1221257

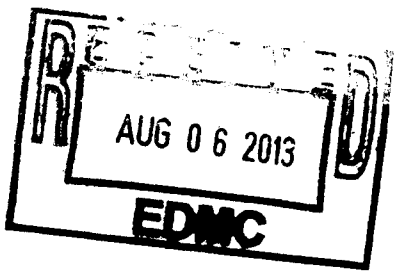
SGW-54675
Revision 0

WMA C October through December 2012 Quarterly Groundwater Monitoring Report

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

CH2MHILL
Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352



Approved for Public Release;
Further Dissemination Unlimited

Attached to: 122252

SGW-54675
Revision 0

WMA C October through December 2012 Quarterly Groundwater Monitoring Report

Document Type: TR Program/Project: S&GRP

Date Published
July 2013

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

CH2MHILL
Plateau Remediation Company
P.O. Box 1600
Richland, Washington 99352

APPROVED
By Julia R. Raymer at 2:11 pm, Jul 17, 2013

Release Approval Date

**Approved for Public Release;
Further Dissemination Unlimited**

TRADEMARK DISCLAIMER

Reference herein to any specific commercial product, process, or service by tradename, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

This report has been reproduced from the best available copy.

Printed in the United States of America

Contents

Appendices

Figures

Terms

AEA	*Atomic Energy Act of 1954*
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
DWS	drinking water standard
LLWMA	Low-Level Waste Management Area
RCRA	*Resource Conservation and Recovery Act of 1976*
WMA	Waste Management Area

1 Purpose

This report provides the December 2012 quarterly monitoring results at the 241-C Tank Farm (also referred to as Single-Shell Tank Waste Management Area [WMA] C). This report meets the requirements of "Agreement on Content of Tank Waste Retrieval Work Plans" (04-TPD-083) in which quarterly groundwater monitoring sample results are to be provided to the Washington State Department of Ecology during tank retrievals. Tank retrievals at WMA C began November 18, 1998 as provided in HNF-5267, *Waste Retrieval Sluicing System Campaign Number 3 Solids Volume Transferred Calculation*. Currently, retrieval has been completed at 11 tanks, is ongoing at 3 tanks, with 2 tanks remaining to be started as provided in HNF-EP-0182, *Waste Tank Summary Report For Month Ending December 31, 2012*. The 04-TPD-083 letter agreed to the quarterly analyses as tank retrieval activities were ongoing as provided in PNNL-13024, *RCRA Groundwater Monitoring Plan for Single-Shell Tank Waste Management Area C at the Hanford Site*. The agreed-upon analyses include *Resource Conservation and Recovery Act of 1976* (RCRA) and *Atomic Energy Act of 1954* (AEA) constituents from the following: anions, cyanide, metals, gross beta, technetium-99, total uranium, and low-level gamma scan. Quarterly samples are required at 4 of the current 12 WMA C monitoring wells (299-E27-7, 299-E27-14, 299-E27-15, and 299-E27-22) per RPP-22393, *241-C-102, 241-C-104, 241-C-107, 241-C-108, and 241-C-112 Tanks Waste Retrieval Work Plan* (Figure 1).

Groundwater monitoring objectives of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), RCRA, and AEA often differ slightly, and the contaminants monitored are not always the same. For RCRA regulated units, monitoring focuses on nonradioactive dangerous waste constituents. Radionuclides (source, special nuclear, and byproduct materials) may be monitored in some RCRA unit wells to support objectives of monitoring under the AEA and/or CERCLA. Please note that pursuant to RCRA, the source, special nuclear, and byproduct material component of radioactive mixed wastes are not regulated under RCRA and are regulated by the Department of Energy acting pursuant to its AEA authority. Therefore, while this report may be used to satisfy RCRA reporting requirements, the inclusion of information on radionuclides in such context is for information only and may not be used to create conditions or other restrictions set forth in any RCRA permit.

2 Background

Since the 04-TPD-083 letter was issued, the WMA C has entered into a RCRA groundwater quality assessment program in accordance with "Dangerous Waste Regulations," "Interim Status Facility Standards" (WAC 173-303-400) and, by reference, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," "Ground-Water Monitoring" (40 CFR 265, Subpart F). The assessment program was initiated from a July 2009 verified exceedance of the critical mean for specific conductance in downgradient Well 299-E27-14 (Figure 1). During the assessment, the dangerous waste constituent cyanide was found beneath the WMA C within the groundwater wells near WMA C, but not in the Well 299-E27-22, a well assumed to be upgradient of the tank farm at the time. Thus, it was determined that releases from WMA C affected the groundwater.

Other potential dangerous waste constituents associated with the WMA C have not been found in the groundwater. The site remains in the groundwater quality assessment program, at present, and assessment monitoring is being completed in accordance with DOE/RL-2009-77, *Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area C*. Three wells (299-E27-24, 299-E27-25, and 299-E27-155) were added to the network per DOE/RL-2009-77. The network now is composed of 12 WMA C monitoring network wells. Table A-1 in Appendix A provides the key attributes of the monitoring wells in the WMA C monitoring well network.

Because the site is in a groundwater quality assessment program, quarterly samples are being completed at all WMA C monitoring wells. In addition, CERCLA operable unit sampling has been added for integration with the AEA requirements at all WMA C wells to monitor the nature and extent of regional contaminants both sourced at WMA C and other sites.

3 Groundwater Flow and Rate

As discussed in Section 3 of SGW-54508, *WMA C September 2012 Quarterly Groundwater Monitoring Report*, various hydraulic parameters derived from past tests and on ongoing evaluations have been applied in an effort to estimate a range of the groundwater flow rates beneath WMA C. Groundwater flow rates are required by 40 CFR 265.94 (d)(4), "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," "Recordkeeping and Reporting," because of the presence of the dangerous waste constituent cyanide. Hydraulic parameters used to estimate rates of groundwater flow include effective porosity (n_e) and hydraulic conductivity values (K) developed from a variety of hydraulic tests and field observations. As discussed in SGW-54508, the effective porosity was established at 0.1, and the most appropriate hydraulic conductivity range is from 100 to 2,100 m/day. The other hydraulic parameter, the hydraulic gradient (G) of the water table, is based on current water level evaluations measured from a 14-well low-gradient monitoring network in the northwest corner of the 200 East Area. The rationale for using this network for WMA C was established in SGW-54508.

One of the primary reasons for using the Low-Level Waste Management Area (LLWMA-1) low-gradient network as provided in SGW-54508 is because it has been corrected for several measurement errors inherent in water level monitoring, whereas the WMA C has not been corrected for all the inherent measurement errors. Although the types of measurement errors are generally not an issue for a significant part of the Hanford site, the high permeability of the sediments found in the unconfined aquifer in the 200 East Area results in an extremely flat water table that has made it difficult to discern both direction and rate of groundwater flow without corrections applied.

The most significant source of error has been associated with the deviation from vertical of the well bore because the depth to the groundwater is approximately 80 to 100 m (262 to 328 ft) and the cobbles and boulders associated with various strata units within the vadose zone. This specific source of error, which varies from well to well, generally has been several centimeters and in one occasion at Well 299-E17-26, up to 1 m (3.28 ft). At WMA C, eight wells have been corrected for this type of error: 299-E27-12, 299-E27-14, 299-E27-15, 299-E27-21, 299-E27-22, 299-E27-23, 299-E27-4, and 299-E27-7. The correction for this error in the eight WMA C wells ranged from 1.5 cm (0.59 in.) in Well 299-E27-7 to 38 cm (15 in.) in Well 299-E27-4. Without corrections for deviation from vertical, accurate determinations of the direction and rate of groundwater flow and the associated hydraulic gradient are technically impossible.

In addition to the correction for well deviation from vertical, other corrections applied to the 14-well low-gradient network include the following:

- Using precision geodetic surveys to a common benchmark
- Using the same e-tape to measure from a dedicated point at each well to the groundwater
- Making adjustments for barometric effects within the well
- Using a dedicated person to measure all depths to water on one scheduled day per month

Even with all these corrections, there was nearly a four-year period at the 14-well low-gradient monitoring network that a gradient could not be derived. In retrospect, this period was associated with

declining water levels causing the groundwater flow to shift from northwest to southeast. Since August of 2011, an average south-southeast gradient of 2.8 centimeters per kilometer (2.8×10^{-5}) has been derived. Table B-1 in Appendix B provides the December 2012 measurements and gradient calculations associated with this network of wells. In addition, a discussion of the various terms is provided below Table B-1.

If the size of the14-well low-gradient network were reduced to just the burial ground boundary, the hydraulic gradient measurements become statistically less reliable. Currently, the statistical difference between the two networks is only about 8 percent; however, in the past when the gradient was smaller, there was a significantly greater difference. The December 2012 statistical computations using only the six LLWMA-1 wells are provided in Table B-2 of Appendix B for comparison. Using only the six LLWMA-1 wells to derive the hydraulic gradient produced a p-value of 0.079, which equates to a 92.1 percent statistically significant level compared with the nearly 100 percent statistically significant level for the 14-well low-gradient network. By evaluating these two data sets (Tables B-1 and B-2), there is a 17° difference in the azimuth and the gradient for the six LLWMA-1 well network is two-thirds of the larger 14-well low-gradient network. As the gradient increases at LLWMA-1, either the 6-well network will align with the 14-well network or, if not, provide a more appropriate indication of the local flow in this area. This will be a good indication of whether WMA C should be monitored locally or regionally.

Appendix C provides the water level measurements and statistical confidence for the wells that have been gyro scoped and precision surveyed at WMA C. As can be seen in the Measurement Date and Time column of Table C-1, the wells were not measured on the same day as required for the 14-well low-gradient network. In addition, the wells were not measured by one individual. One of the wells (299-E27-14) was measured on December 12, 2012, and on December 26, 2012, and had a difference of 1.6 cm (0.63 in.). Whether this was due to barometric response, variability between different measurement devices, different personnel, or a combination is unknown. However, this provides an excellent example of why the criteria for the low-gradient network are crucial. It is believed that adding the additional criteria will produce lower p-values and greater statistical confidence in the gradient and azimuth.

Based on the measurements collected in December at WMA C, the p-value is approximately 35 percent less reliable than that of the 14-well low-gradient network in the northwest corner of the 200 East Area. If the data from December 12 and 13 are used, the p-value improves to ~0.26 (Table C-2). The improvement reflected a significant decrease in the gradient and a change in the direction from mainly south to southeast. It is expected by using the same measurement criteria as required for the 14-well low-gradient network, the p-value will decrease resulting in a more reliable determination of the gradient and direction. In addition, correction of barometric response will also provide more reliability in the measurements. However, it is important to note that a larger areal network may still be required to derive a statistically significant gradient determination. Plans are moving forward to establish a regional low-gradient network within the eastern part of the 200 East Area with the level of accuracy at LLWMA-1. Until this is complete, the gradient determination at the 14-well low-gradient network is considered significantly more accurate and will continue to be used to derive the gradient for the uncorrected water levels at WMA C.

Using the hydraulic parameters discussed previously, the flow rate (V) beneath WMA C ranges between 0.04 and 0.82 m/day (15 to 300 m [49 to 984 ft] per year), based on the formula $V=(K*G)/n_e$ (Driscoll, 1986, *Groundwater and Wells*). This derived groundwater flow rate range bounds previous flow rates derived for WMA C such as the flow rate derived from a migrating subregional sulfate plume through WMA C from the late 1990s to 2007, 0.09 m/day (DOE/RL-2008-01, *Hanford Site Groundwater Monitoring for Fiscal Year 2007*). On a regional basis, it also bounds flow from west of the 200 East Area, which was estimated at 28 to 34 m/year (0.077 to 0.093 m/day) (DOE/RL-2008-66, *Hanford Site Groundwater Monitoring for Fiscal Year 2008*) (Figure 2). Finally, it even bounds the southeast

migration of nitrate and technetium-99 near the BY Cribs from summer 2011 to summer 2012, which was calculated at approximately 0.5 m/day (DOE/RL-2013-22, *Hanford Site Groundwater Monitoring for 2012*). Based on comparisons with these flow rates, the average flow rate range beneath WMA C is estimated to be 0.08 to 0.12 m/day. The lower rate is in accordance with the regional flow west of the 200 East Area, and the upper rate is consistent with the southeast flow from the BY Cribs, adjusted for the difference in aquifer thickness.

The 2011 flow direction change in the northwest corner of the 200 East Area and the extent of the paleochannel from this area to WMA C (as discussed further in SGW-54508) appear to be the drivers for the changing flow direction at WMA C. Groundwater flow in the northwest corner of the 200 East Area has changed from predominantly northwest to southeast. This flow direction change coincides with technetium-99 increases in Wells 299-E27-21 and 299-E27-24 at WMA C, which are located southeast of a significant technetium-99 plume seen by the activity at Well 299-E27-23. Also coincident with the flow change are decreasing concentrations of other contaminants west of the WMA C, indicating a change in flow direction. Furthermore, the derived azimuth shown in Appendix C, although neither corrected for barometric response nor measured with the care used at LLWMA-1, indicates a southeast flow direction. These indicators suggest a southeast flow direction; however, others could argue a south direction. Since the derived flow direction in Appendix C is not statistically significant and the variability between the uncorrected barometric measurements and the barometric corrected measurements at LLWMA-1 over the past four months is 23°, the flow direction is considered to possibly range between 128° and 174° of north.

4 Quarterly Results Discussion

During December, all 12 WMA C wells were successfully sampled as scheduled. The following is a discussion of the results for constituents analyzed per the 04-TPD-083 letter and DOE/RL-2009-77. Appendix D provides all 764 results for the December WMA C sampling event.

4.1 Field Parameters and Quality Control

The pH measured in monitoring wells at WMA C in December ranged between 7.85 and 8.28. The minimum and maximum levels were reported at Wells 299-E27-21 and 299-E27-15, respectively. In general, the wells screened across the upper part of the aquifer had greater pH, ranging from 8.14 to 8.28. Well 299-E27-14 is the only upper aquifer well that was less than 8.0, at 7.93. In all the other wells, pH ranged between 7.86 and 8.01, with the lowest at Well 299-E27-7.

Specific conductance measurements in the 12 WMA C wells ranged between 394 and 1,047 µS/cm. The lowest value was from upgradient Well 299-E27-12, and the greatest specific conductance was at Well 299-E27-14. The elevated specific conductance reflects the elevated nitrate and sulfate concentration levels measured in this well. The specific conductance is in agreement with the sum of the major anions and cations.

4.2 Nitrate and Sulfate

This section discusses results for nitrate and sulfate. Nitrate exceeded the drinking water standard (DWS) of 45 mg/L in four of the six WMA C wells that exceeded the DWS last quarter (299-E27-14, 299-E27-21, 299-E27-24, and 299-E27-25). The two wells where nitrate decreased below the DWS were on the west/southwest side of WMA C at Wells 299-E27-23 and 299-E27-155. Thus, all the wells to the west/southwest of WMA C, considered the direction of groundwater flow in the past, have now declined below the DWS. The majority of the wells now above the DWS are to the south to southeast of WMA C (299-E27-14, 299-E27-21, and 299-E27-24). The source of the elevated nitrate at Well 299-E27-25 is associated with an unplanned releases associated the 216-B-2 Ditches. Sulfate exceeded the secondary

DWS of 250 mg/L in the same three wells that exceeded the DWS last quarter (299-E27-14, 299-E27-24, and 299-E27-25). The elevated sulfate is a co-contaminant with nitrate at these wells.

4.2.1 Nitrate

Of the four wells screened at the top of the aquifer (299-E27-12, 299-E27-13, 299-E27-14, and 299-E27-15), Well 299-E27-14 is the only well with nitrate concentrations exceeding the DWS. The concentrations decreased from 118 mg/L in September to 90 mg/L in December. The other three wells screened across the top of the aquifer have the lowest nitrate concentrations at WMA C ranging from 9.47 to 21.2 mg/L. The December decrease in nitrate at Well 299-E27-14 is consistent with past annual December decreases seen since 2005 (Figure 3). The milliequivalent relationship of major anion and cations for December results at this well balanced, indicating that the result is good.

The two deepest wells, 299-E27-24 and 299-E27-155, which are screened at the bottom of the unconfined aquifer, showed diverging nitrate results compared to September. Nitrate levels at Well 299-E27-24 are stable, returning similar concentrations since being completed in December 2010. Over this period, the concentrations have ranged between 67.7 and 72.2 mg/L. In December 2012, the concentration was 71 mg/L. Well 299-E27-155 showed the first significant decrease since being completed in 2007. The concentration decreased from 51 to 34 mg/L between September and December. Because of the milliequivalent relationship of major anion and cations, the December nitrate result is considered good.

The wells northwest, north, and northeast of the WMA C (299-E27-4, 299-E27- 22, and 299-E27-25), which have longer screen intervals than those screened near the top of the aquifer, showed mixed nitrate results compared to September. Decreased nitrate results were seen at Well 299-E27-4 and 299-E27-22, while nitrate increased slightly at Well 299-E27-25 (Figure 4). The greatest decrease was seen in the farthest west well (299-E27-4), declining from 41.7 to 36.8 mg/L. Well 299-E27-22 decreased from 35.9 to 32.2 mg/L. Well E27-25 increased from 45.6 to 46 mg/L.

Wells southwest and south of WMA C have been/are more concentrated than the north and northwest WMA C wells. However, like the other wells west of WMA C, nitrate concentrations at Well 299-E27-23 decreased from 47 to 40 mg/L. Southeast of Well 299-E27-23, nitrate concentrations at Well 299-E27-21 were unchanged, at 47 mg/L.

The decreasing nitrate concentrations to the west of WMA C correlate with what is happening along the west side of LLWMA-1 (Figure 2). The nitrate decreases at LLWMA-1 are the result of the recent flow change to the southeast, as described in Section 3. Thus, cleaner groundwater to the northwest of LLWMA-1 is migrating and pushing the remnant contamination in wells to the southeast where it originated (Figure 5). Further evidence of the flow change is provided when comparing nitrate plume changes between August 2011 and August 2012 for WMA B/BX/BY where the well density offers the ability for detailed contouring of the nitrate plume (Figures 6 and 7). The August 2012 expansion of nitrate to the southeast provides supporting evidence the gradient determinations discussed in Section 3. Thus, observations of nitrate changes between these sites in the northwest corner of the 200 East Area and WMA C provide further evidence of the flow direction at WMA C.

4.2.2 Sulfate

The sulfate results at WMA C are similar to that of nitrate. The most significant sulfate concentrations continue to be at Wells 299-E27-14, 299-E27-24, and 299-E27-25. Results from these wells continue to exceed the secondary DWS of 250 mg/L. The remainder of the wells range from 58 to 193 mg/L.

The greatest sulfate concentrations are in Wells 299-E27-14 and 299-E27-24. Sulfate and nitrate concentration levels in these two wells continue to indicate a source of contaminant drainage from within

the WMA C. Because Well 299-E27-14 is screened across the upper part of the aquifer and Well 299-E27-24 is screened across the bottom of the aquifer, data from these wells suggest drainage from the WMA C has migrated throughout the vertical extent of the aquifer. Concentrations in Well 299-E27-14 decreased slightly from 333 to 317 mg/L between September and December, while concentrations in Well 299-E27-24 were nearly the same, increasing from 298 to 300 mg/L.

Sulfate concentrations at Well 299-E27-25 maintained nearly the same concentration as September, increasing from 273 to 278 mg/L. Results at this well are affected by a sulfate plume migrating southeast from beneath the 216-B-2-2 Ditch.

4.3 Cyanide

The dangerous waste constituent cyanide only exceeded the detection limit in two wells for the December sampling event: 299-E27-14, and 299-E27-24. The concentrations were lower than the September results by up to nearly 3 µg/L. The concentrations were 5.8 and 8.75 µg/L, respectively. The cyanide results associated with these wells are significantly lower than the 200 µg/L DWS. The remaining wells at WMA C were less than detection levels (<4 µg/L).

Cyanide was previously present in the groundwater at much greater concentrations at Well 299-E27-7 than Wells 299-E27-14 or 299-E27-24 (Figure 8). As discussed in DOE/RL-2009-77, the source of the cyanide was determined to be WMA C. Because cyanide was first detected in January 1999 at Well 299-E27-7, when sampling for cyanide resumed at this well, and retrieval activities did not start at WMA C until November 18, 1998, the cyanide at Well 299-E27-7 was not considered associated with tank retrieval activities. To elaborate, the vadose zone is 72 m (236 ft) thick near Well 299-E27-7 and neutral to negatively charged fluid migration, such as cyanide, through the vadose zone has been estimated at centimeters per year. Thus, the cyanide at Well 299-E27-7 is not considered associated with tank retrieval activities, rather with past releases during active operations.

As required by 40 CFR 265.94 (d)(4), a groundwater flow rate was derived from past hydraulic tests and on ongoing groundwater gradient evaluations for determining the rate of migration of cyanide. Based on the discussion in Section 3, the rate of migration of cyanide is estimated to range between 0.08 and 0.12 m/day in a southeast flow direction. Also required by 40 CFR 265.94 (d)(4) is the extent of cyanide. Because concentrations are near detection limits, the detectable level of cyanide is not considered significant farther south or southwest of Wells 299-E27-14 and 299-E27-24, as depicted in Figure 9. Figure 9 also presents a secondary area of deep cyanide to the southeast of Well 299-E27-155. The rationale for this second deep plume is based on the previous duration of low cyanide concentrations at Well 299-E27-155 and the lack of consistent cyanide concentrations in wells between this well and the WMA C boundary. The north extension of the plumes from Wells 299-E27-14 and 299-E27-24 is defined by the nondetect groundwater results surrounding WMA C and the previous results at Well 299-E27-7. The depiction indicates a previous west, southwest, south, and now southeast migration at low flow rates.

4.4 Technetium-99

Technetium-99 was only collected and analyzed at the four required wells (299-E27-14, 299-E27-15, 299-E27-22, and 299-E27-7) in accordance with the 04-TPD-083 letter. The activity levels for all but Well 299-E27-14 are below 50 pCi/L and generally decreasing. The activity level at Well 299-E27-14 increased significantly between September and December, from 1,640 to 3,620 pCi/L. The increasing trend at 299-E27-14 appears to be mimicking the recent increases seen at Well 299-E27-21 as shown in Figure 10. Technetium-99, like nitrate, is decreasing west of WMA C as seen by the recent results at Well 299-E27-23 (Figure 10). Most of the WMA C wells are scheduled for collection and analyses of technetium-99 in March 2013.

4.5 Uranium

Uranium was only collected and analyzed at the four required wells (299-E27-14, 299-E27-15, 299-E27-22, and 299-E27-7) in accordance with the 04-TPD-083 letter. The concentrations for all but Well 299-E27-14 are below background at <4 μg/L. The concentration at well 299-E27-14 decreased slightly from 10.8 μg/L in September to 9.52 μg/L in December.

4.6 Low-Level Gamma

Gamma results for the four wells required by the 04-TPD-083 letter were all less than detect.

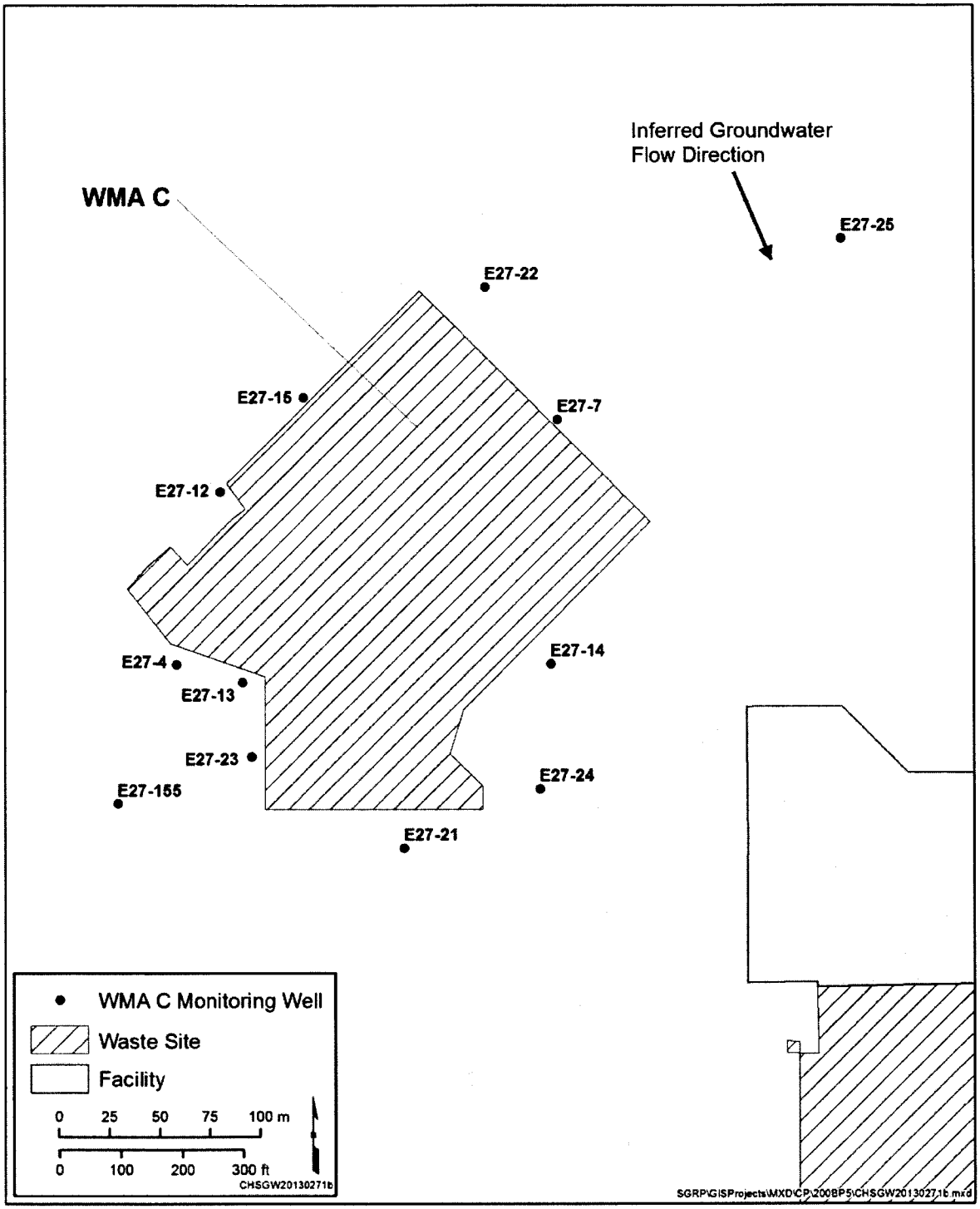
5 Conclusion

Because of the continued presence of cyanide, a dangerous waste constituent in Wells 299-E27-14 and 299-E27-24, WMA C remains in a groundwater quality assessment program. The measured cyanide concentrations in the WMA C groundwater monitoring network are much lower than the DWS of 200 μg/L.

As required by 40 CFR 265.94 (d)(4), a groundwater flow rate was derived from past hydraulic tests and on ongoing groundwater gradient evaluations for determining the rate of migration of cyanide. Based on the discussion in Section 3, the rate of migration of cyanide is estimated to range between 0.08 and 0.12 m/day in a south to southeast flow direction. Also required by 40 CFR 265.94 (d)(4) is the extent of cyanide. Because concentrations are near detection limits, the detectable level of cyanide is not considered significant farther south or southwest of Wells 299-E27-14 and 299-E27-24 as depicted in Figure 9. A second deep plume of cyanide is also presented in Figure 9 to the southeast of Well 299-E27-155. The rationale for this second deep plume is based on the previous duration of low cyanide concentrations at Well 299-E27-155 and the lack of consistent cyanide concentrations in wells between this well and the WMA C boundary. The north extension of the plumes extending from Wells 299-E27-14 and 299-E27-24 are defined by the nondetect groundwater results surrounding WMA C and the previous results at Well 299-E27-7 as discussed in Section 4.3. The depiction indicates a previous west, southwest, south, and now southeast migration at low flow rates.

Nitrate, sulfate, and technetium-99 also appear to be associated with releases from the WMA C, as these constituents are much higher in the downgradient wells compared to upgradient wells and exceed the groundwater DWSs.

As discussed in Section 3, plans are underway to develop a low-gradient monitoring network in order to derive a more reliable gradient flow direction for WMA C. Currently, eight wells have been gyro scoped and precision surveyed; however, barometric response for each well along with more precise measuring criteria is required to establish statistically significant determinations of the gradient and flow direction. Since it is uncertain whether the areal extent of the wells at WMA C is sufficient to derive a statistically significant gradient, additional wells are also being included. The planned work, if funded, should be sufficient to provide a statistically significant determination at WMA C.



Note: The direction of groundwater flow inferred by the arrow reflects an azimuth direction of approximately 150°, which was calculated from a least square regression of water level measurements in 6 wells at WMA C (see measurements provided in Table C-2, Appendix C). These measurements were not corrected for barometric changes, and the calculated azimuth of approximately 150° has some uncertainty associated with it.

Figure 1. WMA C Monitoring Wells

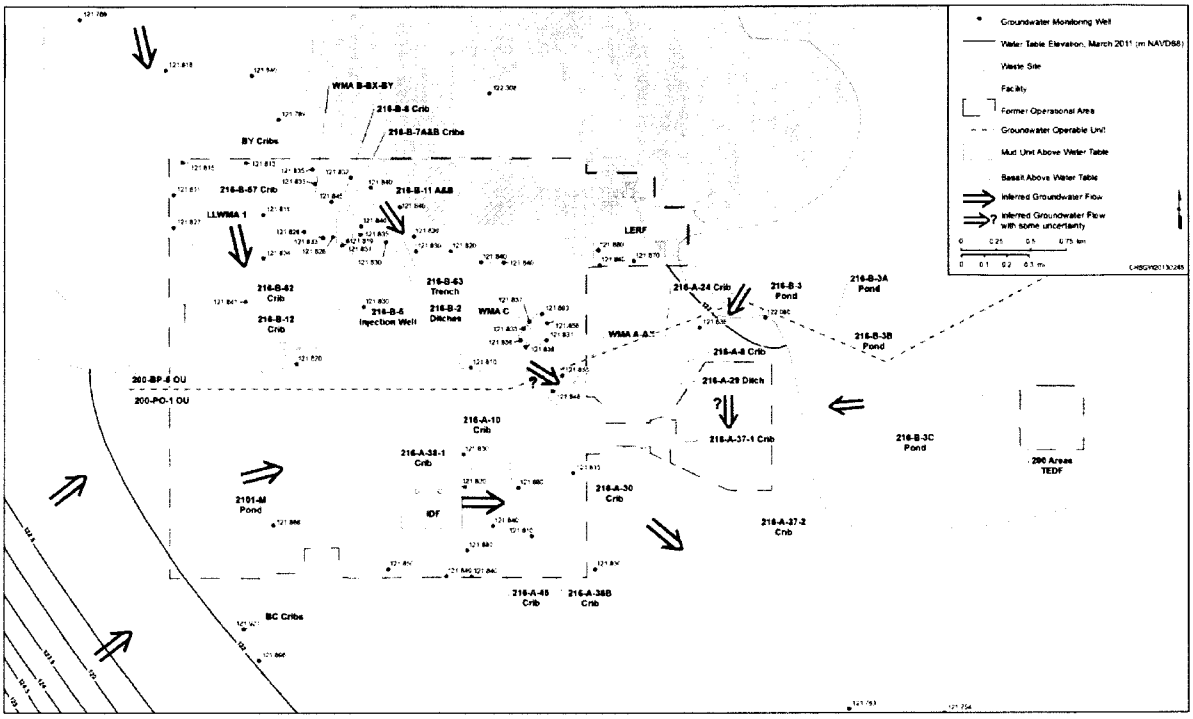


Figure 2. March 2012 200 East Area Interpreted Groundwater Flow Directions

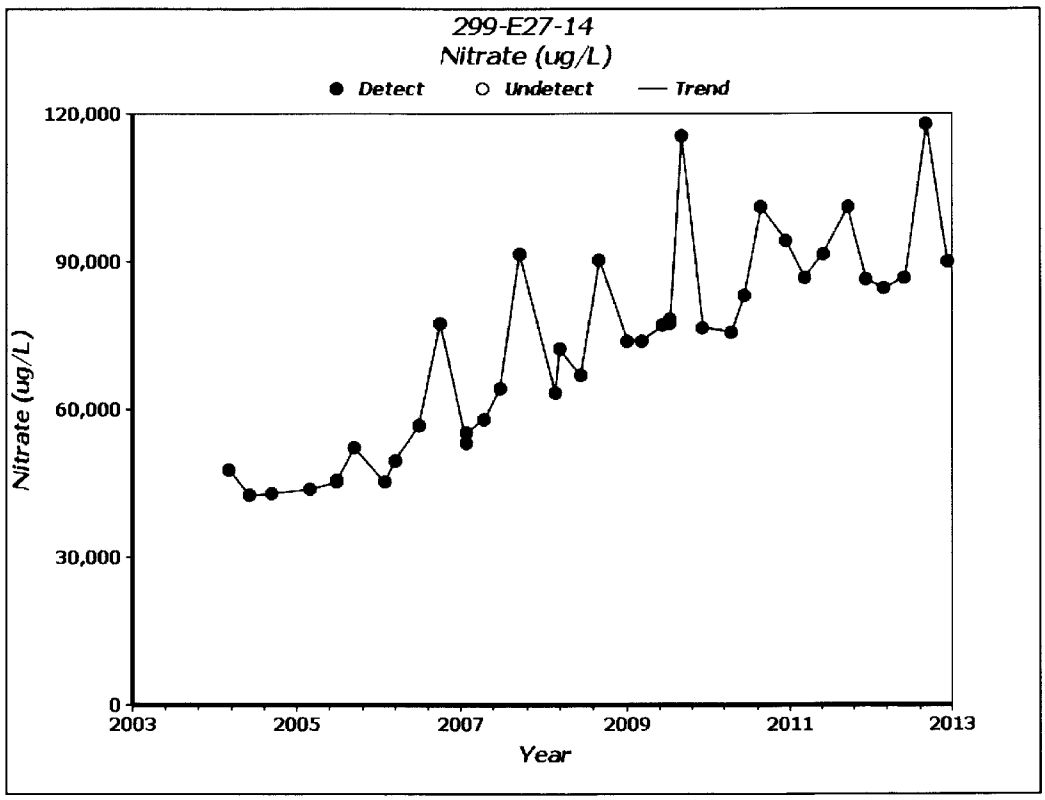


Figure 3. History of Nitrate Results at Well 299-E27-14

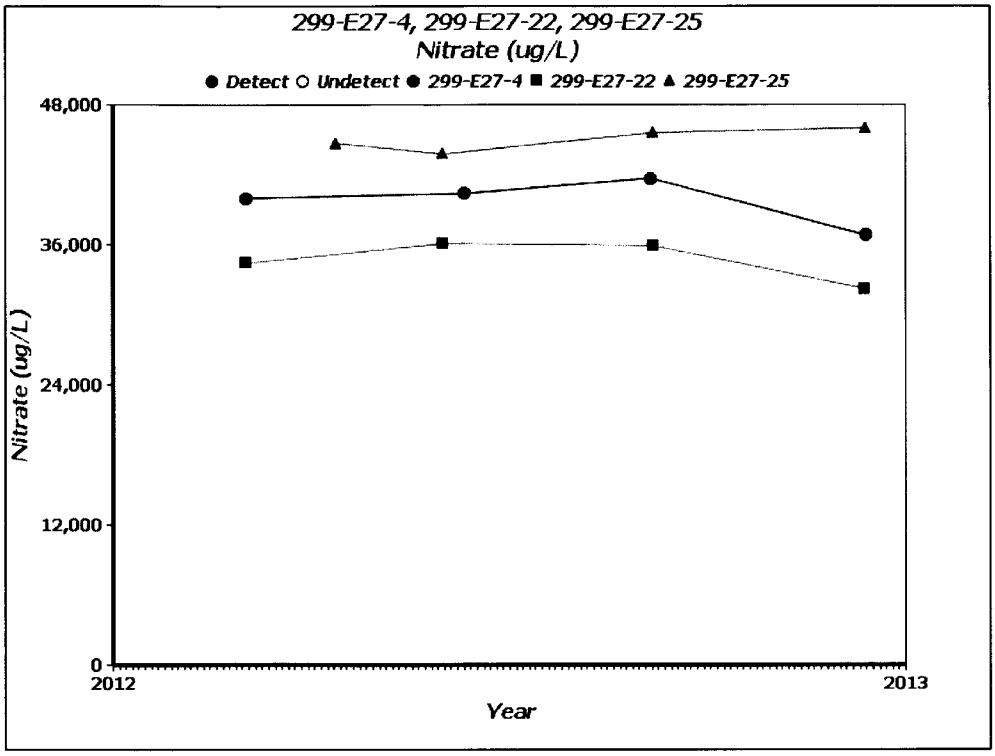


Figure 4. Nitrate Results at Wells 299-E27-4, 299-E27-22, and 299-E27-25

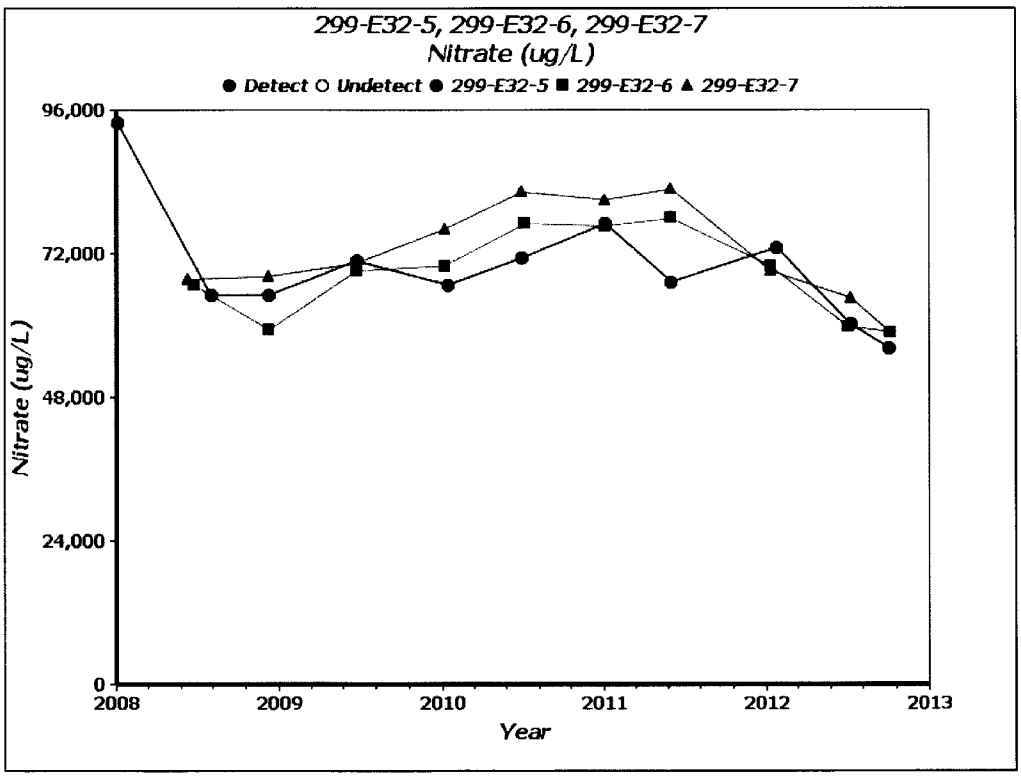


Figure 5. Nitrate Results at Wells 299-E32-5, 299-E32-6, and 299-E32-7

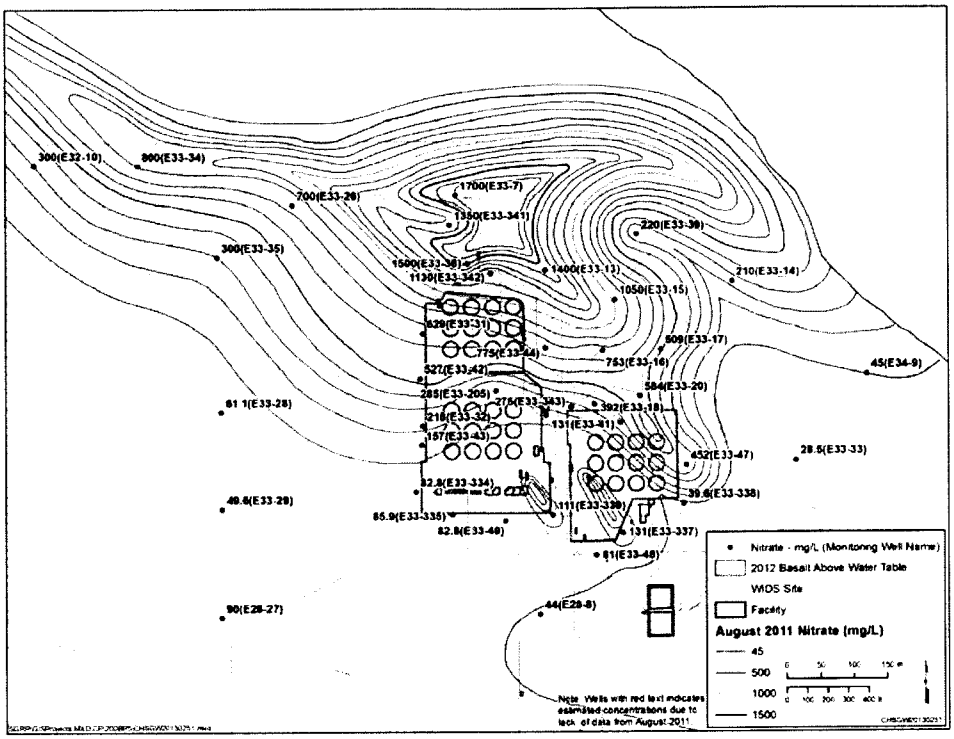


Figure 6. Summer 2011 Nitrate Plume Interpretation for the B Complex

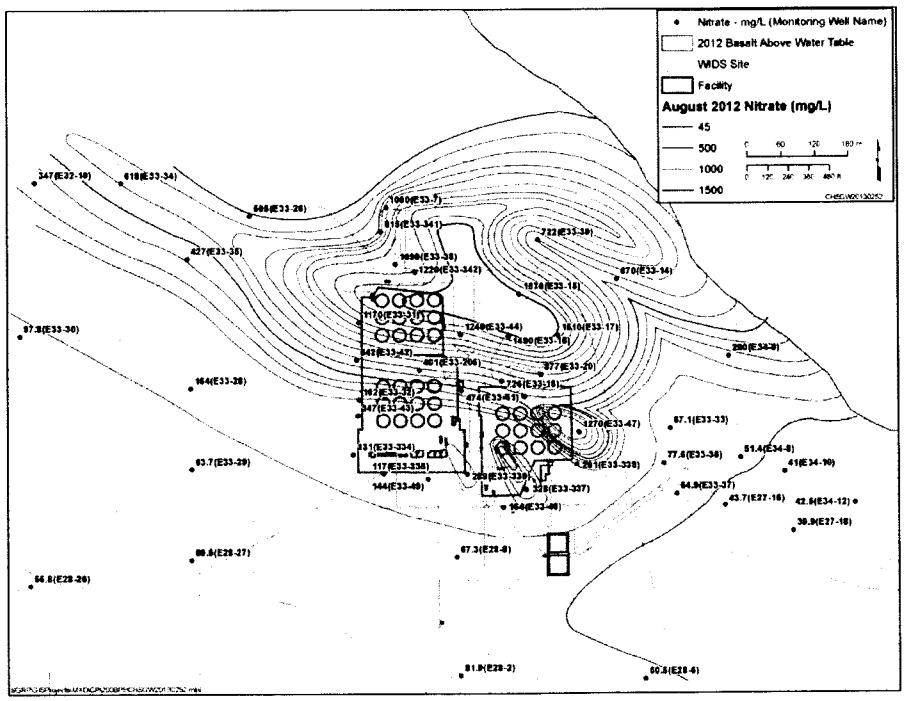


Figure 7. Summer 2012 Nitrate Plume Interpretation for the B Complex

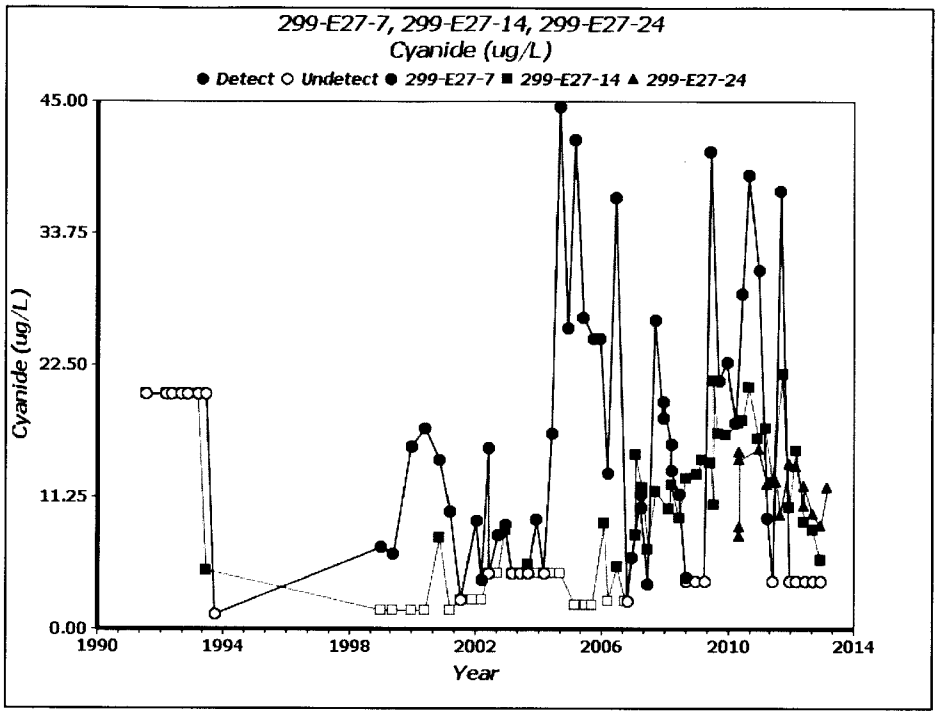


Figure 8. Cyanide Results at Wells 299-E27-7, 299-E27-14, and 299-E27-24

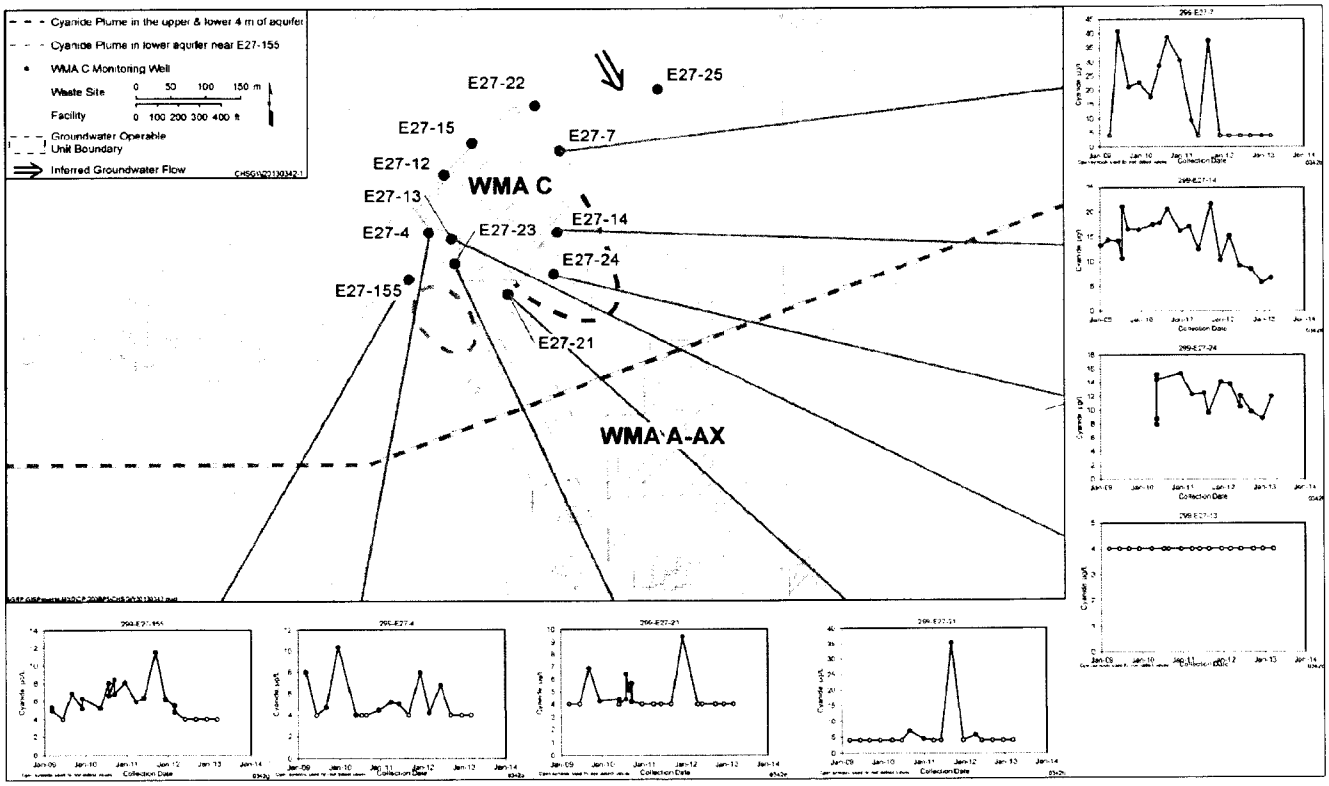


Figure 9. Interpretation of the 4 µg/L Cyanide Isopleth in the Upper 4 Meters and Lower 4 Meters of the Aquifer at WMA C and Cyanide Trend Results at Select WMA C Wells

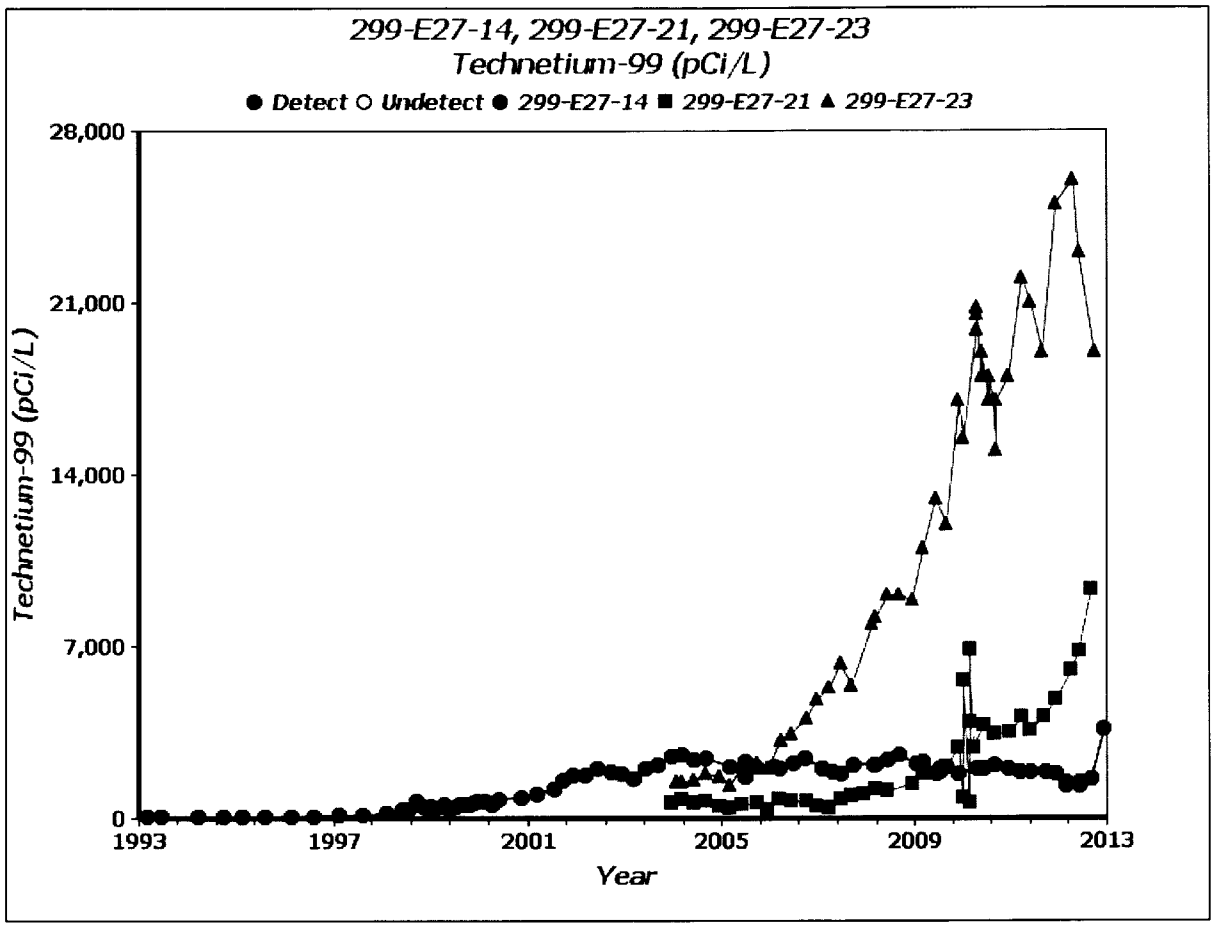


Figure 10. Technetium-99 Results at Wells 299-E27-14, 299-E27-21, and 299-E27-23

6 References

04-TPD-083, 2004, "Agreement on Content of Tank Waste Retrieval Work Plans" (external letter to M.A. Wilson, Washington State Department of Ecology, from R.J. Shepens), U.S. Department of Energy, Office of River Protection, Richland, Washington, August 20. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=1212060215.

40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," Subpart F, "Ground-Water Monitoring," *Code of Federal Regulations*. Available at: http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol25/xml/CFR-2010-title40-vol25-part265-subpartF.xml.

40 CFR 265.94, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," "Recordkeeping and Reporting," *Code of Federal Regulations*. Available at: http://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol27/pdf/CFR-2012-title40-vol27-sec265-94.pdf.

Atomic Energy Act of 1954, as amended, 42 USC 2011, Pub. L. 83-703, 68 Stat. 919. Available at: http://epw.senate.gov/atomic54.pdf.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq., Pub. L. 107-377, December 31, 2002. Available at: http://epw.senate.gov/cercla.pdf.

DOE/RL-2008-01, 2008, *Hanford Site Groundwater Monitoring for Fiscal Year 2007*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=00098824.

DOE/RL-2008-66, 2009, *Hanford Site Groundwater Monitoring for Fiscal Year 2008*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=0905131281. http://www2.hanford.gov/arpir/?content=findpage&AKey=0905131282.

DOE/RL-2009-77, 2010, *Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area C*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=0084330.

DOE/RL-2013-22, 2013, *Hanford Site Groundwater Monitoring for 2012*, Decisional Draft, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Driscoll, Fletcher G., 1986, *Groundwater and Wells*, Second Edition, Johnson Division, St. Paul, Minnesota.

HNF-5267, 1999, *Waste Retrieval Sluicing System Campaign Number 3 Solids Volume Transferred Calculation*, Rev. 2, Lockheed Martin Hanford Corp., Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=D199159603.

HNF-EP-0182, 2013, *Waste Tank Summary Report For Month Ending December 31, 2012*, Rev. 297, Washington River Protection Solutions, Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=1302141456.

PNNL-13024, 2001, *RCRA Groundwater Monitoring Plan for Single-Shell Tank Waste Management Area C at the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington. Available at: http://www.pnl.gov/main/publications/external/technical_reports/PNNL-13024.PDF. Note: The most recent Interim Change Notices for this report are also available at http://www.pnl.gov/main/publications/external/technical_reports/PNNL-13024-ICN5.pdf.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq. Available at: http://www.epa.gov/epawaste/inforesources/online/index.htm.

RPP-22393, 2004, *241-C-102, 241-C-104, 241-C-107, 241-C-108, and 241-C-112 Tanks Waste Retrieval Work Plan*, Rev. 1, CH2M HILL Hanford Group, Inc., Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=D6223209.

SGW-54508, 2012, *WMA C September 2012 Quarterly Groundwater Monitoring Report*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: http://www2.hanford.gov/ARPIR/?content=findpage&AKey=0089297.

WAC 173-303-400, "Dangerous Waste Regulations," "Interim Status Facility Standards," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-400.

Appendix A

Waste Management Area C Groundwater Monitoring Well Attributes

This page intentionally left blank.

Table A-1. Waste Management Area C Groundwater Monitoring Well Attributes

Well Name	Construction Date	Screen Top (ft bgs)	Screen Bottom (ft bgs)	Water Level Date	Depth to Water (ft bgs)	Screened Water Column (ft)	Estimated Depth to Basalt (ft bgs)	Percentage of Screen in Aquifer
299-E27-4^{TM}	2003	270.3	305.3	3/30/2009	271.1	32.6	321	68.5
299-E27-7^{TM}	1982	241.0	281.0	3/30/2009	236.8	44.2	287	80
299-E27-12^{T}	1989	246.5	267.6	3/24/2009	260.7	6.9	305	15.8
299-E27-13^{T}	1989	253.6	274.7	3/13/2008	269.4	5.3	317	16.4
299-E27-14^{T}	1989	245.8	266.8	3/24/2009	258.5	8.4	312	15.7
299-E27-15^{T}	1989	238.0	259.0	3/30/2009	253.5	5.9	294	14.5
299-E27-155^{B}	2007	380.4	345.4	3/09/2009	281.2	35.0	336*	61.4
299-E27-21^{TM}	2003	271.4	306.4	3/30/2009	272.2	34.2	329	60.2
299-E27-22^{TM}	2003	228.1	268.0	3/30/2009	231.1	36.9	268*	100
299-E27-23^{TM}	2003	273.5	308.5	3/30/2009	274.4	34.1	328	63.6
299-E27-24^{B}	2010	294.6	314.6	6/8/2010	265.26	20.0	315*	40.2
299-E27-25^{T}	2010	209.14	229.16	4/19/2010	213.6	15.6	246*	48.2

* Actual depth based on drilling depth to basalt

bgs = below ground surface

B = Screened across the bottom of the aquifer

T = Screened across the top of the aquifer

TM = Screened across the top and middle part of the aquifer

This page intentionally left blank.

Appendix B

Low-Gradient Monitoring Network Water Table Measurements and Gradient and Azimuth Determinations

This page intentionally left blank.

Table B-1. 14-Well LLWMA-1 Regional Water Table Measurements and Gradient and Azimuth Determinations

Well Name	Measurement Date & Time (PST)	Measured Depth to Water (m)	MP	MP-RP	Hydraulic Head (m NAVD88)	
					New RP & Gyro Correction	New RP, Gyro Correction & BP Adjustment
299-E28-1	12/27/2012 9:44	88.082	TOPP	0.013	121.788	121.792
299-E28-17	12/27/2012 9:52	94.941	TOPP	0.010	121.789	121.788
299-E28-18	12/27/2012 9:58	90.295	TOPP	0.010	121.831	121.832
299-E28-27	12/27/2012 8:55	86.683	TOPP	0.005	121.822	121.823
299-E32-5	12/27/2012 8:09	87.202	TOPP	0.005	121.829	121.829
299-E32-6	12/27/2012 8:19	82.632	TOPP	0.005	121.840	121.842
299-E32-8	12/27/2012 8:26	75.994	TOPP	0.005	121.846	121.848
299-E33-28	12/27/2012 8:41	81.743	TOPP	0.013	121.824	121.826
299-E33-339	12/27/2012 9:36	81.221	TOPP	0.005	121.819	121.821
299-E33-34	12/27/2012 8:34	72.324	TOPP	0.005	121.828	121.832
299-E33-38	12/27/2012 9:22	71.882	TOPP	0.005	121.825	121.828
699-49-55A	12/27/2012 10:21	41.026	TOC	0	121.849	121.858
699-49-57A	12/27/2012 10:10	47.879	TOPP	0.01	121.854	121.857
699-50-56	12/27/2012 10:26	47.145	TOC	0	121.922	121.923
				Range (m):	0.134	0.135
				Gradient Magnitude (m/m):	3.80E-05	3.93E-05
				Direction (azimuth):	154	160
				R^2:	0.79	0.83
				p-Value:	0.0002	0.0001
				Statistically Significant?:	Yes	Yes

Source: NAVD88, *North American Vertical Datum of 1988.*

The left side of the table shows the well, date of measurement, and the measured depth to water. The middle portion of the table provides the measuring point (MP) from which the depth to water was derived at the well. The MP may be different from the elevation survey point or reference point (RP) at the well. The RP on these wells is the top of casing (TOC). Thus, when a pump plate (TOPP) lies on top of the TOC, the thickness of that plate must be subtracted from the RP in order to get the elevation of the groundwater surface. The next correction added to derive the surface of the groundwater more accurately was removing the extra distance to groundwater associated with deviation from vertical. This correction is subtracted from the depth to water in the left column of the hydraulic head column. Finally, the barometric response correction for each well is provided in the far right column.

After these corrections have been applied, a least square regression of the plane to elevations associated with the well locations is completed to derive the gradient. The gradient, azimuth, R^2 ratio, the p-value are provided in the lower part of the table. Briefly, the R^2 ratio is the goodness of fit coefficient. Basically, it is the ratio of the sum of squares because of the regression to the total sum of squares. If the ratio of the two sums is close to 1, indicating unity, then the fit is considered good. Likewise, the p-value is the probability that the degree of an apparent spatially dependent trend observed in the data (or a trend of even greater degree) would occur solely by random chance. Thus, if the p-value is less than 0.05, the fitted trend surface is deemed statistically significant. Further details of this process calculation are provided in *Calculations in Support of the Low Hydraulic Gradient Evaluation Study for the 200 East Area Unconfined Aquifer* (ECF-200EAST-12-0086).

Table B-2. 6 Well LLWMA-1 Water Table Measurements and Gradient and Azimuth Determinations

Well Name	Measurement Date & Time (PST)	Measured Depth to Water (m)	MP	MP-RP	Hydraulic Head (m NAVD88)	
					New RP & Gyro Correction	New RP, Gyro Correction & BP Adjustment
299-E28-27	12/27/2012 8:55	86.683	TOPP	0.005	121.822	121.823
299-E32-5	12/27/2012 8:09	87.202	TOPP	0.005	121.829	121.829
299-E32-6	12/27/2012 8:19	82.632	TOPP	0.005	121.840	121.842
299-E32-8	12/27/2012 8:26	75.994	TOPP	0.005	121.846	121.848
299-E33-28	12/27/2012 8:41	81.743	TOPP	0.013	121.824	121.826
299-E33-34	12/27/2012 8:34	72.324	TOPP	0.005	121.828	121.832
				Range (m):	#N/A	0.025
				Gradient Magnitude (m/m):		2.70E-05
				Direction (azimuth):		143
				R^2:		0.82
				p-Value:		0.0790
				Statistically Significant?:		No

Source: NAVD88, *North American Vertical Datum of 1988.*

Appendix C

Waste Management Area C Monitoring Network Water Table Measurements and Gradient and Azimuth Determinations

Table C-1. WMA C Water Table Measurements and Gradient and Azimuth Determinations for December 2012

Well Name	Measurement Date & Time (PST)	Measured Depth to Water (m)	MP	MP-RP	Hydraulic Head (m NAVD88)	
					New RP & Gyro Correction	New RP, Gyro Correction & BP
299-E27-12	12/26/12 9:41	80.768	TOPP	0.005	121.811	
299-E27-14	12/26/12 9:35	79.982	TOPP	0.005	121.809	
299-E27-15			TOPP	0.004		
299-E27-21	12/13/12 11:22	84.197	TOPP	0.000	121.804	
299-E27-22	12/13/12 10:15	71.523	TOPP	0.006	122.045	
299-E27-23	12/13/12 13:24	84.796	TOPP	0.006	121.817	
299-E27-4	12/13/12 12:34	84.101	TOPP	0.006	121.850	
299-E27-7	12/13/12 8:28	72.753	TOPP	0.000	121.798	
				Range (m):	0.247	
				Gradient Magnitude (m/m):	5.94E-04	
				Direction (azimuth):	173.4	
				R^2:	0.41	
				p-Value:	0.3519	
				Statistically Significant?:	No	

Source: NAVD88, *North American Vertical Datum of 1988.*

The left side of the table shows the well, date of measurement, and the measured depth to water. The middle portion of the table provides the measuring point (MP) from which the depth to water was derived at the well. The MP may be different from the elevation survey point or reference point (RP) at the well. The RP on these wells is the top of casing (TOC). Thus, when a pump plate (TOPP) lies on top of the TOC, the thickness of that plate must be subtracted from the RP in order to get the elevation of the groundwater surface. The next correction added to derive the surface of the groundwater more accurately was removing the extra distance to groundwater associated with deviation from vertical. This correction is subtracted from the depth to water in the left column of the hydraulic head column. Finally, the barometric response correction for each well is provided in the far right column.

After these corrections have been applied, a least square regression of the plane to elevations associated with the well locations is completed to derive the gradient. The gradient, azimuth, R^2 ratio, the p-value are provided in the lower part of the table. Briefly, the R^2 ratio is the goodness of fit coefficient. Basically, it is the ratio of the sum of squares because of the regression to the total sum of squares. If the ratio of the two sums is close to 1, indicating unity, then the fit is considered good. Likewise, the p-value is the probability that the degree of an apparent spatially dependent trend observed in the data (or a trend of even greater degree) would occur solely by random chance. Thus, if the p-value is less than 0.05, the fitted trend surface is deemed statistically significant. Further details of this process calculation are provided in *Calculations in Support of the Low Hydraulic Gradient Evaluation Study for the 200 East Area Unconfined Aquifer* (ECF-200EAST-12-0086).

Table C-2. WMA C Water Table Measurements and Gradient and Azimuth Determinations for Wells Sampled on December 12 and 13

Well Name	Measurement Date & Time (PST)	Measured Depth to Water (m)	MP	MP-RP	Hydraulic Head (m NAVD88)	
					New RP & Gyro Correction	New RP, Gyro Correction & BP
299-E27-14	12/12/12 12:00	79.998	TOPP	0.005	121.793	
299-E27-15			TOPP	0.004		
299-E27-21	12/13/12 11:22	84.197	TOPP	0.000	121.804	
299-E27-22	12/13/12 10:15	71.523	TOPP	0.006	122.045	
299-E27-23	12/13/12 13:24	84.796	TOPP	0.006	121.817	
299-E27-4	12/13/12 12:34	84.101	TOPP	0.006	121.850	
299-E27-7	12/13/12 8:28	72.753	TOPP	0.000	121.798	
				Range (m):	0.252	
				Gradient Magnitude (m/m):	9.32E-04	
				Direction (azimuth):	150.7	
				R^2:	0.59	
				p-Value:	0.2593	
				Statistically Significant?:	No	

Source: NAVD88, *North American Vertical Datum of 1988.*

Appendix D

Groundwater Analytical Data for Waste Management Area C, December 2012

Terms

DF	Dilution Factor
EQL	Estimated Quantitation Limit
GC	Gas Chromatograph
GFAA	Graphite-Furnace Atomic Absorption
IDL	Instrument Detection Limit
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MS	Mass Spectrometer
MSA	Method of Standard Additions
NTU	Nephelometric Turbidity Unit
PCB	Polychlorinated Biphenyl
PQL	Practical Quantitation Limit
QC	Quality Control
RDL	Required Detection Limit
TIC	Tentatively Identified Compound

Following are the definitions of laboratory qualifiers and review qualifiers.

Notes:

- The "Filtered" column indicates if the samples were (Y) or were not (N) filtered when they were collected in the field.
- The "Review Qualifier" definitions include:
  - A = Chain of custody problem.
  - F = The result is undergoing further review.
- The "Lab Qualifier" column definitions are identified as follows:

Code Translation

* INORGANICS – Duplicate analysis not within control limits.

\+ INORGANICS – Correlation coefficient for Method of Standard Additions (MSA) is < 0.995.

\> WETCHEM – Result greater than quantifiable range or greater than upper limit of the analysis range.

A ORGANICS – Valid for Tentatively Identified Compounds (TICs) only: The TIC is a suspected aldol-condensation product.

B INORGANICS and WETCHEM – The analyte was detected at a value less than the contract required detection limit (RDL), but greater than or equal to the Instrument Detection Limit/ Method Detection Limit (IDL/MDL) (as appropriate).

B flag (INORGANIC and WETCHEM) – [analyte] ≥ MDL

< Estimated Quantitation Limit (EQL)

= 5X or 10X the MDL

ORGANICS – The analyte was detected in both the associated Quality Control (QC) blank and in the sample.

RADIONUCLIDES – The associated QC sample blank has a result >= 2X the Minimum Detectable Activity (MDA) and, after corrections, result is >= MDA for this sample.

C INORGANICS/WETCHEM – The analyte was detected in both the sample and the associated QC blank, and the sample concentration was <= 5X the blank concentration.

ORGANICS (PESTICIDE only) – The identification of a pesticide confirmed by gas chromatograph/mass spectrometer (GC/MS).

D ALL – Analyte was reported at a secondary dilution factor (DF), typically DF>1 (i.e., the primary preparation required dilution to either bring the analyte within the calibration range or to minimize interference). Required for organics/wetchem if the sample was diluted.

E INORGANICS – Reported value is estimated because of interference.

ORGANICS – Concentration exceeds the calibration range of the GC/MS.

J ORGANICS – Estimated value; (1) constituent detected at a level less than the Required Detection Limit (RDL) or Practical Quantitation Limit (PQL) and greater than or equal to the MDL, (2) estimated concentration for TICs.

M INORGANICS – Duplicate precision criteria not met.

N ALL (except GC/MS based analysis) – Spike and/or spike duplicate sample recovery is outside control limits.

ORGANICS (GC/MS only) – Presumptive evidence of compound based on mass spectral library search.

P ORGANICS (Polychlorinated Biphenyl [PCB] only) – Aroclor target analyte with greater than 25 percent difference between column analyses.

Q ORGANICS (Dioxins and PCB-congeners only) – Estimated maximum concentration. Used if one of the qualitative identification criteria is not met (e.g., Cl isotopic ratios outside theoretical range).

S INORGANICS – Reported value determined by the Method of Standard Additions (MSA).

T ORGANICS (GC/MS only) – Spike and/or spike duplicate sample recovery is outside control limits.

U ALL – Analyzed for but not detected above limiting criteria. Limiting criteria may be any of the following: value reported < 0; value reported < counting error; value reported < total analytical error; value_rptd <=contract MDL/IDL/MDA/PQL. Note – When another qualifier accompanies a "U" qualifier, the result is always considered nondetected. The qualifier combinations :UJ" and "UL" indicate that the result was nondetected, but the detection limit (i.e., value reported in the VALUE_RPTD or MIN_DETECTABLE_ACTIVITY [rad analysis only] fields was estimated.

W INORGANICS – Post-digestion spike recovery for Graphite-furnace atomic absorption (GFAA) out of control limit. Sample absorbency < 50 percent of spike absorbency.

X ALL – The result-specific translation of this qualifier code is provided in the hardcopy data report and/or case narrative. Additional result-specific translation information may also be found in the RESULT_COMMENT field for this record.

Y Same as X if more than one flag is required.

Z Same as X and Y if more than two flags are required.

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-12	B2MX24	12/12/2012	N	Alkalinity	110000	µg/L		
299-E27-12	B2MX24	12/12/2012	N	Antimony	36	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Antimony	36	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Barium	40.9	µg/L		
299-E27-12	B2MX26	12/12/2012	Y	Barium	41	µg/L		
299-E27-12	B2MX26	12/12/2012	Y	Beryllium	4	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Beryllium	4	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Cadmium	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Cadmium	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Calcium	48400	µg/L		
299-E27-12	B2MX24	12/12/2012	N	Calcium	47900	µg/L		
299-E27-12	B2MX25	12/12/2012	N	Chloride	12600	µg/L	D	
299-E27-12	B2MX24	12/12/2012	N	Chromium	6.3	µg/L	B	
299-E27-12	B2MX26	12/12/2012	Y	Chromium	5	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Cobalt	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Cobalt	4	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Copper	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Copper	4	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Cyanide	4	µg/L	U	
299-E27-12	B2MX25	12/12/2012	N	Fluoride	139	µg/L	BD	
299-E27-12	B2MX24	12/12/2012	N	Iron	31.9	µg/L	B	
299-E27-12	B2MX26	12/12/2012	Y	Iron	19	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Magnesium	13600	µg/L		
299-E27-12	B2MX26	12/12/2012	Y	Magnesium	13700	µg/L		
299-E27-12	B2MX24	12/12/2012	N	Manganese	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-12	B2MX26	12/12/2012	Y	Manganese	4	µg/L	U	
299-E27-12	B2MX24	12/12/2012	N	Nickel	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Nickel	4	µg/L	U	
299-E27-12	B2MX25	12/12/2012	N	Nitrate	9470	µg/L	D	
299-E27-12	B2MX25	12/12/2012	N	Nitrite	125	µg/L	UD	
299-E27-12	B2MX24	12/12/2012	N	Potassium	7400	µg/L		
299-E27-12	B2MX26	12/12/2012	Y	Potassium	7460	µg/L		
299-E27-12	B2MX24	12/12/2012	N	Silver	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Silver	4	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Sodium	12900	µg/L		
299-E27-12	B2MX24	12/12/2012	N	Sodium	12800	µg/L		
299-E27-12	B2N2H4	12/12/2012	N	Specific Conductance	394	µS/cm		
299-E27-12	B2N2H3	12/12/2012	N	Specific Conductance	394	µS/cm		
299-E27-12	B2MX23	12/12/2012	N	Specific Conductance	394	µS/cm		
299-E27-12	B2N2H5	12/12/2012	N	Specific Conductance	394	µS/cm		
299-E27-12	B2MX26	12/12/2012	Y	Strontium	232	µg/L		
299-E27-12	B2MX24	12/12/2012	N	Strontium	232	µg/L		
299-E27-12	B2MX25	12/12/2012	N	Sulfate	57800	µg/L	D	
299-E27-12	B2N2H5	12/12/2012	N	Temperature	17.4	Deg C		
299-E27-12	B2N2H4	12/12/2012	N	Temperature	17.4	Deg C		
299-E27-12	B2MX23	12/12/2012	N	Temperature	17.3	Deg C		
299-E27-12	B2N2H3	12/12/2012	N	Temperature	17.3	Deg C		
299-E27-12	B2MX23	12/12/2012	N	Turbidity	1.73	NTU		
299-E27-12	B2N2H5	12/12/2012	N	Turbidity	1.27	NTU		
299-E27-12	B2N2H3	12/12/2012	N	Turbidity	3.48	NTU		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-12	B2N2H4	12/12/2012	N	Turbidity	2.26	NTU		
299-E27-12	B2MX26	12/12/2012	Y	Vanadium	21.6	µg/L	B	
299-E27-12	B2MX24	12/12/2012	N	Vanadium	20.6	µg/L	B	
299-E27-12	B2MX24	12/12/2012	N	Zinc	5	µg/L	U	
299-E27-12	B2MX26	12/12/2012	Y	Zinc	5	µg/L	U	
299-E27-12	B2N2H3	12/12/2012	N	pH Measurement	8.15	unitless		
299-E27-12	B2N2H4	12/12/2012	N	pH Measurement	8.14	unitless		
299-E27-12	B2MX23	12/12/2012	N	pH Measurement	8.15	unitless		
299-E27-12	B2N2H5	12/12/2012	N	pH Measurement	8.13	unitless		
299-E27-13	B2MX28	12/12/2012	N	Alkalinity	94000	µg/L		
299-E27-13	B2MX28	12/12/2012	N	Antimony	36	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Antimony	36	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Barium	45.7	µg/L		
299-E27-13	B2MX30	12/12/2012	Y	Barium	46.3	µg/L		
299-E27-13	B2MX30	12/12/2012	Y	Beryllium	4	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Beryllium	4	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Cadmium	4	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Cadmium	4	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Calcium	64400	µg/L		
299-E27-13	B2MX28	12/12/2012	N	Calcium	64200	µg/L		
299-E27-13	B2MX29	12/12/2012	N	Chloride	20100	µg/L	D	
299-E27-13	B2MX28	12/12/2012	N	Chromium	11	µg/L	B	
299-E27-13	B2MX30	12/12/2012	Y	Chromium	5	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Cobalt	4	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Cobalt	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-13	B2MX28	12/12/2012	N	Copper	4	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Copper	4	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Cyanide	4	µg/L	U	
299-E27-13	B2MX29	12/12/2012	N	Fluoride	144	µg/L	D	
299-E27-13	B2MX30	12/12/2012	Y	Iron	22.1	µg/L	B	
299-E27-13	B2MX28	12/12/2012	N	Iron	62.5	µg/L	B	
299-E27-13	B2MX30	12/12/2012	Y	Magnesium	18200	µg/L		
299-E27-13	B2MX28	12/12/2012	N	Magnesium	17900	µg/L		
299-E27-13	B2MX28	12/12/2012	N	Manganese	4	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Manganese	4	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Nickel	4.2	µg/L	B	
299-E27-13	B2MX30	12/12/2012	Y	Nickel	4	µg/L	U	
299-E27-13	B2MX29	12/12/2012	N	Nitrate	21200	µg/L	D	
299-E27-13	B2MX29	12/12/2012	N	Nitrite	125	µg/L	UD	
299-E27-13	B2MX30	12/12/2012	Y	Potassium	8380	µg/L		
299-E27-13	B2MX28	12/12/2012	N	Potassium	8210	µg/L		
299-E27-13	B2MX30	12/12/2012	Y	Silver	4	µg/L	U	
299-E27-13	B2MX28	12/12/2012	N	Silver	4	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Sodium	14100	µg/L		
299-E27-13	B2MX28	12/12/2012	N	Sodium	13700	µg/L		
299-E27-13	B2N2H7	12/12/2012	N	Specific Conductance	519	µS/cm		
299-E27-13	B2MX27	12/12/2012	N	Specific Conductance	529	µS/cm		
299-E27-13	B2N2H6	12/12/2012	N	Specific Conductance	521	µS/cm		
299-E27-13	B2N2H8	12/12/2012	N	Specific Conductance	518	µS/cm		
299-E27-13	B2MX30	12/12/2012	Y	Strontium	321	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-13	B2MX28	12/12/2012	N	Strontium	314	µg/L		
299-E27-13	B2MX29	12/12/2012	N	Sulfate	109000	µg/L	D	
299-E27-13	B2N2H7	12/12/2012	N	Temperature	17.3	Deg C		
299-E27-13	B2N2H8	12/12/2012	N	Temperature	17.3	Deg C		
299-E27-13	B2N2H6	12/12/2012	N	Temperature	17.3	Deg C		
299-E27-13	B2MX27	12/12/2012	N	Temperature	17.1	Deg C		
299-E27-13	B2MX27	12/12/2012	N	Turbidity	4.29	NTU		
299-E27-13	B2N2H8	12/12/2012	N	Turbidity	3.08	NTU		
299-E27-13	B2N2H7	12/12/2012	N	Turbidity	3.18	NTU		
299-E27-13	B2N2H6	12/12/2012	N	Turbidity	3.2	NTU		
299-E27-13	B2MX28	12/12/2012	N	Vanadium	17.7	µg/L	B	
299-E27-13	B2MX30	12/12/2012	Y	Vanadium	20.4	µg/L	B	
299-E27-13	B2MX28	12/12/2012	N	Zinc	5	µg/L	U	
299-E27-13	B2MX30	12/12/2012	Y	Zinc	5	µg/L	U	
299-E27-13	B2N2H6	12/12/2012	N	pH Measurement	8.2	unitless		
299-E27-13	B2MX27	12/12/2012	N	pH Measurement	8.2	unitless		
299-E27-13	B2N2H8	12/12/2012	N	pH Measurement	8.17	unitless		
299-E27-13	B2N2H7	12/12/2012	N	pH Measurement	8.18	unitless		
299-E27-14	B2MX32	12/12/2012	N	Alkalinity	77000	µg/L		
299-E27-14	B2MX32	12/12/2012	N	Antimony	36	µg/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Antimony	36	µg/L	U	
299-E27-14	B2N098	12/12/2012	N	Antimony-125	-1.6	pCi/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Barium	93.5	µg/L		
299-E27-14	B2MX32	12/12/2012	N	Barium	94.1	µg/L		
299-E27-14	B2MX32	12/12/2012	N	Beryllium	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-14	B2MX34	12/12/2012	Y	Beryllium	4	µg/L	U	
299-E27-14	B2N098	12/12/2012	N	Beryllium-7	-5.5	pCi/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Cadmium	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Cadmium	4	µg/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Calcium	139000	µg/L		
299-E27-14	B2MX32	12/12/2012	N	Calcium	140000	µg/L		
299-E27-14	B2N098	12/12/2012	N	Cesium-134	1.01	pCi/L	U	
299-E27-14	B2N098	12/12/2012	N	Cesium-137	0.873	pCi/L	U	
299-E27-14	B2MX33	12/12/2012	N	Chloride	45200	µg/L	D	
299-E27-14	B2MX32	12/12/2012	N	Chromium	10.6	µg/L	B	
299-E27-14	B2MX34	12/12/2012	Y	Chromium	5.3	µg/L	B	
299-E27-14	B2MX34	12/12/2012	Y	Cobalt	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Cobalt	4	µg/L	U	
299-E27-14	B2N098	12/12/2012	N	Cobalt-60	-0.765	pCi/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Copper	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Copper	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Cyanide	5.8	µg/L	B	
299-E27-14	B2N2K8	12/12/2012	N	Dissolved oxygen	8820	µg/L		
299-E27-14	B2N2K9	12/12/2012	N	Dissolved oxygen	8840	µg/L		
299-E27-14	B2N097	12/12/2012	N	Dissolved oxygen	8880	µg/L		
299-E27-14	B2N2K7	12/12/2012	N	Dissolved oxygen	8880	µg/L		
299-E27-14	B2N098	12/12/2012	N	Europium-152	1.82	pCi/L	U	
299-E27-14	B2N098	12/12/2012	N	Europium-154	-1.31	pCi/L	U	
299-E27-14	B2N098	12/12/2012	N	Europium-155	-0.189	pCi/L	U	
299-E27-14	B2MX33	12/12/2012	N	Fluoride	136	µg/L	BD	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-14	B2N099	12/12/2012	N	Gross beta	2400	pCi/L		
299-E27-14	B2MX34	12/12/2012	Y	Iron	20.7	µg/L	B	
299-E27-14	B2MX32	12/12/2012	N	Iron	52	µg/L	B	
299-E27-14	B2MX34	12/12/2012	Y	Magnesium	39000	µg/L		
299-E27-14	B2MX32	12/12/2012	N	Magnesium	39600	µg/L		
299-E27-14	B2MX34	12/12/2012	Y	Manganese	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Manganese	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Nickel	7.8	µg/L	B	
299-E27-14	B2MX34	12/12/2012	Y	Nickel	5.4	µg/L	B	
299-E27-14	B2MX33	12/12/2012	N	Nitrate	89900	µg/L	D	
299-E27-14	B2MX33	12/12/2012	N	Nitrite	125	µg/L	UD	
299-E27-14	B2MX34	12/12/2012	Y	Potassium	11000	µg/L		
299-E27-14	B2MX32	12/12/2012	N	Potassium	11000	µg/L		
299-E27-14	B2N098	12/12/2012	N	Potassium-40	-31	pCi/L	U	
299-E27-14	B2N098	12/12/2012	N	Ruthenium-106	-3.7	pCi/L	U	
299-E27-14	B2MX32	12/12/2012	N	Silver	4	µg/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Silver	4	µg/L	U	
299-E27-14	B2MX32	12/12/2012	N	Sodium	23800	µg/L		
299-E27-14	B2MX34	12/12/2012	Y	Sodium	23500	µg/L		
299-E27-14	B2N2K7	12/12/2012	N	Specific Conductance	1049	µS/cm		
299-E27-14	B2N2K8	12/12/2012	N	Specific Conductance	1046	µS/cm		
299-E27-14	B2N2K9	12/12/2012	N	Specific Conductance	1046	µS/cm		
299-E27-14	B2N097	12/12/2012	N	Specific Conductance	1046	µS/cm		
299-E27-14	B2MX32	12/12/2012	N	Strontium	632	µg/L		
299-E27-14	B2MX34	12/12/2012	Y	Strontium	633	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-14	B2MX33	12/12/2012	N	Sulfate	317000	µg/L	D	
299-E27-14	B2N098	12/12/2012	N	Technetium-99	3620	pCi/L		
299-E27-14	B2N2K9	12/12/2012	N	Temperature	18.1	Deg C		
299-E27-14	B2N2K8	12/12/2012	N	Temperature	18.2	Deg C		
299-E27-14	B2N097	12/12/2012	N	Temperature	18.2	Deg C		
299-E27-14	B2N2K7	12/12/2012	N	Temperature	18.2	Deg C		
299-E27-14	B2N2K8	12/12/2012	N	Turbidity	1.82	NTU		
299-E27-14	B2N2K7	12/12/2012	N	Turbidity	1.52	NTU		
299-E27-14	B2N097	12/12/2012	N	Turbidity	1.8	NTU		
299-E27-14	B2N2K9	12/12/2012	N	Turbidity	1.76	NTU		
299-E27-14	B2N099	12/12/2012	N	Uranium	9.52	µg/L	D	
299-E27-14	B2MX32	12/12/2012	N	Vanadium	14.2	µg/L	B	
299-E27-14	B2MX34	12/12/2012	Y	Vanadium	14.2	µg/L	B	
299-E27-14	B2MX32	12/12/2012	N	Zinc	5	µg/L	U	
299-E27-14	B2MX34	12/12/2012	Y	Zinc	5	µg/L	U	
299-E27-14	B2N2K8	12/12/2012	N	pH Measurement	7.93	unitless		
299-E27-14	B2N2K7	12/12/2012	N	pH Measurement	7.93	unitless		
299-E27-14	B2N097	12/12/2012	N	pH Measurement	7.92	unitless		
299-E27-14	B2N2K9	12/12/2012	N	pH Measurement	7.94	unitless		
299-E27-15	B2MX35	12/19/2012	N	Alkalinity	98000	µg/L		
299-E27-15	B2MX35	12/19/2012	N	Antimony	36	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Antimony	36	µg/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Antimony-125	1.82	pCi/L	U	
299-E27-15	B2MX35	12/19/2012	N	Barium	43.4	µg/L		
299-E27-15	B2MX37	12/19/2012	Y	Barium	43.5	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-15	B2MX35	12/19/2012	N	Beryllium	4	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Beryllium	4	µg/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Beryllium-7	5.94	pCi/L	U	
299-E27-15	B2MX35	12/19/2012	N	Cadmium	4	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Cadmium	4	µg/L	U	
299-E27-15	B2MX35	12/19/2012	N	Calcium	53400	µg/L		
299-E27-15	B2MX37	12/19/2012	Y	Calcium	53700	µg/L		
299-E27-15	B2N0B1	12/19/2012	N	Cesium-134	0.478	pCi/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Cesium-137	1.06	pCi/L	U	
299-E27-15	B2MX36	12/19/2012	N	Chloride	18800	µg/L	D	
299-E27-15	B2MX35	12/19/2012	N	Chromium	15.6	µg/L	B	
299-E27-15	B2MX37	12/19/2012	Y	Chromium	5	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Cobalt	4	µg/L	U	
299-E27-15	B2MX35	12/19/2012	N	Cobalt	4	µg/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Cobalt-60	0.13	pCi/L	U	
299-E27-15	B2MX35	12/19/2012	N	Copper	4	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Copper	4	µg/L	U	
299-E27-15	B2MX35	12/19/2012	N	Cyanide	4	µg/L	UN	
299-E27-15	B2N0B1	12/19/2012	N	Europium-152	-4.56	pCi/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Europium-154	3.45	pCi/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Europium-155	-0.201	pCi/L	U	
299-E27-15	B2MX36	12/19/2012	N	Fluoride	149	µg/L	D	
299-E27-15	B2N0B2	12/19/2012	N	Gross beta	26	pCi/L		
299-E27-15	B2MX35	12/19/2012	N	Iron	56.4	µg/L	B	
299-E27-15	B2MX37	12/19/2012	Y	Iron	19	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-15	B2MX37	12/19/2012	Y	Magnesium	17100	µg/L		
299-E27-15	B2MX35	12/19/2012	N	Magnesium	16900	µg/L		
299-E27-15	B2MX35	12/19/2012	N	Manganese	4	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Manganese	4	µg/L	U	
299-E27-15	B2MX35	12/19/2012	N	Nickel	13	µg/L	B	
299-E27-15	B2MX37	12/19/2012	Y	Nickel	5.5	µg/L	B	
299-E27-15	B2MX36	12/19/2012	N	Nitrate	16700	µg/L	D	
299-E27-15	B2MX36	12/19/2012	N	Nitrite	125	µg/L	UD	
299-E27-15	B2MX37	12/19/2012	Y	Potassium	8200	µg/L		
299-E27-15	B2MX35	12/19/2012	N	Potassium	8040	µg/L		
299-E27-15	B2N0B1	12/19/2012	N	Potassium-40	-64.1	pCi/L	U	
299-E27-15	B2N0B1	12/19/2012	N	Ruthenium-106	-6.94	pCi/L	U	
299-E27-15	B2MX35	12/19/2012	N	Silver	4	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Silver	4	µg/L	U	
299-E27-15	B2MX35	12/19/2012	N	Sodium	14300	µg/L		
299-E27-15	B2MX37	12/19/2012	Y	Sodium	14600	µg/L		
299-E27-15	B2N2L1	12/19/2012	N	Specific Conductance	472	µS/cm		
299-E27-15	B2N2L2	12/19/2012	N	Specific Conductance	472	µS/cm		
299-E27-15	B2N0B0	12/19/2012	N	Specific Conductance	472	µS/cm		
299-E27-15	B2N2L0	12/19/2012	N	Specific Conductance	472	µS/cm		
299-E27-15	B2MX37	12/19/2012	Y	Strontium	283	µg/L		
299-E27-15	B2MX35	12/19/2012	N	Strontium	280	µg/L		
299-E27-15	B2MX36	12/19/2012	N	Sulfate	92600	µg/L	D	
299-E27-15	B2N0B1	12/19/2012	N	Technetium-99	35.5	pCi/L		
299-E27-15	B2N0B0	12/19/2012	N	Temperature	17.5	Deg C		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-15	B2N2L2	12/19/2012	N	Temperature	17.5	Deg C		
299-E27-15	B2N2L1	12/19/2012	N	Temperature	17.5	Deg C		
299-E27-15	B2N2L0	12/19/2012	N	Temperature	17.5	Deg C		
299-E27-15	B2N2L2	12/19/2012	N	Turbidity	1.55	NTU		
299-E27-15	B2N2L1	12/19/2012	N	Turbidity	1.43			
299-E27-15	B2N0B0	12/19/2012	N	Turbidity	1.68	NTU		
299-E27-15	B2N2L0	12/19/2012	N	Turbidity	1.25	NTU		
299-E27-15	B2N0B2	12/19/2012	N	Uranium	3.87	µg/L	D	
299-E27-15	B2MX37	12/19/2012	Y	Vanadium	17.4	µg/L	B	
299-E27-15	B2MX35	12/19/2012	N	Vanadium	16.3	µg/L	B	
299-E27-15	B2MX35	12/19/2012	N	Zinc	5	µg/L	U	
299-E27-15	B2MX37	12/19/2012	Y	Zinc	5	µg/L	U	
299-E27-15	B2N0B0	12/19/2012	N	pH Measurement	8.3	unitless		
299-E27-15	B2N2L0	12/19/2012	N	pH Measurement	8.29	unitless		
299-E27-15	B2N2L1	12/19/2012	N	pH Measurement	8.27	unitless		
299-E27-15	B2N2L2	12/19/2012	N	pH Measurement	8.27	unitless		
299-E27-155	B2MX39	12/12/2012	N	Alkalinity	160000	µg/L		
299-E27-155	B2MX41	12/12/2012	Y	Antimony	36	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Antimony	36	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Barium	60.4	µg/L		
299-E27-155	B2MX39	12/12/2012	N	Barium	61.6	µg/L		
299-E27-155	B2MX39	12/12/2012	N	Beryllium	4	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Beryllium	4	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Cadmium	4	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Cadmium	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-155	B2MX41	12/12/2012	Y	Calcium	90600	µg/L		
299-E27-155	B2MX39	12/12/2012	N	Calcium	91700	µg/L		
299-E27-155	B2MX40	12/12/2012	N	Chloride	23500	µg/L	D	
299-E27-155	B2MX41	12/12/2012	Y	Chromium	5	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Chromium	5	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Cobalt	4	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Cobalt	4	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Copper	4	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Copper	4	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Cyanide	4	µg/L	U	
299-E27-155	B2MX40	12/12/2012	N	Fluoride	113	µg/L	BD	
299-E27-155	B2MX39	12/12/2012	N	Iron	19	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Iron	19	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Magnesium	26400	µg/L		
299-E27-155	B2MX41	12/12/2012	Y	Magnesium	26200	µg/L		
299-E27-155	B2MX39	12/12/2012	N	Manganese	4	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Manganese	4	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Nickel	4	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Nickel	4	µg/L	U	
299-E27-155	B2MX40	12/12/2012	N	Nitrate	33600	µg/L	D	
299-E27-155	B2MX40	12/12/2012	N	Nitrite	144	µg/L	BD	
299-E27-155	B2MX39	12/12/2012	N	Potassium	10100	µg/L		
299-E27-155	B2MX41	12/12/2012	Y	Potassium	10000	µg/L		
299-E27-155	B2MX41	12/12/2012	Y	Silver	4	µg/L	U	
299-E27-155	B2MX39	12/12/2012	N	Silver	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-155	B2MX41	12/12/2012	Y	Sodium	23500	µg/L		
299-E27-155	B2MX39	12/12/2012	N	Sodium	23300	µg/L		
299-E27-155	B2N2H9	12/12/2012	N	Specific Conductance	712	µS/cm		
299-E27-155	B2N2J0	12/12/2012	N	Specific Conductance	713	µS/cm		
299-E27-155	B2MX38	12/12/2012	N	Specific Conductance	712	µS/cm		
299-E27-155	B2N2J1	12/12/2012	N	Specific Conductance	713	µS/cm		
299-E27-155	B2MX41	12/12/2012	Y	Strontium	450	µg/L		
299-E27-155	B2MX39	12/12/2012	N	Strontium	448	µg/L		
299-E27-155	B2MX40	12/12/2012	N	Sulfate	136000	µg/L	D	
299-E27-155	B2N2H9	12/12/2012	N	Temperature	19.2	Deg C		
299-E27-155	B2N2J1	12/12/2012	N	Temperature	19.2	Deg C		
299-E27-155	B2MX38	12/12/2012	N	Temperature	19.2	Deg C		
299-E27-155	B2N2J0	12/12/2012	N	Temperature	19.2	Deg C		
299-E27-155	B2N2J0	12/12/2012	N	Turbidity	0.33	NTU		
299-E27-155	B2N2J1	12/12/2012	N	Turbidity	0.42	NTU		
299-E27-155	B2N2H9	12/12/2012	N	Turbidity	0.42	NTU		
299-E27-155	B2MX38	12/12/2012	N	Turbidity	0.26	NTU		
299-E27-155	B2MX39	12/12/2012	N	Vanadium	15.2	µg/L	B	
299-E27-155	B2MX41	12/12/2012	Y	Vanadium	12.7	µg/L	B	
299-E27-155	B2MX39	12/12/2012	N	Zinc	5	µg/L	U	
299-E27-155	B2MX41	12/12/2012	Y	Zinc	5	µg/L	U	
299-E27-155	B2MX38	12/12/2012	N	pH Measurement	7.9	unitless		
299-E27-155	B2N2J1	12/12/2012	N	pH Measurement	7.91	unitless		
299-E27-155	B2N2H9	12/12/2012	N	pH Measurement	7.9	unitless		
299-E27-155	B2N2J0	12/12/2012	N	pH Measurement	7.91	unitless		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-21	B2MX71	12/13/2012	N	Alkalinity	82000	µg/L		
299-E27-21	B2MX43	12/13/2012	Y	Antimony	36	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Antimony	36	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Barium	56.6	µg/L		
299-E27-21	B2MX71	12/13/2012	N	Barium	54.6	µg/L		
299-E27-21	B2MX71	12/13/2012	N	Beryllium	4	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Beryllium	4	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Cadmium	4	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Cadmium	4	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Calcium	79700	µg/L		
299-E27-21	B2MX43	12/13/2012	Y	Calcium	81800	µg/L		
299-E27-21	B2MX72	12/13/2012	N	Chloride	22200	µg/L	D	
299-E27-21	B2MX71	12/13/2012	N	Chromium	5	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Chromium	5	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Cobalt	4	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Cobalt	4	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Copper	4	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Copper	4	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Cyanide	4	µg/L	U	
299-E27-21	B2MX72	12/13/2012	N	Fluoride	143	µg/L	D	
299-E27-21	B2MX71	12/13/2012	N	Iron	19	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Iron	19	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Magnesium	23500	µg/L		
299-E27-21	B2MX43	12/13/2012	Y	Magnesium	24200	µg/L		
299-E27-21	B2MX71	12/13/2012	N	Manganese	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-21	B2MX43	12/13/2012	Y	Manganese	4	µg/L	U	
299-E27-21	B2MX71	12/13/2012	N	Nickel	4	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Nickel	4	µg/L	U	
299-E27-21	B2MX72	12/13/2012	N	Nitrate	46500	µg/L	D	
299-E27-21	B2MX72	12/13/2012	N	Nitrite	125	µg/L	UD	
299-E27-21	B2MX71	12/13/2012	N	Potassium	9090	µg/L		
299-E27-21	B2MX43	12/13/2012	Y	Potassium	9430	µg/L		
299-E27-21	B2MX71	12/13/2012	N	Silver	4	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Silver	4	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Sodium	17900	µg/L		
299-E27-21	B2MX71	12/13/2012	N	Sodium	17200	µg/L		
299-E27-21	B2MX42	12/13/2012	N	Specific Conductance	674	µS/cm		
299-E27-21	B2N2J2	12/13/2012	N	Specific Conductance	672	µS/cm		
299-E27-21	B2N2J3	12/13/2012	N	Specific Conductance	679	µS/cm		
299-E27-21	B2N2J4	12/13/2012	N	Specific Conductance	676	µS/cm		
299-E27-21	B2MX71	12/13/2012	N	Strontium	383	µg/L		
299-E27-21	B2MX43	12/13/2012	Y	Strontium	389	µg/L		
299-E27-21	B2MX72	12/13/2012	N	Sulfate	170000	µg/L	D	
299-E27-21	B2N2J2	12/13/2012	N	Temperature	19.1	Deg C		
299-E27-21	B2MX42	12/13/2012	N	Temperature	19	Deg C		
299-E27-21	B2N2J3	12/13/2012	N	Temperature	19.1	Deg C		
299-E27-21	B2N2J4	12/13/2012	N	Temperature	19.1	Deg C		
299-E27-21	B2N2J4	12/13/2012	N	Turbidity	0.32	NTU		
299-E27-21	B2MX42	12/13/2012	N	Turbidity	0.22	NTU		
299-E27-21	B2N2J3	12/13/2012	N	Turbidity	0.8	NTU		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-21	B2N2J2	12/13/2012	N	Turbidity	0.59	NTU		
299-E27-21	B2MX43	12/13/2012	Y	Vanadium	17.6	µg/L	B	
299-E27-21	B2MX71	12/13/2012	N	Vanadium	15.3	µg/L	B	
299-E27-21	B2MX71	12/13/2012	N	Zinc	5	µg/L	U	
299-E27-21	B2MX43	12/13/2012	Y	Zinc	5	µg/L	U	
299-E27-21	B2MX42	12/13/2012	N	pH Measurement	7.84	unitless		
299-E27-21	B2N2J2	12/13/2012	N	pH Measurement	7.85	unitless		
299-E27-21	B2N2J3	12/13/2012	N	pH Measurement	7.85	unitless		
299-E27-21	B2N2J4	12/13/2012	N	pH Measurement	7.85	unitless		
299-E27-22	B2MX44	12/13/2012	N	Alkalinity	85000	µg/L		
299-E27-22	B2MX44	12/13/2012	N	Antimony	36	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Antimony	36	µg/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Antimony-125	2.09	pCi/L	U	
299-E27-22	B2MX44	12/13/2012	N	Barium	55.7	µg/L		
299-E27-22	B2MX46	12/13/2012	Y	Barium	55.3	µg/L		
299-E27-22	B2MX46	12/13/2012	Y	Beryllium	4	µg/L	U	
299-E27-22	B2MX44	12/13/2012	N	Beryllium	4	µg/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Beryllium-7	5.38	pCi/L	U	
299-E27-22	B2MX44	12/13/2012	N	Cadmium	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Cadmium	4	µg/L	U	
299-E27-22	B2MX44	12/13/2012	N	Calcium	84100	µg/L		
299-E27-22	B2MX46	12/13/2012	Y	Calcium	85100	µg/L		
299-E27-22	B2N0B4	12/13/2012	N	Cesium-134	-0.278	pCi/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Cesium-137	-0.302	pCi/L	U	
299-E27-22	B2MX45	12/13/2012	N	Chloride	33400	µg/L	D	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-22	B2MX46	12/13/2012	Y	Chromium	5	µg/L	U	
299-E27-22	B2MX44	12/13/2012	N	Chromium	5.6	µg/L	B	
299-E27-22	B2MX44	12/13/2012	N	Cobalt	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Cobalt	4	µg/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Cobalt-60	-0.67	pCi/L	U	
299-E27-22	B2MX44	12/13/2012	N	Copper	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Copper	4	µg/L	U	
299-E27-22	B2MX44	12/13/2012	N	Cyanide	4	µg/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Europium-152	-0.818	pCi/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Europium-154	-0.411	pCi/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Europium-155	-0.0637	pCi/L	U	
299-E27-22	B2MX45	12/13/2012	N	Fluoride	120	µg/L	BD	
299-E27-22	B2N0B5	12/13/2012	N	Gross beta	18	pCi/L		
299-E27-22	B2MX46	12/13/2012	Y	Iron	19	µg/L	U	
299-E27-22	B2MX44	12/13/2012	N	Iron	28.9	µg/L	B	
299-E27-22	B2MX46	12/13/2012	Y	Magnesium	24200	µg/L		
299-E27-22	B2MX44	12/13/2012	N	Magnesium	24000	µg/L		
299-E27-22	B2MX44	12/13/2012	N	Manganese	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Manganese	4	µg/L	U	
299-E27-22	B2MX44	12/13/2012	N	Nickel	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Nickel	5.2	µg/L	B	
299-E27-22	B2MX45	12/13/2012	N	Nitrate	32200	µg/L	D	
299-E27-22	B2MX45	12/13/2012	N	Nitrite	125	µg/L	UD	
299-E27-22	B2MX46	12/13/2012	Y	Potassium	9610	µg/L		
299-E27-22	B2MX44	12/13/2012	N	Potassium	9580	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-22	B2N0B4	12/13/2012	N	Potassium-40	-27.8	pCi/L	U	
299-E27-22	B2N0B4	12/13/2012	N	Ruthenium-106	2.33	pCi/L	U	
299-E27-22	B2MX44	12/13/2012	N	Silver	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Silver	4	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Sodium	17000	µg/L		
299-E27-22	B2MX44	12/13/2012	N	Sodium	16900	µg/L		
299-E27-22	B2N2L3	12/13/2012	N	Specific Conductance	708	µS/cm		
299-E27-22	B2N0B3	12/13/2012	N	Specific Conductance	704	µS/cm		
299-E27-22	B2N2L5	12/13/2012	N	Specific Conductance	705	µS/cm		
299-E27-22	B2N2L4	12/13/2012	N	Specific Conductance	706	µS/cm		
299-E27-22	B2MX44	12/13/2012	N	Strontium	408	µg/L		
299-E27-22	B2MX46	12/13/2012	Y	Strontium	418	µg/L		
299-E27-22	B2MX45	12/13/2012	N	Sulfate	170000	µg/L	D	
299-E27-22	B2N0B5	12/13/2012	N	Technetium-99	28	pCi/L		
299-E27-22	B2N0B3	12/13/2012	N	Temperature	17.2	Deg C		
299-E27-22	B2N2L4	12/13/2012	N	Temperature	17.3	Deg C		
299-E27-22	B2N2L5	12/13/2012	N	Temperature	17.3	Deg C		
299-E27-22	B2N2L3	12/13/2012	N	Temperature	17.4	Deg C		
299-E27-22	B2N2L5	12/13/2012	N	Turbidity	0.4	NTU		
299-E27-22	B2N0B3	12/13/2012	N	Turbidity	1.22	NTU		
299-E27-22	B2N2L3	12/13/2012	N	Turbidity	1.81	NTU		
299-E27-22	B2N2L4	12/13/2012	N	Turbidity	1.04	NTU		
299-E27-22	B2N0B5	12/13/2012	N	Uranium	3.41	µg/L	D	
299-E27-22	B2MX44	12/13/2012	N	Vanadium	13.4	µg/L	B	
299-E27-22	B2MX46	12/13/2012	Y	Vanadium	17.7	µg/L	B	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-22	B2MX44	12/13/2012	N	Zinc	5	µg/L	U	
299-E27-22	B2MX46	12/13/2012	Y	Zinc	5	µg/L	U	
299-E27-22	B2N2L3	12/13/2012	N	pH Measurement	7.96	unitless		
299-E27-22	B2N2L4	12/13/2012	N	pH Measurement	7.96	unitless		
299-E27-22	B2N2L5	12/13/2012	N	pH Measurement	7.96	unitless		
299-E27-22	B2N0B3	12/13/2012	N	pH Measurement	7.96	unitless		
299-E27-23	B2MX48	12/13/2012	N	Alkalinity	89000	µg/L		
299-E27-23	B2MX48	12/13/2012	N	Antimony	36	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Antimony	36	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Barium	52.1	µg/L		
299-E27-23	B2MX50	12/13/2012	Y	Barium	51.3	µg/L		
299-E27-23	B2MX48	12/13/2012	N	Beryllium	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Beryllium	4	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Cadmium	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Cadmium	4	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Calcium	77200	µg/L		
299-E27-23	B2MX50	12/13/2012	Y	Calcium	77600	µg/L		
299-E27-23	B2MX49	12/13/2012	N	Chloride	23000	µg/L	D	
299-E27-23	B2MX50	12/13/2012	Y	Chromium	6.3	µg/L	B	
299-E27-23	B2MX48	12/13/2012	N	Chromium	5	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Cobalt	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Cobalt	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Copper	4	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Copper	4	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Cyanide	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-23	B2MX49	12/13/2012	N	Fluoride	124	µg/L	BD	
299-E27-23	B2MX50	12/13/2012	Y	Iron	136	µg/L		
299-E27-23	B2MX48	12/13/2012	N	Iron	19	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Magnesium	22400	µg/L		
299-E27-23	B2MX50	12/13/2012	Y	Magnesium	22300	µg/L		
299-E27-23	B2MX48	12/13/2012	N	Manganese	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Manganese	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Nickel	4	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Nickel	4	µg/L	U	
299-E27-23	B2MX49	12/13/2012	N	Nitrate	40300	µg/L	D	
299-E27-23	B2MX49	12/13/2012	N	Nitrite	125	µg/L	UD	
299-E27-23	B2MX50	12/13/2012	Y	Potassium	9130	µg/L		
299-E27-23	B2MX48	12/13/2012	N	Potassium	9210	µg/L		
299-E27-23	B2MX50	12/13/2012	Y	Silver	4	µg/L	U	
299-E27-23	B2MX48	12/13/2012	N	Silver	4	µg/L	U	
299-E27-23	B2MX50	12/13/2012	Y	Sodium	16000	µg/L		
299-E27-23	B2MX48	12/13/2012	N	Sodium	16200	µg/L		
299-E27-23	B2MX47	12/13/2012	N	Specific Conductance	638	µS/cm		
299-E27-23	B2N2J7	12/13/2012	N	Specific Conductance	643	µS/cm		
299-E27-23	B2N2J6	12/13/2012	N	Specific Conductance	642	µS/cm		
299-E27-23	B2N2J5	12/13/2012	N	Specific Conductance	639	µS/cm		
299-E27-23	B2MX48	12/13/2012	N	Strontium	369	µg/L		
299-E27-23	B2MX50	12/13/2012	Y	Strontium	369	µg/L		
299-E27-23	B2MX49	12/13/2012	N	Sulfate	149000	µg/L	D	
299-E27-23	B2N2J7	12/13/2012	N	Temperature	18.4	Deg C		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-23	B2N2J6	12/13/2012	N	Temperature	18.4	Deg C		
299-E27-23	B2MX47	12/13/2012	N	Temperature	18.3	Deg C		
299-E27-23	B2N2J5	12/13/2012	N	Temperature	18.4	Deg C		
299-E27-23	B2MX47	12/13/2012	N	Turbidity	0.73	NTU		
299-E27-23	B2N2J7	12/13/2012	N	Turbidity	0.82	NTU		
299-E27-23	B2N2J5	12/13/2012	N	Turbidity	0.22	NTU		
299-E27-23	B2N2J6	12/13/2012	N	Turbidity	0.2	NTU		
299-E27-23	B2MX48	12/13/2012	N	Vanadium	15	µg/L	B	
299-E27-23	B2MX50	12/13/2012	Y	Vanadium	15.2	µg/L	B	
299-E27-23	B2MX48	12/13/2012	N	Zinc	5.2	µg/L	B	
299-E27-23	B2MX50	12/13/2012	Y	Zinc	7	µg/L	B	
299-E27-23	B2N2J7	12/13/2012	N	pH Measurement	7.97	unitless		
299-E27-23	B2N2J5	12/13/2012	N	pH Measurement	7.97	unitless		
299-E27-23	B2N2J6	12/13/2012	N	pH Measurement	7.97	unitless		
299-E27-23	B2MX47	12/13/2012	N	pH Measurement	7.97	unitless		
299-E27-24	B2MX52	12/14/2012	N	Alkalinity	81000	µg/L		
299-E27-24	B2MX52	12/14/2012	N	Antimony	36	µg/L	U	
299-E27-24	B2MX54	12/14/2012	Y	Antimony	36	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Barium	79.1	µg/L		Q
299-E27-24	B2MX54	12/14/2012	Y	Barium	82.1	µg/L		Q
299-E27-24	B2MX54	12/14/2012	Y	Beryllium	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Beryllium	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Cadmium	4	µg/L	U	
299-E27-24	B2MX54	12/14/2012	Y	Cadmium	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Calcium	121000	µg/L		Q

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-24	B2MX54	12/14/2012	Y	Calcium	123000	µg/L		Q
299-E27-24	B2MX53	12/14/2012	N	Chloride	41900	µg/L	D	
299-E27-24	B2MX52	12/14/2012	N	Chromium	10.8	µg/L	B	
299-E27-24	B2MX54	12/14/2012	Y	Chromium	5	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Cobalt	4	µg/L	U	
299-E27-24	B2MX54	12/14/2012	Y	Cobalt	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Copper	4	µg/L	U	
299-E27-24	B2MX54	12/14/2012	Y	Copper	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Cyanide	8.75	µg/L	B	
299-E27-24	B2MX53	12/14/2012	N	Fluoride	129	µg/L	BD	
299-E27-24	B2MX54	12/14/2012	Y	Iron	19	µg/L	U	Q
299-E27-24	B2MX52	12/14/2012	N	Iron	61.2	µg/L	B	Q
299-E27-24	B2MX54	12/14/2012	Y	Magnesium	36100	µg/L		Q
299-E27-24	B2MX52	12/14/2012	N	Magnesium	34900	µg/L		Q
299-E27-24	B2MX52	12/14/2012	N	Manganese	4	µg/L	U	Q
299-E27-24	B2MX54	12/14/2012	Y	Manganese	4	µg/L	U	Q
299-E27-24	B2MX54	12/14/2012	Y	Nickel	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Nickel	4	µg/L	U	
299-E27-24	B2MX53	12/14/2012	N	Nitrate	71300	µg/L	D	
299-E27-24	B2MX53	12/14/2012	N	Nitrite	125	µg/L	UD	
299-E27-24	B2MX54	12/14/2012	Y	Potassium	11200	µg/L		Q
299-E27-24	B2MX52	12/14/2012	N	Potassium	10800	µg/L		Q
299-E27-24	B2MX52	12/14/2012	N	Silver	4	µg/L	U	
299-E27-24	B2MX54	12/14/2012	Y	Silver	4	µg/L	U	
299-E27-24	B2MX52	12/14/2012	N	Sodium	23900	µg/L		Q

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-24	B2MX54	12/14/2012	Y	Sodium	24800	µg/L		Q
299-E27-24	B2N2J8	12/14/2012	N	Specific Conductance	1012	µS/cm		
299-E27-24	B2N2K0	12/14/2012	N	Specific Conductance	1013	µS/cm		
299-E27-24	B2N2J9	12/14/2012	N	Specific Conductance	1012	µS/cm		
299-E27-24	B2MX51	12/14/2012	N	Specific Conductance	1011	µS/cm		
299-E27-24	B2MX52	12/14/2012	N	Strontium	583	µg/L		Q
299-E27-24	B2MX54	12/14/2012	Y	Strontium	595	µg/L		Q
299-E27-24	B2MX53	12/14/2012	N	Sulfate	300000	µg/L	D	
299-E27-24	B2N2J9	12/14/2012	N	Temperature	18.2	Deg C		
299-E27-24	B2N2K0	12/14/2012	N	Temperature	18.2	Deg C		
299-E27-24	B2N2J8	12/14/2012	N	Temperature	18.2	Deg C		
299-E27-24	B2MX51	12/14/2012	N	Temperature	18.2	Deg C		
299-E27-24	B2N2J8	12/14/2012	N	Turbidity	5.36	NTU		
299-E27-24	B2MX51	12/14/2012	N	Turbidity	4.14	NTU		
299-E27-24	B2N2J9	12/14/2012	N	Turbidity	3.12	NTU		
299-E27-24	B2N2K0	12/14/2012	N	Turbidity	2.97	NTU		
299-E27-24	B2MX54	12/14/2012	Y	Vanadium	14.3	µg/L	B	
299-E27-24	B2MX52	12/14/2012	N	Vanadium	10.2	µg/L	B	
299-E27-24	B2MX52	12/14/2012	N	Zinc	5	µg/L	U	
299-E27-24	B2MX54	12/14/2012	Y	Zinc	5	µg/L	U	
299-E27-24	B2N2J9	12/14/2012	N	pH Measurement	7.88	unitless		
299-E27-24	B2N2K0	12/14/2012	N	pH Measurement	7.88	unitless		
299-E27-24	B2MX51	12/14/2012	N	pH Measurement	7.89	unitless		
299-E27-24	B2N2J8	12/14/2012	N	pH Measurement	7.89	unitless		
299-E27-25	B2MX56	12/13/2012	N	Alkalinity	75000	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-25	B2MX56	12/13/2012	N	Antimony	36	µg/L	U	
299-E27-25	B2MX58	12/13/2012	Y	Antimony	36	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Barium	63.9	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Barium	62.4	µg/L		
299-E27-25	B2MX56	12/13/2012	N	Beryllium	4	µg/L	U	
299-E27-25	B2MX58	12/13/2012	Y	Beryllium	4	µg/L	U	
299-E27-25	B2MX58	12/13/2012	Y	Cadmium	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Cadmium	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Calcium	122000	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Calcium	119000	µg/L		
299-E27-25	B2MX57	12/13/2012	N	Chloride	56400	µg/L	D	
299-E27-25	B2MX56	12/13/2012	N	Chromium	11.7	µg/L	B	
299-E27-25	B2MX58	12/13/2012	Y	Chromium	5	µg/L	U	
299-E27-25	B2MX58	12/13/2012	Y	Cobalt	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Cobalt	4	µg/L	U	
299-E27-25	B2MX58	12/13/2012	Y	Copper	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Copper	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Cyanide	4	µg/L	U	
299-E27-25	B2MX57	12/13/2012	N	Fluoride	123	µg/L	BD	
299-E27-25	B2MX56	12/13/2012	N	Iron	59.3	µg/L	B	
299-E27-25	B2MX58	12/13/2012	Y	Iron	19	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Magnesium	34700	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Magnesium	33900	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Manganese	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Manganese	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-25	B2MX58	12/13/2012	Y	Nickel	5.5	µg/L	B	
299-E27-25	B2MX56	12/13/2012	N	Nickel	5.5	µg/L	B	
299-E27-25	B2MX57	12/13/2012	N	Nitrate	46000	µg/L	D	
299-E27-25	B2MX57	12/13/2012	N	Nitrite	125	µg/L	UD	
299-E27-25	B2MX58	12/13/2012	Y	Potassium	10300	µg/L		
299-E27-25	B2MX56	12/13/2012	N	Potassium	10500	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Silver	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Silver	4	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Sodium	19600	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Sodium	18900	µg/L		
299-E27-25	B2N2K3	12/13/2012	N	Specific Conductance	969	µS/cm		
299-E27-25	B2N2K1	12/13/2012	N	Specific Conductance	970	µS/cm		
299-E27-25	B2N2K2	12/13/2012	N	Specific Conductance	968	µS/cm		
299-E27-25	B2MX55	12/13/2012	N	Specific Conductance	970	µS/cm		
299-E27-25	B2MX56	12/13/2012	N	Strontium	566	µg/L		
299-E27-25	B2MX58	12/13/2012	Y	Strontium	555	µg/L		
299-E27-25	B2MX57	12/13/2012	N	Sulfate	275000	µg/L	D	
299-E27-25	B2N2K1	12/13/2012	N	Temperature	16.5	Deg C		
299-E27-25	B2MX55	12/13/2012	N	Temperature	16.4	Deg C		
299-E27-25	B2N2K3	12/13/2012	N	Temperature	16.6	Deg C		
299-E27-25	B2N2K2	12/13/2012	N	Temperature	16.5	Deg C		
299-E27-25	B2N2K3	12/13/2012	N	Turbidity	1.46	NTU		
299-E27-25	B2MX55	12/13/2012	N	Turbidity	1.77	NTU		
299-E27-25	B2N2K2	12/13/2012	N	Turbidity	1.59	NTU		
299-E27-25	B2N2K1	12/13/2012	N	Turbidity	1.39	NTU		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-25	B2MX56	12/13/2012	N	Vanadium	10.1	µg/L	B	
299-E27-25	B2MX58	12/13/2012	Y	Vanadium	10.5	µg/L	B	
299-E27-25	B2MX58	12/13/2012	Y	Zinc	5	µg/L	U	
299-E27-25	B2MX56	12/13/2012	N	Zinc	5	µg/L	U	
299-E27-25	B2MX55	12/13/2012	N	pH Measurement	7.92	unitless		
299-E27-25	B2N2K1	12/13/2012	N	pH Measurement	7.92	unitless		
299-E27-25	B2N2K3	12/13/2012	N	pH Measurement	7.93	unitless		
299-E27-25	B2N2K2	12/13/2012	N	pH Measurement	7.92	unitless		
299-E27-4	B2MX60	12/13/2012	N	Alkalinity	100000	µg/L		
299-E27-4	B2MX62	12/13/2012	Y	Antimony	36	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Antimony	36	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Barium	58.5	µg/L		
299-E27-4	B2MX62	12/13/2012	Y	Barium	57.5	µg/L		
299-E27-4	B2MX62	12/13/2012	Y	Beryllium	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Beryllium	4	µg/L	U	
299-E27-4	B2MX62	12/13/2012	Y	Cadmium	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Cadmium	4	µg/L	U	
299-E27-4	B2MX62	12/13/2012	Y	Calcium	80800	µg/L		
299-E27-4	B2MX60	12/13/2012	N	Calcium	81500	µg/L		
299-E27-4	B2MX61	12/13/2012	N	Chloride	24200	µg/L	D	
299-E27-4	B2MX60	12/13/2012	N	Chromium	6.9	µg/L	B	
299-E27-4	B2MX62	12/13/2012	Y	Chromium	5	µg/L	U	
299-E27-4	B2MX62	12/13/2012	Y	Cobalt	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Cobalt	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Copper	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-4	B2MX62	12/13/2012	Y	Copper	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Cyanide	4	µg/L	U	
299-E27-4	B2MX61	12/13/2012	N	Fluoride	131	µg/L	BD	
299-E27-4	B2MX62	12/13/2012	Y	Iron	19	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Iron	19	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Magnesium	23600	µg/L		
299-E27-4	B2MX62	12/13/2012	Y	Magnesium	23200	µg/L		
299-E27-4	B2MX60	12/13/2012	N	Manganese	4	µg/L	U	
299-E27-4	B2MX62	12/13/2012	Y	Manganese	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Nickel	7.8	µg/L	B	
299-E27-4	B2MX62	12/13/2012	Y	Nickel	7.5	µg/L	B	
299-E27-4	B2MX61	12/13/2012	N	Nitrate	36800	µg/L	D	
299-E27-4	B2MX61	12/13/2012	N	Nitrite	125	µg/L	UD	
299-E27-4	B2MX62	12/13/2012	Y	Potassium	9250	µg/L		
299-E27-4	B2MX60	12/13/2012	N	Potassium	9470	µg/L		
299-E27-4	B2MX62	12/13/2012	Y	Silver	4	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Silver	4	µg/L	U	
299-E27-4	B2MX62	12/13/2012	Y	Sodium	16500	µg/L		
299-E27-4	B2MX60	12/13/2012	N	Sodium	16800	µg/L		
299-E27-4	B2MX59	12/13/2012	N	Specific Conductance	672	µS/cm		
299-E27-4	B2N2K4	12/13/2012	N	Specific Conductance	674	µS/cm		
299-E27-4	B2N2K6	12/13/2012	N	Specific Conductance	673	µS/cm		
299-E27-4	B2N2K5	12/13/2012	N	Specific Conductance	673	µS/cm		
299-E27-4	B2MX62	12/13/2012	Y	Strontium	385	µg/L		
299-E27-4	B2MX60	12/13/2012	N	Strontium	388	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-4	B2MX61	12/13/2012	N	Sulfate	151000	µg/L	D	
299-E27-4	B2N2K5	12/13/2012	N	Temperature	19	Deg C		
299-E27-4	B2N2K6	12/13/2012	N	Temperature	19	Deg C		
299-E27-4	B2MX59	12/13/2012	N	Temperature	18.9	Deg C		
299-E27-4	B2N2K4	12/13/2012	N	Temperature	18.9	Deg C		
299-E27-4	B2MX59	12/13/2012	N	Turbidity	0.37	NTU		
299-E27-4	B2N2K4	12/13/2012	N	Turbidity	0.37	NTU		
299-E27-4	B2N2K5	12/13/2012	N	Turbidity	0.37	NTU		
299-E27-4	B2N2K6	12/13/2012	N	Turbidity	0.26	NTU		
299-E27-4	B2MX60	12/13/2012	N	Vanadium	15.5	µg/L	B	
299-E27-4	B2MX62	12/13/2012	Y	Vanadium	15.3	µg/L	B	
299-E27-4	B2MX62	12/13/2012	Y	Zinc	5	µg/L	U	
299-E27-4	B2MX60	12/13/2012	N	Zinc	5	µg/L	U	
299-E27-4	B2N2K6	12/13/2012	N	pH Measurement	8	unitless		
299-E27-4	B2N2K4	12/13/2012	N	pH Measurement	8.01	unitless		
299-E27-4	B2N2K5	12/13/2012	N	pH Measurement	8.01	unitless		
299-E27-4	B2MX59	12/13/2012	N	pH Measurement	8.01	unitless		
299-E27-7	B2MX64	12/13/2012	N	Alkalinity	82000	µg/L		
299-E27-7	B2MX64	12/13/2012	N	Antimony	36	µg/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Antimony	36	µg/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Antimony-125	0.464	pCi/L	U	
299-E27-7	B2MX64	12/13/2012	N	Barium	58.2	µg/L		
299-E27-7	B2MX68	12/13/2012	Y	Barium	58.3	µg/L		
299-E27-7	B2MX68	12/13/2012	Y	Beryllium	4	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Beryllium	4	µg/L	U	

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-7	B2N0B8	12/13/2012	N	Beryllium-7	2.2	pCi/L	U	
299-E27-7	B2MX64	12/13/2012	N	Cadmium	4	µg/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Cadmium	4	µg/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Calcium	93900	µg/L		
299-E27-7	B2MX64	12/13/2012	N	Calcium	94200	µg/L		
299-E27-7	B2N0B8	12/13/2012	N	Cesium-134	-0.068	pCi/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Cesium-137	0.6	pCi/L	U	
299-E27-7	B2MX66	12/13/2012	N	Chloride	39900	µg/L	D	
299-E27-7	B2MX64	12/13/2012	N	Chromium	6.3	µg/L	B	
299-E27-7	B2MX68	12/13/2012	Y	Chromium	5	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Cobalt	4	µg/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Cobalt	4	µg/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Cobalt-60	-0.762	pCi/L	U	
299-E27-7	B2MX64	12/13/2012	N	Copper	4	µg/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Copper	4	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Cyanide	4	µg/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Europium-152	-0.362	pCi/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Europium-154	-2.92	pCi/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Europium-155	-0.113	pCi/L	U	
299-E27-7	B2MX66	12/13/2012	N	Fluoride	107	µg/L	BD	
299-E27-7	B2N0C0	12/13/2012	N	Gross beta	20	pCi/L		
299-E27-7	B2MX64	12/13/2012	N	Iron	151	µg/L		
299-E27-7	B2MX68	12/13/2012	Y	Iron	29.9	µg/L	B	
299-E27-7	B2MX64	12/13/2012	N	Magnesium	26900	µg/L		
299-E27-7	B2MX68	12/13/2012	Y	Magnesium	27000	µg/L		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-7	B2MX68	12/13/2012	Y	Manganese	4	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Manganese	4	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Nickel	4	µg/L	B	
299-E27-7	B2MX68	12/13/2012	Y	Nickel	4	µg/L	U	
299-E27-7	B2MX66	12/13/2012	N	Nitrate	35400	µg/L	D	
299-E27-7	B2MX66	12/13/2012	N	Nitrite	125	µg/L	UD	
299-E27-7	B2MX68	12/13/2012	Y	Potassium	10200	µg/L		
299-E27-7	B2MX64	12/13/2012	N	Potassium	10200	µg/L		
299-E27-7	B2N0B8	12/13/2012	N	Potassium-40	-67	pCi/L	U	
299-E27-7	B2N0B8	12/13/2012	N	Ruthenium-106	-6.58	pCi/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Silver	4	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Silver	4	µg/L	U	
299-E27-7	B2MX68	12/13/2012	Y	Sodium	17300	µg/L		
299-E27-7	B2MX64	12/13/2012	N	Sodium	17300	µg/L		
299-E27-7	B2N2L8	12/13/2012	N	Specific Conductance	773	µS/cm		
299-E27-7	B2N2L7	12/13/2012	N	Specific Conductance	774	µS/cm		
299-E27-7	B2N0B6	12/13/2012	N	Specific Conductance	773	µS/cm		
299-E27-7	B2N2L6	12/13/2012	N	Specific Conductance	773	µS/cm		
299-E27-7	B2MX64	12/13/2012	N	Strontium	485	µg/L		
299-E27-7	B2MX68	12/13/2012	Y	Strontium	480	µg/L		
299-E27-7	B2MX66	12/13/2012	N	Sulfate	193000	µg/L	D	
299-E27-7	B2N0B8	12/13/2012	N	Technetium-99	23.7	pCi/L		
299-E27-7	B2N2L8	12/13/2012	N	Temperature	11.7	Deg C		
299-E27-7	B2N2L6	12/13/2012	N	Temperature	11.6	Deg C		
299-E27-7	B2N0B6	12/13/2012	N	Temperature	11.5	Deg C		

Table D-1. December 2012 Sample Results

Well Name	Sample Number	Sample Date	Filtered Flag	Standard Constituent Long Name	Standard Value Reported	Standard Analytical L Units Reported	Lab Qualifier	Review Qualifier
299-E27-7	B2N2L7	12/13/2012	N	Temperature	11.7	Deg C		
299-E27-7	B2N0B6	12/13/2012	N	Turbidity	2.62	NTU		
299-E27-7	B2N2L6	12/13/2012	N	Turbidity	1.8	NTU		
299-E27-7	B2N2L8	12/13/2012	N	Turbidity	2.43	NTU		
299-E27-7	B2N2L7	12/13/2012	N	Turbidity	2.59	NTU		
299-E27-7	B2N0C0	12/13/2012	N	Uranium	3.1	µg/L	D	
299-E27-7	B2MX68	12/13/2012	Y	Vanadium	11.6	µg/L	B	
299-E27-7	B2MX64	12/13/2012	N	Vanadium	13.9	µg/L	B	
299-E27-7	B2MX68	12/13/2012	Y	Zinc	5	µg/L	U	
299-E27-7	B2MX64	12/13/2012	N	Zinc	5	µg/L	U	
299-E27-7	B2N2L6	12/13/2012	N	pH Measurement	7.86	unitless		
299-E27-7	B2N2L8	12/13/2012	N	pH Measurement	7.85	unitless		
299-E27-7	B2N0B6	12/13/2012	N	pH Measurement	7.86	unitless		
299-E27-7	B2N2L7	12/13/2012	N	pH Measurement	7.86	unitless		

This page intentionally left blank.

Distribution

U.S. Department of Energy, Richland Operations Office – Electronic Distribution

R. D. Hildebrand (4 copies / 16 CDs)	A6-38

U.S. Department of Energy, Office of River Protection – Electronic Distribution

J. F. Grindstaff	H6-60
C. J. Kemp	H6-60

Washington River Protection Solutions LLC – Electronic Distribution ONLY

M. V. Bergeron	H6-13
S. J. Eberlein	H6-13
R. E. Fox	S7-83
J. G. Field	S7-90
D. R. Glaser	H6-13
J. J. Luke	H6-14
J. S. Schofield	R2-53

CH2M HILL Plateau Remediation Company – Electronic Distribution ONLY

W. R. Faught	R3-50
G. S. Thomas	R3-50

Administrative Record – Electronic Distribution

H. M. Childers (1 copy)	H6-08

Document Clearance - Electronic Distribution

	H6-08

This page intentionally left blank.