

Rocky Flats Site

**Quarterly Report of
Site Surveillance and
Maintenance Activities
First Quarter Calendar Year 2010**

July 2010



U.S. DEPARTMENT OF
ENERGY

Legacy
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**U.S. Department of Energy
Office of Legacy Management**

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Appendixes

- Appendix A Annual Inspection Checklist, Maps, and Photographs
- Appendix B Landfill Inspection Forms and Survey Data
- Appendix C Analytical Results for Water Samples—First Quarter CY 2010

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Abbreviations

AOC	area of concern
CAD/ROD	Corrective Action Decision/Record of Decision
CDPHE	Colorado Department of Public Health and Environment
COU	Central Operable Unit
CY	calendar year
DOE	U.S. Department of Energy
ETPTS	East Trenches Plume Treatment System
gpm	gallons per minute
GWIS	Groundwater Intercept System
IC	institutional control
LM	Office of Legacy Management
µg/L	micrograms per liter
mg/L	milligrams per liter
M&M	monitoring and maintenance
MSPTS	Mound Site Plume Treatment System
OLF	Original Landfill
pCi/L	picocuries per liter
PLF	Present Landfill
PLFTS	Present Landfill Treatment System
POC	point of compliance
POE	point of evaluation
RCRA	Resource Conservation and Recovery Act
RFLMA	<i>Rocky Flats Legacy Management Agreement</i>
RFSOG	<i>Rocky Flats Site Operations Guide</i>
Site	Rocky Flats Site
SPPTS	Solar Ponds Plume Treatment System
WQCC	Water Quality Control Commission

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1.0 Introduction

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) is responsible for implementing the final response action selected in the *Corrective Action Decision/Record of Decision for Rocky Flats Plant (USDOE) Peripheral Operable Unit and Central Operable Unit (CAD/ROD)* (DOE 2006a) issued September 29, 2006, for the Rocky Flats Site (the Site). DOE, the U.S. Environmental Protection Agency, and the Colorado Department of Public Health and Environment (CDPHE) have chosen to implement the monitoring and maintenance requirements of the CAD/ROD as described in the *Rocky Flats Legacy Management Agreement (RFLMA)* (DOE 2007a). Attachment 2 of RFLMA defines the Central Operable Unit (COU) remedy surveillance and maintenance requirements, the frequency for each required activity, and the monitoring and maintenance locations. The requirements include environmental monitoring; the maintenance of the erosion controls, access controls (signs), landfill covers, and groundwater treatment systems; and the operation of the groundwater treatment systems. RFLMA also requires that the institutional controls, in the form of use restrictions as established in the CAD/ROD, be maintained.

This report is required in accordance with Section 7.0 of RFLMA Attachment 2. The purpose of this report is to inform the regulatory agencies and stakeholders of the remedy-related surveillance, monitoring, and maintenance activities being conducted at the Site. LM provides periodic communications through several means, such as this report, Web-based tools, and public meetings.

LM prepared the *Rocky Flats Site Operations Guide (RFSOG)* (DOE 2009a) to serve as the primary internal document to guide work to satisfy the requirements of RFLMA and implement best management practices at the Site.

Several other Site-specific documents provide additional detail regarding the requirements described in RFLMA Attachment 2, including all aspects of surveillance, monitoring, and maintenance activities, as well as data evaluation protocols.

A modification to RFLMA Attachment 2, to incorporate several changes since the March 2008 page-change modification, was submitted to CDPHE for approval on September 21, 2009. CDPHE requested minor changes and corrections, which DOE incorporated, and the modification was resubmitted on December 22, 2009, and approved on January 20, 2010. These page changes incorporate the following:

- Changed monitoring locations approved in RFLMA Regulatory Contact Records 2007-07, 2008-04, and 2008-09;
- Changed Original Landfill (OLF) monitoring and inspection criteria based on the *Final Landfill Monitoring and Maintenance Plan, Rocky Flats Environmental Technology Site, Original Landfill (OLF M&M Plan)* (DOE 2006b) modification and the performance of inspections since closure;
- Noted the completion of additional ecological sampling required by RFLMA; and
- Changed surface water standards consistent with revisions promulgated by the Colorado Water Quality Control Commission (WQCC) through November 2009.

Landfill inspection and monitoring tasks follow the format and protocols established in the *Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan* (PLF M&M Plan) (DOE 2008a) and the OLF M&M Plan (DOE 2006b). These plans include detailed information on monitoring groundwater, surface water, subsidence and consolidation, slope stability, soil cover, vegetation, storm water management structures, and erosion in surrounding features so that maintenance actions can be implemented in a timely manner.

A modification to the 2006 OLF M&M Plan was also submitted to CDPHE for review and approval on September 21, 2009. The modification revises the OLF M&M Plan to recognize the implementation of the remedy under RFLMA. As discussed in the *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, Second Quarter Calendar Year 2009* (DOE 2009b), the modification also recaps and reflects changes resulting from the OLF geotechnical investigation. CDPHE approved the modification on January 25, 2010.

Monitoring data and summaries of surveillance and maintenance activities for past quarters are available in the quarterly reports. Extensive discussion and evaluation of surveillance, monitoring, and maintenance activities are presented each calendar year in the annual report of Site surveillance and maintenance activities.

This report addresses remedy-related surveillance, monitoring, and operations and maintenance activities conducted at the Site during the first quarter of calendar year (CY) 2010 (January 1 through March 31) and includes:

- Maintenance and inspection of the OLF and Present Landfill (PLF),
- Maintenance and inspection of the four groundwater treatment systems,
- Erosion control and revegetation activities, and
- Routine (in accordance with RFLMA and the RFSOG) water monitoring.

2.0 Site Operations and Maintenance

2.1 Annual Site Inspection

Annual inspection and monitoring of evidence of significant erosion and violation of institutional controls (ICs) is required in accordance with RFLMA Attachment 2, Sections 5.3.4 and 5.3.6. The inspection was conducted on March 17, 2010.

The following categories were inspected or monitored during the inspection:

- Evidence of significant erosion in the COU, and the proximity of this erosion to subsurface features identified in RFLMA Attachment 2, Figure 3 and Figure 4. This monitoring included observation for precursor evidence of significant erosion, such as cracks, rills, slumping, subsidence, and sediment deposition.
- The effectiveness of ICs as determined through any evidence of the violation of any of these controls.
- Evidence of adverse biological conditions, such as unexpected morbidity or mortality.

As part of the IC inspection, verification that the Environmental Covenant remains in the administrative record and on file in Jefferson County records is required annually. In addition, physical controls (i.e., signs placed along the COU fence) were also inspected.

The annual inspection was scheduled so that surface features could be observed adequately after snow cover had melted, once the surface was dry, and before vegetation growth could obscure land surface features.

To conduct this work, knowledgeable DOE, CDPHE, and S.M. Stoller Corporation team staff members (the inspection team) walked down the COU surface to observe the conditions. The areas walked down were designated as Areas A through E and are shown on the maps included in Appendix A. These areas generally coincide with the location of the subsurface features in RFLMA Attachment 2, Figure 3 and Figure 4, or they afforded adequate viewing of the surface in these locations (e.g., sloping areas). Several inspection team members were assigned to walk down a particular area or areas identified on the maps. Reference points, such as well heads and roads, were used to orient the inspection team members within designated inspection areas.

Appendix A of this report also includes the completed inspection checklists and several photographs illustrating noted conditions.

Marker flags were placed where conditions showed evidence of the three condition categories listed above to track their location for follow up by Site subject matter experts. Areas that required evaluation were documented in the Site Observation Log for evaluation and follow up. Several areas were noted as having evidence of erosion, possible depressions, or holes; however, these appeared to be minor and very limited in area. Most observations were related to metal debris on the surface or trash that was either picked up or marked for subsequent removal and pickup. Rocky Flats field operations subject matter experts will subsequently visit the areas to determine if any observations appear to be significant or require repairs and to collect debris to close out all items in the Site Observation Log. Completion of this work will be reported in the subsequent quarterly reports for 2010.

No evidence of violations of institutional or physical controls was observed.

On March 19, 2010, an inspection team member verified that the Environmental Covenant for the COU remains in the administrative record and on file with the Jefferson County land records, which are used by the Planning and Zoning Department.

No adverse biological conditions were noted during the inspection.

2.2 Landfills

2.2.1 Present Landfill

The PLF is inspected quarterly in accordance with the requirements of the PLF M&M Plan (DOE 2008a) and RFLMA (DOE 2007a). Vegetation monitoring has been conducted on the PLF per the requirements in RFLMA Attachment 2, Table 3. The exit strategy for vegetation monitoring as outlined in Table 3 states that when the PLF M&M Plan grassland success criteria have been met, vegetation monitoring is no longer required. Based on the vegetation monitoring

conducted in 2009 and reported in the 2009 Annual Report (DOE 2010), these criteria have been met. Therefore, the specific PLF vegetation monitoring as outlined in RFLMA will no longer be conducted, but rather the PLF vegetation will now be monitored as part of the ongoing general Site vegetation monitoring.

2.2.1.1 Inspection Results

The routine PLF inspection for the first quarter of CY 2010 was performed on February 25, 2010. The landfill cover vegetation was evaluated on February 17, 2010. No significant problems were observed during these inspections. Refer to Appendix B, which provides the landfill inspection forms, for more information.

2.2.1.2 Settlement Monuments

The annual settlement monument surveys were performed in December 2009. The next round of surveys will be completed in December 2010. Additional information on the settlement monuments is included in the *Rocky Flats Site Quarterly Report of Site Surveillance and Maintenance Activities, First Quarter Calendar Year 2008* (DOE 2008b).

2.2.2 Original Landfill

The OLF is inspected monthly, in accordance with the requirements in the OLF M&M Plan (DOE 2006b) and RFLMA. It was anticipated that after the first year, the inspection frequency might be reduced to quarterly for an additional 4 years. However, because of observed localized slumping and seep areas, and investigation and repairs to the OLF cover that were being planned at the time, no change to the monthly inspection frequency was recommended in the second 5-year review of the Site (DOE 2007b).

2.2.2.1 Inspection Results

Routine OLF inspections during the first quarter of CY 2010 were performed on January 28, February 25, and March 30, 2010. The landfill cover vegetation was evaluated on February 16, 2010. Refer to the completed inspection forms in Appendix B for additional information.

A hairline crack that runs along the north and south sides of Berm 1 was noticed during the monthly inspection of the OLF on March 30. The crack is in the same general area as previously documented cracks in Berm 1, as discussed in the 2009 Annual Report (DOE 2010). The crack had a horizontal displacement (width) of approximately ½ inch and no vertical displacement. The crack was filled with Rocky Flats Alluvium and compacted on March 30 to prevent water from infiltrating the subsurface, which could cause further movement.

As discussed in the 2009 Annual Report (DOE 2010), this cracking is consistent with evidence of localized movement being observed at several of the inclinometers installed south of Berm 1 as part of the 2008 geotechnical investigation. Refer to the discussion of the results of the inclinometer monitoring in Section 2.2.2.5 for additional information regarding slope stability monitoring. Figure 1 shows the general location of the crack and the locations of the inclinometers.



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Figure 1. Original Landfill Observed Surface Cracking Location and Inclinometer Locations

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2.2.2.2 Seeps

Seeps at the OLF were evaluated during the monthly inspections as well as during unscheduled visits. The Seep 4 and 5 area showed areas of saturation during the first quarter of CY 2010 but had no surface flow. This is largely due to the drain that was installed in the channel of Berm 3 to drain water from these two seep locations. Seep 7 showed a surface flow of approximately 0.5 to 4 gallons per minute (gpm) during the first quarter. Seep 8 showed areas of active groundwater seepage at a rate of approximately 2 to 5 gpm throughout the first quarter. The rock drain at the base of the West Perimeter Channel, which channels water from the West Perimeter Channel seep, flowed at a rate of 1 to 4 gpm. Other smaller seeps showed areas of wetness only temporarily after precipitation events. None produced any new surface flow. The heavier seep flows were observed during the March 30 monthly inspection that followed the melting of two successive snowfalls totaling approximately 10 inches.

2.2.2.3 Slumps

As discussed in the 2009 Annual Report (DOE 2010), areas where the landfill cover is pushed up or rolling are noticeable on the western end of the OLF between Berms 2 and 3. Inspections do not show any surface cracks in the Berm 2 and 3 areas at this time. During the March 30 inspection, the end of Berm 7 was documented as having slumped into the East Perimeter Channel. (Additional erosion controls were added to the slumping area on April 14, 2010, to help prevent erosion in the berm outfall.) The area will continue to be monitored throughout the spring. Further repairs to the Berm 1 crack and Berm 7 slump will be completed once the OLF cover dries out sufficiently. Refer to the discussion on the results of the inclinometer monitoring below for additional information regarding slope stability monitoring.

2.2.2.4 Settlement Monuments

The OLF settlement monuments were surveyed on March 26, 2010. Preliminary survey data indicate that settling at each monument does not exceed the limits published in the OLF M&M Plan (DOE 2006b). Refer to the survey results in Appendix B for additional information.

2.2.2.5 Inclinometers

As discussed in the quarterly report for the second quarter of CY 2009 (DOE 2009b), seven inclinometers were installed in boreholes at the OLF in 2008 as part of the geotechnical investigation (Figure 1).

Movement of the inclinometers has been monitored approximately monthly since installation. Inclinometers deflect based on lateral movement of the ground in which they are located, and can deflect enough to cause the inclinometer tubes to break. Once an inclinometer tube breaks, the inclinometer will no longer be monitored. Inclinometer monitoring data provide information on localized soil movement and serve to focus periodic inspections of the soil cover surface for signs of potential instability, such as cracking, vertical displacement, and slumping. A deflection of more than 1 inch is used as a trigger for evaluation of the data by a qualified geotechnical engineer. The engineer determines the significance of the deflection in relation to recommendations for maintenance or repairs to address potential instability in accordance with the OLF M&M Plan (DOE 2006b). A modification to the OLF M&M Plan to revise the text as

appropriate to recognize the implementation of the remedy under RFLMA and the completion of the geotechnical investigation work was discussed in the quarterly report for the second quarter of CY 2009. The modification was submitted for CDPHE review and approval on September 21, 2009.

Inclinometer measurements were taken on January 26, February 24, and March 31, 2010. Very little deflection of the inclinometers was noted in January and February. The March results indicated localized movement associated with the area of the three inclinometers on the west side of the OLF, between diversion Berms 1 and 3 (inclinometers 82208I, 82308I, and 82408I), with approximately 0.25 to 0.5 inch of deflection. The surface cracking in the vicinity of Berm 1 appears consistent with the observed inclinometer deflection.

The deflection noticed in March, which had high precipitation, appears consistent with the findings of the geotechnical investigation that there is an organic layer near the bedrock surface that is a weak zone for the overlying soil, especially if it becomes lubricated by subsurface moisture. Seeps 4 and 7 also showed significant moisture and had surface expressions during this period. As described in Contact Record 2008-07, in 2008, the West Perimeter Channel was regraded, and a channel drain was added to improve the stability of the western side of the OLF cover.

2.3 Groundwater Treatment Systems

Four groundwater treatment systems are operated and maintained in accordance with requirements defined in RFLMA and the RFSOG. Three of these systems (the Mound Site Plume Treatment System [MSPTS], East Trenches Plume Treatment System [ETPTS], and Solar Ponds Plume Treatment System [SPPTS]) include a groundwater intercept trench (collection trench), which is similar to a French drain with an impermeable membrane on the downgradient side. Groundwater entering the trench is routed through a drain pipe into one or more treatment cells, where it is treated and then discharged. The fourth system, the PLF Treatment System (PLFTS), treats water from the northern and southern components of the Groundwater Intercept System (GWIS) and flow from the PLF seep.

2.3.1 Mound Site Plume Treatment System

Routine maintenance activities continued at the MSPTS through the first quarter of CY 2010. These activities included raking the media each week, checking and flushing filters, and inspecting influent and effluent flow conditions.

2.3.2 East Trenches Plume Treatment System

Routine maintenance activities continued at the ETPTS through the first quarter of CY 2010. These activities included checking influent and effluent flow conditions and water levels in the cells.

2.3.3 Solar Ponds Plume Treatment System

Routine maintenance activities continued at the SPPTS through the first quarter of CY 2010. These activities included weekly inspections of the solar/battery systems that power the pumps, the operation of the pumps, and influent and effluent flow conditions.

The Phases II and III upgrades that were completed in the second quarter of CY 2009 continued to be a focal point for optimization efforts. A second tracer test was performed on the Phase II cell and determined that preferential flow through the media was not likely. Sampling and analysis of the treatment media in this cell was planned for the second quarter of CY 2010.

Optimization efforts in Phase III (such as reducing heat loss from the various cells and vaults, and adjusting carbon dosing rates and influent flow rates) continued.

2.3.4 PLF Treatment System

Routine maintenance activities continued at the PLFTS through the first quarter of CY 2010. These activities generally consisted of inspecting the system for any issues or potential problems.

2.4 Erosion Control and Revegetation

Maintenance of the Site erosion control features required continued effort throughout the second quarter of CY 2009, especially following high-wind or precipitation events. Erosion wattles and matting loosened and displaced by high winds or rain were repaired. Erosion controls were installed and maintained for the various projects that were ongoing during the second quarter of CY 2009. Several areas were interseeded with additional native species to increase vegetation cover.

3.0 Environmental Monitoring

This section summarizes the environmental monitoring conducted in accordance with RFLMA.

3.1 Water Monitoring

This quarterly report presents data collected during the first quarter of CY 2010. This section includes:

- A discussion of analytical results for the point-of-compliance (POC), point-of-evaluation (POE), PLF, and OLF monitoring objectives; and
- A summary of area-of-concern (AOC) well, boundary well, evaluation well, and sentinel well monitoring; treatment system monitoring; and Resource Conservation and Recovery Act (RCRA) groundwater monitoring and surface water support monitoring at the Site.

Monitoring locations, sampling criteria, and evaluation protocols for all water monitoring objectives in the following sections are detailed in RFLMA Attachment 2 and the RFSOG. Appendix C provides analytical water quality data for the first quarter of CY 2010.

3.1.1 Water Monitoring Highlights

During the first quarter of CY 2010, the water monitoring network successfully met the targeted monitoring objectives as required by RFLMA and in conformance with RFSOG implementation guidance. The network consisted of 11 automated gaging stations, 10 surface water grab-sampling locations, 8 treatment system locations, 99 wells, and 8 precipitation gages. During the quarter, 40 flow-paced composite samples, 2 surface water grab samples, 12 treatment system samples, and 10 groundwater samples were collected.¹

All water-quality data at the RFLMA POCs remained well below the applicable standards through the first quarter of CY 2010.

All POE analyte concentrations remained below reporting levels as of the end of the first quarter of CY 2010. Erosion and runoff controls, as well as extensive revegetation efforts, have been effective in measurably reducing both sediment transport and constituent concentrations. As of the end of the first quarter of CY 2010, all of the POEs continued to show plutonium-239, plutonium-240, and americium-241 activities well below the RFLMA standards. With the removal of impervious areas (resulting in decreased runoff), the stabilization of soils within the drainages, and the progression of revegetation, water quality is expected to continue to be acceptable.

Groundwater monitoring results will be evaluated as part of the 2010 Annual Report.

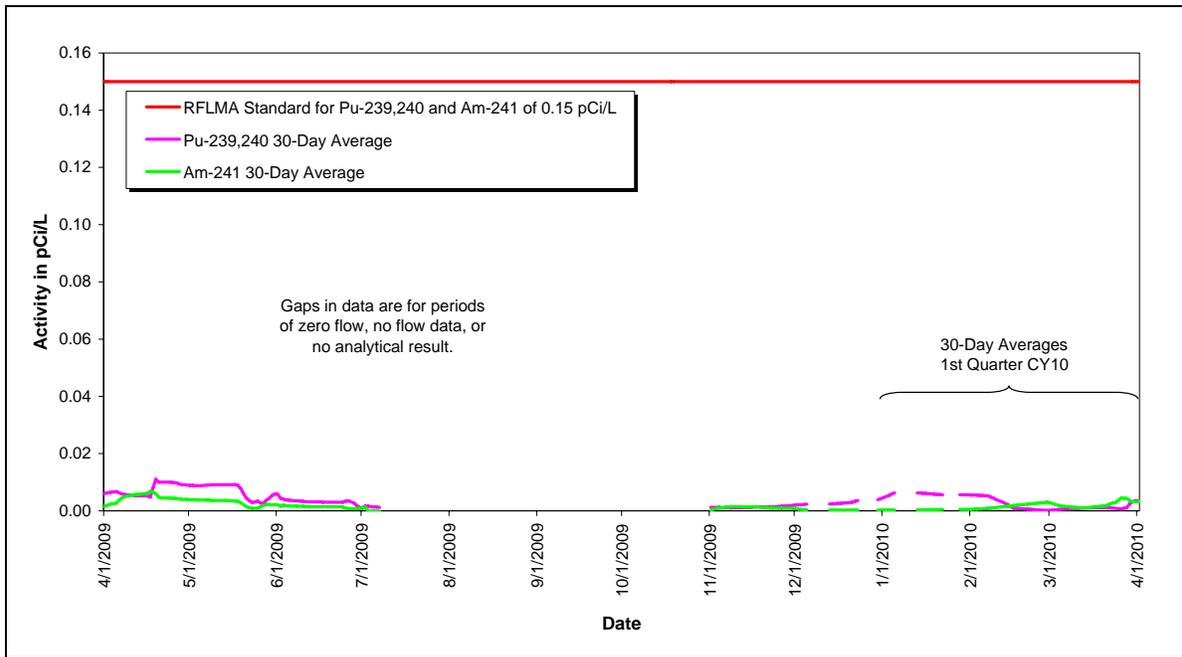
3.1.2 POC Monitoring

The following sections include summary tables and plots showing the applicable 30-day and 12-month rolling averages for the POC analytes.

3.1.2.1 Location GS01

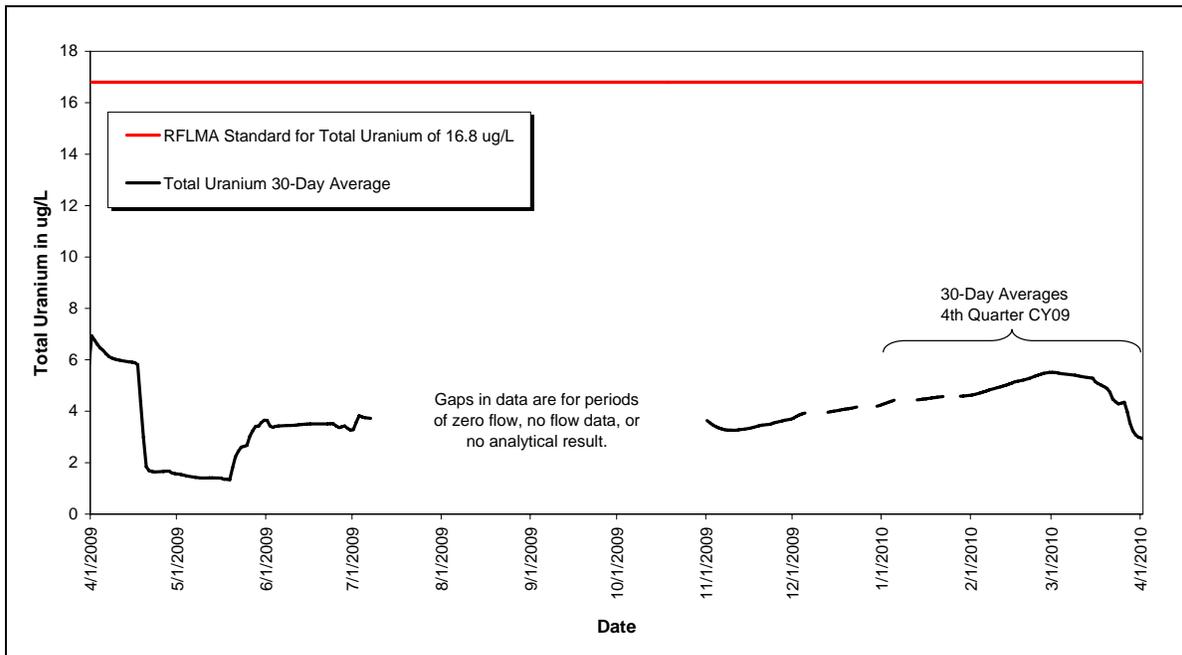
Monitoring location GS01 is on Woman Creek at Indiana Street. Figure 2 and Figure 3 show no occurrences of reportable 30-day averages for the quarter.

¹ Composite samples consist of multiple aliquots (“grabs”) of identical volume. Each grab is delivered by the automatic sampler to the composite container at each predetermined flow volume or time interval. During the first quarter of CY 2010, the 40 flow-paced composites comprised 2,497 individual grabs.



pCi/L = picocuries per liter

Figure 2. Volume-Weighted 30-Day Average Plutonium and Americium Activities at GS01: Calendar Year Ending First Quarter CY 2010



µg/L = micrograms per liter

Figure 3. Volume-Weighted 30-Day Average Total Uranium Concentrations at GS01: Calendar Year Ending First Quarter CY 2010

3.1.2.2 Location GS03

Monitoring location GS03 is on Walnut Creek at Indiana Street. Figure 4 and Figure 5 show no occurrences of reportable 30-day averages for the quarter.

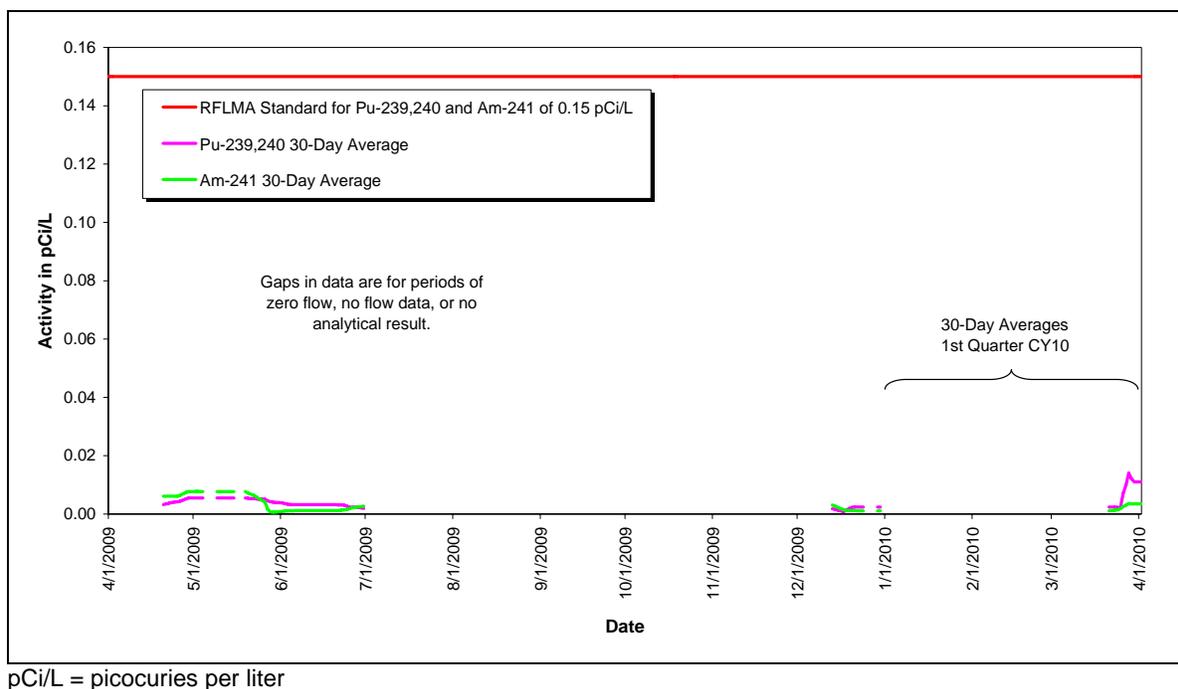


Figure 4. Volume-Weighted 30-Day Average Plutonium and Americium Activities at GS03: Calendar Year Ending First Quarter CY 2010

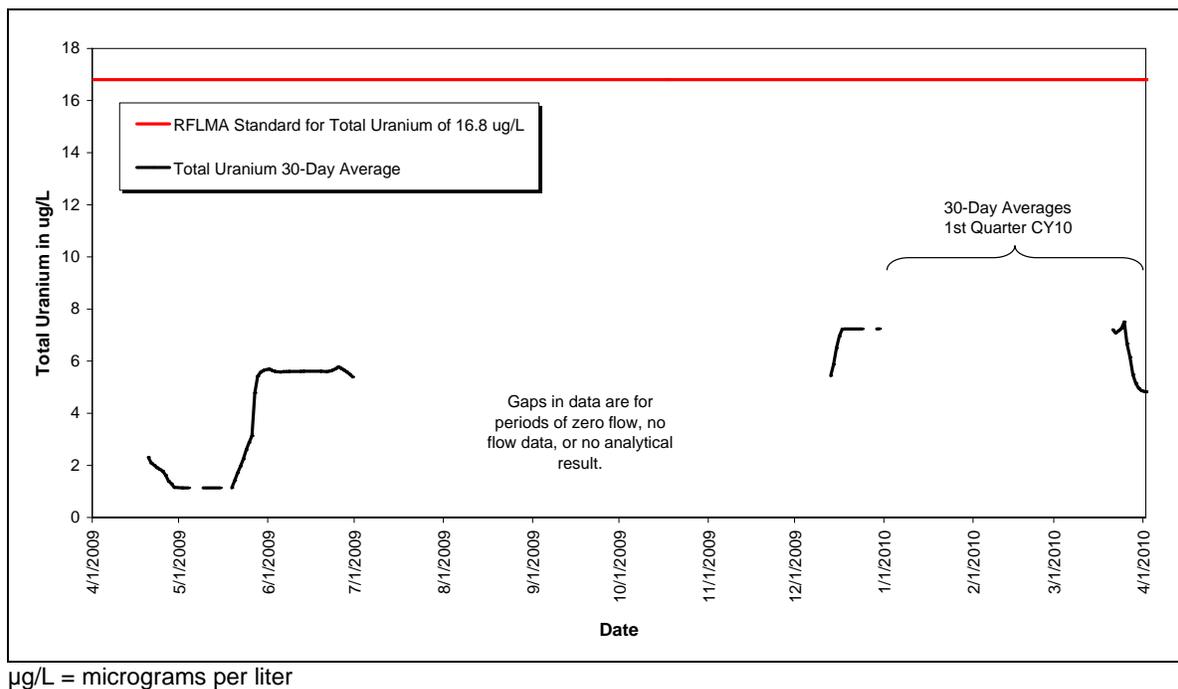
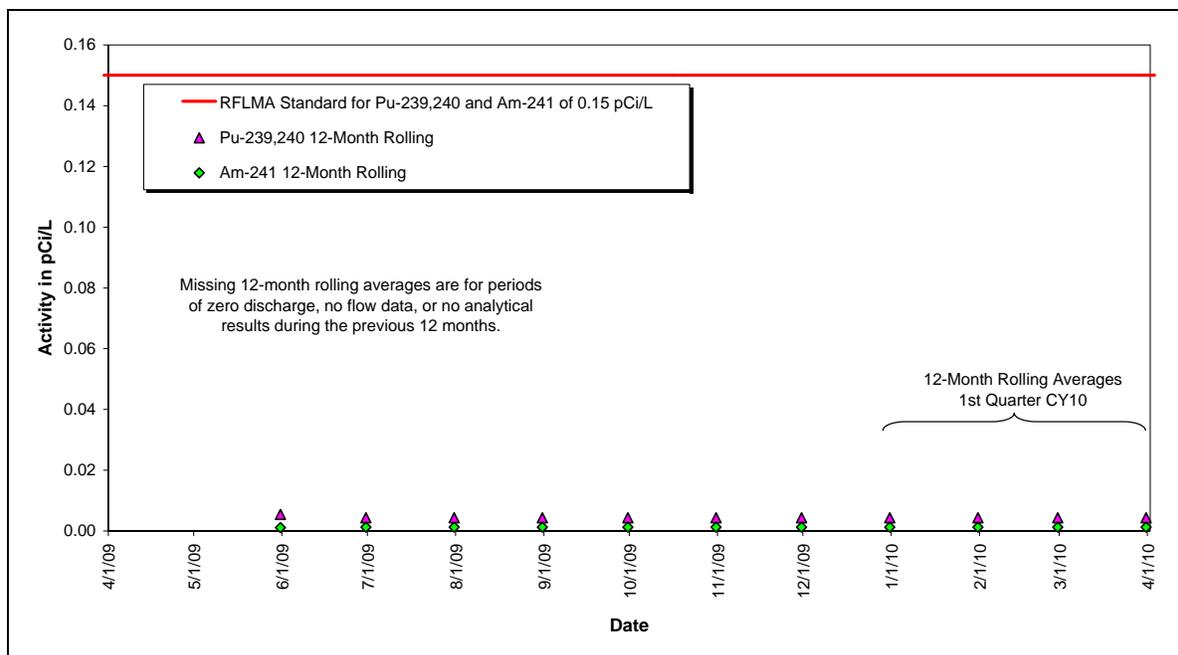


Figure 5. Volume-Weighted 30-Day Average Total Uranium Concentrations at GS03: Calendar Year Ending First Quarter CY 2010

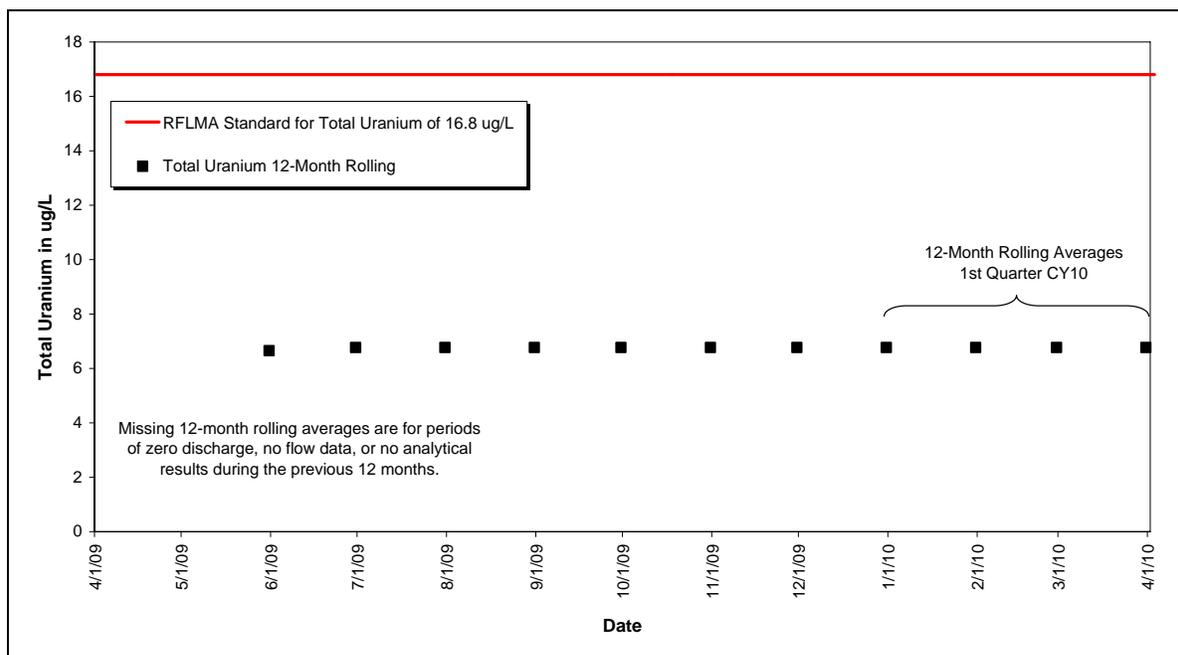
3.1.2.3 Location GS08

Monitoring location GS08 is on South Walnut Creek at the outlet of Pond B-5. Figure 6, Figure 7, and Figure 8 show no occurrences of reportable 12-month rolling averages for the quarter.



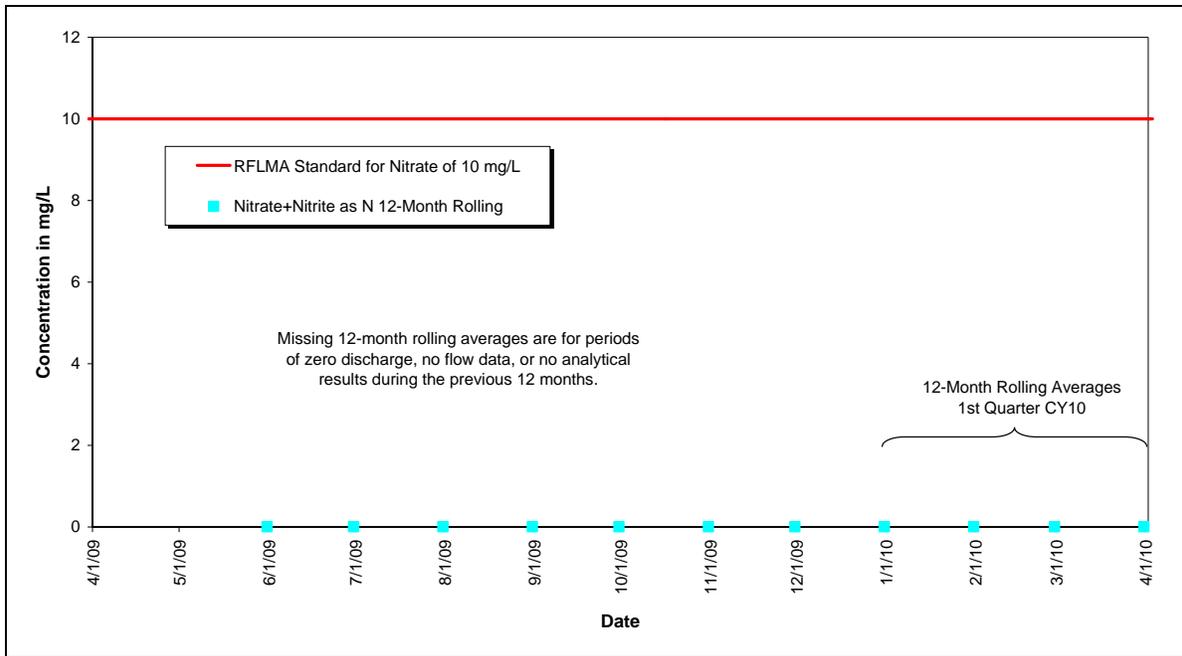
pCi/L = picocuries per liter

Figure 6. Volume-Weighted 12-Month Rolling Average Plutonium and Americium Activities at GS08: Calendar Year Ending First Quarter CY 2010



ug/L = micrograms per liter

Figure 7. Volume-Weighted 12-Month Rolling Average Total Uranium Concentrations at GS08: Calendar Year Ending First Quarter CY 2010

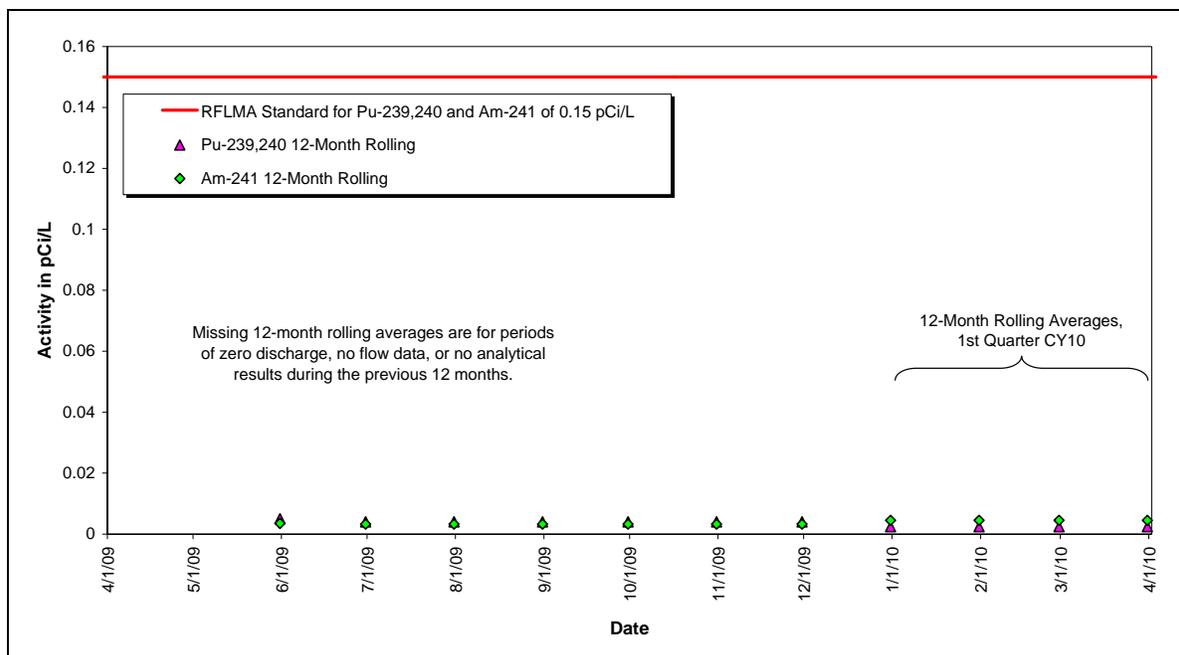


Note: Nitrate + nitrite as nitrogen 12-month averages are conservatively compared to the nitrate standard only. mg/L = milligrams per liter

Figure 8. Volume-Weighted 12-Month Rolling Average Nitrate + Nitrite as Nitrogen Concentrations at GS08: Calendar Year Ending First Quarter CY 2010

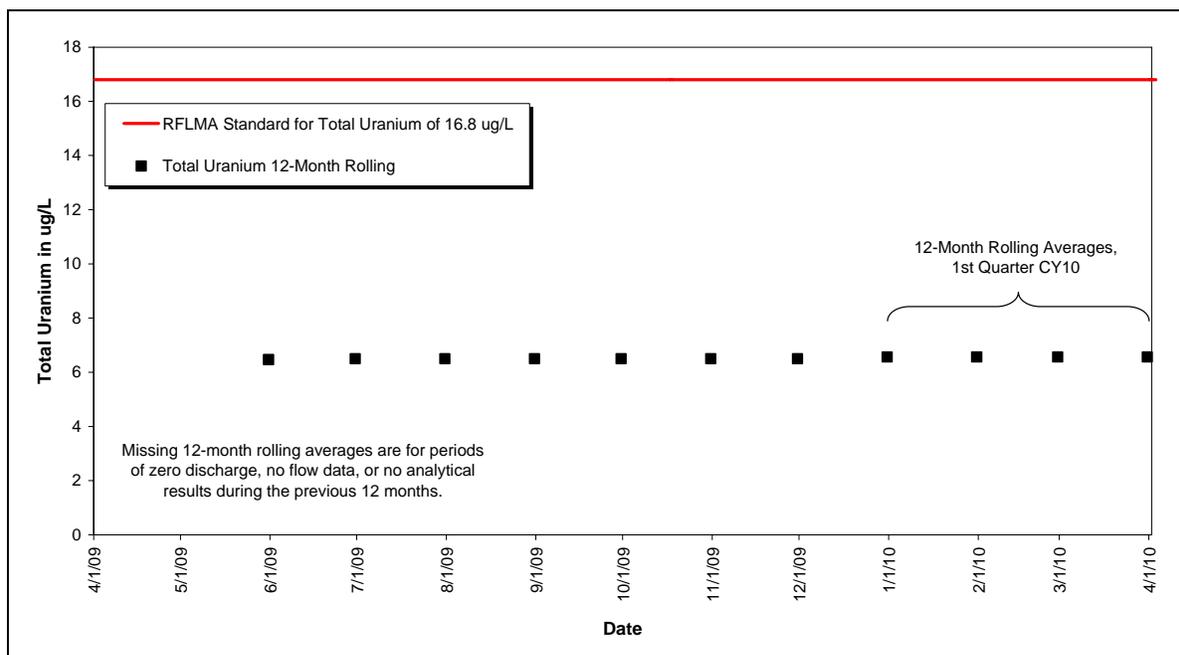
3.1.2.4 Location GS11

Monitoring location GS11 is on North Walnut Creek at the outlet of Pond A-4. Figure 9, Figure 10, and Figure 11 show no occurrences of reportable 12-month rolling averages for the quarter.



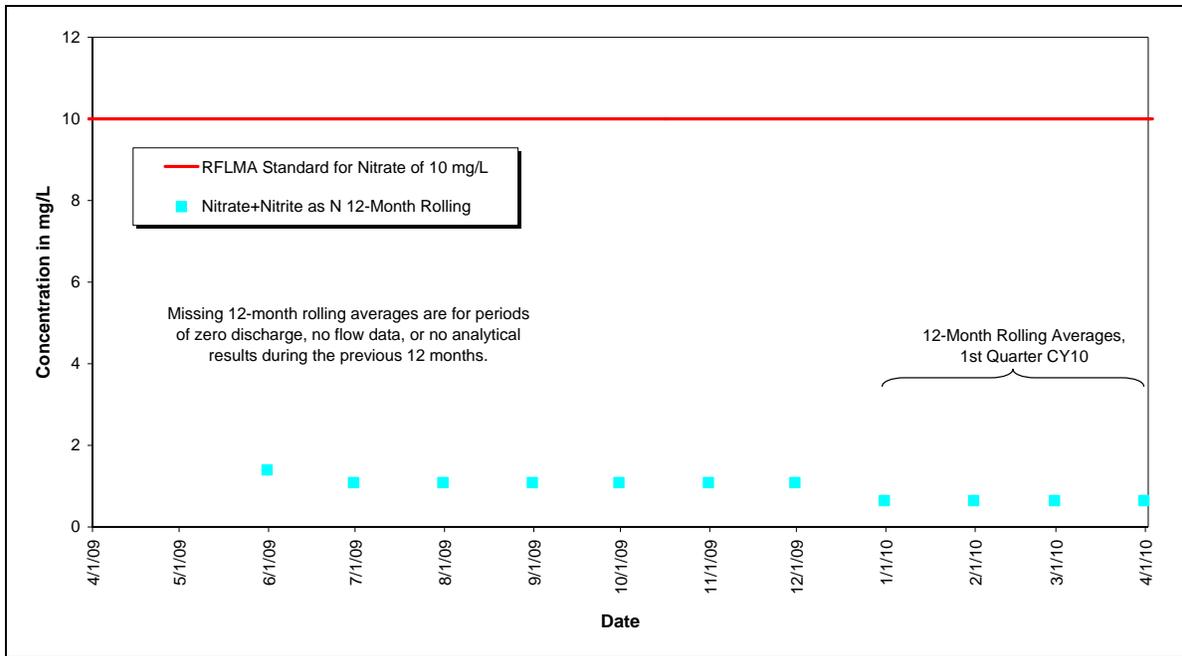
pCi/L = picocuries per liter

Figure 9. Volume-Weighted 12-Month Rolling Average Plutonium and Americium Activities at GS11: Calendar Year Ending First Quarter CY 2010



µg/L = micrograms per liter

Figure 10. Volume-Weighted 12-Month Rolling Average Total Uranium Concentrations at GS11: Calendar Year Ending First Quarter CY 2010

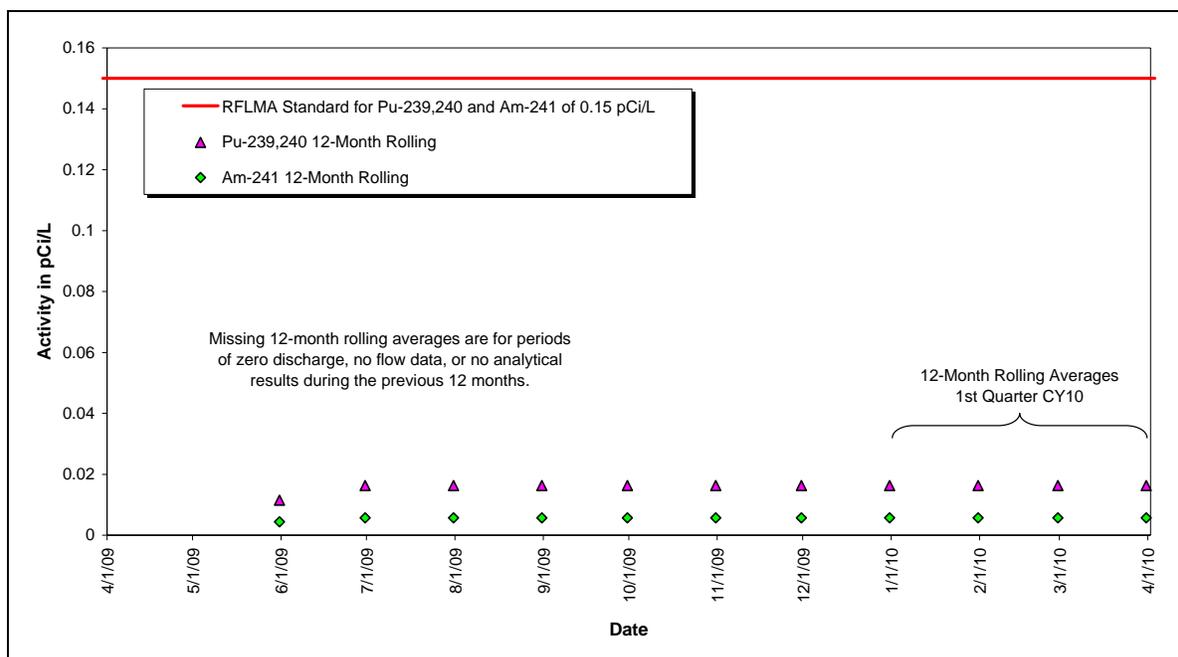


Note: Nitrate + nitrite as nitrogen 12-month averages are conservatively compared to the nitrate standard only. mg/L = milligrams per liter

Figure 11. Volume-Weighted 12-Month Rolling Average Nitrate + Nitrite as Nitrogen Concentrations at GS11: Calendar Year Ending First Quarter CY 2010

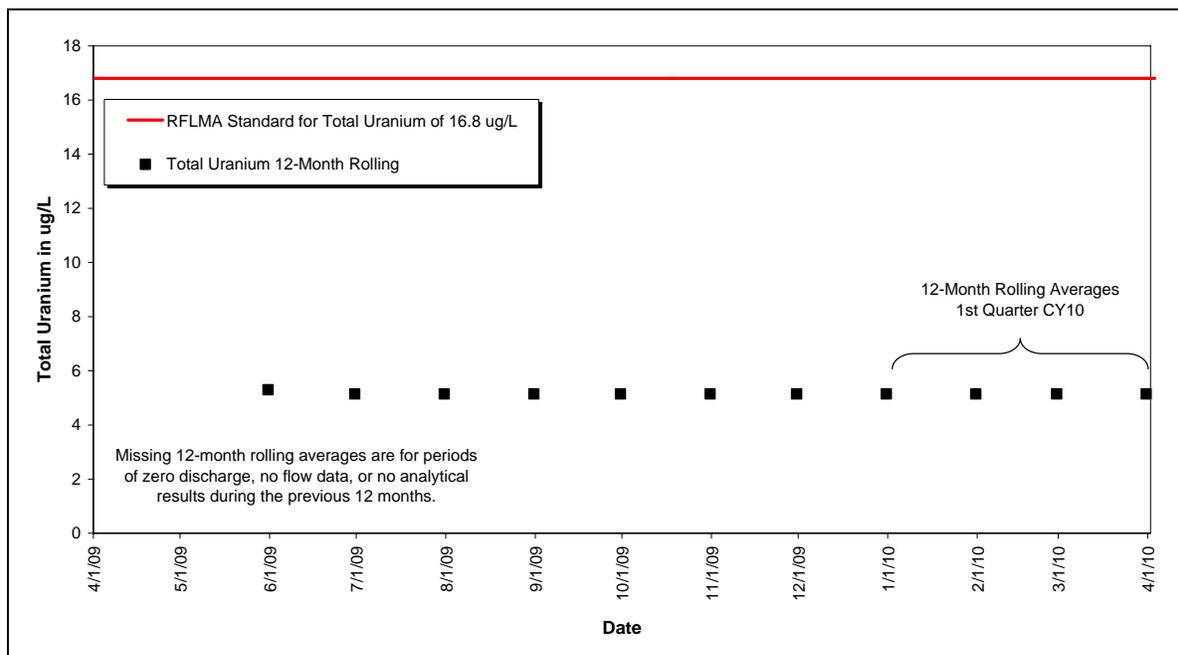
3.1.2.5 Location GS31

Monitoring location GS31 is on Woman Creek at the outlet of Pond C-2. Figure 12 and Figure 13 show no occurrences of reportable 12-month rolling averages for the quarter.



pCi/L = picocuries per liter

Figure 12. Volume-Weighted 12-Month Rolling Average Plutonium and Americium Activities at GS31: Calendar Year Ending First Quarter CY 2010



µg/L = micrograms per liter

Figure 13. Volume-Weighted 12-Month Rolling Average Total Uranium Activities at GS31: Calendar Year Ending First Quarter CY 2010

3.1.3 POE Monitoring

The following sections include summary tables and plots showing the applicable 30-day and 12-month rolling averages for the POE analytes.

3.1.3.1 Location GS10

Monitoring location GS10 is on South Walnut Creek just upstream of the B-Series ponds. Figure 14 and Figure 15 show no reportable plutonium, americium, or total uranium values during the quarter. In addition, none of the 85th-percentile 30-day average metals concentrations were reportable for the quarter.

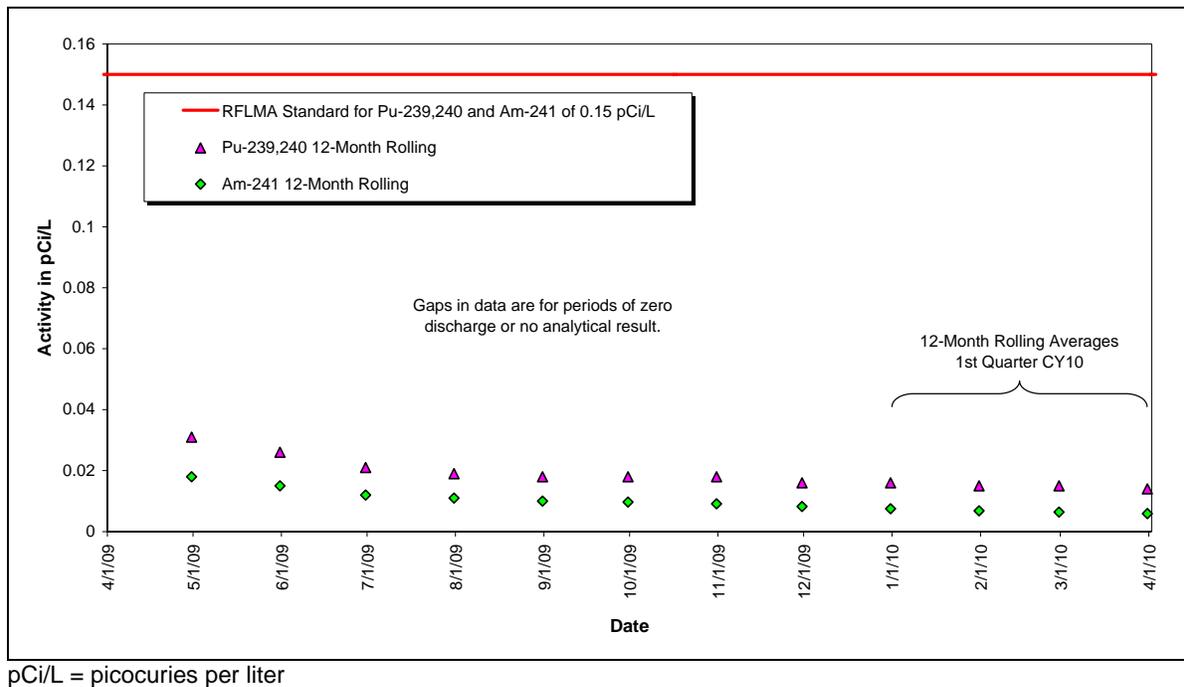
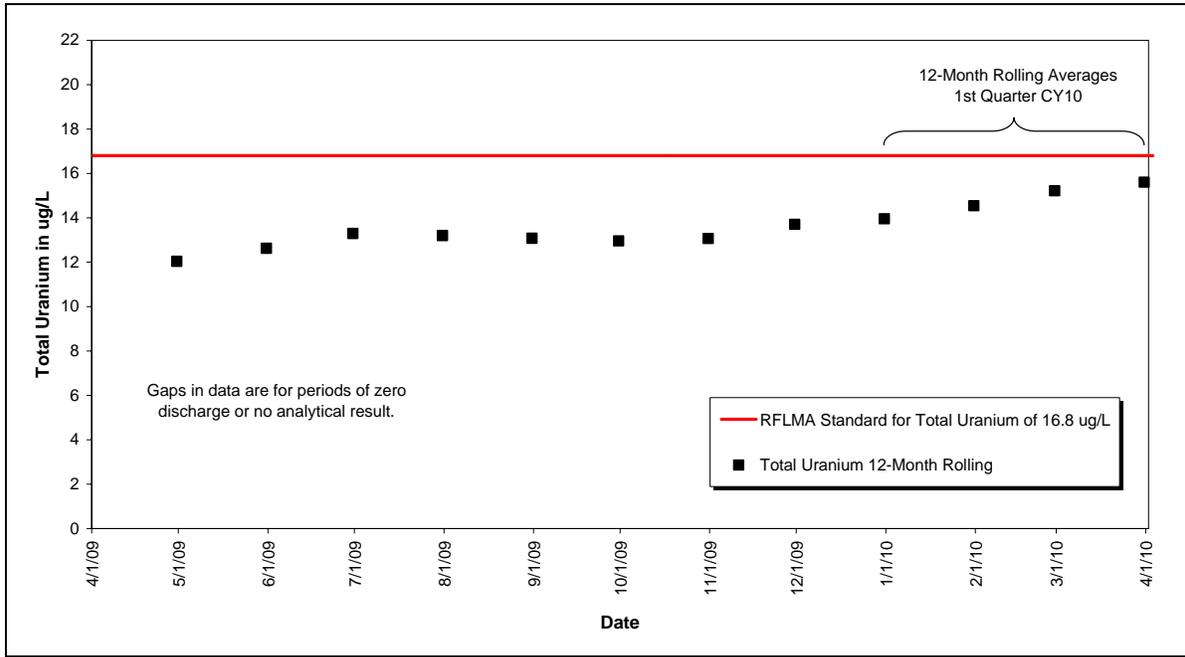


Figure 14. Volume-Weighted Average Plutonium and Americium Compliance Values at GS10: Calendar Year Ending First Quarter CY 2010

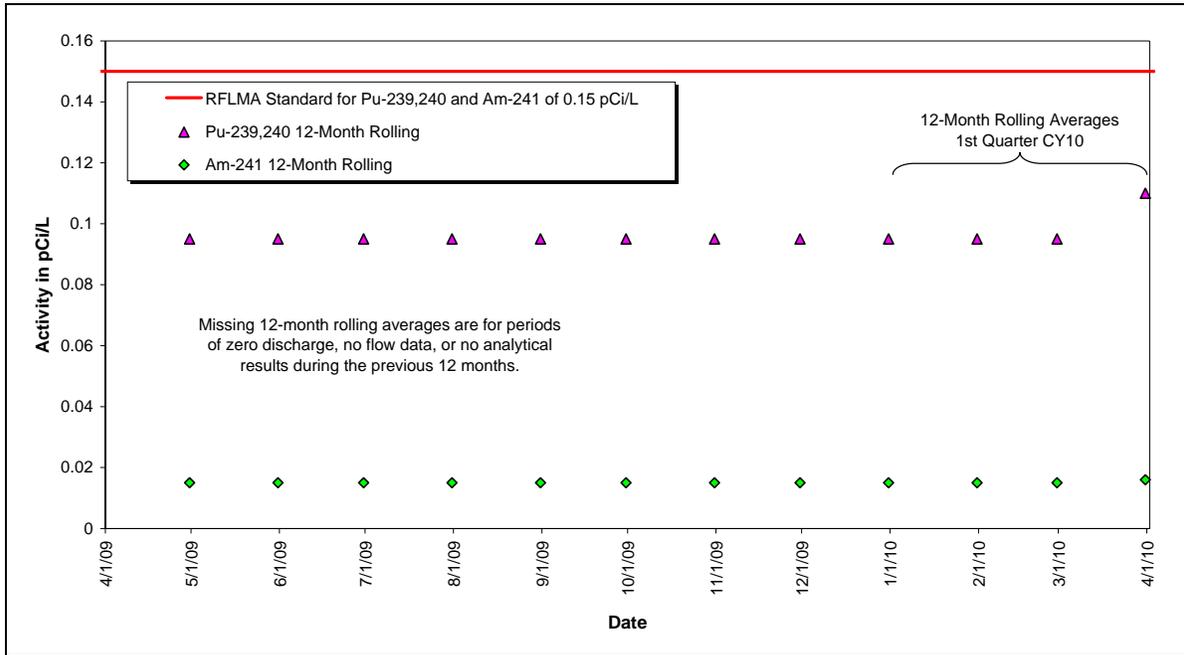


µg/L = micrograms per liter

Figure 15. Volume-Weighted Average Total Uranium Compliance Values at GS10: Calendar Year Ending First Quarter CY 2010

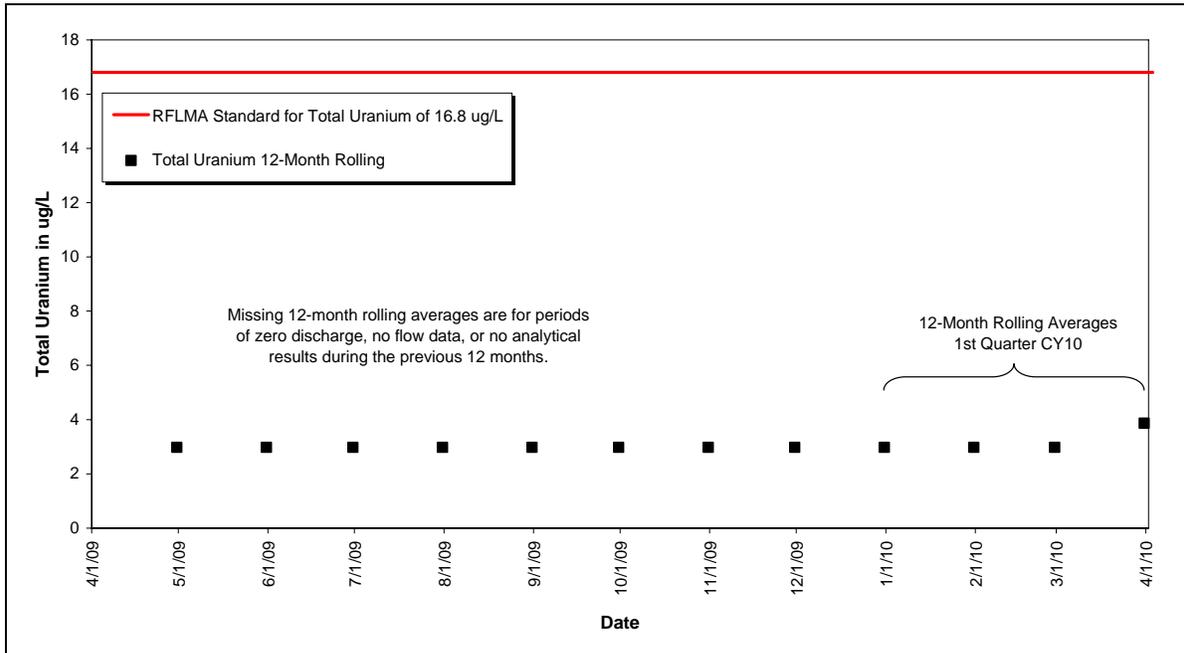
3.1.3.2 Location SW027

Monitoring location SW027 is at the end of the South Interceptor Ditch at the inlet to Pond C-2. Figure 16 and Figure 17 show no reportable plutonium, americium, or total uranium values during the quarter. In addition, none of the 85th-percentile 30-day average metals concentrations were reportable for the quarter.



pCi/L = picocuries per liter

Figure 16. Volume-Weighted Average Plutonium and Americium Compliance Values at SW027: Calendar Year Ending First Quarter CY 2010

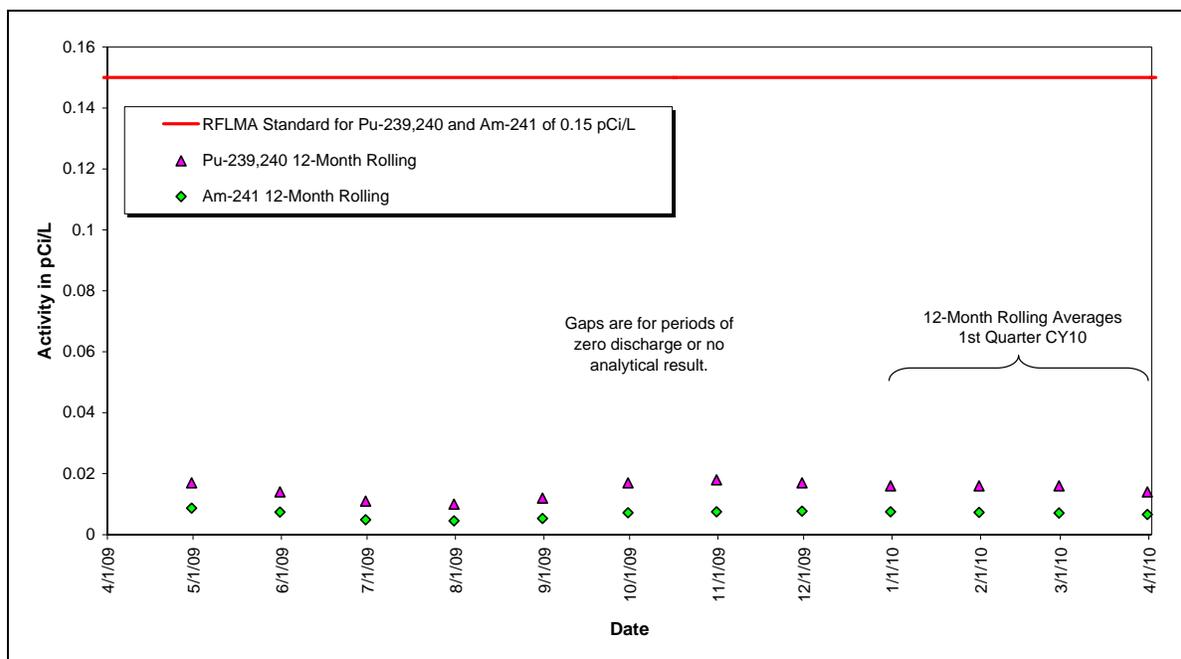


ug/L = micrograms per liter

Figure 17. Volume-Weighted Average Total Uranium Compliance Values at SW027: Calendar Year Ending First Quarter CY 2010

3.1.3.3 Location SW093

Monitoring location SW093 is on North Walnut Creek 1,300 feet upstream of the A-Series ponds. Figure 18 and Figure 19 show no reportable plutonium, americium, or total uranium values during the quarter. None of the 85th-percentile 30-day average metals concentrations were reportable for the quarter.



pCi/L = picocuries per liter

Figure 18. Volume-Weighted Average Plutonium and Americium Compliance Values at SW093: Calendar Year Ending First Quarter CY 2010

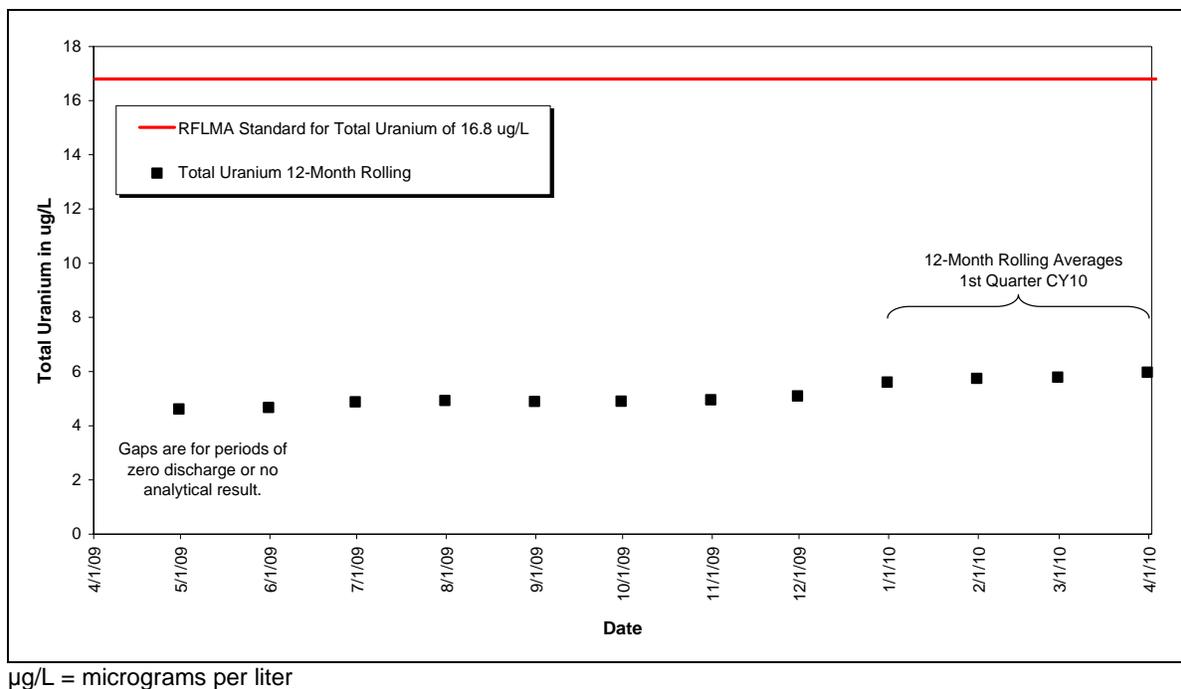


Figure 19. Volume-Weighted Average Total Uranium Compliance Values at SW093: Calendar Year Ending First Quarter CY 2010

3.1.4 AOC Wells and Surface Water Location SW018

AOC wells and SW018 were not scheduled for RFLMA monitoring in the first quarter of CY 2010.

3.1.5 Boundary Wells

Boundary wells were not scheduled for RFLMA monitoring in the first quarter of CY 2010.

3.1.6 Sentinel Wells

Sentinel wells were not scheduled for RFLMA monitoring in the first quarter of CY 2010.

3.1.7 Evaluation Wells

Evaluation wells were not scheduled for RFLMA monitoring in the first quarter of CY 2010.

3.1.8 PLF Monitoring

All RCRA groundwater monitoring wells at the PLF were sampled during the first quarter of CY 2010. Analytical results (Appendix C) will be discussed and statistically evaluated as part of the 2010 Annual Report. Section 3.1.10.4 discusses surface water monitoring at the PLF.

3.1.9 OLF Monitoring

All RCRA groundwater monitoring wells at the OLF were sampled during the first quarter of CY 2010. Analytical results (Appendix C) will be discussed and statistically evaluated as part of the 2010 Annual Report.

During the third quarter of CY 2009, when routine surface water sampling was performed at Woman Creek downstream of the OLF (GS59), all available analytical results were less than the applicable surface water standards. (Results from composite samples for the period September 22 through November 17, 2009, were not available for this report.)

3.1.10 Groundwater Treatment System Monitoring

As described in Section 2.3, contaminated groundwater is intercepted and treated in four areas of the Site. The MSPTS, ETPTS, and SPPTS include a groundwater intercept trench. Groundwater entering the trench is routed through a drain pipe into one or more treatment cells, where it is treated and then discharged to surface water. The PLFTS treats water from the northern and southern components of the GWIS and flow from the PLF seep.

3.1.10.1 Mound Site Plume Treatment System

MSPTS monitoring locations were not scheduled for RFLMA sampling in the first quarter of CY 2010.

3.1.10.2 East Trenches Plume Treatment System

ETPTS monitoring locations were not scheduled for RFLMA sampling in the first quarter of CY 2010.

3.1.10.3 Solar Ponds Plume Treatment System

SPPTS monitoring locations were not scheduled for RFLMA sampling in the first quarter of CY 2010. Non-RFLMA samples were collected at several locations to support continuing evaluation and optimization of the Phase II and Phase III upgrades. These data will be discussed in the 2010 Annual Report.

3.1.10.4 PLF Treatment System

During the collection of the January 27, 2010, sample at the system influent (location PLFSEEPINF), the flow rate was 1.20 gpm. As of March 31, 2010, the Landfill Pond outlet remained in an open configuration.

During the first quarter of CY 2010, routine sampling of the treated effluent exiting the system (location PLFSYSEFF) showed that no analyte concentrations were greater than the applicable surface water standard.

3.1.11 Pre-Discharge Monitoring

Pre-discharge samples are collected prior to discharge at Ponds A-4, B-5, and C-2 on North Walnut Creek, South Walnut Creek, and Woman Creek, respectively.

No pre-discharge samples were collected during the first quarter of CY 2010.

4.0 Adverse Biological Conditions

No evidence of adverse biological conditions (e.g., unexpected mortality or morbidity) was observed during monitoring and maintenance activities in the first quarter of CY 2010.

5.0 References

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