the Proposed Project. Several small reservoirs are present that hold water; however, the lack of deep-water habitat and extensive water sources precludes the presence of fish, and greatly limits the abundance and diversity of other aquatic species.

4 SOIL AND SEDIMENT SAMPLES

4.1 Soil Samples

Initial surface and subsurface soil samples were collected at the site in October, 2010. The soil sampling events are described in TR Section 2.9.3; collection was based on Regulatory Guide 4.14 recommendations. These initial soil samples were centered on the initial proposed CPP location.

In November of 2013, AUC conducted a second round of soil samples; however, these samples were centered around the current proposed CPP location as shown in Figure 2.9-1. The complete data set from this final soil sampling event will be included in the preoperational data set. Summary statistics for surface and subsurface soil samples are provided here for both sets of sampling events. Surface soil samples were also collected at five air particulate monitoring stations (initial and relocated).

Monitoring data for soil samples are provided in the tables below. The results consist of two separate data sets:

- 1) Relocated CPP Data Set: Data that will be used as the final preoperational air particulate data set
- 2) Initial CPP Monitoring Data Set: Data collected from the initial CPP sampling locations.

Relocated Surface Soil Sampling Results

Table 2.9-4: Summary Statistics for Radial Surface Soil Samples (2013)

Surface Sample Type	Mean	Standard Deviation	Median	Maximum	Minimum	Number of Samples
²²⁶Ra (pCi/g)						
Radial	1.0	0.3	1.0	2.4	0.5	41
PAS	1.1	0.5	1.0	1.8	0.5	5
CPP	1.0	0.2	1.1	1.2	0.6	8
All Samples	1.0	0.3	1.0	2.4	0.5	54
U-Nat (pCi/g)						
Radial	0.5	0.1	0.5	0.5	0.4	5
PAS	0.5	NA	0.5	0.5	0.5	1
CPP	0.7	NA	0.7	0.7	0.7	1
All Samples	0.5	0.1	0.5	0.7	0.4	7
²¹⁰Pb (pCi/g)						
Radial	2.2	1.6	1.5	4.8	1.0	5
PAS	2.3	NA	2.3	2.3	2.3	1
CPP	1.4	NA	1.4	1.4	1.4	1
All Samples	2.1	1.4	1.5	4.8	1.0	7
²³⁰Th (pCi/g)						
Radial	0.8	0.2	0.8	1.0	0.6	5
PAS	0.7	NA	0.7	0.7	0.7	1
CPP	0.5	NA	0.5	0.5	0.5	1
All Samples	0.7	0.2	0.7	1.0	0.5	7

Note: PAS refers to Particulate Air Monitoring Station location samples

Initial Surface Soil Sampling Results

Table 2.9-4: Summary Statistics: Surface Soil Samples (2010)

Surface Sample Type	Mean	Standard Deviation	Median	Maximum	Minimum	Number of Samples
²²⁶Ra (pCi/g)						
Radial	1.24	0.23	1.20	1.60	0.80	40
PAS	1.06	0.32	1.10	1.40	0.60	5
All Samples	1.22	0.24	1.20	1.60	0.60	45
U-Nat (pCi/g)						
Radial	0.77	0.15	0.77	0.91	0.61	4
PAS	0.50	0.12	0.48	0.67	0.36	5
All Samples	0.62	0.19	0.61	0.91	0.36	9
²¹⁰Pb (pCi/g)						
Radial	9.65	2.45	8.80	13.20	7.80	4
PAS	7.66	1.54	7.50	10.00	6.30	5
All Samples	8.54	2.13	8.20	13.20	6.30	9
²³⁰Th (pCi/g)						
Radial	0.70	0.24	0.65	1.00	0.50	4
PAS	0.40	0.12	0.40	0.60	0.30	5
All Samples	0.53	0.23	0.50	1.00	0.30	9

Note: PAS refers to Particulate Air Monitoring Station location samples

Relocated Subsurface Soil Sampling Results

Table 2.9-5: Summary Statistics for Radial Subsurface Soil Samples (2013)

Subsurface Sample Depth Interval (cm)	Mean	Standard Deviation	Median	Maximum	Minimum	Number of Samples
²²⁶Ra (pCi/g)						
0-33	1.3	0.7	1.2	2.4	0.6	5
33-66	1.3	0.2	1.4	1.5	1.1	5
66-100	1.1	0.3	1.0	1.6	0.8	5
All Depths	1.2	0.4	1.2	2.4	0.6	15

Table 2.9-6: Summary: Radionuclide Concentrations, Subsurface Samples (2013)

Sample ID	Depth Interval (cm)	Uranium		²¹⁰Pb			²³⁰Th		
		Conc. (pCi/g)	RL (pCi/g)	Conc. (pCi/g)	Precision +/- (pCi/g)	RL (pCi/g)	Conc. (pCi/g)	Precision +/- (pCi/g)	RL (pCi/g)
C	0-33	0.7	0.2	1.5	0.4	1.0	0.7	0.2	0.2
	33-66	1.4	0.2	1.2	0.5	1.0	0.9	0.2	0.2
	66-100	1.5	0.2	1.3	0.6	1.0	0.6	0.2	0.2

Initial Subsurface Soil Sampling Results

Table 2.9-5: Summary Statistics: Subsurface Soil Samples (2010)

Subsurface Sample Depth Interval (cm)	Mean	Standard Deviation	Median	Maximum	Minimum	Number of Samples
²²⁶Ra (pCi/g)						
0-33	1.08	0.33	0.90	1.60	0.80	5
33-66	1.34	0.34	1.30	1.80	0.90	5
66-100	1.28	0.39	1.30	1.90	0.90	5
All Depths	1.23	0.35	1.20	1.90	0.80	15

Table 2.9-6: Summary: Radionuclide Concentrations, Subsurface Samples (2010)

Sample ID	Depth Interval (cm)	Uranium		²¹⁰Pb			²³⁰Th		
		Conc. (pCi/g)	RL (pCi/g)	Conc. (pCi/g)	Precision +/- (pCi/g)	RL (pCi/g)	Conc. (pCi/g)	Precision +/- (pCi/g)	RL (pCi/g)
C	0-33	0.977	0.001	5.1	1.9	1	0.5	0.2	0.2
	33-66	1.54	0.001	7.3	2	1	0.5	0.2	0.2
	66-100	1.82	0.001	4.9	2.5	1	0.7	0.2	0.2

4.3 Sediment Samples

In September of 2010, baseline sediment sampling was initiated at the site. A total of 18 sediment samples (SED1–18) were collected during the initial sampling event. An additional four sediment samples (SED19–22) were collected in June, 2011. Regulatory Guide 4.14 specifies that one set of sediment samples should also be collected from the surface water sampling locations. For surface water passing through the Site, sediment should be sampled upstream and downstream of the Site. Figure 2.9-1 shows the selected sediment sampling locations.

Table 2.9-7: Sediment Sample Results: 2010

Sample ID	Collection Date	²²⁶ Ra (pCi/g)		²¹⁰ Pb (pCi/g)		²³⁰ Th (pCi/g)		U-Nat (pCi/g)	
		Result	Precision	Result	Precision	Result	Precision	Result	RL
SED 1 0-3"	9/21/2010	1.29	0.36	2.3	0.8	0.797	0.201	1.9	0.9
SED 2 0-3"	9/22/2010	0.999	0.41	---	---	---	---	---	---
SED 3 Composite	9/21/2010	1.07	0.38	---	---	---	---	---	---
SED 4 0-3"	9/22/2010	1.97	0.41	3.2	0.8	1.51	0.286	1.4	0.2
SED 5 0-3"	9/21/2010	1.61	0.43	---	---	---	---	---	---
SED 6 0-3"	9/24/2010	1.64	0.44	---	---	---	---	---	---
SED 7 0-3"	9/22/2010	1.91	0.39	---	---	---	---	---	---
SED 8 0-3"	9/22/2010	1.82	0.39	---	---	---	---	---	---
SED 9 0-3"	9/22/2010	1.56	0.42	---	---	---	---	---	---
SED 10 0-3"	9/21/2010	1.81	0.35	---	---	---	---	---	---
SED 11 Composite	9/21/2010	1.36	0.39	---	---	---	---	---	---
SED 12 0-3"	9/22/2010	1.84	0.47	---	---	---	---	---	---
SED 13 0-3"	9/22/2010	1.06	0.33	---	---	---	---	---	---
SED 14 0-3"	9/21/2010	1.34	0.4	---	---	---	---	---	---
SED 15 0-3"	9/22/2010	1	0.34	---	---	---	---	---	---
SED 16 0-3"	9/22/2010	1.27	0.36	---	---	---	---	---	---
SED 17 0-3"	9/22/2010	1.39	0.38	---	---	---	---	---	---
SED 18 Composite	9/21/2010	1.26	0.37	---	---	---	---	---	---
SED19-001-110623	6/23/2011	1.9	0.4	1.2	0.5	0.8	0.2	1.1	0.3
SED20-001-110623	6/23/2011	1.6	0.4	1.1	0.4	0.8	0.2	3.3	0.2
SED21-001-110623	6/23/2011	1.4	0.4	1.6	0.4	0.4	0.1	0.5	0.3
SED22-001-110623	6/23/2011	1.7	0.5	2.2	0.5	1.2	0.3	2.7	0.2

Table 2.9-8: Sediment Sample Results: 2011

Sample ID	Collection Date	²²⁶ Ra (pCi/g)		²¹⁰ Pb (pCi/g)		²³⁰ Th (pCi/g)		U-Nat (pCi/g)	
		Result	Precision	Result	Precision	Result	Precision	Result	RL
SED1-002-110315	3/15/2011	1.2	0.4	1.6	0.4	0.4	0.1	0.8	0.2
SED2-002-110317	3/17/2011	0.9	0.4	2.2	0.4	0.4	0.1	0.7	0.2
SED3-002-110316	3/15/2011	1.2	0.4	1.7	0.4	0.5	0.2	0.5	0.2
SED4-002-110315	3/15/2011	1.3	0.5	3.1	0.5	0.8	0.2	1	0.2
SED5-002-110315	3/15/2011	1.1	0.7	3.7	0.5	1.1	0.3	0.9	0.2
SED6-002-110316	3/16/2011	1.6	0.4	3	0.4	0.8	0.2	0.9	0.2
SED7-002-110316	3/16/2011	1.6	0.4	2.9	0.5	1.3	0.3	1.5	0.2
SED8-002-110316	3/16/2011	1.4	0.4	1	0	1.4	0.4	0.8	0.2
SED9-002-110316	3/16/2011	0.7	0.4	1.6	0.4	0.4	0.1	1	0.2
SED10-002-110315	3/15/2011	<0.2	---	2	0.4	0.9	0.2	1	0.2
SED11-002-110315	3/15/2011	1.4	0.1	2.3	0.6	0.9	0.2	1.6	0.2
SED12-002-110316	3/16/2011	1.7	0.5	2.9	0.5	0.9	0.2	0.9	0.2
SED13-002-110317	3/17/2011	1.7	0.4	3.4	0.5	0.8	0.2	1	0.2
SED14-002-110317	3/17/2011	1.3	0.4	2.3	0.4	0.6	0.2	0.9	0.2
SED15-002-110317	3/17/2011	0.7	0.3	1.9	0.4	0.3	0.1	0.5	0.2
SED16-002-110317	3/17/2011	1.1	0.4	1.4	0.3	0.5	0.2	0.9	0.2
SED17-002-110317	3/17/2011	1	0.4	2.4	0.4	0.5	0.1	0.5	0.2
SED18-002-110316	3/16/2011	1.6	0.4	2.3	0.4	0.8	0.2	1.1	0.2
GBS-002-110317	3/17/2011	1.4	0.4	1.5	0.4	1.5	0.4	1	0.2
SED1-002-110315	3/15/2011	1.2	0.4	1.6	0.4	0.4	0.1	0.8	0.2
SED2-002-110317	3/17/2011	0.9	0.4	2.2	0.4	0.4	0.1	0.7	0.2
SED3-002-110316	3/15/2011	1.2	0.4	1.7	0.4	0.5	0.2	0.5	0.2

Table 2.9-9: Summary Statistics: Sediment Samples

Summary Statistic	²²⁶Ra	²¹⁰Pb	²³⁰Th	U-Nat
Number of Samples	41	25	25	25
Number of Non-Detects	1	0	0	0
Minimum	<0.2	1	0.3	0.5
Maximum	1.97	3.7	1.51	3.3
Mean	1.39	2.20	0.81	1.14
Standard Deviation	0.33	0.75	0.36	0.66
Median	1.39	2.2	0.8	1

5 DIRECT RADIATION SURVEY

Continuous passive monitoring of ambient gamma dose (direct radiation) within the Proposed Project site was initiated in the fall of 2010. Regulatory Guide 4.14 recommends 12 consecutive months of quarterly monitoring. Passive devices for the monitoring of quarterly average gamma dose, were housed at the air sampling stations; details are provided in TR Section 2.9.5. Locations of the monitoring stations are shown in Figure 2.9-1.

As discussed in the introduction, based on the relocation of the CPP, three of the initial five air monitoring stations were relocated, which also relocated the passive devices for the monitoring of quarterly average gamma dose (monitoring continued at all 5 stations during this time). The explanation for these relocations is detailed in AUC's response to RAI-20(b). The data listed in the tables below present the sample data collected from the initial air monitor station locations and also the sample data collected for the relocated air monitor station locations.

AUC determined that two of the air monitoring stations still did not meet the siting criteria per Regulatory Guide 4.14; therefore, these stations were relocated to comply with the guidance. The two air monitor stations in question, AM1 and AM5-2, were relocated and renamed AM7 and AM8 (see Figure 2.9-1). These two new locations will collect twelve consecutive months of quarterly monitoring data to complete the final preoperational data set. The initial data collected from AM1 and AM5-2 will not be considered as part of the final preoperational ambient gamma dose air monitoring data set. Further detail is provided in AUC's response to RAI-20(b). To conclude, the air monitor stations that will be used to collect operational data include AM2, AM4-2, AM6-2, AM7 and AM8

Relocated Monitoring Station Data Set

Table 2.9-10: Ambient Gamma Dose Rates: Results Summary

Air Monitoring Station ID	OSL Issue Date	Field Installation Date	Field Retrieval Date	OSL Process Date	Landauer's Gross Result (mrem)	Field Dose (mrem)	Field Dose Rate (mrem/day)	Field Dose Rate (mrem/hour)	Quarterly Dose (mrem)
Q3 2012									
AM1*	7/1/2012	7/9/2012	10/5/2012	10/22/2012	36.4	28.3	0.32	0.013	29.3
AM2	7/1/2012	7/9/2012	10/5/2012	10/22/2012	39.1	30.4	0.35	0.014	31.5
AM4-2	7/1/2012	7/9/2012	10/5/2012	10/22/2012	40.3	31.4	0.36	0.015	32.5
AM5-2*	7/1/2012	7/9/2012	10/5/2012	10/22/2012	40.9	31.9	0.36	0.015	32.9
AM6-2	7/1/2012	7/9/2012	10/5/2012	10/22/2012	40.9	31.9	0.36	0.015	32.9
Q4 2012									
AM1*	10/1/2012	10/5/2012	1/8/2013	1/22/2013	36.1	30.3	0.32	0.013	29.1
AM2	10/1/2012	10/5/2012	1/8/2013	1/22/2013	39.8	33.5	0.35	0.015	32.1
AM4-2	10/1/2012	10/5/2012	1/8/2013	1/22/2013	41.3	34.7	0.37	0.015	33.3
AM5-2*	10/1/2012	10/5/2012	1/8/2013	1/22/2013	39.9	33.5	0.35	0.015	32.1
AM6-2	10/1/2012	10/5/2012	1/8/2013	1/22/2013	41.5	34.9	0.37	0.015	33.4
Q1 2013									
AM1*	1/1/2013	1/8/2013	4/3/2013	4/9/2013	34.3	29.8	0.35	0.015	31.9
AM2	1/1/2013	1/8/2013	4/3/2013	4/9/2013	35.5	30.8	0.36	0.015	33.0
AM4-2	1/1/2013	1/8/2013	4/3/2013	4/9/2013	35.8	31.1	0.37	0.015	33.2
AM5-2*	1/1/2013	1/8/2013	4/3/2013	4/9/2013	35.4	30.7	0.36	0.015	32.9
AM6-2	1/1/2013	1/8/2013	4/3/2013	4/9/2013	34.1	29.6	0.35	0.014	31.7
Q2 2013									
AM1*	4/1/2013	4/3/2013	7/2/2013	7/13/2013	34.3	30.0	0.33	0.014	30.3
AM2	4/1/2013	4/3/2013	7/2/2013	7/13/2013	36.1	31.5	0.35	0.015	31.9
AM4-2	4/1/2013	4/3/2013	7/2/2013	7/13/2013	38.8	33.9	0.38	0.016	34.3
AM5-2*	4/1/2013	4/3/2013	7/2/2013	7/13/2013	37.7	32.9	0.37	0.015	33.3
AM6-2	4/1/2013	4/3/2013	7/2/2013	7/13/2013	35.8	31.3	0.35	0.014	31.6
Q1 through Q4 TBD									
AM7**	---	---	---	---	---	---	---	---	---
AM8**	---	---	---	---	---	---	---	---	---

*Data not included in final Preoperational Data Set.

**Preoperational data will be collected.

Initial Monitoring Station Data Set

Table 2.9-10: Ambient Gamma Dose Rates: Results Summary

Station ID	OSL Issue Date	Field Install Date	Field End Date	Lab Result (mrem)	Estimated Field Dose (mrem)	Estimated Daily Field Dose (mrem)	Estimated Field Dose Rate (mrem/h)
4th Quarter 2010							
AM2	10/1/2010	10/13/2010	1/7/2011	29.6	22.9	0.3	0.011
AM3	10/1/2010	10/13/2010	1/7/2011	30.7	24.0	0.3	0.012
AM4	10/1/2010	10/13/2010	1/7/2011	30.5	23.8	0.3	0.012
AM5	10/1/2010	10/13/2010	1/7/2011	29.7	23.0	0.3	0.011
AM6	10/1/2010	10/13/2010	1/7/2011	29.7	23.0	0.3	0.011
Control Avg	10/1/2010	---	---	28.2	---	---	---
1st Quarter 2011							
AM2	1/1/2011	1/7/2011	5/4/2011	41.4	29.1	0.2	0.010
AM3	1/1/2011	1/7/2011	5/4/2011	40.1	27.8	0.2	0.010
AM4	1/1/2011	1/7/2011	5/4/2011	40.1	27.8	0.2	0.010
AM5	1/1/2011	1/7/2011	5/4/2011	41.9	29.6	0.3	0.011
AM6	1/1/2011	1/7/2011	5/4/2011	40.7	28.4	0.2	0.010
Control Avg	1/1/2011	---	---	53.4	---	---	---
2nd Quarter 2011							
AM2	4/1/2011	5/4/2011	7/6/2011	38.2	21.5	0.3	0.014
AM3	4/1/2011	5/4/2011	7/6/2011	35.9	19.2	0.3	0.013
AM4	4/1/2011	5/4/2011	7/6/2011	38.6	21.9	0.3	0.014
AM5	4/1/2011	5/4/2011	7/6/2011	38.6	21.9	0.3	0.014
AM6	4/1/2011	5/4/2011	7/6/2011	38.8	22.1	0.4	0.015
Control Avg	4/1/2011	---	---	40.0	---	---	---
3rd Quarter 2011							
AM2	7/1/2011	7/6/2011	10/18/2011	43.8	35.4	0.35	0.015
AM3	7/1/2011	7/6/2011	10/18/2011	45.4	37	0.37	0.015
AM4	7/1/2011	7/6/2011	10/18/2011	42.2	33.8	0.34	0.014
AM5	7/1/2011	7/6/2011	10/18/2011	38.6	30.2	0.3	0.13
AM6	7/1/2011	7/6/2011	10/18/2011	41.2	32.8	0.33	0.14
Control Avg	7/1/2011	---	---	51.0	---	---	---
4th Quarter 2011							
AM1	10/1/2011	10/18/2011	1/4/2012	35.1	25.2	.32	.013
AM2	10/1/2011	10/18/2011	1/4/2012	40.0	30.1	.38	.016
AM3	10/1/2011	10/18/2011	1/4/2012	36.9	27	.35	.015
AM4	10/1/2011	10/18/2011	1/4/2012	41.2	31.3	.40	.017
AM5	10/1/2011	10/18/2011	1/4/2012	38.1	28.2	.36	.015
AM6	10/1/2011	10/18/2011	1/4/2012	36.6	26.7	.34	.014
Control Avg	10/1/2011	---	---	44.8	---	---	---

6 RADON FLUX MEASUREMENTS

Regulatory Guide 4.14, written to support development of a conventional uranium mill and tailings pile system, notes that radon flux measurements should be conducted three times at eight locations in a pattern associated with the uranium mill location. Because no uranium mill or tailings impoundment will be created during the Proposed ISR Project, AUC suggests that baseline radon flux measurements are neither appropriate nor necessary to support this application.

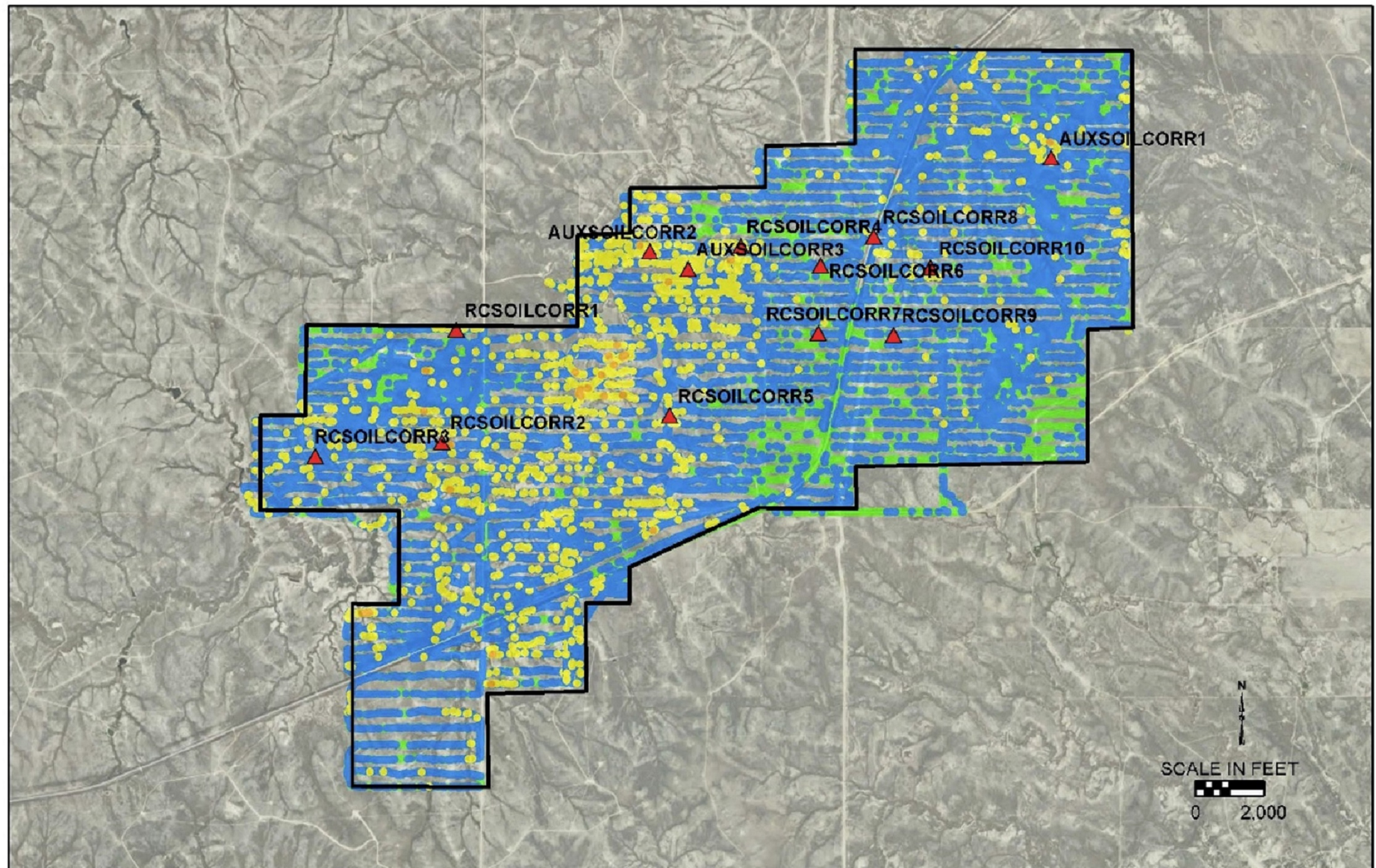
APPENDIX A:
Gamma Scanning and Soil Ra-226 Correlation Data

Gamma Radiation Survey

Regulatory Guide 4.14 (RG 4.14) calls for a preoperational gamma survey, but was written prior to the availability of portable computers and GPS location technology. The Guide was written to support the licensing of conventional (hard-rock) uranium mills, and calls for the recording of some 80 individual gamma exposure rate measurements at on a radial grid centered on a proposed uranium mill location. Portions of the guidance don't apply well to ISR facilities, which have no mill, tailings, nor ore pile facilities. In keeping with ISR license application and review guidance described in Regulatory Guide 3.46 and NUREG-1569, and with radiological survey guidance specified in the Multi-Agency Radiation Survey and Site Investigation Manual, a GPS-based scanning systems was used to record baseline gamma exposure rates over the entire site. The resulting set of measurements includes the data specified in RG 4.14: recording of exposure rates on radials extending from the Plant center.

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The objective of a baseline gamma radiation investigation is to evaluate current gamma exposure rates and soil radionuclide concentrations. A field investigation was performed by Tetra Tech field engineers from September 9 through September 15, 2010. Follow-up studies were conducted October 13 and 14, 2010, and July 5 and 6, 2011. Activities included recording of GPS-located gamma exposure rates, correlation with gamma dose rates, and collection of soil samples to develop a correlation between exposure rates and soil ²²⁶Ra concentrations. Details concerning the gamma survey data collection process are provided in the AUC Technical Report.



Gamma Exposure Rate (uR/hr)

- <14
- 14-16
- 16-18
- 18-20
- >20

- Project Boundary
- ▲ Soil Correlation Plot Location

February, 2012

Figure 2.9-9
Gamma Exposure Rate Map and
Soil Correlation Plot Locations
Reno Creek

Table 2.9-1: Dose Rate vs. Exposure Rate on 10x10 m Correlation Plots

Soil Correlation ID	Bicron Dose Rate (µrem/hr)	44-10 Gamma Radiation Exposure Rate (µR/hr)
RC-CORR1	6.6	14
RC-CORR2	7	14.6
RC-CORR3	7.5	14.6
RC-CORR4	7.1	14.7
RC-CORR5	7.4	15.2
RC-CORR6	6.3	12.6
RC-CORR7	5	12.5
RC-CORR8	5.3	14.1
RC-CORR9	7.1	14.7
RC-CORR10	7.5	13.9
AUXCORR1	10.2	20.2
AUXCORR2	8.8	18.4
AUXCORR3	9.4	18.1

Note: Radiation exposure rates recorded at same locations: Bicron uRem meter vs. Ludlum 44-10 NaI scintillator.

Table 2.9-2: Soil Radium Concentration vs. Gamma Exposure Rate: 10x10 m Correlation Plots

Soil Correlation ID	²²⁶ Ra Soil Concentration (pCi/g)	44-10 Gamma Radiation Exposure Rate (µR/hr)
RC-CORR1	1.2	14
RC-CORR2	1.5	14.6
RC-CORR3	0.9	14.6
RC-CORR4	1.4	14.7
RC-CORR5	1.3	15.2
RC-CORR6	1.2	12.6
RC-CORR7	0.9	12.5
RC-CORR8	0.9	14.1
RC-CORR9	0.9	14.7
RC-CORR10	0.8	13.9
AUXCORR1	14.7	20.2
AUXCORR2	3.0	18.4
AUXCORR3	3.6	18.1

Note: Soil samples taken at same locations to compare ²²⁶Ra concentrations vs. exposure rates.