

Overview of the First Quarter 2012 Surveillance and Maintenance Report for the LM Rocky Flats Site

January–March 2012



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Surface Water Monitoring and Operations



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Pond Operations – First Quarter 2012

- Terminal Pond Discharges:
 - Valves at A-4, B-5, and C-2 were opened in 2011; all Terminal Ponds are now operated in a flow-through mode
- Pond Levels:
 - As of March 31, 2012, the Terminal Ponds were holding approximately 5.8 MG (7.4 percent of capacity)



August 28, 2012, Pond Levels

- A-4 (5.5 percent)
- B-5 (7.4 percent)
- C-2 (0.9 percent)

Completion of A-3 Dam Breach



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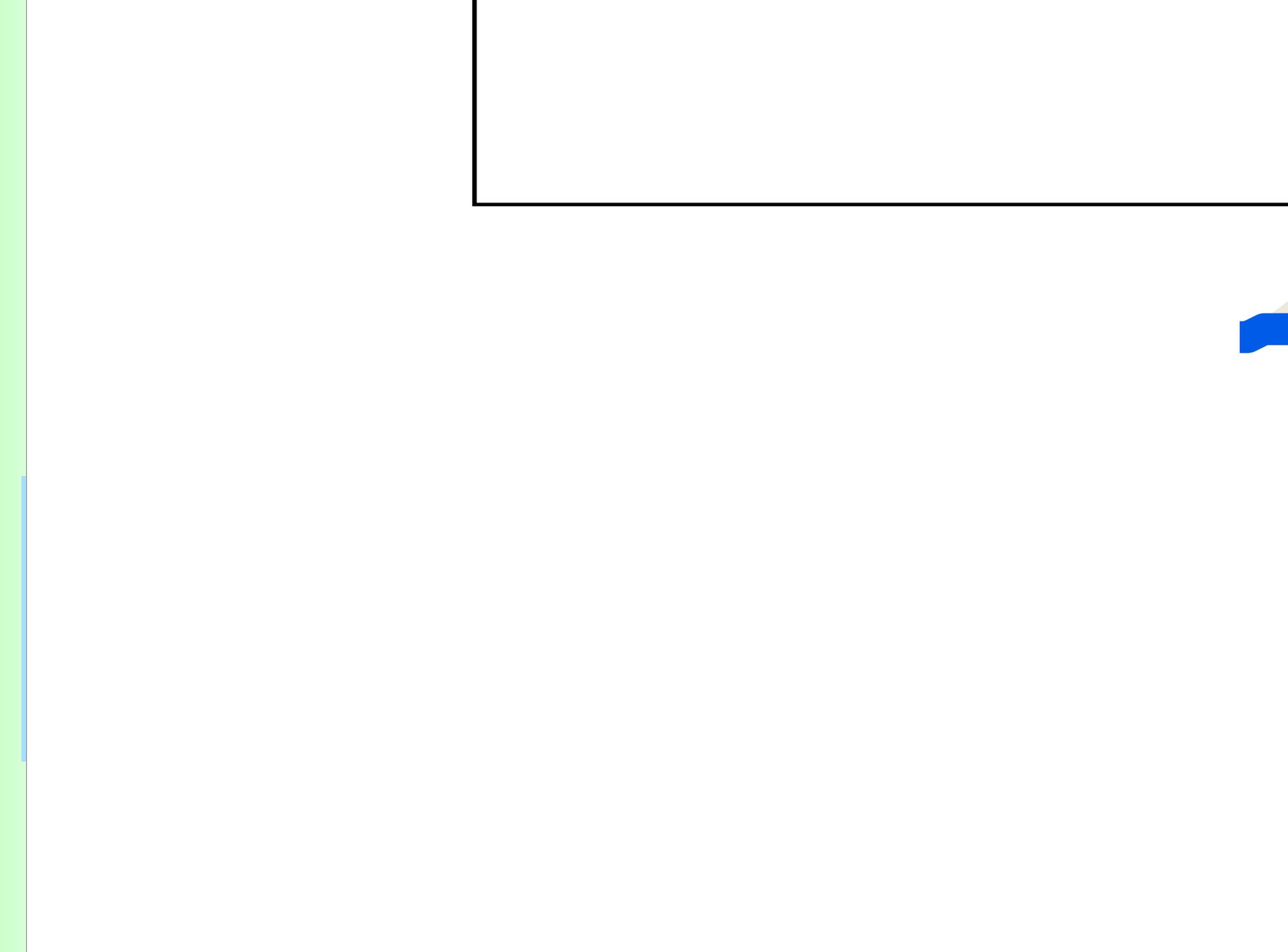
Completion of Present Landfill (PLF) Dam Breach



Hydrologic Data – First Quarter 2012

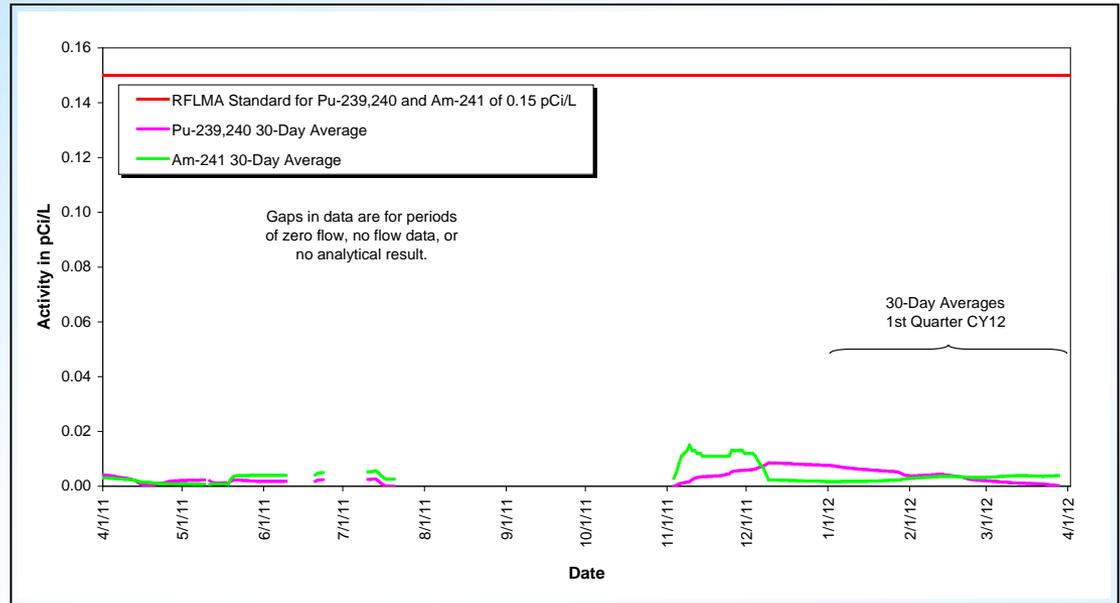
- Precipitation
 - 0.31 inches total precipitation
 - 25 percent of WY 1993–2011 average
- Flow rates (percentage of WY average)
 - GS01 (92 percent)
 - GS03 (68 percent)
 - GS10 (76 percent)
 - SW027 (no flow)
 - SW093 (101 percent)



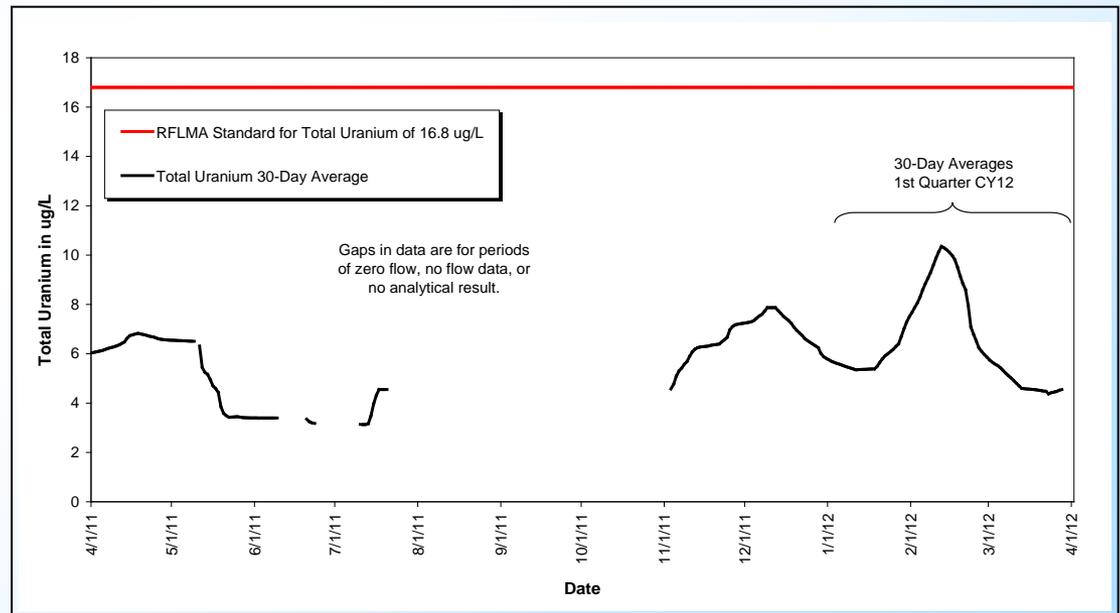


POC GS01

■ Plutonium and Americium

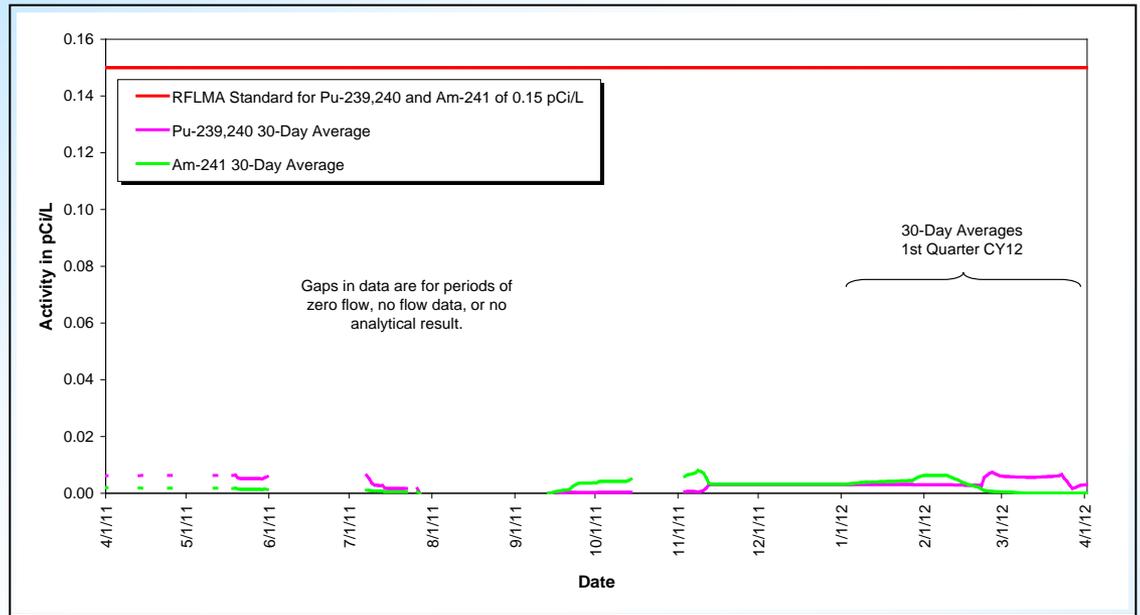


■ Total Uranium

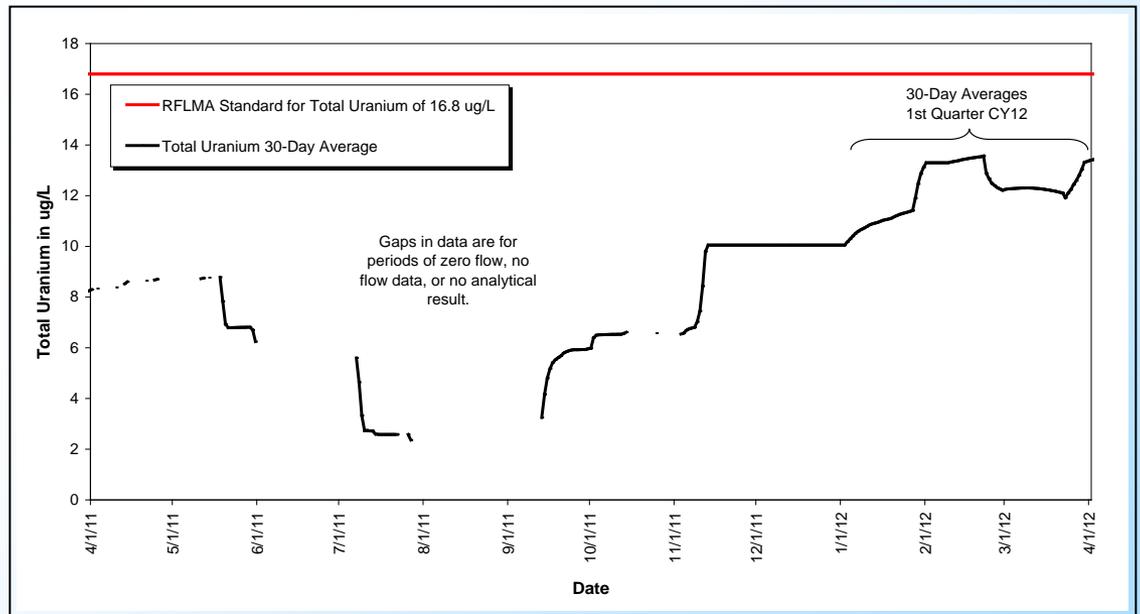


POC GS03

■ Plutonium and Americium

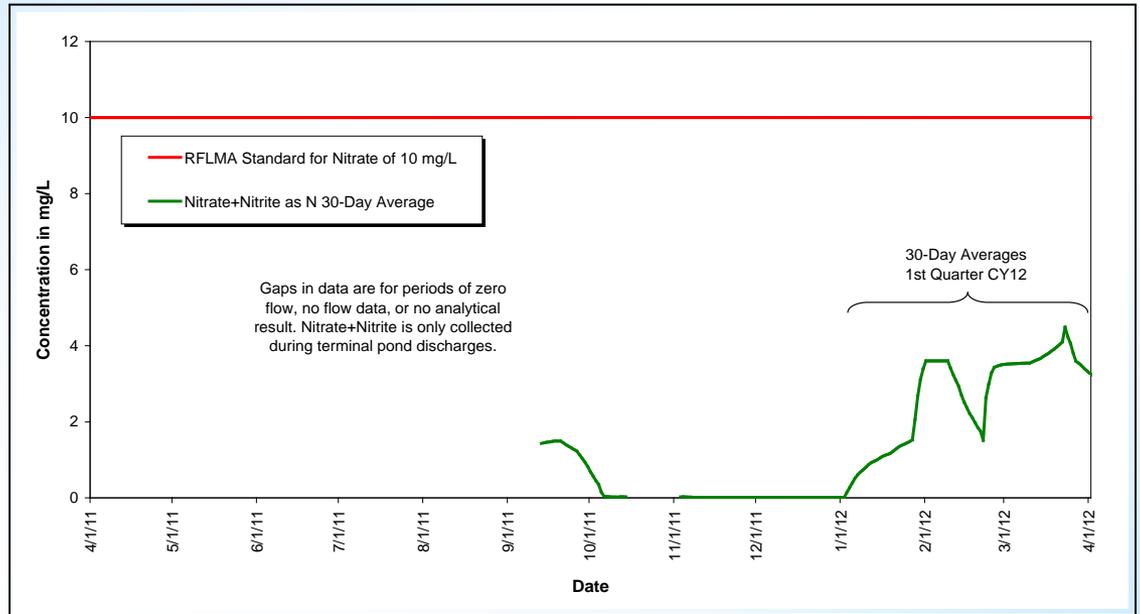


■ Total Uranium



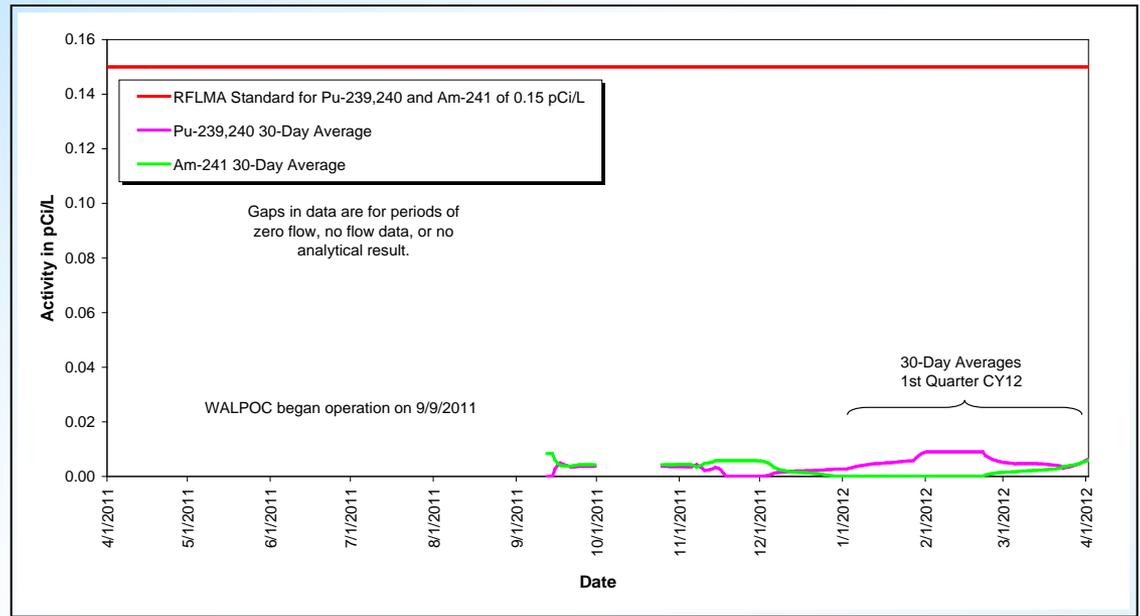
POC GS03

■ Nitrate + Nitrite as Nitrogen

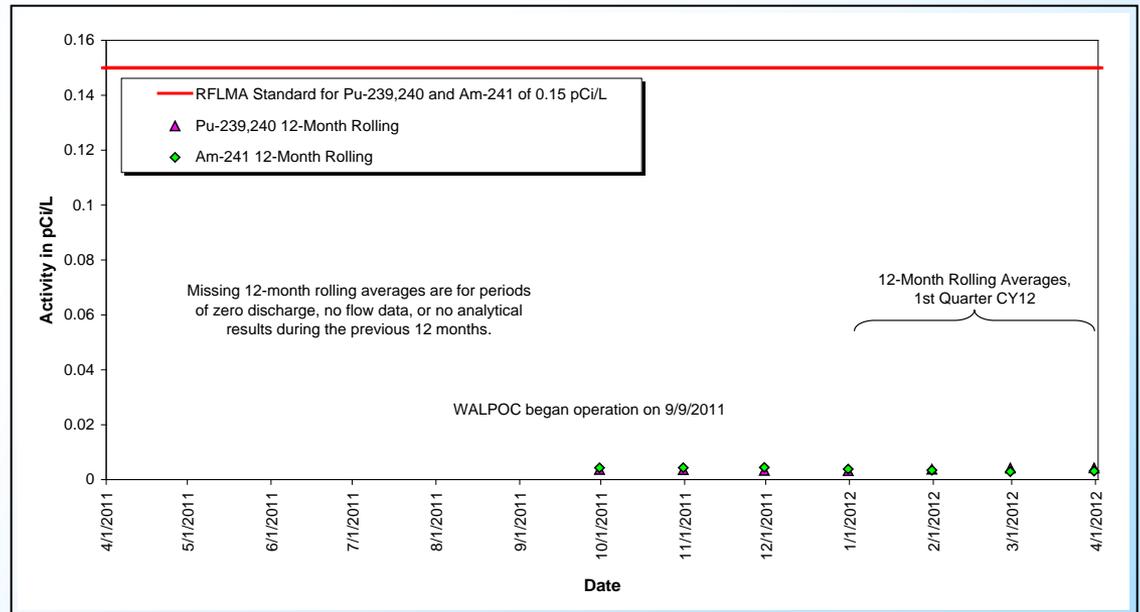


WALPOC

■ Plutonium and Americium (30-Day Avg.)

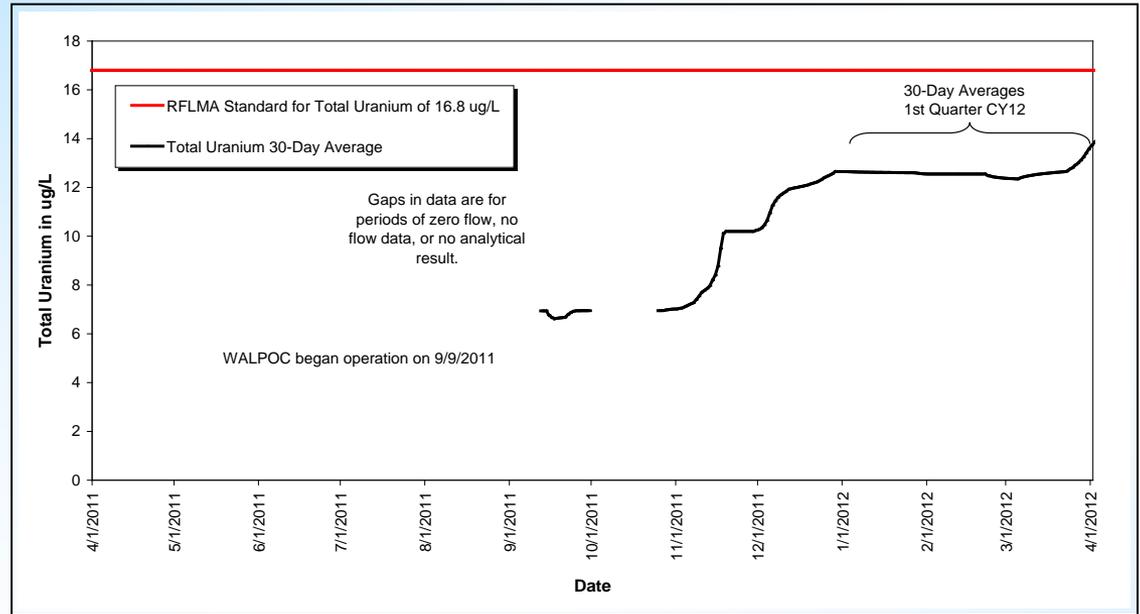


■ Plutonium and Americium (12-Mo. Rolling Avg.)

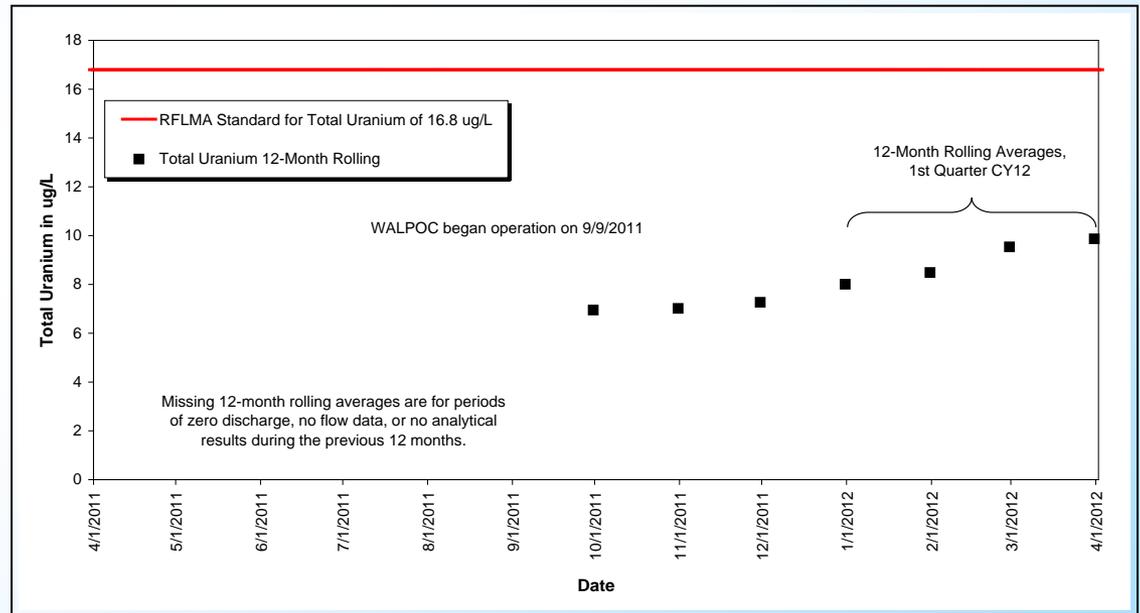


WALPOC

■ Uranium (30-Day Avg.)

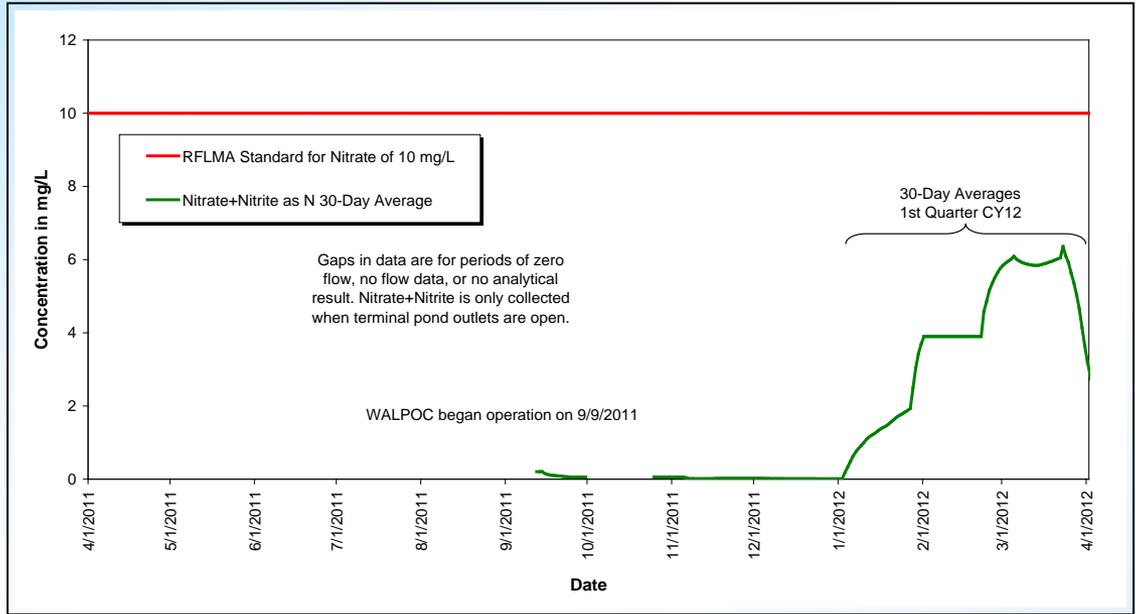


■ Uranium (12-Mo. Rolling Avg.)

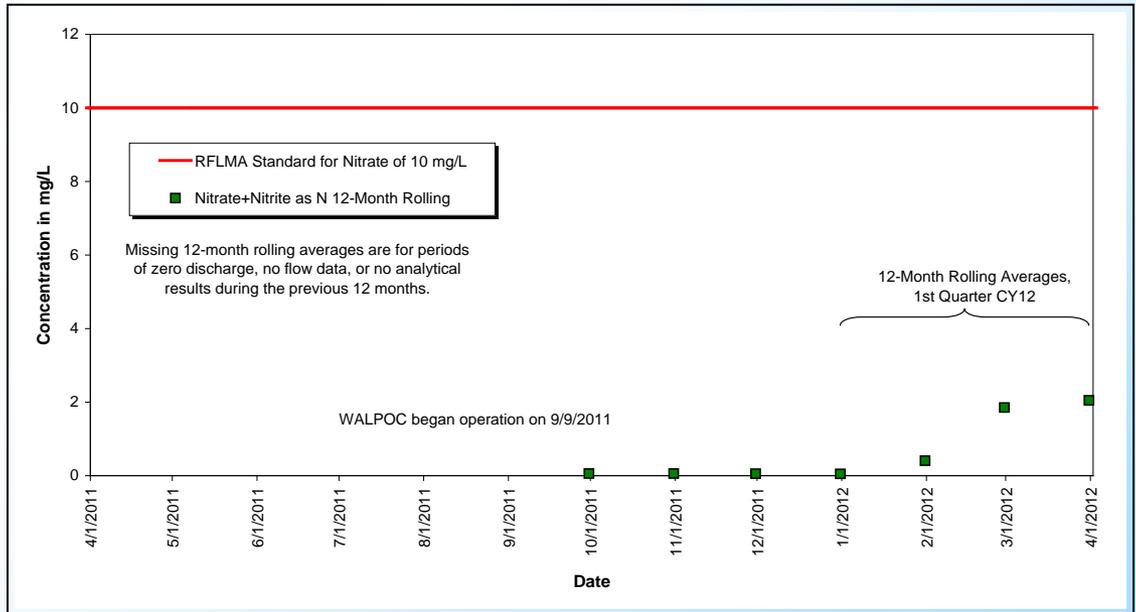


WALPOC

- Nitrate + Nitrite as Nitrogen (30-Day Avg.)

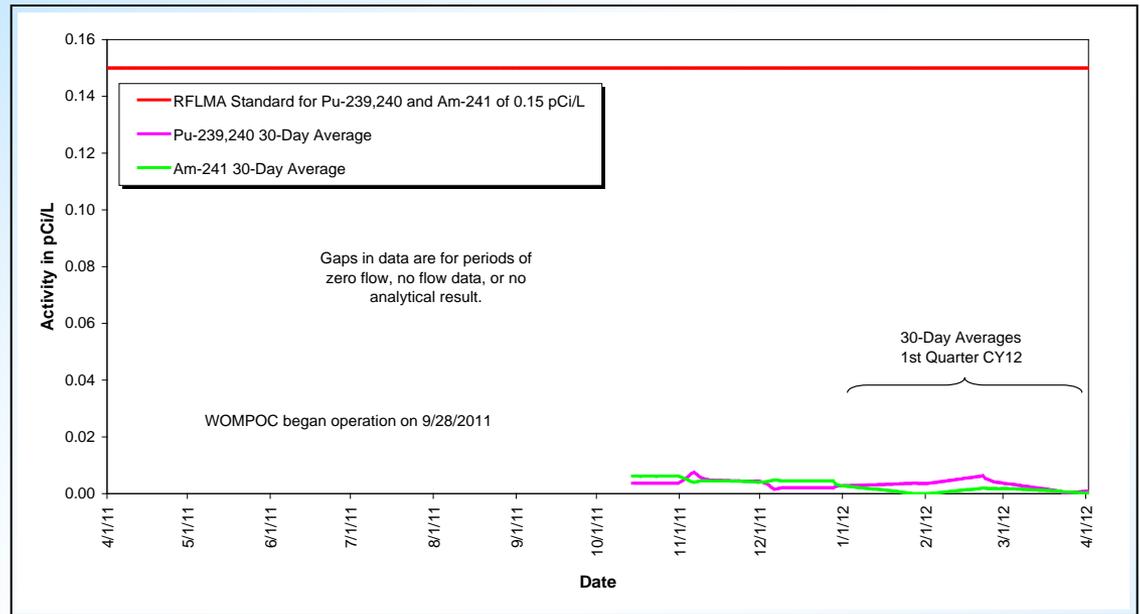


- Nitrate + Nitrite as Nitrogen (12-Mo. Rolling Avg.)

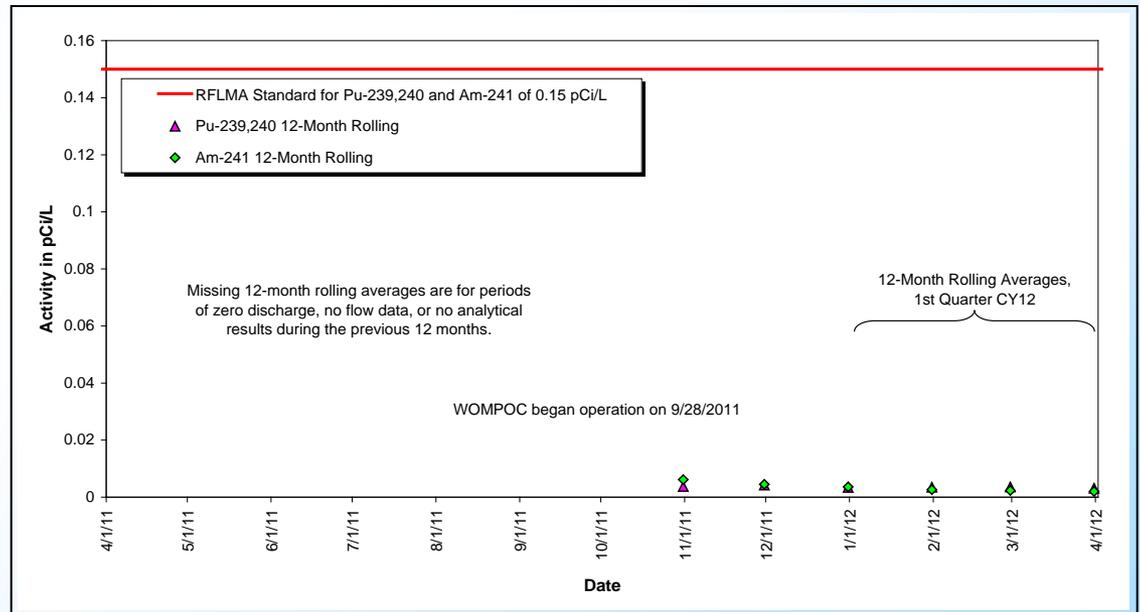


WOMPOC

■ Plutonium and Americium (30-Day Avg.)

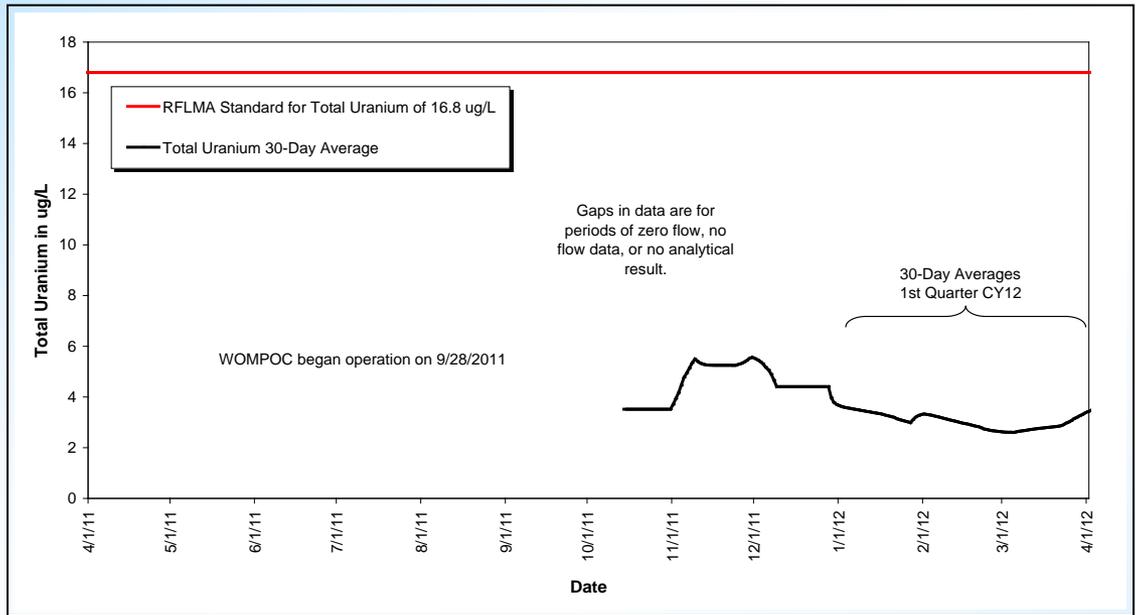


■ Plutonium and Americium (12-Mo. Rolling Avg.)

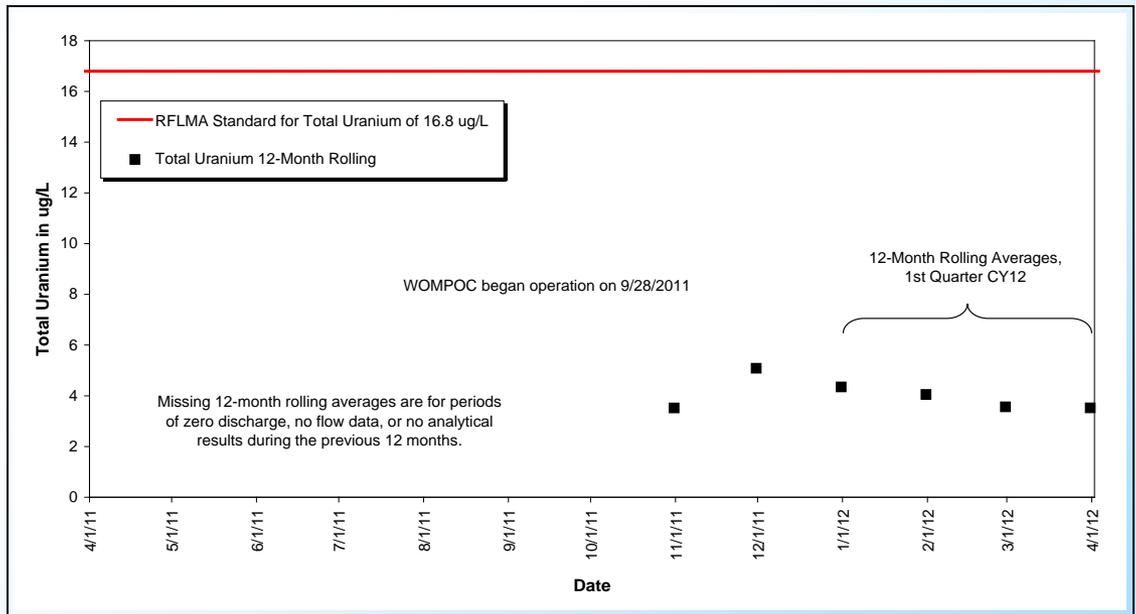


WOMPOC

■ Uranium (30-Day Avg.)



■ Uranium (12-Mo. Rolling Avg.)



Performance Monitoring – First Quarter 2012

Original and Present Landfills

■ Original Landfill (OLF):

- Surface water quality results were all below standards for the quarter

■ PLF:

- The arsenic concentration was above the standard in the sample collected on January 24, 2012, from location PLFSYSEFF, triggering monthly sampling
- The arsenic concentration was below the standard in the first monthly sample collected on March 9, 2012, resulting in the discontinuation of monthly sampling

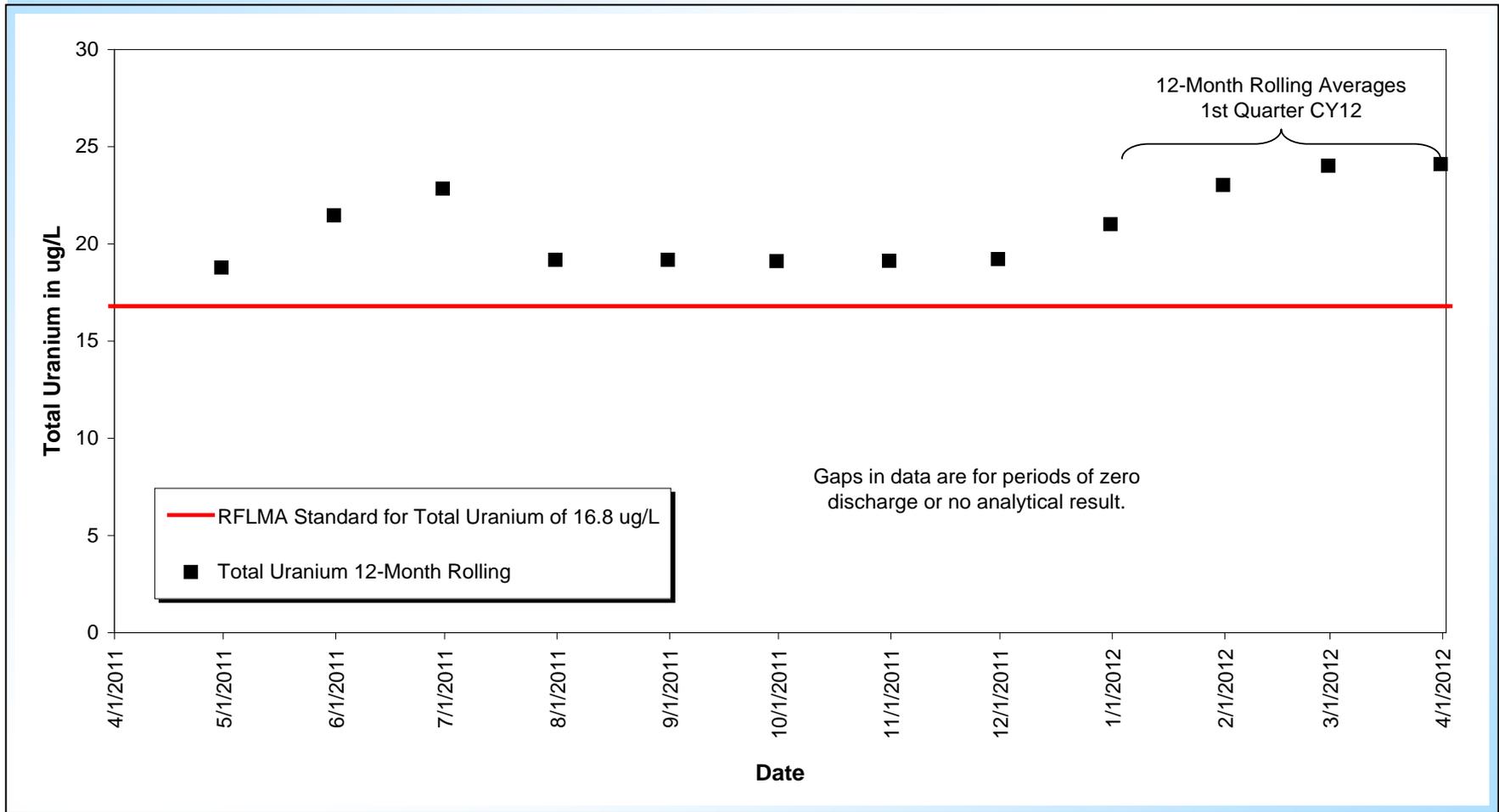


Point of Evaluation (POE) Monitoring – GS10 First Quarter 2012

- Reportable 12-month rolling average values for uranium at GS10 continued to be observed through the quarter
- Additional sampling is being conducted both upstream of and downstream of GS10
- Contact Records 2011-04 and 2011-05 can be found on the Rocky Flats website



POE Monitoring – Uranium at POE GS10



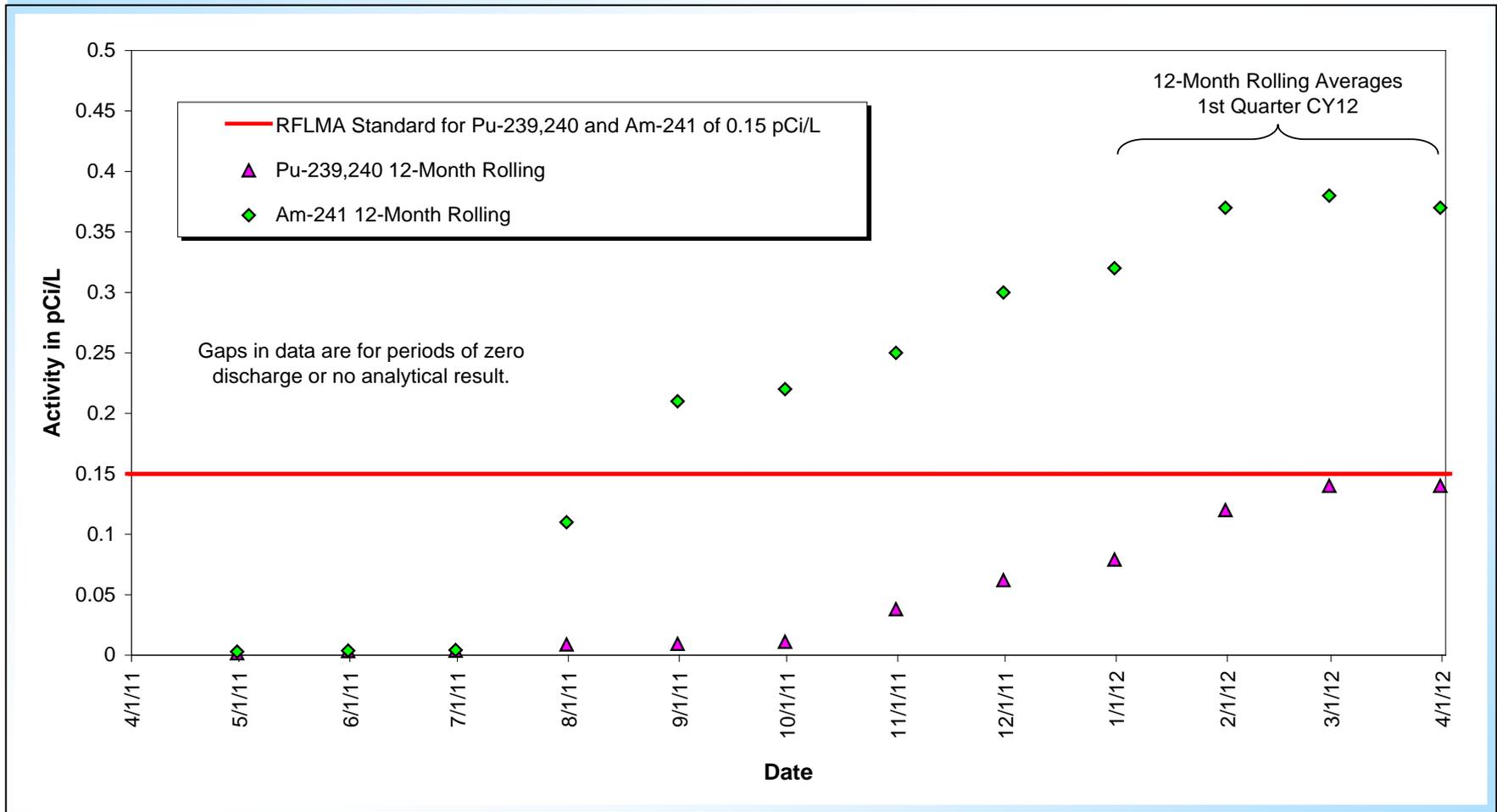
POE Monitoring – GS10

First Quarter 2012

- Reportable 12-month rolling average values for americium at GS10 continued to be observed through the quarter
- Additional sampling is being conducted both upstream of and downstream of GS10
- Contact Record 2011-08 can be found on the Rocky Flats website



POE Monitoring – Pu and Am at POE GS10



Questions?



Groundwater Monitoring and Operations

First Quarter 2012



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RFLMA Monitoring

- First quarter (January through March) is a light sampling quarter
 - All RCRA wells (OLF, PLF)
- Results reviewed in accordance with the RFLMA Attachment 2 decision flowcharts
 - Results consistent with previous
- Results will be discussed and statistically evaluated in the 2012 Annual Report



Additional RFMLA Groundwater Topics

- Extra groundwater sampling performed at ETPTS
 - Fourth quarter 2011 sample showed elevated VOCs in effluent
 - Confirmatory sample in same quarter showed similar results
 - Revised flow configuration
 - From parallel to series
 - Collected sample in first quarter to evaluate response to change in flow configuration
 - Results showed return to normal treatment

Additional (Non-RFLMA) Monitoring

- Several locations associated with treatment systems
 - SPPTS: Performance checks
 - SPPTS: Microcell tests
 - Uranium treatment
 - Lab tests using ZVI, short residence time worked well
 - Full-scale application (longer residence time) didn't work well
 - Microcell uses short residence time, small media volume
 - Testing IX resin, ZVI
 - ZVI results to date are promising



Additional Activities

- Evaluated MSPTS air stripper
 - Observations through the quarter suggested no freezing concerns
 - Minimal maintenance needs

Questions?



Site Operations



First Quarter 2012



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PLF Inspections and Surveys

- The quarterly inspection was completed on February 28, 2012
- No areas of concern were observed



OLF Inspections

- Monthly inspections at the OLF were completed on January 30, February 28, and March 29, 2012



OLF Features



OLF Seeps

- Seep locations produced surface flow temporarily after the melting of precipitation events
- Wetland vegetation on the OLF cover was dormant throughout the first quarter



OLF Settlement Monuments

- Settlement monuments were surveyed on March 20, 2012; data are within the expected range per the *Original Landfill Monitoring and Maintenance Plan*



OLF Inclinometers

- Inclinometers were measured January 23, February 29, and March 15, 2012
- Very little deflection was noted in the first quarter (and last 18 months)
- Previous work to improve drainage and regrade west channel, along with routine maintenance, seems effective in mitigating localized instability



Annual Site Inspection – March 12, 2012

- Inspection and monitoring for evidence of significant erosion
 - Conduct visual observation for precursors of significant erosion
 - Evaluate proximity of any significant erosion to subsurface features
- Inspect effectiveness of institutional controls (ICs)
 - Determine effectiveness by evaluating any evidence of violation of ICs and determine whether required signs are in place
 - Verify that Environmental Covenant is in Administrative Record and on file with Jefferson County (verified March 19, 2012)
- Evidence of any adverse biological conditions observed during inspection



Annual Site Inspection (continued)

- COU divided into five areas:
 - A – Former 300 and 400 Areas
 - B – Former 700 and 991 Areas
 - C – Former 800 Area
 - D – Former 903 Pad and East Trenches Area
 - E – Former Ash Pits Area
- SW027 drainage area also inspected – erosion controls added in 2010 as follow-up to elevated plutonium levels in 2010
- Landfills, treatment systems, and water monitoring stations inspected during the year on a routine basis
- Team walked down surface of each area (A–E) and SW027 drainage area to observe conditions



INSPECTION AREAS

Figure 3
Subsurface Features - Remaining Infrastructure

KEY

- Soil remaining
- Basement(s) remaining
- Tunnel remaining (with walls, foundations, ceiling)
- Foundation remaining (includes columns and/or grade beams)
- Contaminated below 6 ft.
- Former building or structure footprint
- Original Process Waste Lines (OPWL)**
- OPWL, grouted and left in place
- OPWL, manually removed
- New Process Waste Lines (NPWL)**
- NPWL, grouted and left in place (clear closed)
- NPWL, grouted and left in place (not part of RCRA unit 374.5)
- NPWL, valve vault (removed to below 5 feet from surface and backfilled and contaminated)
- NPWL, valve vault (removed to below 6 feet from surface and backfilled with soil, seal, and/or, concrete)

- Standard Map Features**
- Central Cooperative Unit boundary
 - Pond
 - Site boundary
 - Stream, ditch, or other drainage feature
 - Topographic contour (20-foot interval)



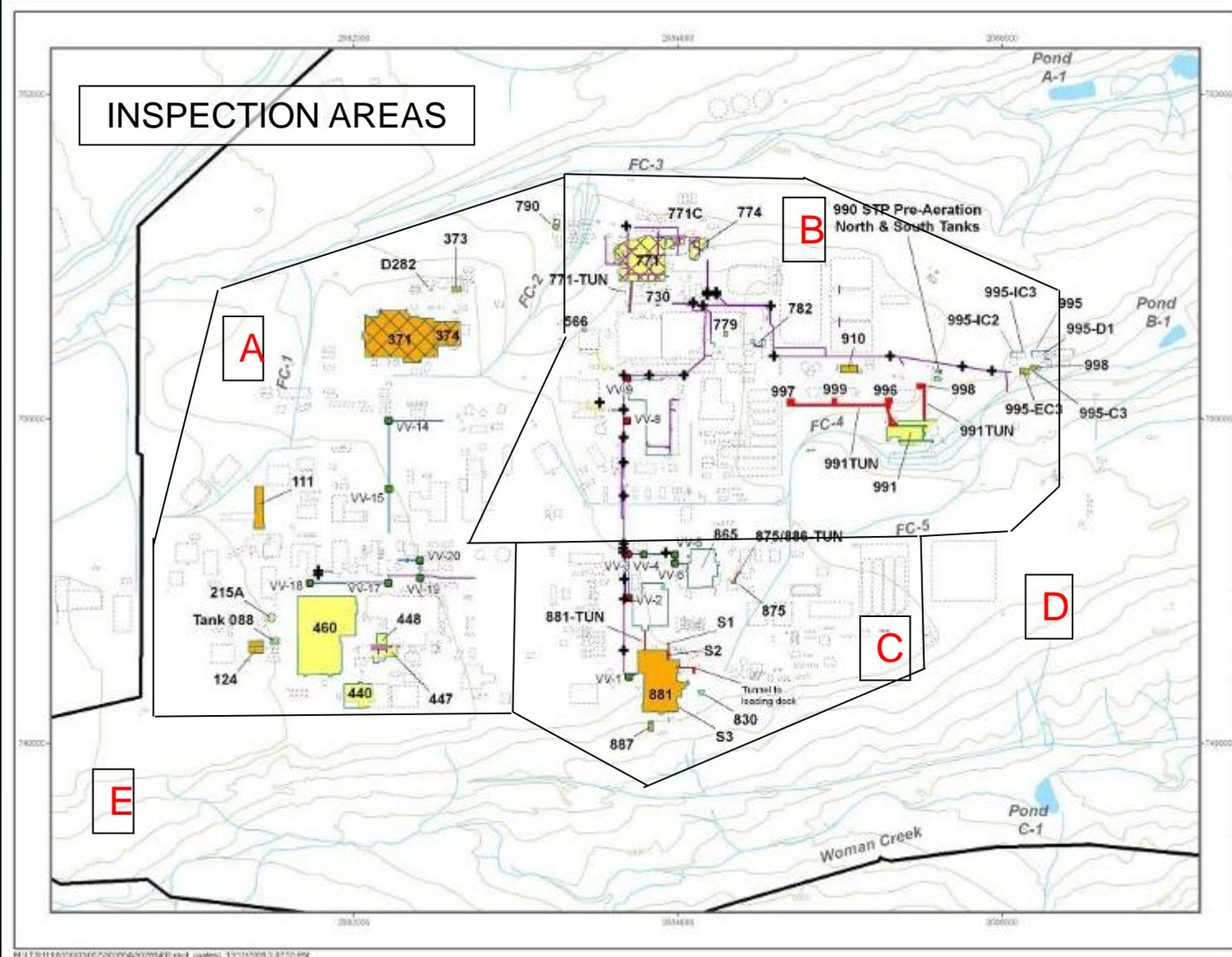


 Scale: 1:7,200
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 83

Rocky Flats Site



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Annual Site Inspection (continued)

- No significant erosion noted – some holes and surface debris
 - Very limited aerial extent – holes filled in
 - Debris and trash collected or flagged for pick up
- No adverse biological conditions noted
- No evidence of IC violations
- Signs in place



Cable remnant in Area A



Trash in Area E swale

Annual Site Inspection (continued)



Area C – Area with hole at former B881 stairwell filled after 2011 inspection – filled this smaller hole after 2012 inspection



SW027 drainage area – Wattle trampled and small area with poor vegetative cover noted – wattle replaced, area seeded after 2012 inspection



Questions?



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Third Five-Year Review

- July 2012 Review Report posted on Rocky Flats website
 - July 30, 2012, EPA concurrence letter included in report
 - E-mail to stakeholders – August 2, 2012
 - Newspaper notice of completion and report availability – August 3, 2012
- Central OU is protective of human health and the environment
 - Surface water concentrations are meeting standards at points of compliance
 - Monitoring and maintenance plans and institutional controls are working to prevent unacceptable exposure to site contaminants
- Because conditions in all OUs associated with the site are protective, the Rocky Flats NPL site is protective of human health and the environment



Third Five-Year Review (continued)

- Review recommendations
 - Continue evaluation of elevated concentrations of uranium, plutonium, and americium at GS10
 - Evaluate effectiveness of erosion controls, reseeded mitigating actions in SW027 drainage area – when water flows at SW027
 - DOE and CDPHE consult to replace environmental covenant with restrictive notice as described in 2011 CAD/ROD amendment
 - Discontinue specific vegetation monitoring in OLF inspections – meets success criteria
- Next review report due August 3, 2017, per EPA concurrence letter

