

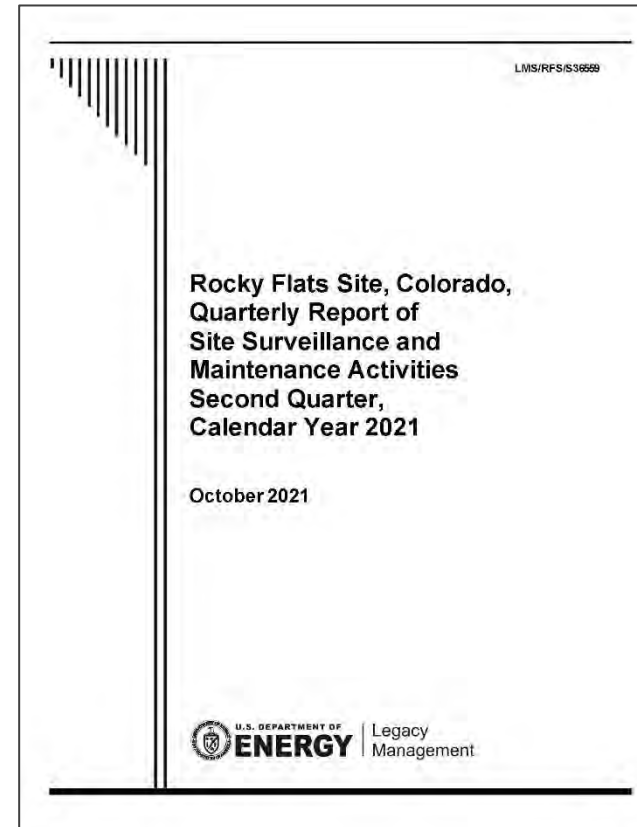


# **Overview of the Second Quarter 2021 Surveillance and Maintenance Report for the Rocky Flats Site, Colorado**

April–June 2021

# Quarterly Monitoring and Reporting

- Quarterly reports required under the *Rocky Flats Legacy Management Agreement* (RFLMA) to document that the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 remedy continues to provide effective protection
- Rocky Flats Site remedy components include:
  - Maintain two landfill covers
  - Maintain three groundwater treatment systems
  - Monitor surface water and groundwater
  - Maintain physical controls
    - Signage
    - Access restriction



# Quarterly Monitoring and Reporting (continued)

- Rocky Flats Site remedy components include (continued):
  - Enforce institutional controls
    - No occupied building construction
    - Excavation and soil-disturbance restrictions
    - No surface water consumption or agricultural use
    - No groundwater wells, except for monitoring
    - Landfill covers and engineered remedy components protection



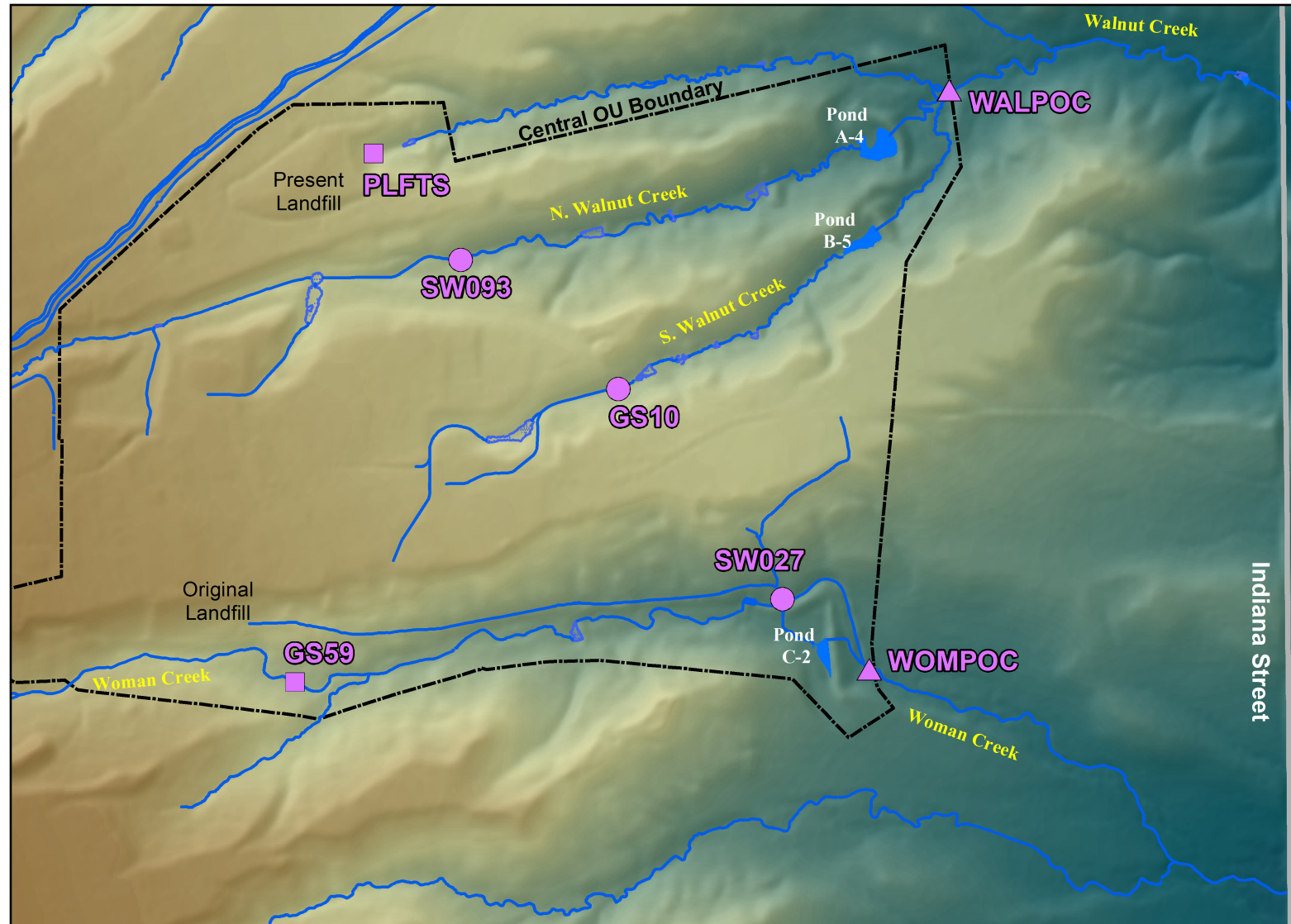


Second Quarter 2021

# Surface Water Monitoring



# Selected RFLMA Surface Water Monitoring Locations



# Original Landfill Performance Monitoring

- Original Landfill (OLF) – location GS59
  - Routine surface water sampling in Woman Creek, downstream of the OLF (GS59), during the second quarter of 2021 showed mean concentrations for all analytes below applicable RFLMA water quality standards



# Present Landfill Performance Monitoring

- Present Landfill Treatment System (PLFTS) — location PLFSYSEFF
  - During the second quarter of 2021 at the system effluent, concentrations for all analytes were below applicable RFLMA standards



# Point of Evaluation Monitoring – GS10

- The 12-month average uranium concentration for April 30, 2021, triggered a reportable condition at GS10. The concentration was 18.1  $\mu\text{g/L}$ , above the 16.8  $\mu\text{g/L}$  RFLMA standard.
  - Validated data were received June 3, formal notification to regulators and stakeholders was made on June 17.
  - The 12-month average on May 31 was 12.4  $\mu\text{g/L}$ , ending the reportable condition.
  - Uranium concentrations at the downstream Point of Compliance (POC) WALPOC have remained well below 16.8  $\mu\text{g/L}$ .
  - Contact Record 2021-02 documents the RFLMA consultation and path forward.





# Point of Evaluation Monitoring – SW027

- The 12-month average plutonium concentration for April 30, 2021, triggered a reportable condition at SW027. The concentration was 0.9 pCi/L, above the 0.15 pCi/L RFLMA standard.
  - Validated data were received June 11, formal notification to regulators and stakeholders was made on June 24.
  - The 12-month average on May 31 was 0.061 pCi/L, ending the reportable condition.
  - Plutonium concentrations at the downstream POC WOMPOC have remained well below 0.15 pCi/L.
  - Contact Record 2021-03 documents the RFLMA consultation and path forward.



# Point of Evaluation Monitoring

- No other Point of Evaluation analyte concentrations were reportable during the second quarter of 2021



# Point of Compliance Monitoring

- No RFLMA POC analyte concentrations reportable during the second quarter of 2021



# Questions?





U.S. DEPARTMENT OF  
**ENERGY**

Legacy  
Management

Second Quarter 2021

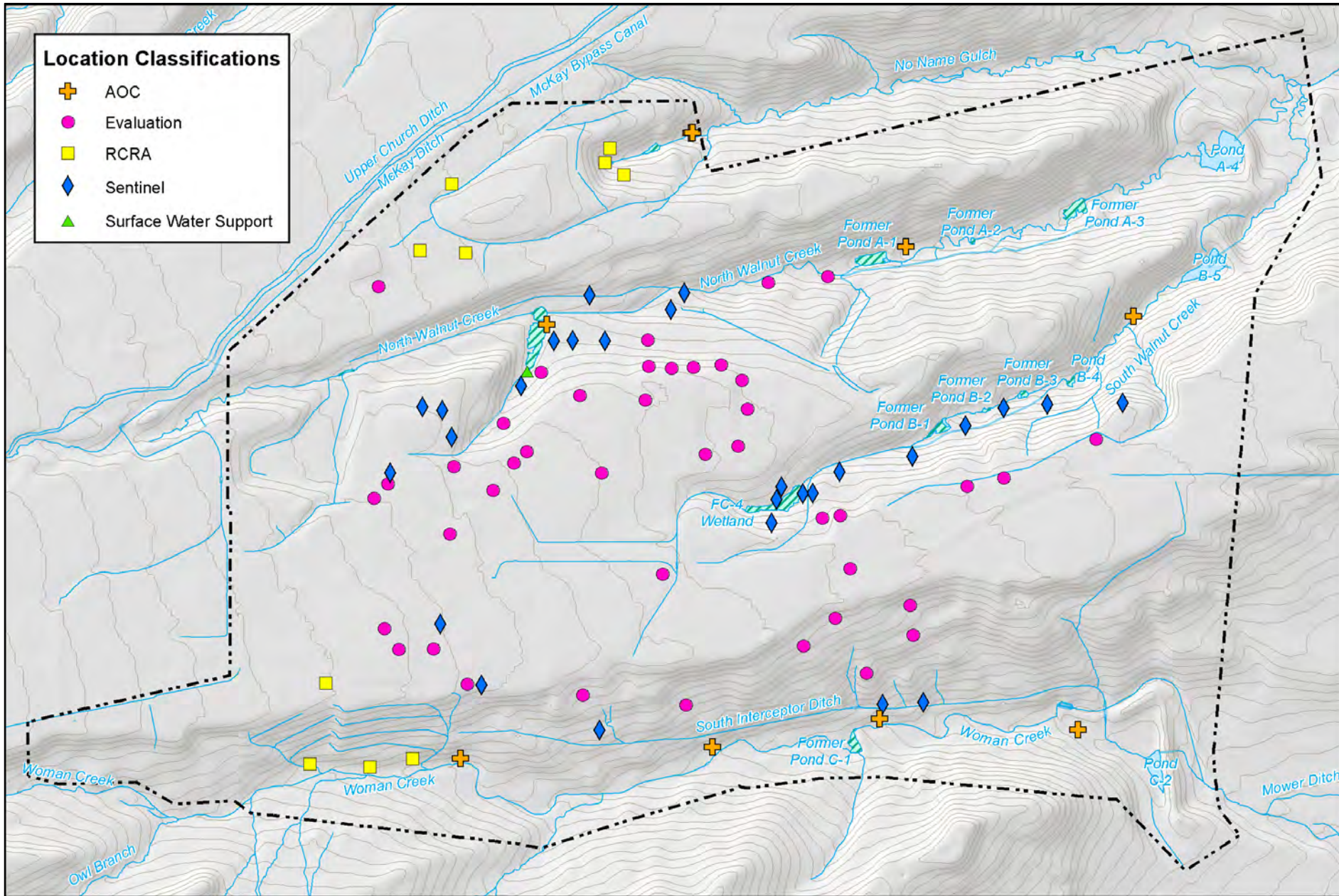
# Groundwater Monitoring and Operations



# RFLMA Groundwater Monitoring Overview

- RFLMA monitoring network
  - 10 Resource Conservation and Recovery Act (RCRA) wells (sampled quarterly)
    - Evaluate potential impacts from OLF and Present Landfill (PLF)
  - 9 Area of Concern (AOC) wells and one Surface Water Support location (sampled semiannually)
    - Located in drainages downstream of contaminant plumes
    - Evaluate for plumes discharging to surface water
  - 27 Sentinel wells (sampled semiannually)
    - Downgradient of treatment systems, edges of plumes, and in drainages
    - Look for plumes migrating to surface water and treatment system problems
  - 42 Evaluation wells (sampled biennially)
    - Within plumes, near source areas, and interior of Central Operable Unit (COU)
    - Evaluate whether monitoring of an area or plume can cease
  - 9 treatment system locations (seven sampled semiannually, two quarterly)





Groundwater Treatment System Locations Omitted for Clarity



# RFLMA Monitoring and Treatment System Activities

- Sampled all but the Evaluation wells
- Results were generally consistent with previous data
  - Data will be evaluated as part of the 2021 annual report



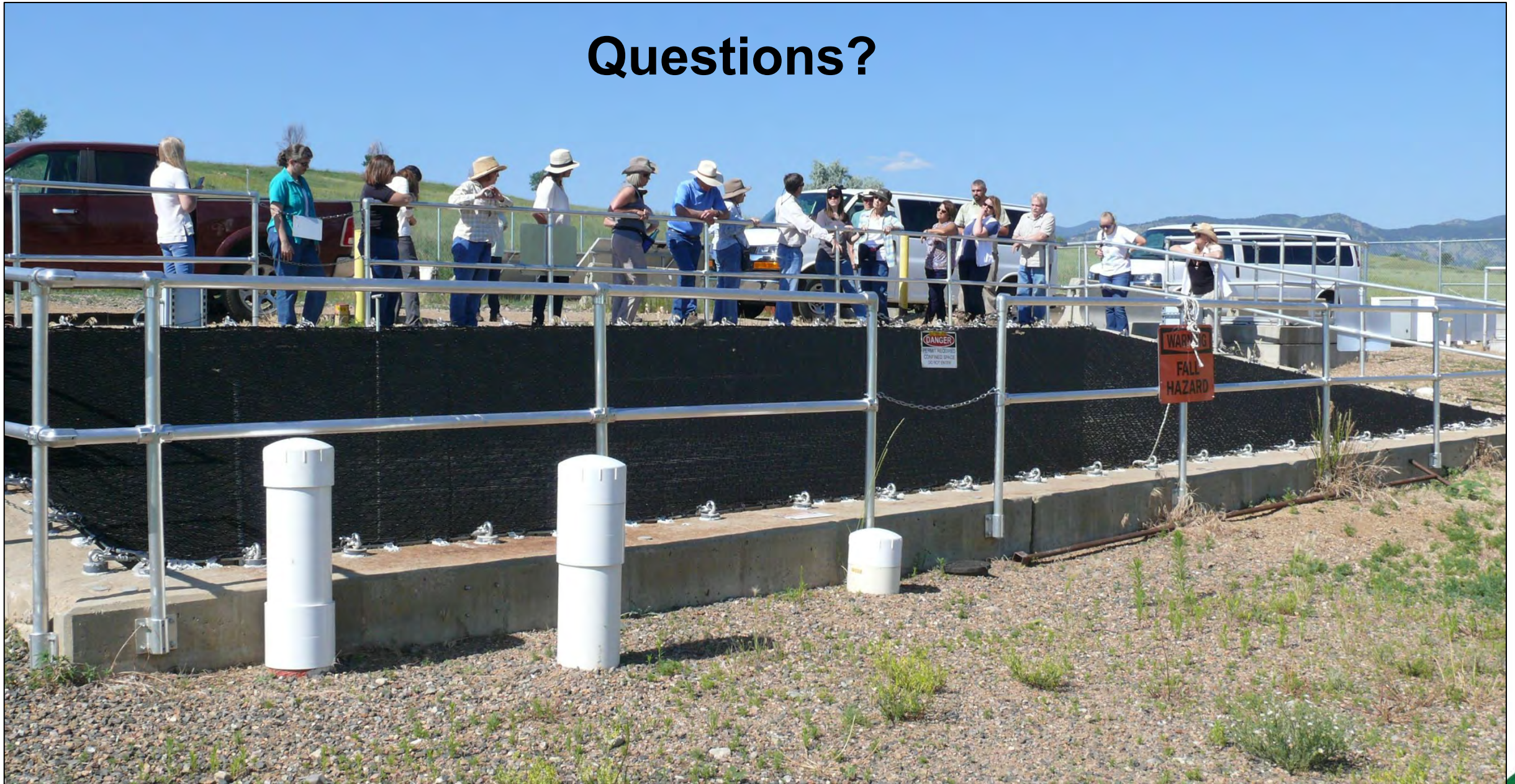
*AOC Well 10304*

- Mound Site Plume Collection System (MSPCS), East Trenches Plume Treatment System (ETPTS), Solar Ponds Plume Treatment System (SPPTS), and PLFTS
  - Routine maintenance at all systems
  - Replaced effluent pump at ETPTS
  - Adjusted nutrient dose rate at SPPTS as air temperatures warmed
- Continued evaluating groundwater conditions west of existing SPPTS collection trench



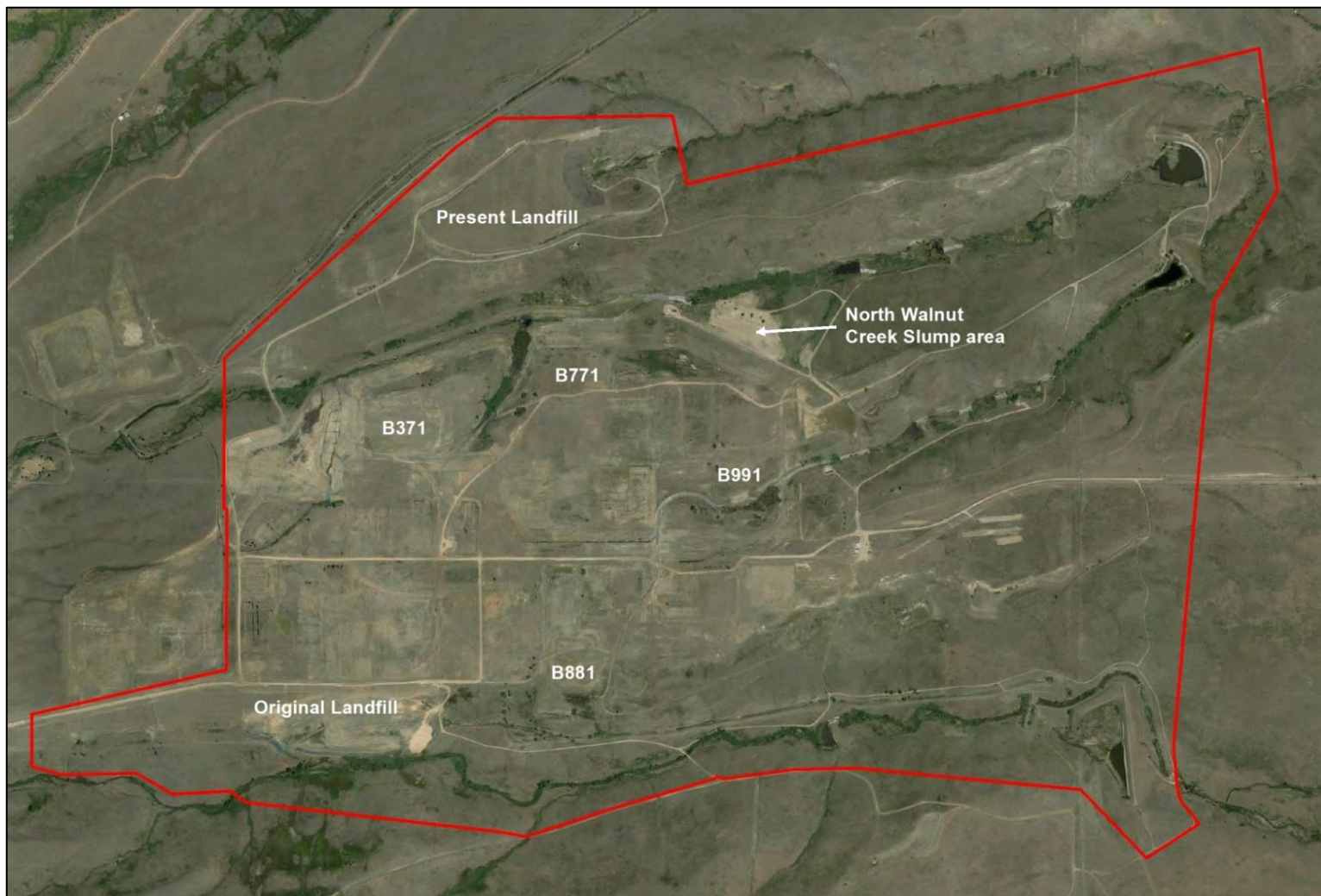


# Questions?





# Second Quarter 2021 Site Operations



# Quarterly Sign Inspections

- RFLMA physical control
- Signs inspected on May 20, 2021
  - All signs in good condition and legible



# Original Landfill

- Monthly inspections performed April 23, May 17, June 25, 2021
  - Erosion rills were observed during inspections and have since been repaired



*Above Berms 5 and 6*



*Above East Subsurface  
Drain Outfall Channel*



*Along West Perimeter  
(also shows elk tracks)*



# Original Landfill

- Weather-related inspections
  - May 5, 2021
  - June 29, 2021 – Erosion rills above Berms 5 and 6
  - Rills have since been repaired and sediment removed



*Rills/Gullies in West Perimeter Channel*



*Sediment on East Perimeter Channel  
GeoRidges*

# Original Landfill (continued)

- Maintenance performed April 12
  - Eight depressions aligning with gaps between anchor blocks above east Berm 6 filled in with hand tools using surrounding soil
    - Observed March 31, no reappearance after April 12



# Original Landfill (continued)

- Maintenance performed May 18-May 20
  - Rills and gullies along West Perimeter Channel repaired with excavator, reseeded, covered in Turf Reinforcement Matting (TRM) and GeoRidges
  - Rill between West Perimeter Channel and Berm 3 channel smoothed with hand tools and covered in TRM
  - Rills above Berms 5 and 6 smoothed with hand tools
  - Sediment removed from perimeter channel GeoRidges (and throughout quarter)



# Original Landfill (continued)

- Surveyed settlement monuments on June 1, 2021
  - Vertical settling was within design limits
  - Areas of stabilization activities remain stable and in good condition





# Present Landfill

- Quarterly inspection combined with weather-related inspection on May 5, 2021
- Additional weather-related inspection performed on June 29, 2021
- PLF is in good condition



# Former Building Areas 371, 771, 881, and 991

- Quarterly inspection of Former Building Areas 371, 771, 881, and 991 was completed in combination with a weather-related inspection on April 28, 2021
  - No new erosion, subsidence, or anomalies were observed



# North Walnut Creek Slump

- Continued data collection from inclinometers and piezometers where possible
- Slump monitoring points were surveyed on April 7, May 10, and June 1, 2021
  - Vertical and lateral hillside movement both approximately 0.70 feet on average
  - Total vertical movement since baseline (September 5, 2017) was approximately 4.3 feet



# Questions?





U.S. DEPARTMENT OF  
**ENERGY**

Legacy  
Management

Second Quarter 2021

# Ecology



# Ecology Activities

- Weed mapping
- Nest box surveys
- Wetland water level monitoring
- Seeded showy milkweed monitoring
- Game camera monitoring
- Commercial herbicide applications (approximately 141 acres treated)
- Contractor spot herbicide applications (small targeted applications)
- Prairie dog surveys (no active prairie dog towns in or near COU)
- Preparing for third quarter revegetation monitoring, Preble's mouse monitoring, wetland monitoring, and other activities



# Questions?



*"I Just Love My New Hat!"*





# **Overview of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Five-Year Review Process**



# Five-Year Review

- The COU remedy selected in the Corrective Action Decision/Record of Decision (CAD/ROD) is institutional and physical controls, incorporating continued monitoring and maintenance
- The Five-Year Review (FYR) purpose is to determine if a site remedy is protective of human health and the environment
  - Team is composed of the U.S. Department of Energy Office of Legacy Management (LM), U.S. Environmental Protection Agency (EPA), Colorado Department of Health and Environment, and the LM contractor
- The fourth Rocky Flats Site FYR was complete in August 2017
  - “The remedy at the COU is protective of human health and the environment”
  - [https://www.lm.doe.gov/Rocky\\_Flats/Regulations.aspx](https://www.lm.doe.gov/Rocky_Flats/Regulations.aspx)



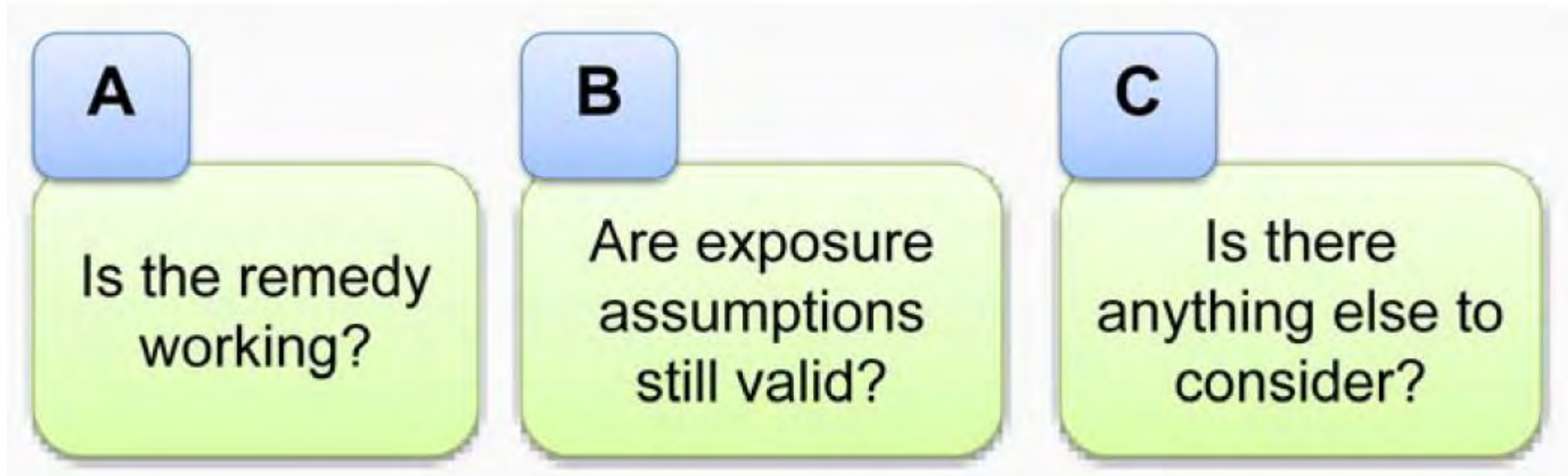
# Five-Year Review Steps

- Notify Public
  - FYR start public notice in September 2021
  - FYR end notice planned for August 2022
- Document and Data Review
  - CAD/ROD and amendment, Explanation of Significant Differences
  - Applicable documents in this FYR period (2017 through 2021)
    - RFLMA annual and quarterly reports, contact records, site inspections
  - Monitoring data set comprises validated data from January 2017 through December 2021
- Site Inspection
  - Annual RFLMA inspection results through spring 2022 (expected next inspection)
- Assess Protectiveness
  - Technical Assessment
  - Protectiveness Statement



# Technical Assessment

- Remedial Action Objectives should be considered during the technical assessment
- The assessment addresses three questions to assess the protectiveness of a remedy



# Protectiveness Statements

- Protective
- Short-Term Protective
- Will be Protective
- Protection Deferred
- Not Protective



# Five-Year Review Conclusions

- Based on information reviewed and technical assessment results, LM will document the review in an FYR report that:
  - Selects the most appropriate protectiveness statement
  - Identifies issues
  - Recommends follow-up actions
- EPA will either concur with LM protectiveness determination or make an independent finding
  - EPA response to be issued in August 2022





# Questions?