Overview of the 3rd Quarter 2007 Surveillance and Maintenance Report for the DOE LM Rocky Flats Site

Rocky Flats Stewardship Council

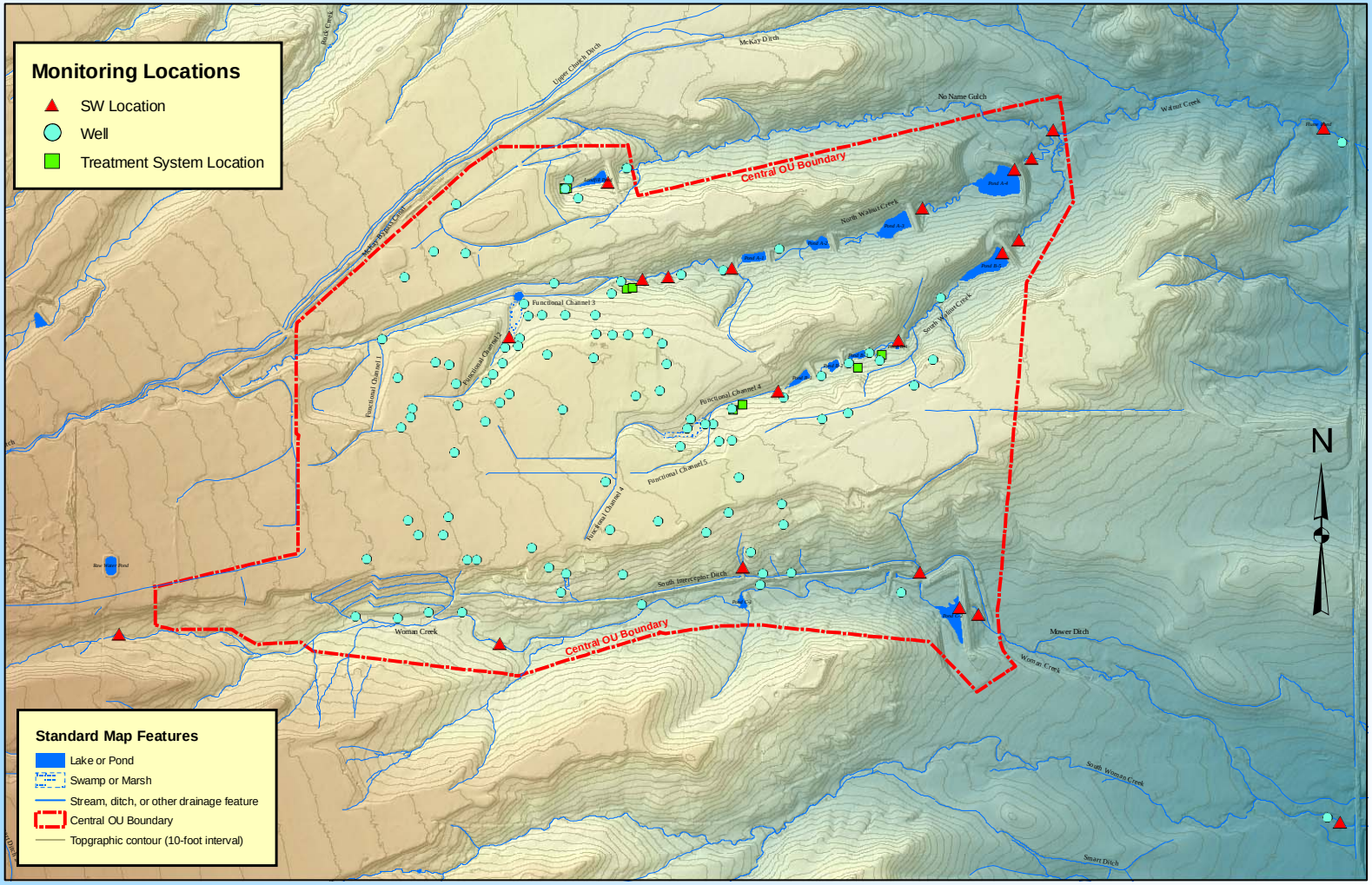
February 4, 2008

Surface-Water Monitoring and Operations

3rd Quarter 2007

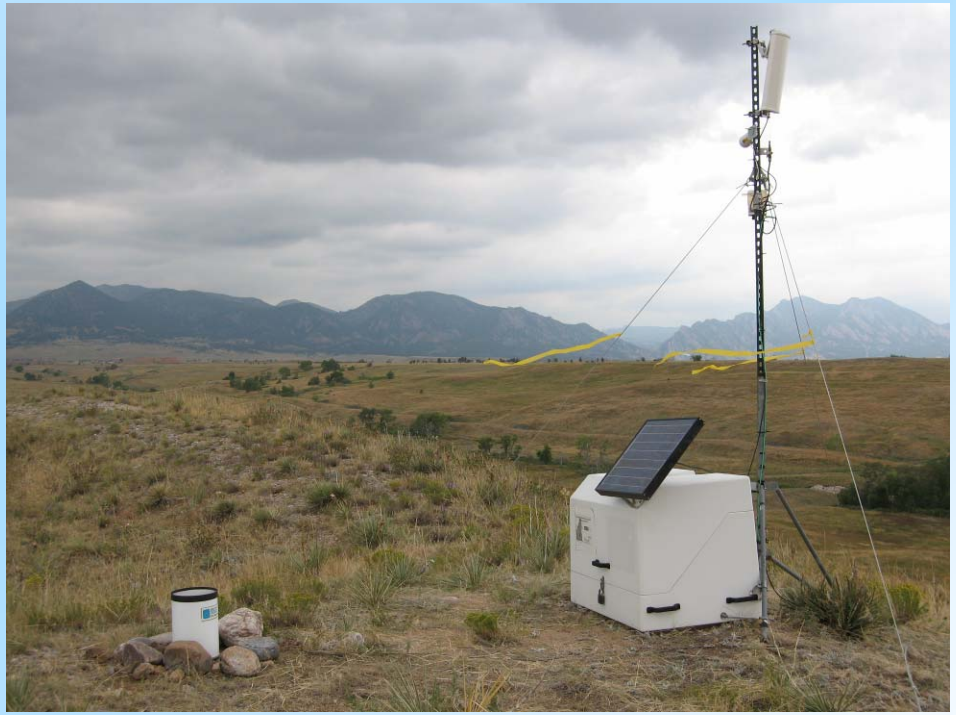
3CQ07 Environmental Monitoring Locations

Surface Water Locations: 21
Groundwater Wells: 100
Treatment System Locations: 10



Hydrologic Data – 3rd Quarter CY07

- Precipitation
  - 3.97” total precipitation
  - 98% of WY93-06 average
- Flow Rates (percent of average)
  - GS01 (No Flow)
  - GS03 (65%)
  - GS10 (14%)
  - SW027 (No Flow)
  - SW093 (6%)

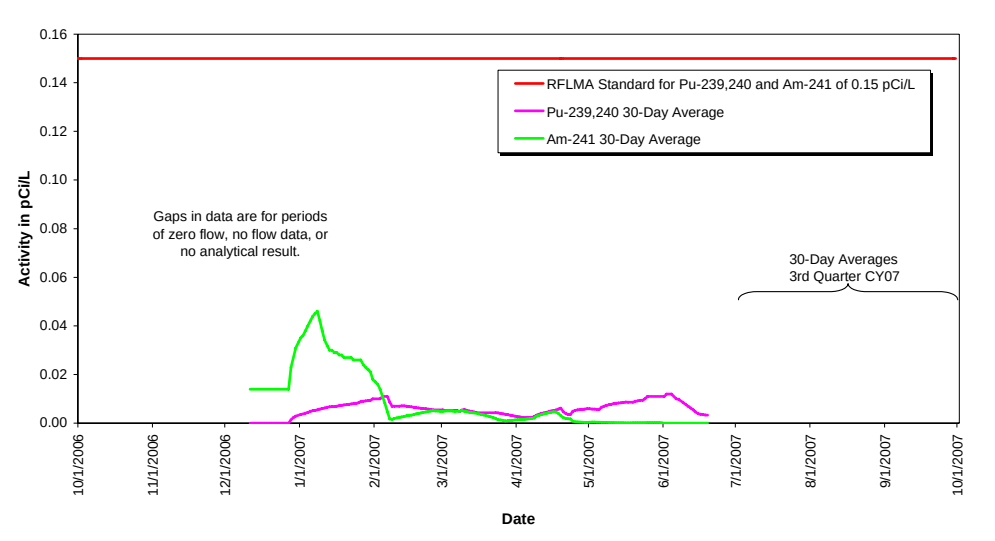


Point of Compliance (POC) Monitoring – 3rd Quarter CY07

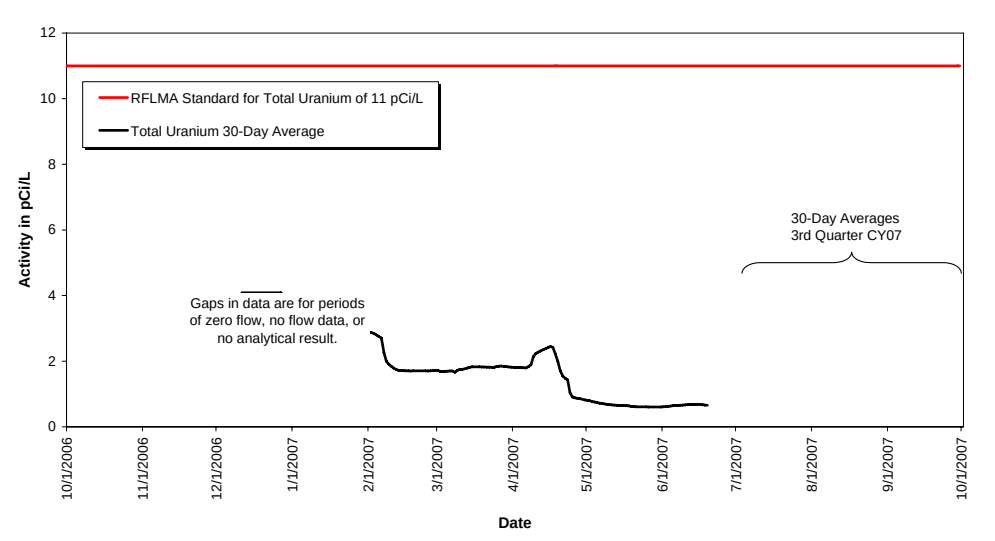
- Monitoring at RFLMA POCs has continued uninterrupted since 10/1/96
  - GS01: Woman Cr. At Indiana Street
  - GS03: Walnut Cr. At Indiana Street
  - GS08: Pond B-5 Outlet
  - GS11: Pond A-4 Outlet
  - GS31: Pond C-2 Outlet
- All water-quality data at the RFLMA POCs remain below the applicable standards using all available data

POC GS01

- Plutonium and Americium

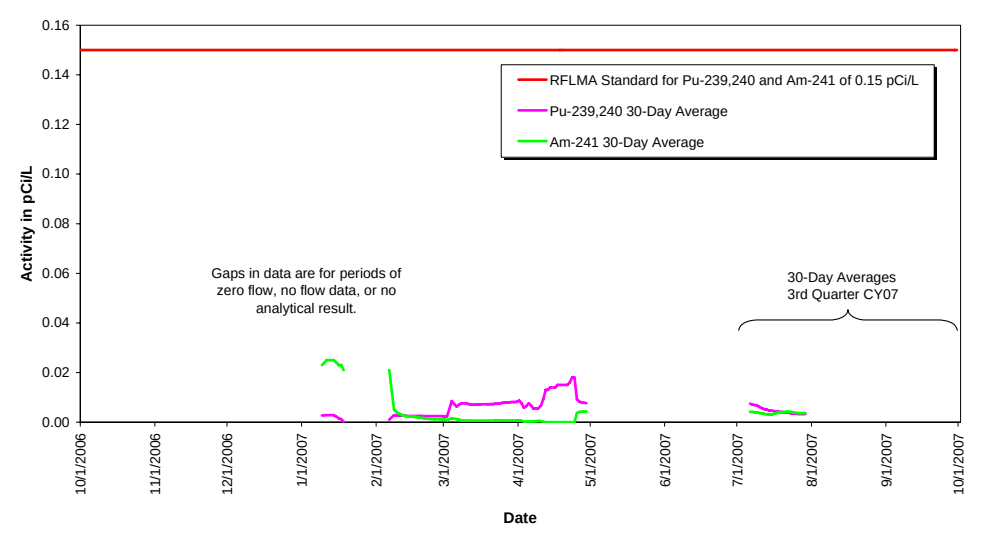


- Total Uranium

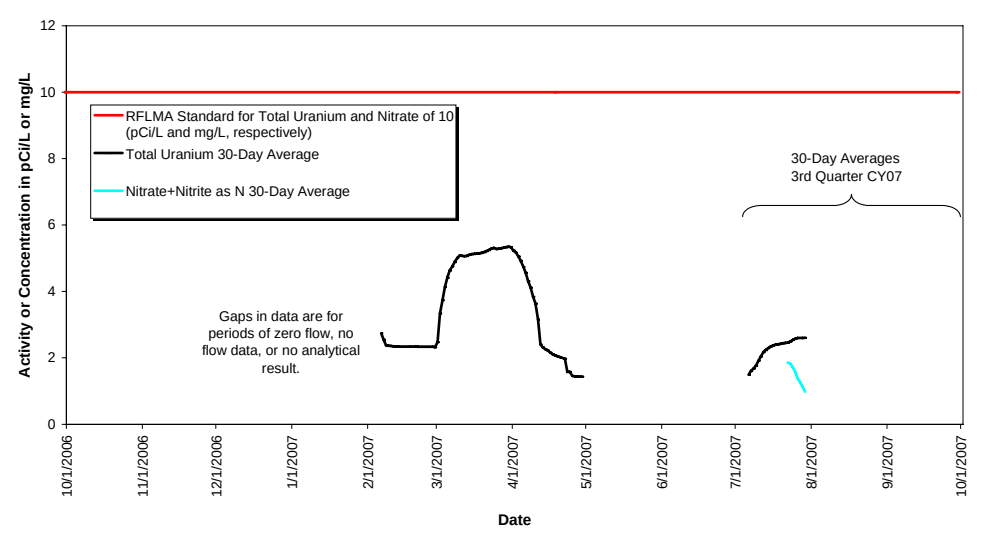


POC GS03

- Plutonium and Americium

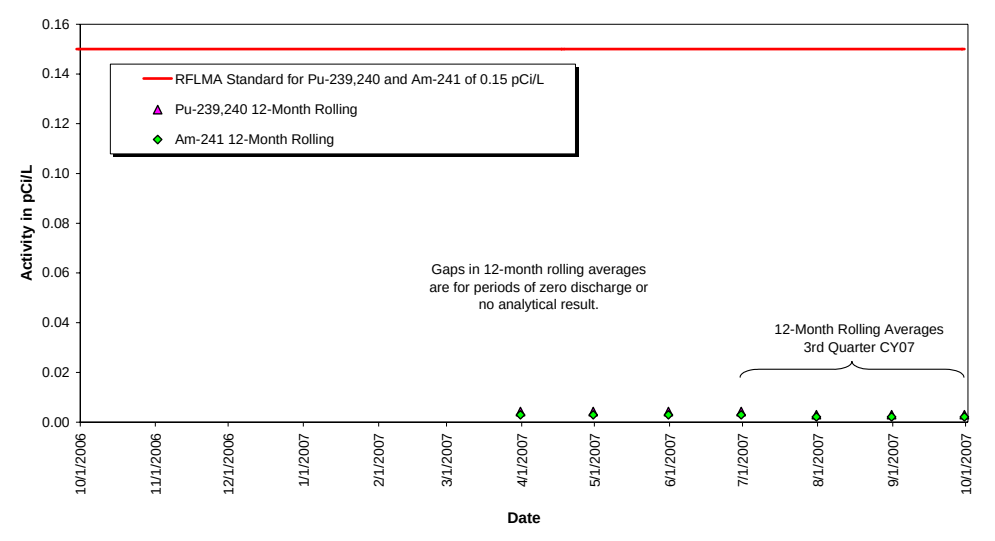


- Total Uranium and Nitrate + Nitrite as N

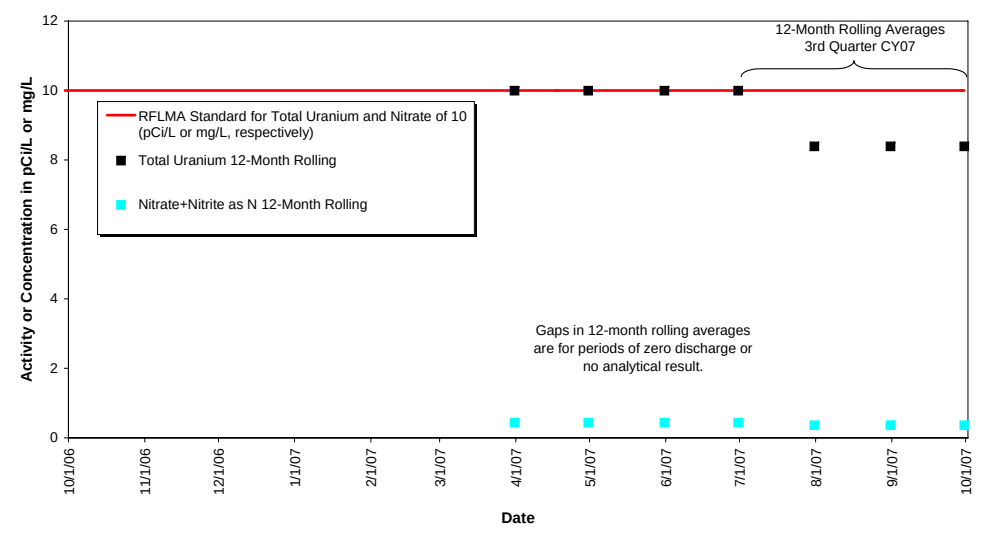


POC GS08

- Plutonium and Americium

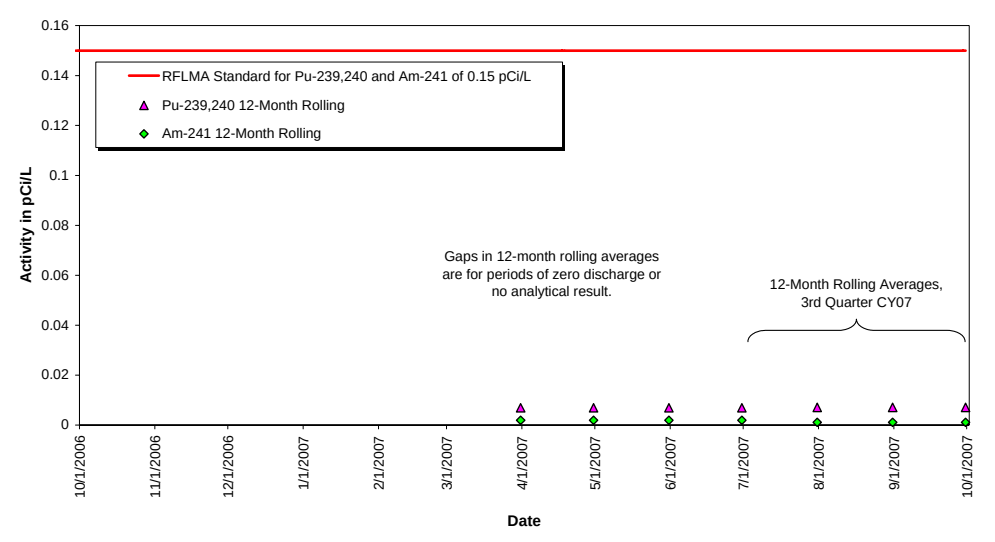


- Total Uranium and Nitrate + Nitrite as N

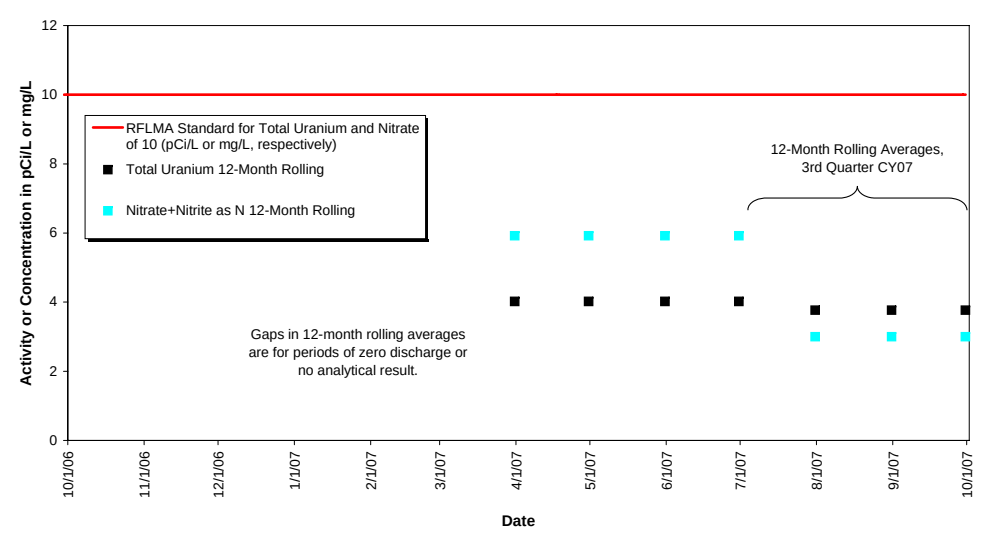


POC GS11

- Plutonium and Americium



- Total Uranium and Nitrate + Nitrite as N



POC GS31

- Plutonium and Americium

No Pond C-2 discharge during the last 12 months.

- Total Uranium

Point of Evaluation (POE) Monitoring – 3rd Quarter CY07

- Monitoring at RFLMA POEs has continued uninterrupted since 10/1/96
  - GS10: S. Walnut Cr. Above B-Series Ponds
  - SW027: S. Interceptor Ditch Above Pond C-2
  - SW093: N. Walnut Cr. Above A-Series Ponds
- Reportable 12-month rolling averages for uranium were observed at POE GS10 for April 2006 through September 2007; an updated source evaluation summary is presented in the 3CQ07 Report
- All other water-quality data at the RFLMA POEs remain well below the applicable action levels using all available data

Performance Monitoring – 3rd Quarter CY07 Original and Present Landfills

- Original Landfill: Surface-water quality results indicate remedy functioning properly
- Present Landfill: Surface-water quality results triggered monthly sampling for vinyl chloride
  - Three consecutive months of vinyl chloride above the standard (PQL) triggered sampling of the Landfill Pond; vinyl chloride was not detected in this sample (9/6/07)
  - The Site continues to consult with the regulators

Pond Operations – 3rd Quarter CY07 Non-RFLMA

- Terminal Pond Discharges
  - Pond B-5 to Walnut Cr. (3.13 MG)
  - Pond A-4 to Walnut Cr. (10.39 MG)
- Transfers
  - None
- Pond Levels
  - As of 9/30/07 Ponds A-3, A-4, B-5, C-2, and the Landfill Pond were holding approximately 15.7 MG (15.9% of capacity)

Current Pond Levels (1/31/08)

- Landfill (25.1%)
- A-3 (21.1%)
- A-4 (9.2%)
- B-5 (24.3%)
- C-2 (15.9%)

Update on Water Quality Control Commission Rulemaking

- Petition to adopt statewide basic uranium standard (MCL 30 ug/L ~ 20 pCi/L): Hearing 1/09
  - Natural U in ground water now higher proportion of surface water (LANL samples completed)
  - Eliminate site-specific standards (10 pCi/L Walnut Creek; 11 pCi/L Woman Creek)
- Expiring Temporary Modifications (TMs) Review (New rule): Hearing 12/07
  - No changes to current Rocky Flats TMs

Update on Water Quality Control Commission Rulemaking (cont.)

- Triennial Review S. Platte River Basin
  - Issues Scoping Hearing 10/07
    - Rocky Flats TMs expire 12/31/09
    - New statewide basic standard for arsenic (10 ug/L) below site-specific standard (50 ug/L)
    - Will CDPHE adopt new EPA method for copper or other metals?
    - Uranium petition already scheduled for rulemaking
  - Issues Formulation Hearing 11/08; Rulemaking Hearing 6/09
- Progress for each rulemaking will be summarized in 2007 Annual Report

Questions?

Ground Water Monitoring

3rd Calendar Quarter 2007 (July 1-Sept. 30)

John Boylan

RFLMA Ground Water Monitoring

- 1st and 3rd calendar quarters are traditionally “light”
- Routine monitoring is limited to the 10 RCRA wells at PLF and OLF
  - 3rd quarter results were generally consistent with previous data
  - Will be evaluated in 2007 annual report

Non-RFLMA Monitoring

- Collected additional performance-check samples at treatment systems
  - Samples at MSPTS and ETPTS collected to determine whether change to upflow configuration affected treatment efficiency
    - Will be discussed in 2007 annual report
  - Samples at SPPTS collected to continue evaluation of repairs performed in late 2006
    - Effluent water quality (location SPPMM01) indicates treatment of water fed through the system is adequate
    - Conclusion: Repairs were successful

Non-RFLMA Monitoring (cont.)

- Collected several samples to support negotiations with Water Quality Control Commission regarding uranium standard
  - Samples collected for determination of natural vs. anthropogenic uranium
  - Locations included:
    - AOC well 10594 (North Walnut Creek at Pond A-1)
    - SPP Discharge Gallery
    - Sentinel well 99405 (B991)
    - Well 80205 (easternmost downgradient OLF well)
    - GS10
    - GS03

Non-RFLMA Monitoring (cont.)

- Only OLF well had not been previously characterized for uranium signature
  - Was 100% natural
- Results at most other locations were consistent with pre-closure data
- SPP Discharge Gallery showed some variation
  - One prior sample (collected in 2002) was approximately 2/3 natural
  - Sample collected in September 2007 was just under 1/2 natural
  - Average remains predominantly natural
  - Dominant reasons for this change likely relate to natural physical variations in the system (climate, hydrology, activities conducted at the Site, and so on)

Questions?

Ecological Monitoring

3rd Quarter CY2007 (July – September)

By Jody Nelson

Regulatory Project Support for Ecological Issues

- Roads III project
- FC1/B371 excavation/fill project
- 991 slump repair
- Annual dam mowing and riprap spraying project

Regulatory M&M

The following regulatory monitoring was conducted during the 3rd quarter:

- OLF and the PLF monthly vegetation surveys
  - Woody plants on landfill covers
- Monthly weed surveys in the mitigation wetlands
  - Tamarisk control in mitigation wetlands
- Preble's mouse mitigation monitoring
- Wetland mitigation monitoring
- Weekly PMJM erosion control surveys
- Mapping of existing erosion controls conducted

- Planned and conducted additional herbicide applications on 441 acres of native grassland and revegetation areas. Efforts directed for control of diffuse knapweed and Canada thistle in both COU and POU areas.
- Spraying conducted to remove vegetation on riprap areas on dams per dam inspection/maintenance requirements.
- Weed mapping of diffuse knapweed conducted in COU.

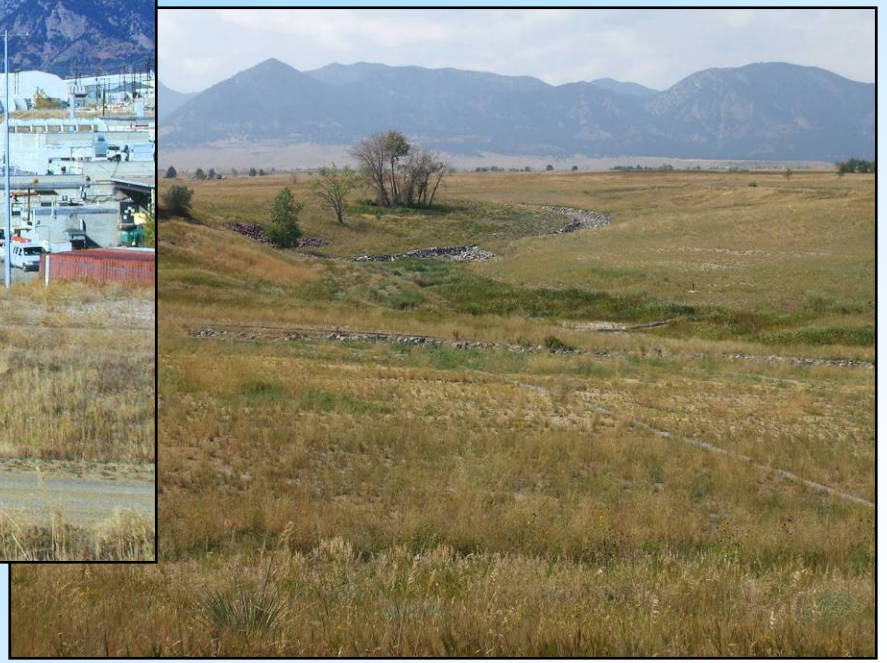
Best Management Practices

Revegetation projects begun in 3rd quarter

- Phase III revegetation areas
- FC1/B371 area
- Planning begun for 991 slump repair revegetation

- 275 plant plugs of western wheatgrass, three-square sedge, and Wood's rose were obtained free from Ottertail Environmental Consulting Company in Golden.
- Western wheatgrass and three-square sedge planted around Seep 7 on OLF. Wood's rose planted around margins of the FC2 and FC4 wetlands.

Revegetation monitoring conducted across COU in 3rd quarter. 670 quadrats at 36 revegetation areas sampled. Photopoint monitoring conducted across COU to document transformation from former Industrial Area to natural areas.

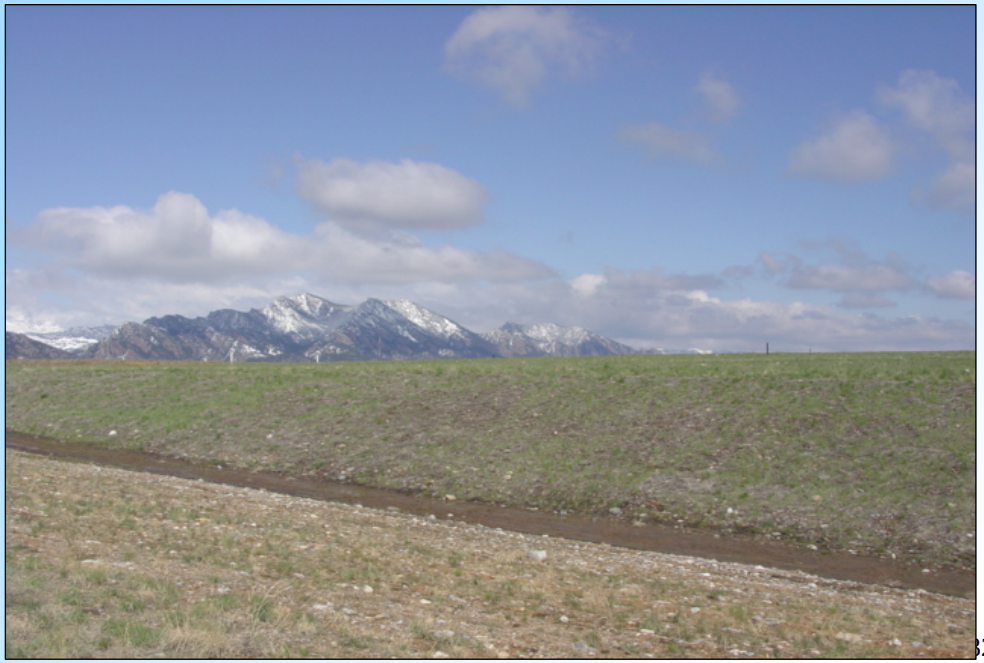


Questions?

Site Operations and Maintenance 3rd Quarter 2007

Site Operations - RFLMA

- **Present Landfill**
  - Inspections performed July 25, August 27, and September 27
  - Vegetative cover inspected July 11, August 8, and September 12
  - Followed prescribed checklist in Monitoring and Maintenance Plan (May 2006)
  - **No significant concerns**



Site Operations - RFLMA

- **Present Landfill - Settlement Monuments**
  - Installed in August 2006
  - 9 monuments across top of landfill
  - 6 monuments on east face of landfill
  - Quarterly survey completed in August 2007
    - Movement within calculated settlement data per M&M Plan

Site Operations - RFLMA

- **Original Landfill**
  - Inspections performed July 25, August 27, and September 27
  - Veg cover inspected July 11, August 8, and September 12
  - Followed prescribed checklist in Monitoring and Maintenance Plan (Feb 2006)

Site Operations - RFLMA

- **Original Landfill**
  - Seeps #4 and #7
    - Seep #4 continues to show areas of active groundwater seepage
    - Seep #7 dried out in July – flowed temporarily after precipitation events

Site Operations - RFLMA

- **Original Landfill**

  - Berm #1 Slump Phase 1 Repairs
    - Completed August 2
    - Imported and compacted 227 tons of Rocky Flats Alluvium
    - Smoothed and compacted cracks between Berms #1 and #3

Site Operations - RFLMA

- **Original Landfill - Settlement Monuments**
  - 7 settlement monuments installed
  - Quarterly survey completed in August
    - Movement within calculated settlement data per M&M Plan

Site Operations - RFLMA

- **Original Landfill – Consolidation Monitors**
  - 20 consolidation monitors installed on September 19
  - First monthly survey on September 28
  - Evaluate movement in Berm #1 Slump Area

Site Operations - RFLMA

- **COU RFLMA Inspections and Maintenance**
  - Quarterly inspection of COU signs was completed on August 16
  - All postings in good condition – no repairs necessary

Site Operations – Non-RFLMA

- **Road Upgrades**
  - Roads III Upgrade Project
    - Started August 20 and completed September 28
    - Imported road base and constructed water management structures

Site Operations – Non-RFLMA

- **991 Slump Repair**
  - Inspected 991 Slump Area on July 17 with Engineering and surveying subcontractors
  - Conceptual design for Regrading Project issued to CDPHE in September for consultation

Site Operations – Non-RFLMA

- **Access/Security**
  - Continued patrols on internally approved routes as well as outer perimeter routes
  - No significant concerns

Site Operations

Questions ?