

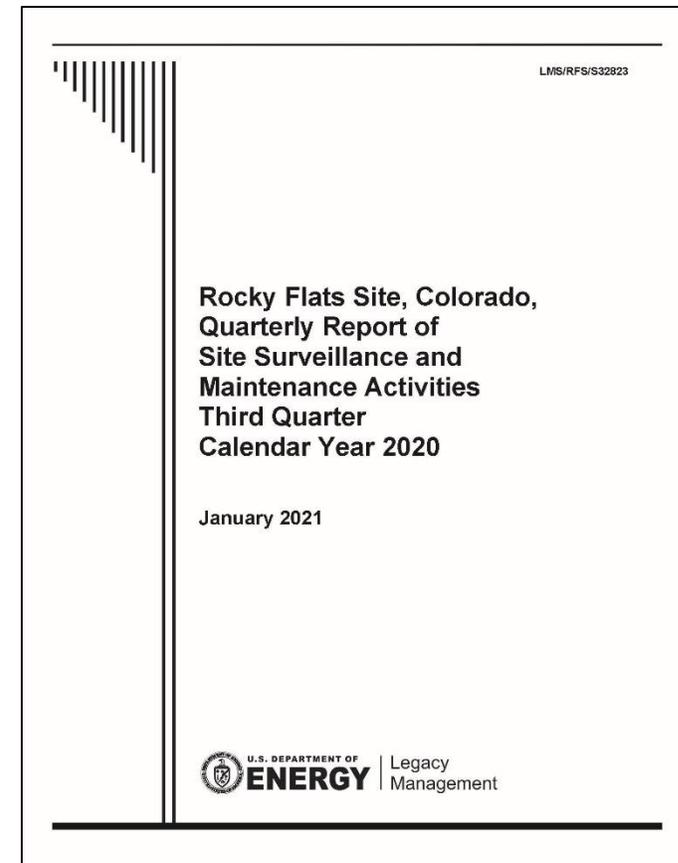


# **Overview of the Third Quarter 2020 Surveillance and Maintenance Report for the Rocky Flats Site, Colorado**

July - September 2020

# Quarterly Monitoring and Reporting

- Quarterly reports required under the *Rocky Flats Legacy Management Agreement* (RFLMA) to document that Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 remedy continues to provide effective protection
- Components of remedy for Rocky Flats include:
  - Maintain 2 landfill covers
  - Maintain 3 groundwater treatment systems
  - Monitor surface water and groundwater
  - Maintain physical controls
    - Signage
    - Access restriction



# Quarterly Monitoring and Reporting

- Components of the remedy for Rocky Flats 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



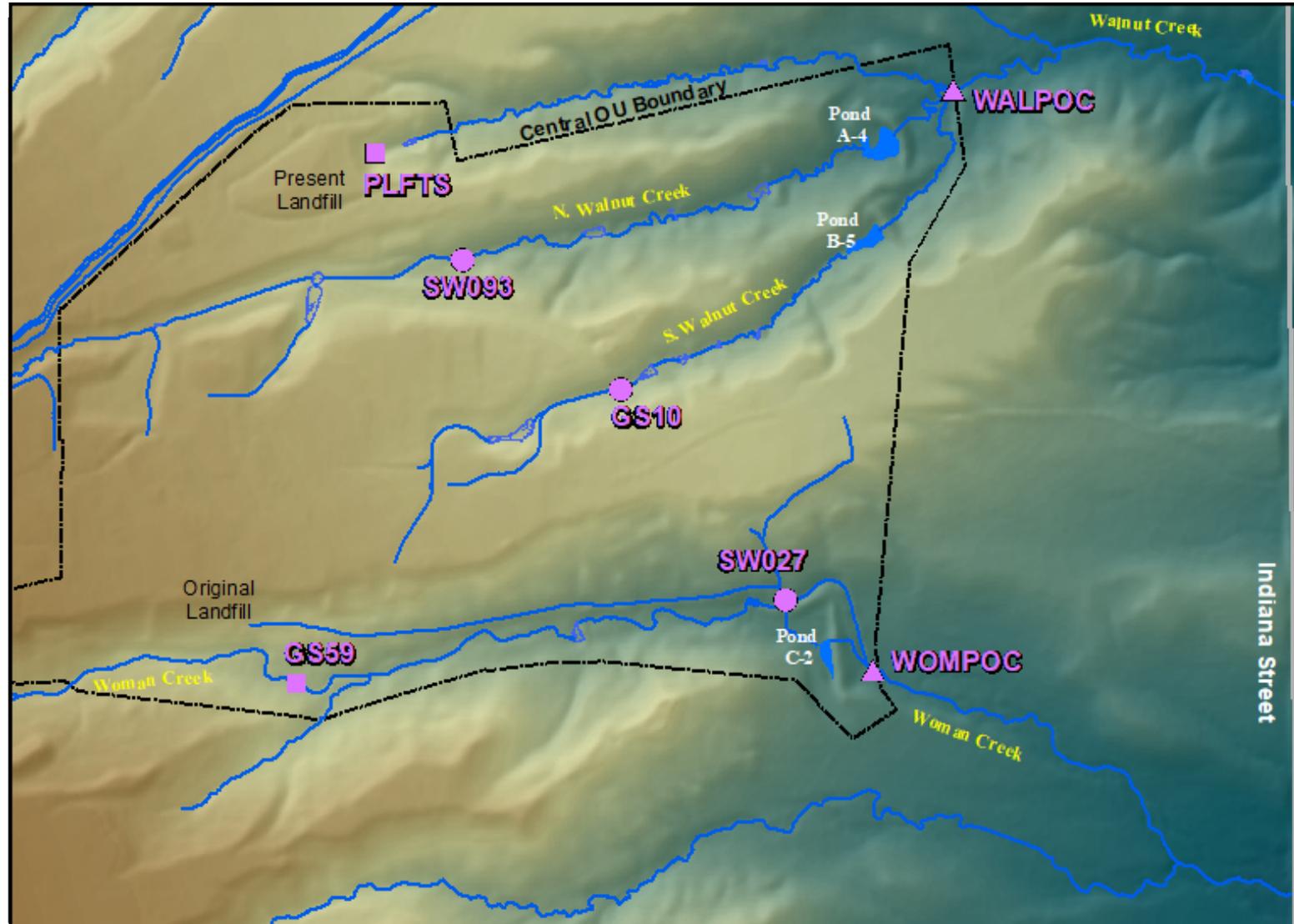


# Surface Water Monitoring

Third Quarter 2020



# Select 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 third quarter of 2020 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 third quarter of 2020 at the system effluent, the arsenic concentration was 22 micrograms/liter ( $\mu\text{g/L}$ ), exceeding the standard of 10  $\mu\text{g/L}$ 
    - According to RFLMA protocols, sampling frequency was increased to monthly
    - Arsenic was measured at 4.4  $\mu\text{g/L}$  in the subsequent monthly sample (below the standard of 10  $\mu\text{g/L}$ ) and the increased sampling frequency was discontinued
  - Quarterly concentrations for all other analytes were below applicable RFLMA standards



# Point of Evaluation Monitoring

- No Point of Evaluation (POE) analyte concentrations were reportable during the third quarter of 2020



# Point of Compliance Monitoring

- No RFLMA Point of Compliance (POC) analyte concentrations were reportable during the third quarter of 2020



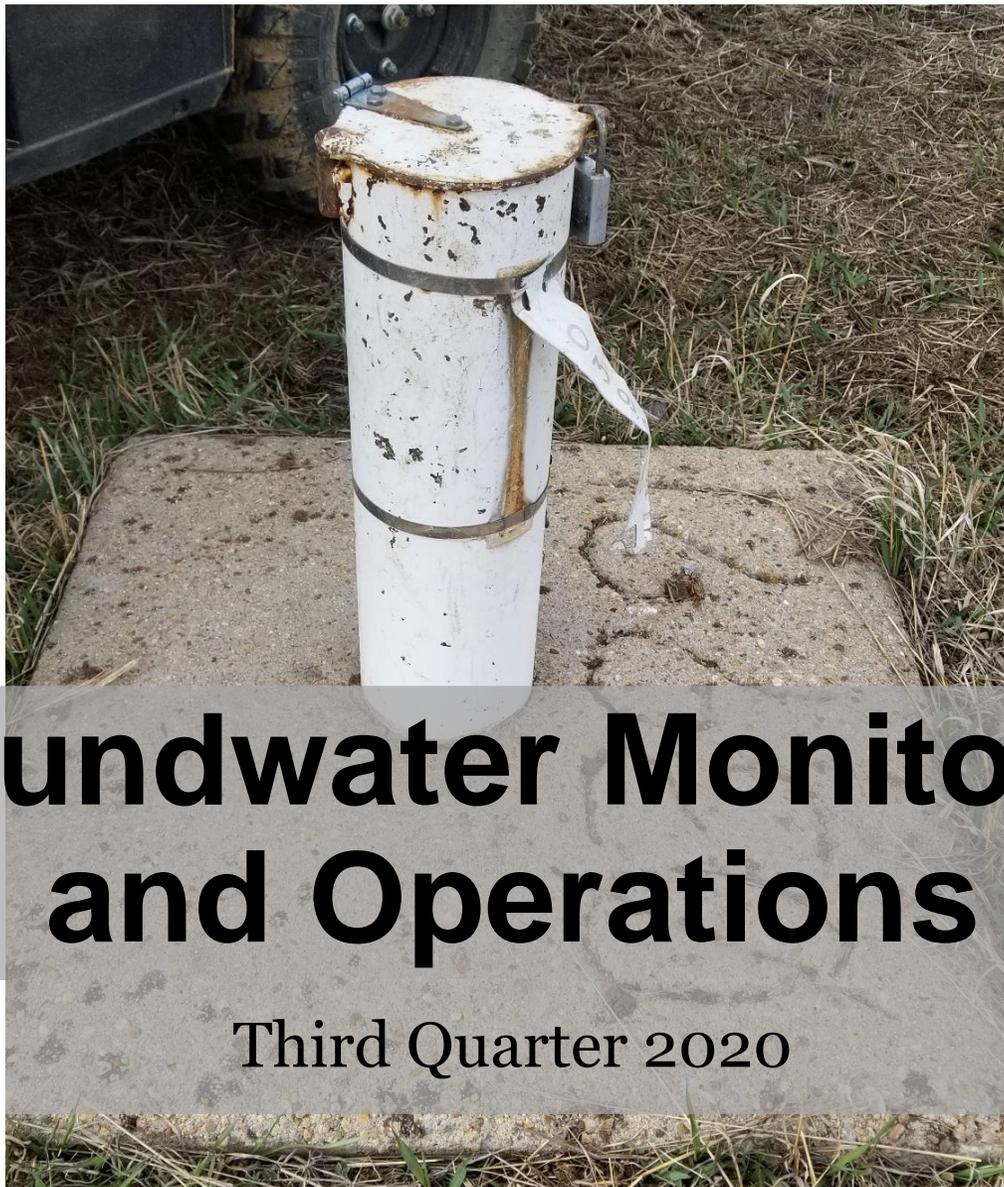
# Questions?





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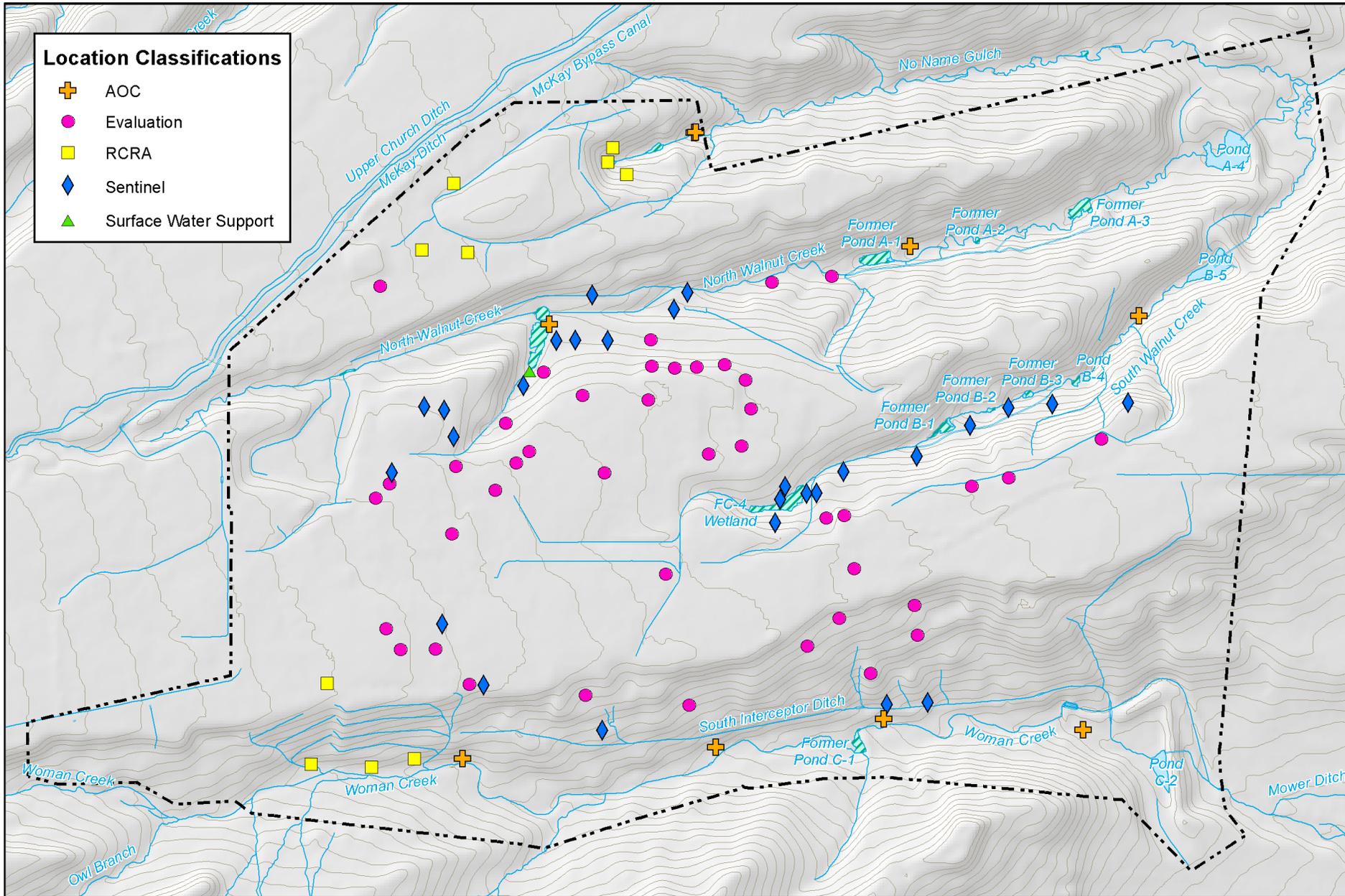
# Groundwater Monitoring and Operations

Third Quarter 2020

# RFLMA Groundwater Monitoring Overview

- RFLMA monitoring network
  - 10 Resource Conservation and Recovery Act (RCRA) wells (sampled quarterly)
    - Evaluate potential impacts from OLF and 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



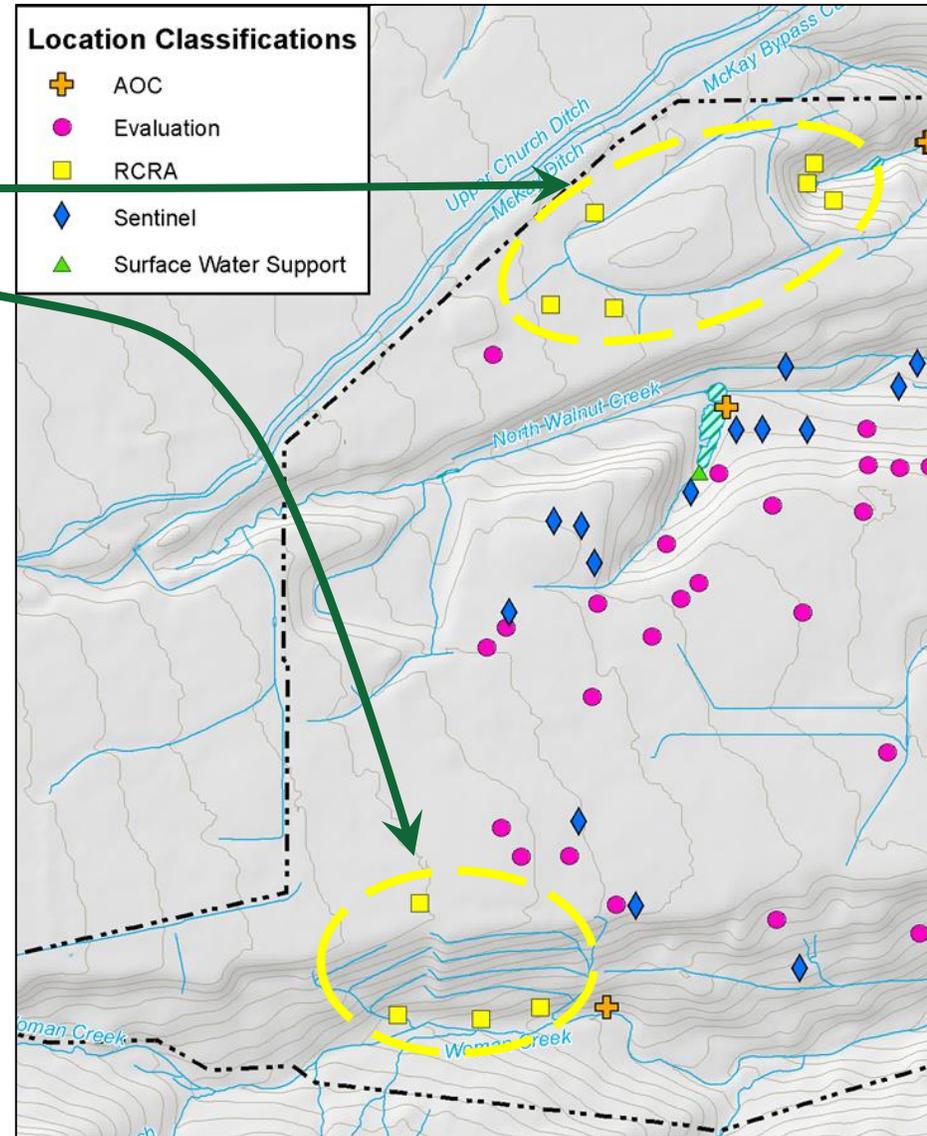
# RFLMA Monitoring During Third Quarter 2020

- Sampled the 10 RCRA wells to meet RFLMA sampling requirements
  - Analytical results were generally consistent with previous data
  - Data will be evaluated and discussed as part of the 2020 annual report
- Extra samples were collected to address specific needs
  - One confirmatory sample was collected from Evaluation well 33502 to check anomalous results from second quarter sample (those results – unusually low concentrations – were confirmed)



# RFLMA Monitoring During Third Quarter 2020

- Sampled the 10 RCRA wells
  - PLF
  - OLF
- Results were generally consistent with previous data
  - Data will be evaluated as part of the 2020 annual report



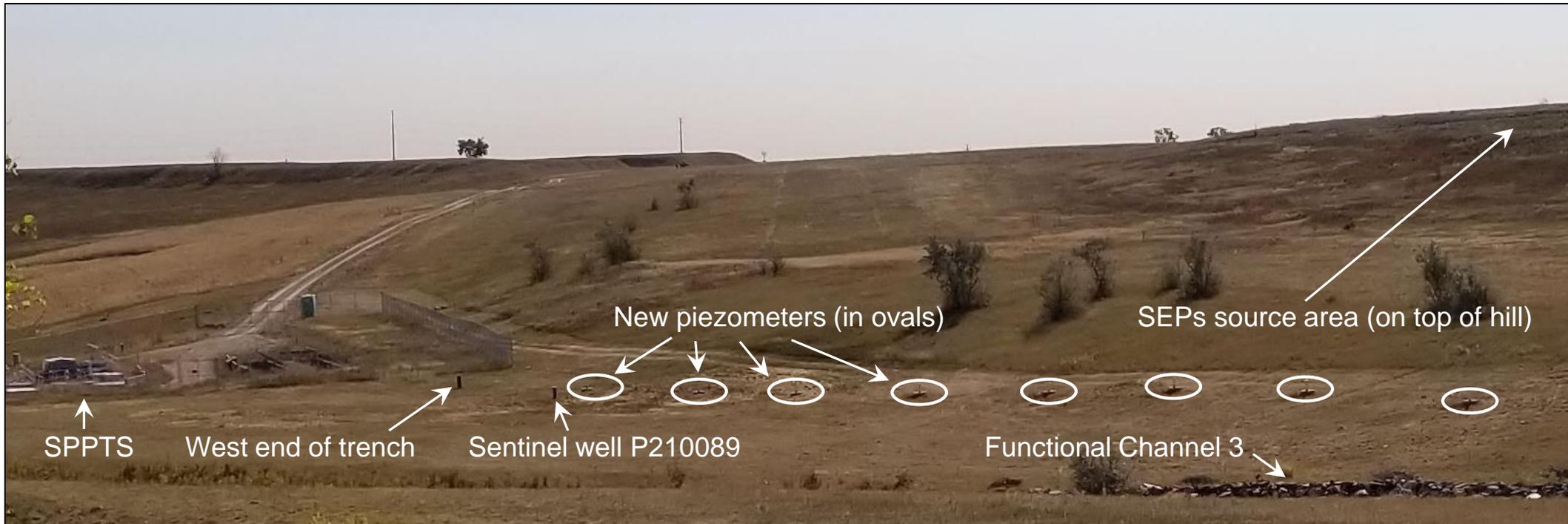
# Treatment System Activities

- 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
  - Completed annual inspection of power components at MSPCS and SPPTS
- Continued planning MSPCS transfer line repair project
- Completed solar/battery project at ETPTS
  - Replaced 96 lead-acid batteries with 8 lithium-iron-phosphate batteries
    - Retained 6 lead-acid batteries to power heaters for new batteries
  - Replaced broken glass panes on solar panels
  - Reconfigured wiring and replaced other power components to streamline power facility
- SPPTS
  - Design for passive drain in the earthen-floored “SPIN Vault” nearing completion
    - Fieldwork scheduled for fourth quarter of 2020
  - Replaced 2 lead-acid batteries with 2 newer ones removed from ETPTS



# Treatment System Activities

- Evaluating groundwater conditions west of the existing SPPTS groundwater collection trench
  - Installed 9 piezometers (8 shown)
  - Data collection began in December 2020



Hillside north of the former Solar Evaporation Ponds (SEPs)



# Questions?





# Site Operations



# Quarterly Sign Inspections

- RFLMA physical control
- Signs inspected on July 10, 2020
  - All signs in good condition and legible



# Original Landfill

- Monthly inspections
  - July 20, August 18, and September 15, 2020
    - 2- to 3-inch diameter animal burrow found on upgradient side of western Berm 7
      - Depth could not be determined
      - No evidence of recent inhabitation
      - No reappearance in subsequent inspections after filling in opening
- Surveyed settlement monuments on August 31, 2020
  - Vertical settling was within design limits
  - Monument E removed second quarter, moved slightly uphill third quarter
    - New baseline established during third quarter survey
  - Monument F shifted 0.2 feet as a result of the earthwork and compaction activities in the immediate area
    - Vertical settling was still within design limits
    - New baseline established for settlement



# Original Landfill (continued)

- All 267 anchors installed, tested, locked off
- Anchor, perimeter, and East and West Interceptor trench drains complete
- Temporary dewatering wells no longer required, abandoned
- Berm construction, perimeter channel regrading, and cover placement complete
- Placement of turf reinforcement matting and erosion control blankets complete
- Project was completed, with all equipment and support infrastructure demobilized by September 1, 2020
- East Subsurface Drain continues to function as designed



# Original Landfill (continued)



Original Landfill hillside, 9/01/2020



Work completed on western hillside



Work completed on eastern hillside



# Present Landfill

- Quarterly inspection performed on August 11, 2020
- Present Landfill is in good condition



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

- Third quarter of 2020 inspection of Former Building Areas 371, 771, 881, and 991 was complete on September 24, 2020
  - The depression located near the southeast corner of former building area 881 (December 2019) increased in depth by approx. 3 inches
    - Diameter unchanged (~3.3 ft depth; ~3 ft diameter)



# North Walnut Creek Slump

- Continued data collection from piezometers, where possible
- Slump monitoring points are periodically surveyed
  - No substantial change in August
  - Maximum movement approximately 3.5 feet vertically
  - Main scarp crack remains open

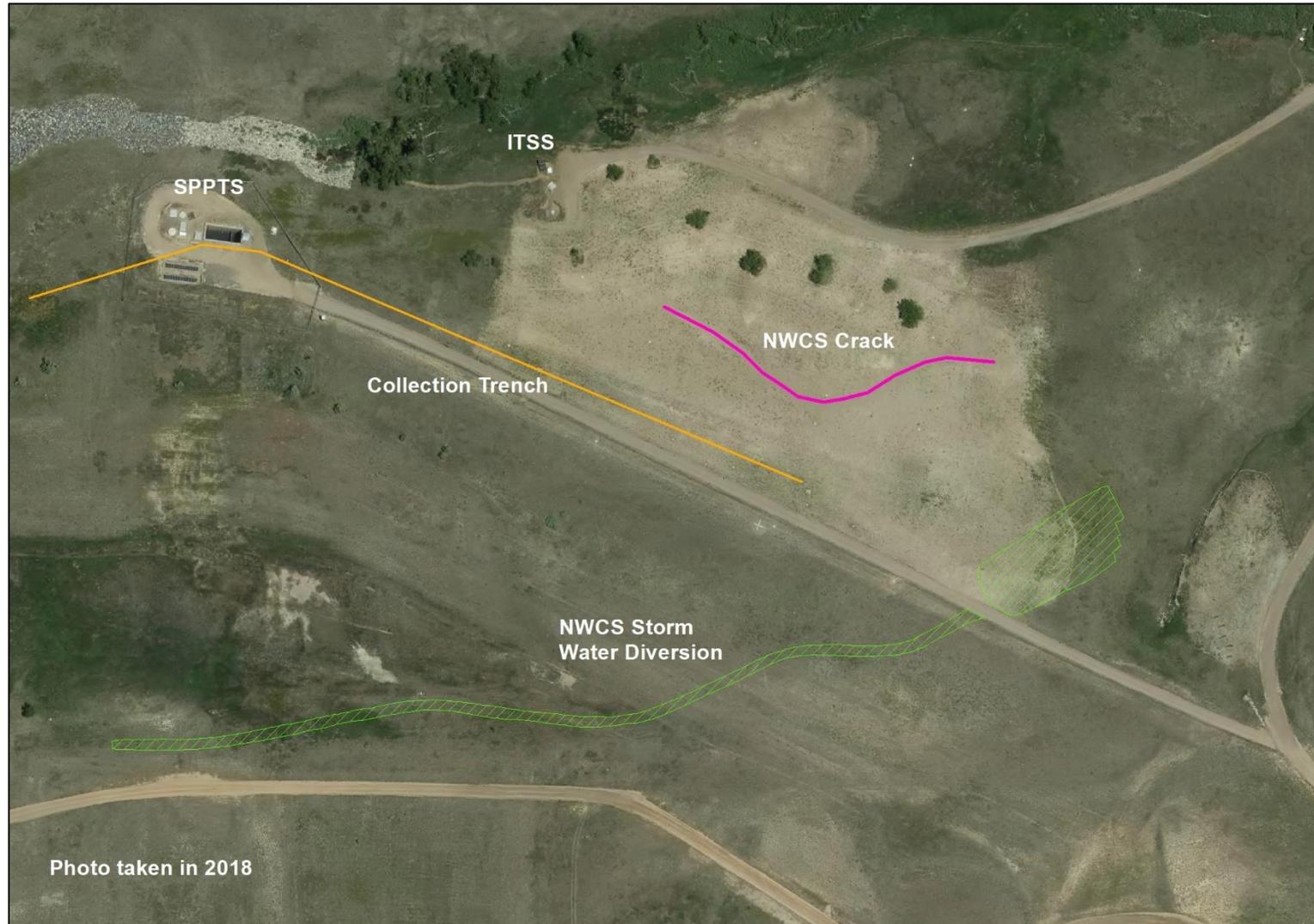


# North Walnut Creek Slump and West SPPTS Investigation – September 2020

- Additional drilling occurred as part of furthering the geotechnical investigation and stabilization efforts to evaluate the slump on the North Walnut Creek Hillside
  - A total of 3 inclinometers and 1 piezometer were installed on the hillside to provide supplemental data and monitoring of slope movement
  - Inclinometers are located to potentially allow extended monitoring of the hillside
- In conjunction with the slump effort, a series of piezometers were installed west of the SPPTS Collection Trench for assessment of groundwater condition outside of the existing treatment system
  - A total of 8 piezometers were installed to a depth of 30 feet below grade surface



# Questions?





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# Ecological Monitoring



Third Quarter 2020

# Third Quarter Ecology Work

- Revegetation monitoring
- Preble's mouse mitigation monitoring
- Wetland monitoring
- Forb nursery monitoring
- Habitat enhancement planting survival counts
- Photopoint monitoring
- Herbicide applications
- Wetland/vegetation/weed mapping
- Prairie dog town surveys/counts – all towns near COU are abandoned



# Questions?

