

Rocky Flats Site, Colorado

Calendar Year 2025 Annual Report



U.S. DEPARTMENT *of* ENERGY

Office of Legacy Management

Agenda and Meeting Objective

Agenda

- Overview
 - Office of Legacy Management (LM)
 - Rocky Flats Site, Colorado, History
- Surface Water Monitoring
- Groundwater Monitoring and Operations
- Site Operations
- Ecological Monitoring
- Q&A and Public Comment

Meeting Objective

- To share insights from the 2025 Rocky Flats Annual Report

Engagement Norms

To foster a positive and respectful environment for all participants, we ask that you:

- **Listen to understand.** Please consider the information presented thoughtfully.
- **Assume positive intent.** Approach all comments and questions with an open mind and the assumption that everyone is acting in good faith.
- **Mute microphones.** To maintain a clear and disruption-free meeting, all attendees will have their microphones muted and cameras turned off. Participants will be invited to turn on their microphone when called upon for public comment.
- **Use the Q&A feature to engage.** Please submit your questions via the Q&A function in Zoom. All submissions will be reviewed by moderators and relevant questions will be addressed as time allows. Similar questions may be combined to allow for more topics to be discussed.
- **Stay on topic.** Please keep questions and comments related to the 2025 Rocky Flats Annual Report.
- **Be respectful.** Keep all chat messages, questions, and comments respectful, relevant, and constructive. Offensive language or personal attacks will not be addressed.

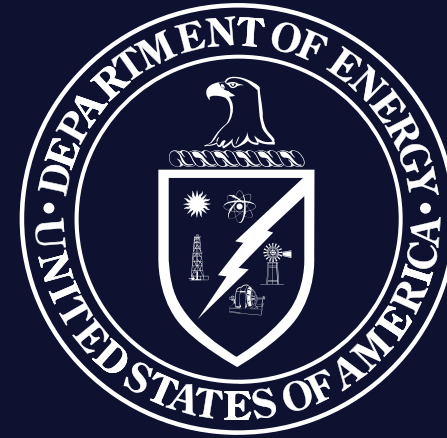
Recording Notice: This meeting will be recorded and will be publicly available.

Technical Issues: If you experience technical difficulties, communicate them to the moderator through the Q&A function.



Overview

Rocky Flats Site, Colorado



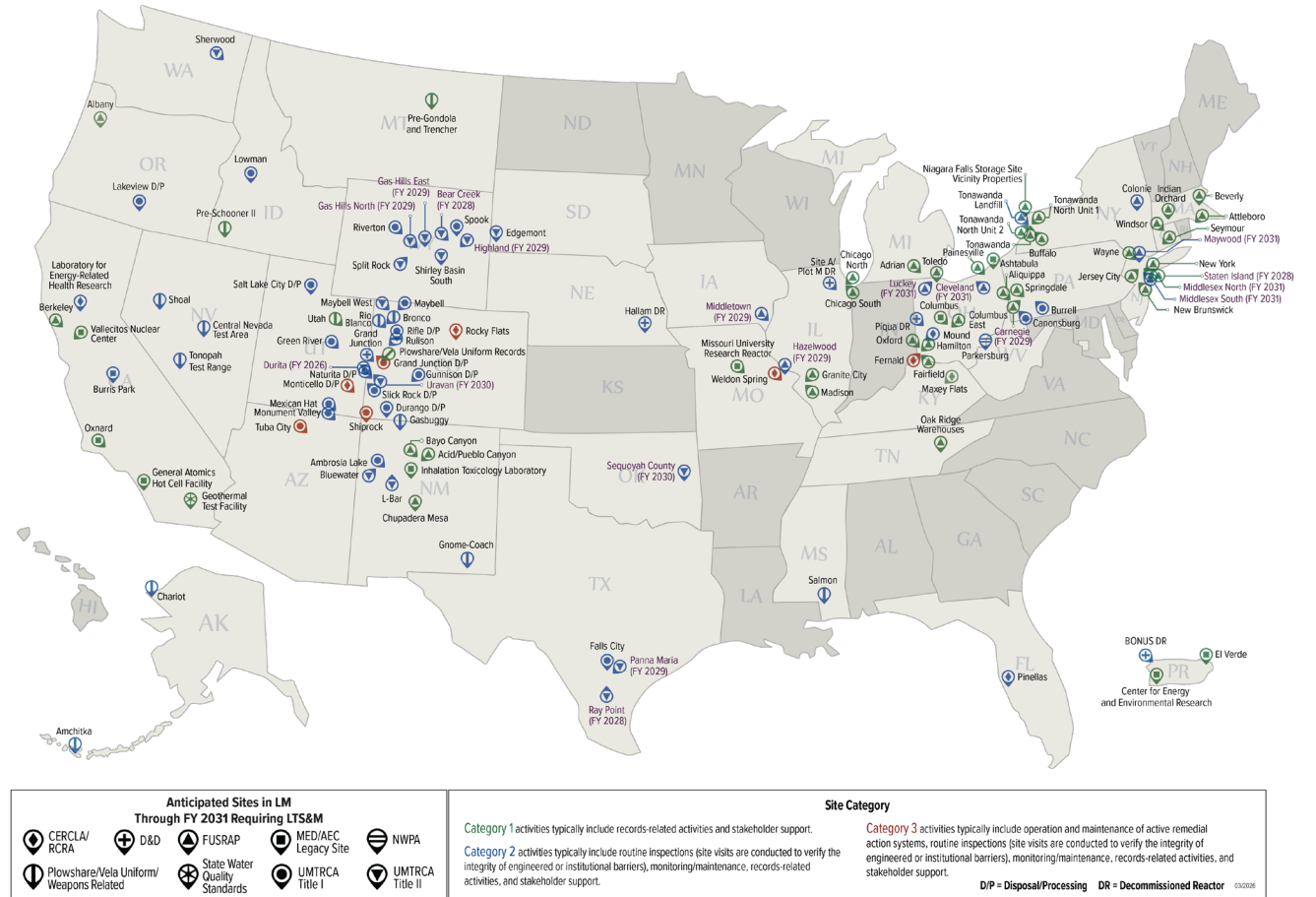
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Office of Legacy Management

Since 2003, the U.S. Department of Energy (DOE) Office of Legacy Management (LM) has been managing responsibilities associated with the legacy of World War II and the Cold War and protecting human health and the environment within the communities that made sacrifices for the nation during one of the most critical periods in our country's history.

We continue to conduct long-term monitoring and maintenance at sites where nuclear waste has been disposed, where residual contamination remains, and where passive or active treatment of groundwater contaminated by radionuclides or other contaminants of concern is being conducted.



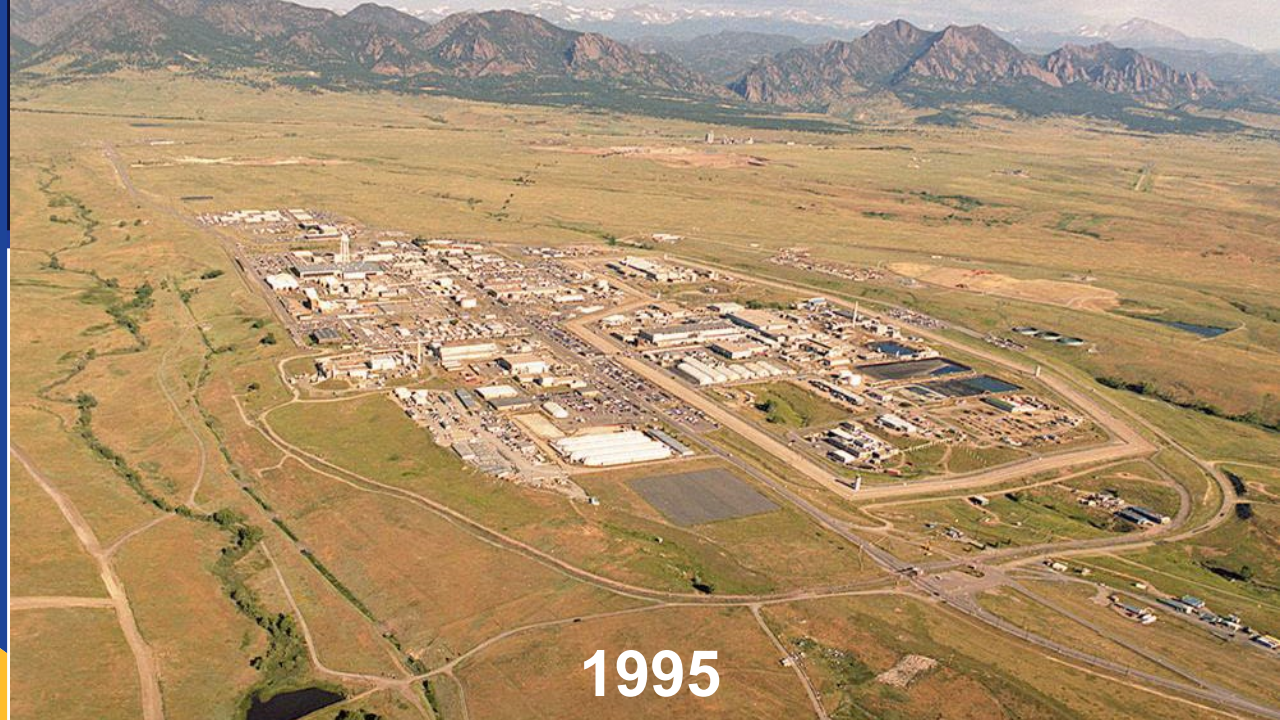
Rocky Flats Site Background

1951 — Construction of facility begins

1950s-1980s — Plant makes key component of U.S. nuclear weapons

Early 1990s — Production ends and the Rocky Flats Closure Project begins

2001 — Congress passes Refuge Act: the land will remain federal property, and when it's closed, it will become a wildlife refuge



1995

2003 — All weapons-grade plutonium is removed from Rocky Flats

2005 — Closure project is completed; site begins transition to a long-term surveillance and maintenance program

2007 — Peripheral Operable Unit (POU) is released by EPA and CDPHE for unlimited use and unrestricted exposure as the Rocky Flats National Wildlife Refuge, managed by U.S. Fish and Wildlife Service

— Central Operable Unit (COU) remains with DOE



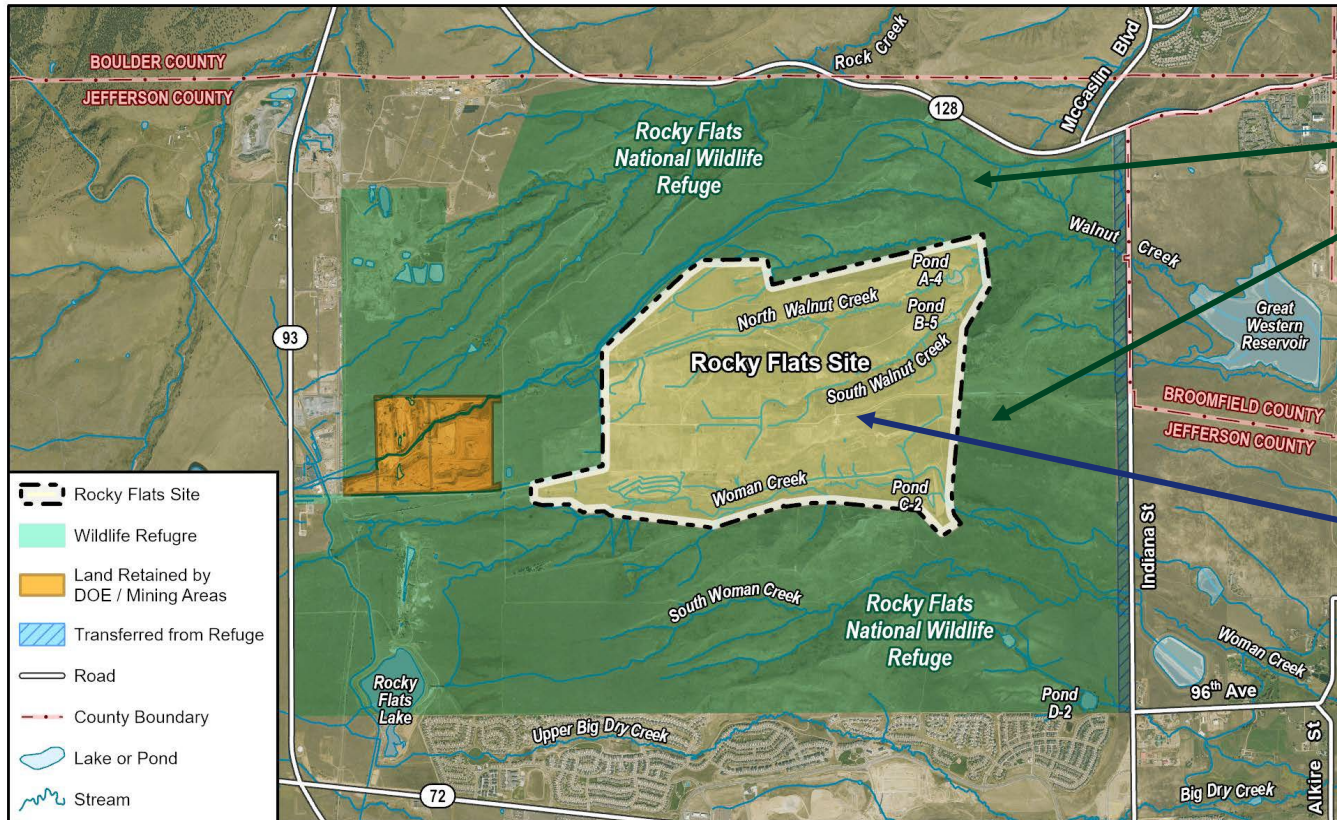
2011



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Rocky Flats Current Configuration



A-P-1/2 053422

Peripheral Operable Unit (POU)

- Became part of Rocky Flats National Wildlife Refuge (RFNWR), managed by U.S. Fish and Wildlife Service (USFWS)
- Suitable for unlimited use and unrestricted exposure (based on very conservative exposure assumptions)

Central Operable Unit (COU)

- Managed by LM
- Response actions required: institutional controls, physical controls, and continued monitoring (because of residual contamination requiring long-term monitoring)

The *Corrective Action Decision/Record of Decision for Rocky Flats Plant (USDOE) Peripheral Operable Unit and Central Operable Unit (CAD/ROD)* can be found at <https://lmpublicsearch.lm.doe.gov/SiteDocs/SW-A-006605.pdf>



Rocky Flats Site Regulatory End State

- Rocky Flats Legacy Management Agreement (RFLMA)
 - Defines the postclosure requirements for the COU
 - Establishes routine monitoring requirements
 - Requires quarterly and annual reports
- RFLMA parties
 - Office of Legacy Management
 - Colorado Department of Public Health and Environment (CDPHE)
 - U.S. Environmental Protection Agency (EPA)



Woman Creek Point of Compliance

Current Activities

RFLMA Activities

- Routine groundwater and surface water monitoring
 - 88 ground water monitoring wells and approximately 15 surface water sampling locations (varies based on data requirements)
 - Primary groundwater contaminants: volatile organic compounds, nitrate, uranium
 - Primary surface water contaminants: plutonium, americium, uranium, nitrate
- Operation of three groundwater treatment systems
 - Monitoring and maintenance
 - Implementing new treatment technologies
- Inspection and monitoring of physical and institutional controls
- Inspection and maintenance for two closed historical landfills
- Erosion control and erosion monitoring
- RFLMA consultations as needed with CDPHE and EPA
- Reporting

Other Activities

- Preble's meadow jumping mouse critical habitat monitoring and reporting
- Records maintenance
- Non-RFLMA water monitoring (e.g., PFAS)



Ecology

Ecological monitoring data showed a well-functioning vegetation community that supports a variety of wildlife.

Native seeding occurred on 3.39 acres to increase desirable vegetation cover.



250

Groundwater and Surface Water Samples

1,979,000

 gallons of water were effectively treated on-site.

Operations and Maintenance

No violations of institutional or physical controls were observed during the annual site inspection.

Installation and start-up of the **full-scale uranium treatment component** at the Solar Ponds Plume Treatment System **completed**.

Reportable Conditions

ZERO reportable conditions at any **Area of Concern wells**.

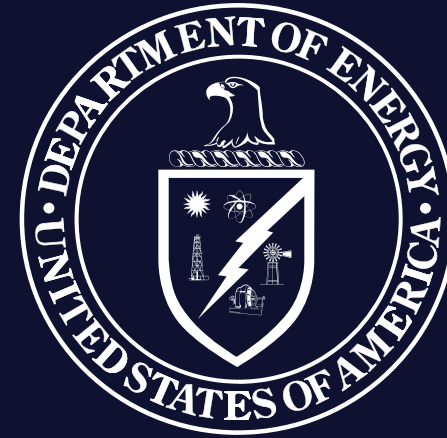
ONE reportable condition for uranium at a **Point of Evaluation**. The uranium concentrations returned to below reportable condition levels by the following month.

ZERO

 reportable conditions at the Points of Compliance.

Surface Water Monitoring

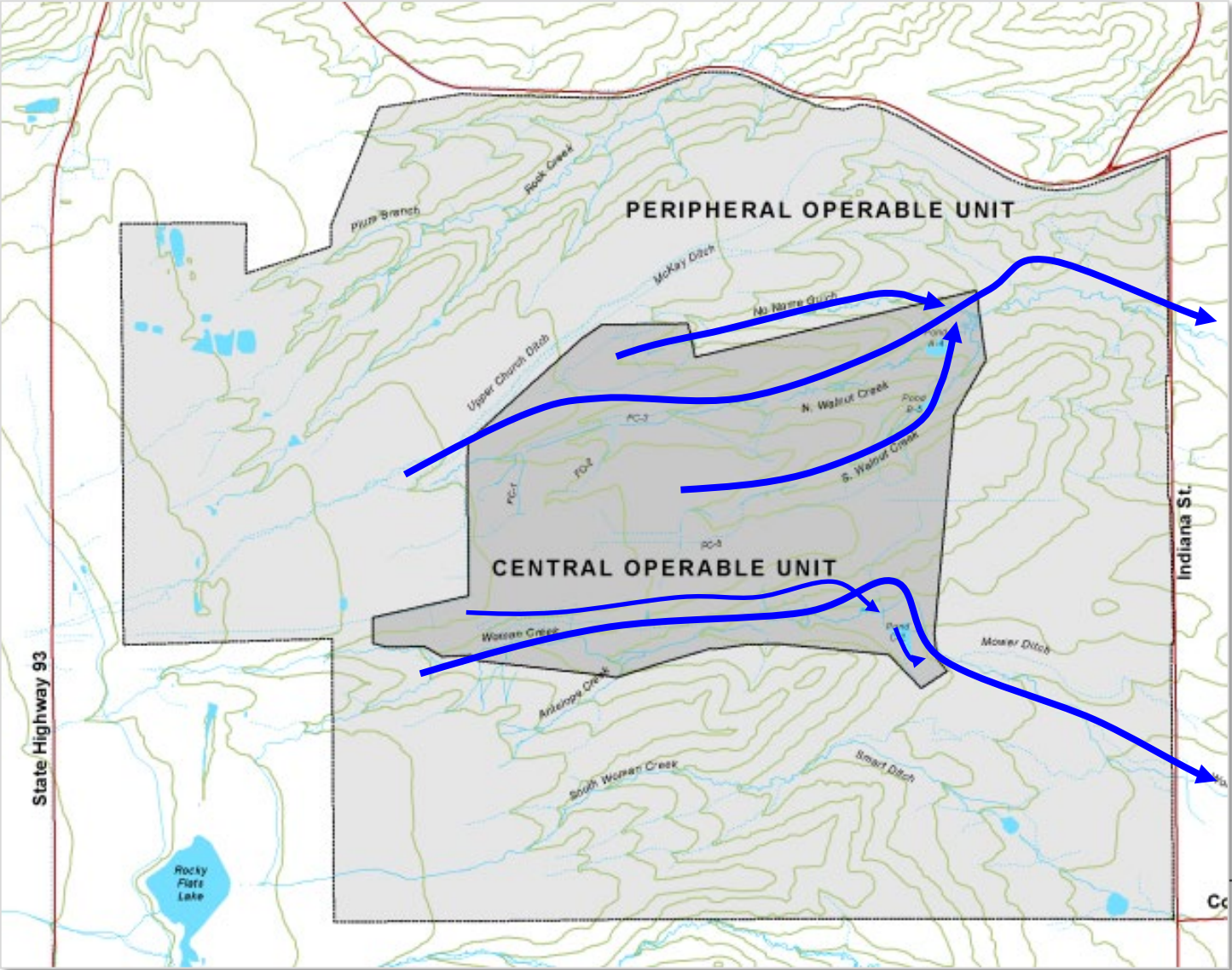
Rocky Flats Site, Colorado



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Surface Water – Main Drainages



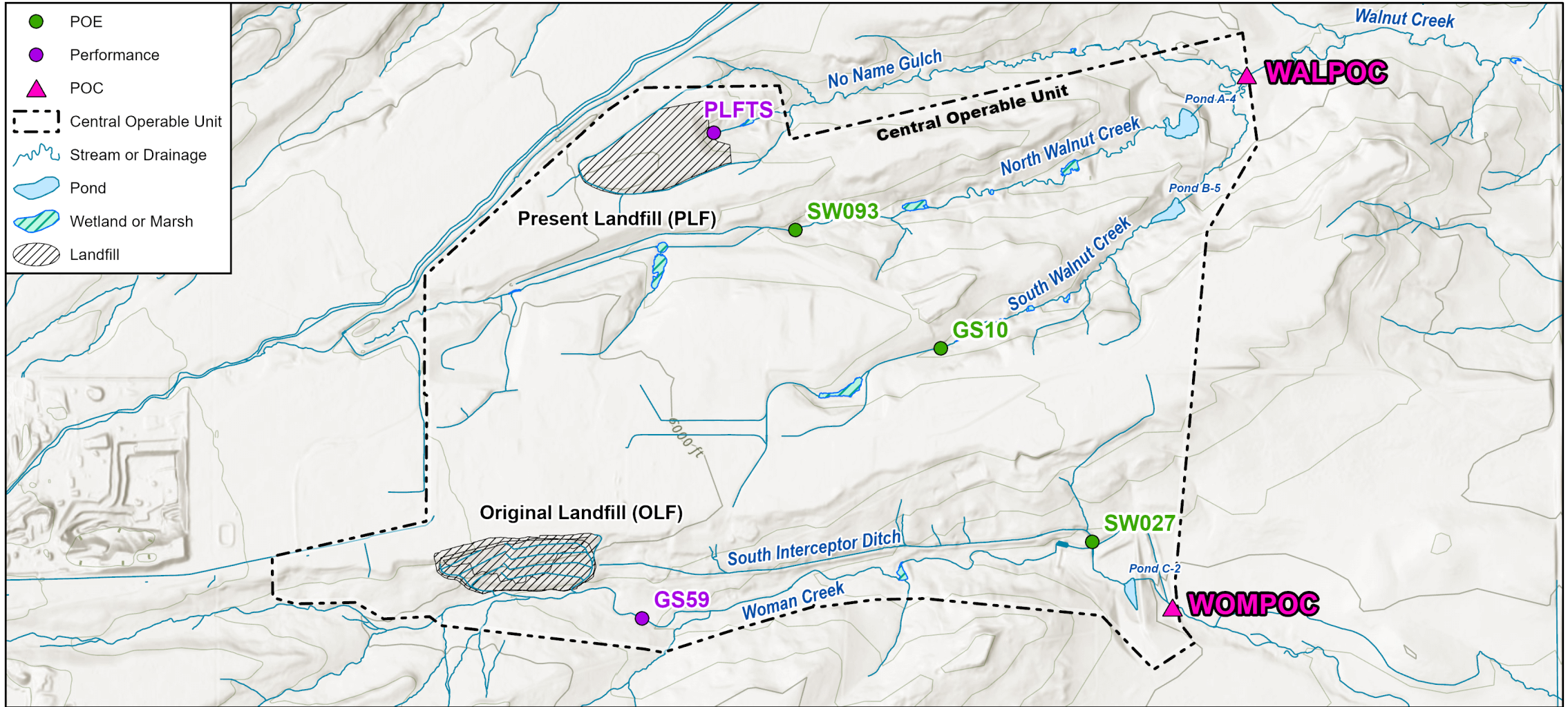
Walnut Creek Point of Compliance



Woman Creek Point of Compliance



Selected RFLMA Surface Water Monitoring Locations



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Landfill Performance Monitoring

- Original Landfill (OLF)
 - Original Landfill Monitoring Location GS59 (Woman Creek downstream of OLF)
 - Quarterly concentrations for all analytes at GS59 were below applicable RFLMA standards during CY 2025
- Present Landfill (PLF)
 - Present Landfill Treatment System (PLFTS)
 - Monitoring location PLFSYSEFF (treatment system effluent)
 - System is not intended to treat boron, and the concentration exceeds the 750 µg/L RFLMA standard (agriculture-based, for fruit and nut trees)
 - Boron concentrations are below the RFLMA standard before reaching WALPOC
 - The RFLMA parties are pursuing a path forward; see Contact Record (CR) [2006-02](#), CR [2022-02](#), and CR [2025-02](#)
 - Quarterly concentrations for all other analytes at the PLFTS effluent were below applicable RFLMA standards during CY 2025



Point of Evaluation (POE) Monitoring

One reportable condition was identified at POE GS10.

- The 12-month rolling average for uranium at GS10 on April 30, 2025, was 17.8 $\mu\text{g/L}$, above the water quality standard of 16.8 $\mu\text{g/L}$
- As of May 31, 2025, the 12-month rolling average uranium concentration at POE GS10 returned to below the standard, ending the reportable condition
- For more information, refer to [CR 2025-01](#)
- A sample collected in 2024 for Lawrence Berkley National Laboratory analysis showed 63% natural uranium for GS10, which is consistent with previous data

No other RFLMA POE analyte concentrations were reportable during CY 2025.



Point of Evaluation GS10



Point of Compliance (POC) Monitoring

No RFLMA POC analyte concentrations were reportable during CY 2025.

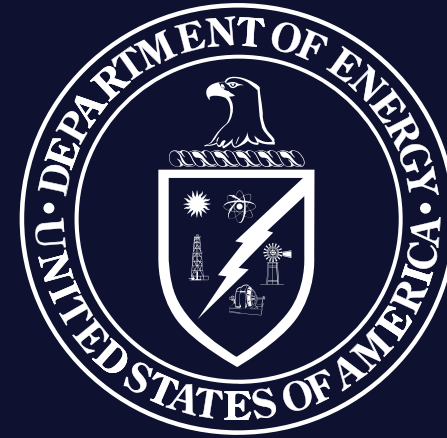


Woman Creek Point of Compliance



Groundwater Monitoring and Operations

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RFLMA Groundwater Monitoring Network Overview

- Many years of preclosure sampling at approximately 1,500 monitoring wells defined areas of groundwater that were impacted by historic operations
 - These areas are within what is now the COU
- Impacted groundwater discharges to surface water within the COU
- This groundwater is monitored using 88 RFLMA monitoring wells
 - Divided into four well classifications
 - Each classification is assigned a monitoring frequency
 - Samples are analyzed for constituents that were selected in the early 2000s based on nearby facilities or features, contaminants, and monitoring objectives

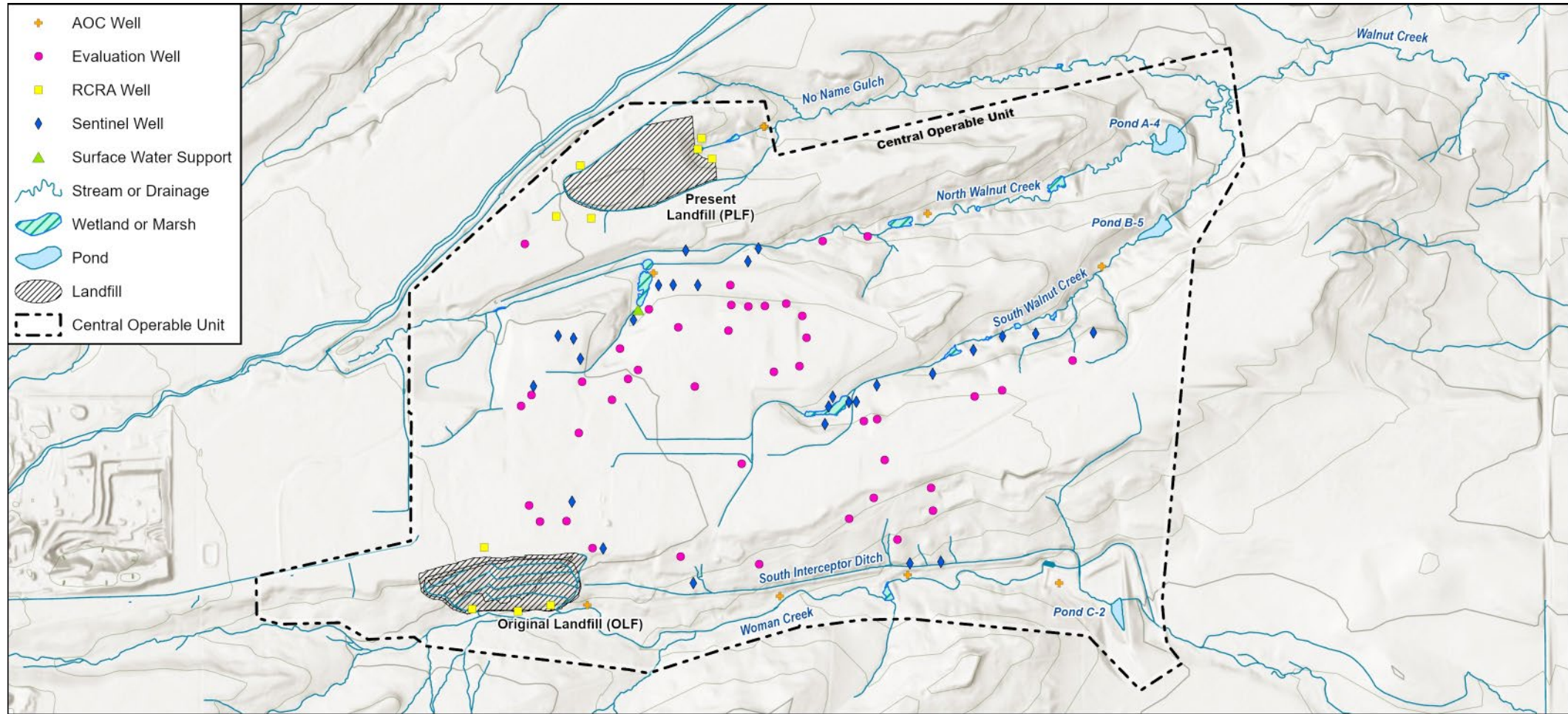


RFLMA Groundwater Monitoring Network Overview *(continued)*

- There were no changes to the monitoring network in CY 2025
 - 10 Resource Conservation and Recovery Act (RCRA) wells (monitored quarterly)
 - Evaluate potential impacts from OLF and PLF
 - Nine Area of Concern (AOC) wells and one Surface Water Support location (semiannually)
 - Located in drainages downstream of contaminant plumes
 - Evaluate for plumes discharging to surface water
 - 27 Sentinel wells (semiannually)
 - Downgradient of plumes, treatment systems, and in drainages
 - Look for evidence of plume migration and treatment system problems
 - 42 Evaluation wells (every two years — not sampled in CY 2025)
 - Within plumes, near source areas, and interior of COU
 - Evaluate whether monitoring of an area or plume can cease
 - Nine treatment system locations (seven semiannually, two quarterly)



RFLMA Groundwater Monitoring Network Overview *(continued)*



Note: Treatment system locations are not shown



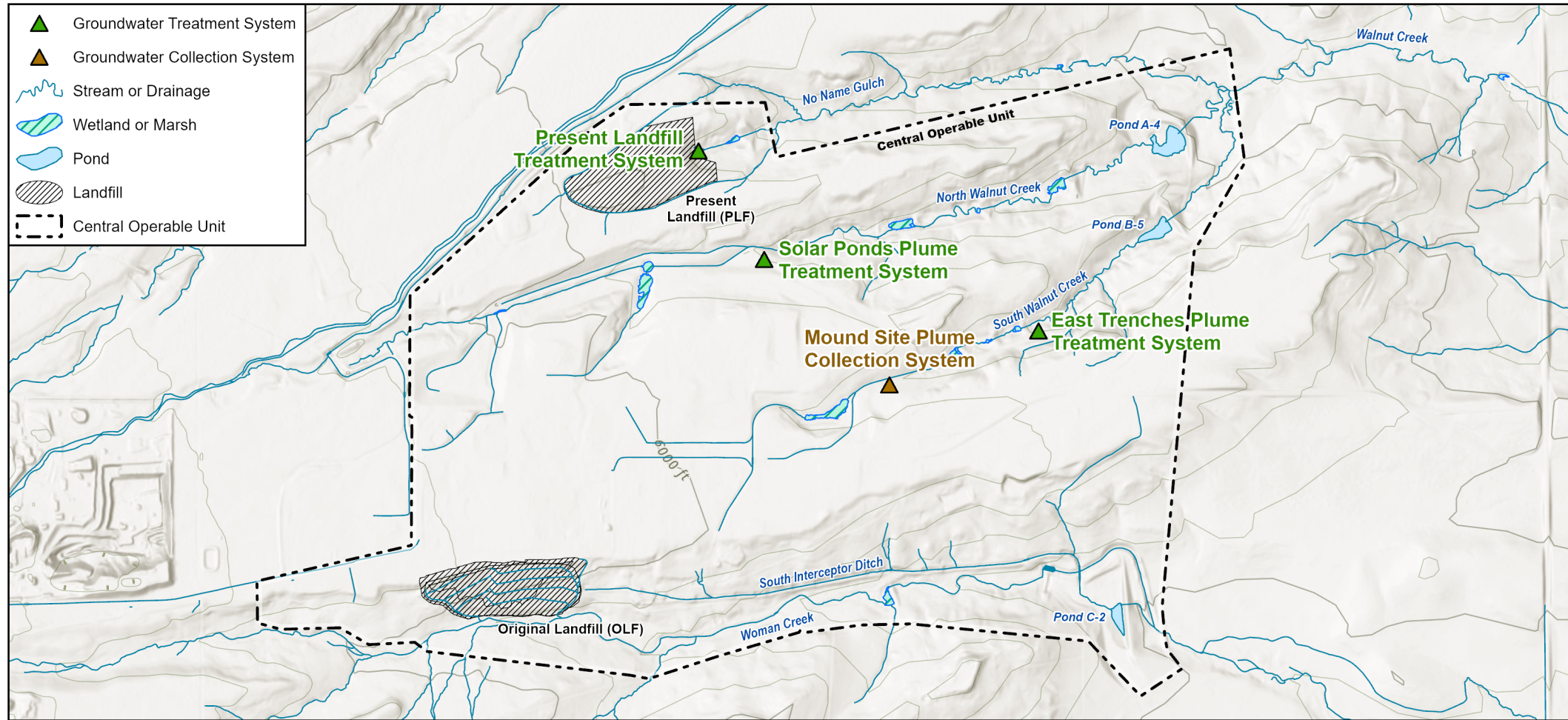
Overview of Groundwater Quality in CY 2025

- 46 wells plus the surface water and treatment system locations were scheduled for RFLMA sampling in CY 2025
- Results were generally consistent with data from previous years
 - RCRA wells monitoring the two closed landfills
 - Statistical results were almost identical to those of previous years
 - AOC wells downstream of contaminant plumes
 - Continued to produce samples that meet applicable RFLMA standards — no reportable conditions

See the groundwater volume of the CY 2025 Annual Report for more information.



Groundwater Treatment Systems



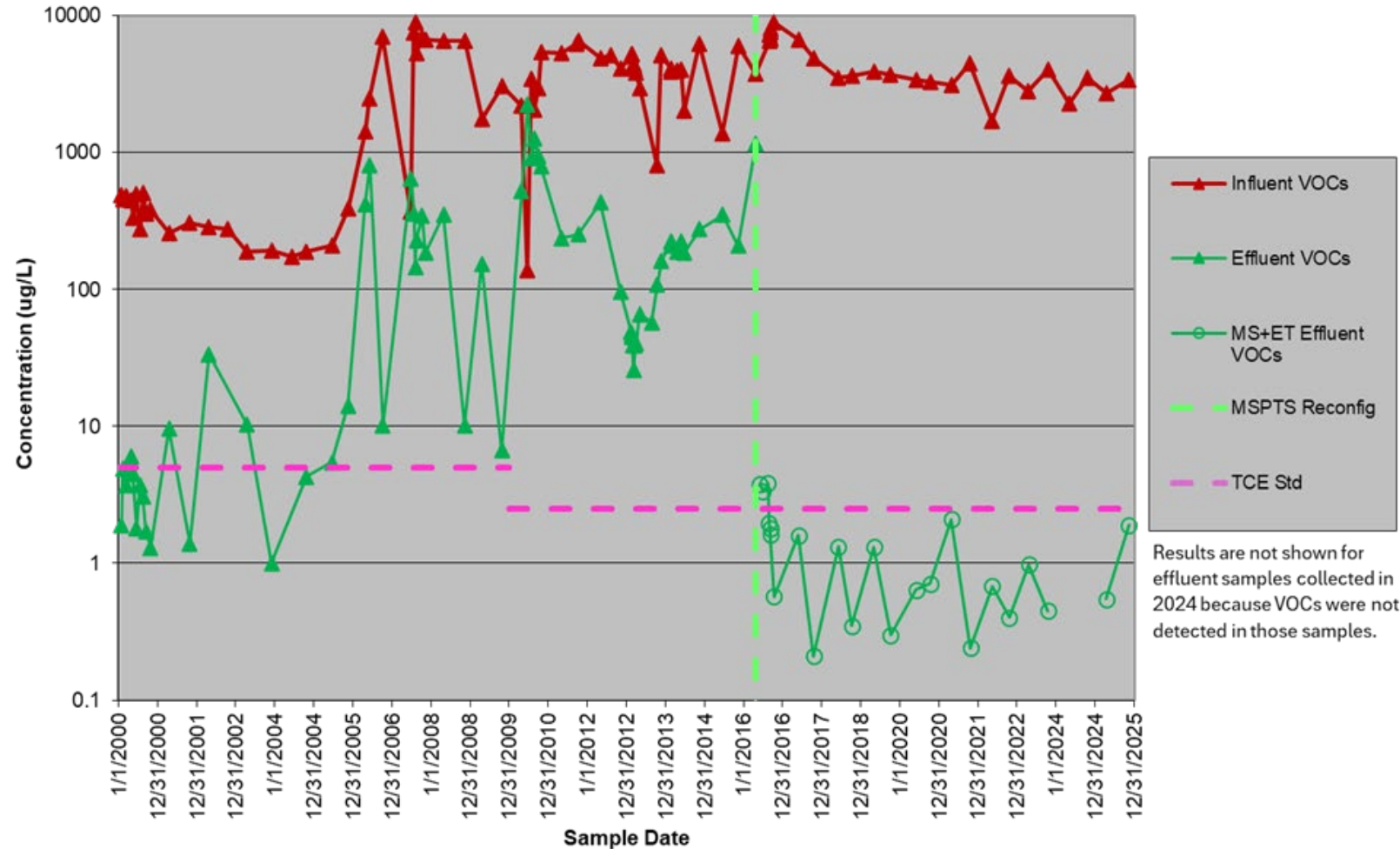
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Groundwater Treatment Systems

Groundwater treatment systems continued to collect and treat contaminated groundwater

- Effluent from the East Trenches Plume Treatment System (ETPTS) met all applicable RFLMA standards
 - Treats groundwater from several contaminant source areas, including Mound Site Plume Collection System
 - Contaminants are chlorinated solvents, mainly trichloroethene (TCE)



Groundwater Treatment Systems *(continued)*

- Effluent from the Solar Ponds Plume Treatment System (SPPTS) met RFLMA nitrate standard
 - Expanded groundwater collection infrastructure collects groundwater with much higher concentrations of nitrate and uranium than the original collection infrastructure did
- New uranium treatment component (UTC) was installed in the summer of 2025
 - Two months of UTC performance testing began in August 2025
 - Adjustments and optimization are continuing in 2026
 - Designed to remove uranium so SPPTS will meet the site-specific RFLMA standard
 - Uranium at the downstream POC met the RFLMA standard



Groundwater Treatment Systems *(continued)*



The SPPTS and UTC



Inside the UTC

- The chosen uranium treatment method, coprecipitation, involves the addition of a common water treatment chemical, currently alum, that is thoroughly mixed with influent water
- Very fine particles of solid precipitate form, and these particles incorporate the target constituent(s), in this case uranium
- The solid precipitate is removed using a clarifier and bag filters, and the solids are stored in a holding tank
- The solids are dewatered, sampled, and properly disposed of based on the analytical results and the waste determination
- After the water is treated for uranium, it flows to the nitrate treatment component

Plutonium and Americium in Groundwater

- Five Sentinel wells are sampled semiannually for plutonium (Pu) and americium (Am)
 - Performed downgradient of buildings that were focused on Pu/Am operations to check for increasing Pu or Am levels
 - Three wells downgradient of former Building 771 complex
 - Two wells downgradient of former Building 371 complex
- As in previous years, the laboratory marked all Pu and Am results as nondetects
 - Pu and Am were below the RFLMA standards at these wells and at the downstream POC

Note: Research has shown groundwater at Rocky Flats is not an effective transport mechanism for Pu or Am; this monitoring is conducted for community assurance.



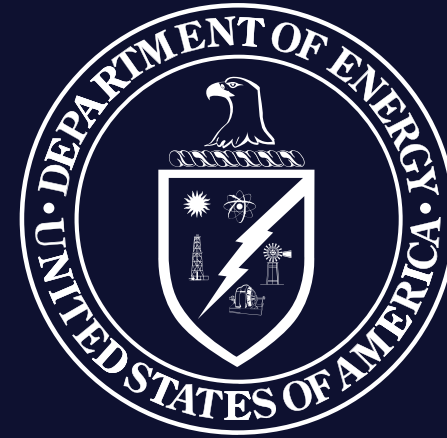
High-Resolution Analysis of Uranium

- Results were received for several samples that were collected in 2024 and submitted to the Lawrence Berkeley National Laboratory for analysis
 - Special, high-resolution methods enable determination of natural versus anthropogenic uranium content — that is, uranium that is naturally present versus what is present due to historic Rocky Flats activities
 - Downgradient PLF Monitoring Well 73205 has increasing trend in uranium
 - Determined to be 100% natural uranium (not contamination from historic Rocky Flats activities)
 - Two downgradient SPPTS monitoring wells and the surface water performance location
 - Determined to be 72% to 93% natural uranium, consistent with previous results for this area
 - Location at the upstream end of a groundwater collection component installed at the SPPTS in 2024
 - Close to source area, where nitrate and anthropogenic uranium are present in higher concentrations
 - Component routes water from the Interceptor Trench System Extension to the SPPTS for treatment
 - As expected, there was more anthropogenic uranium in this sample: 7% natural, 93% anthropogenic



Site Operations

Rocky Flats Site, Colorado

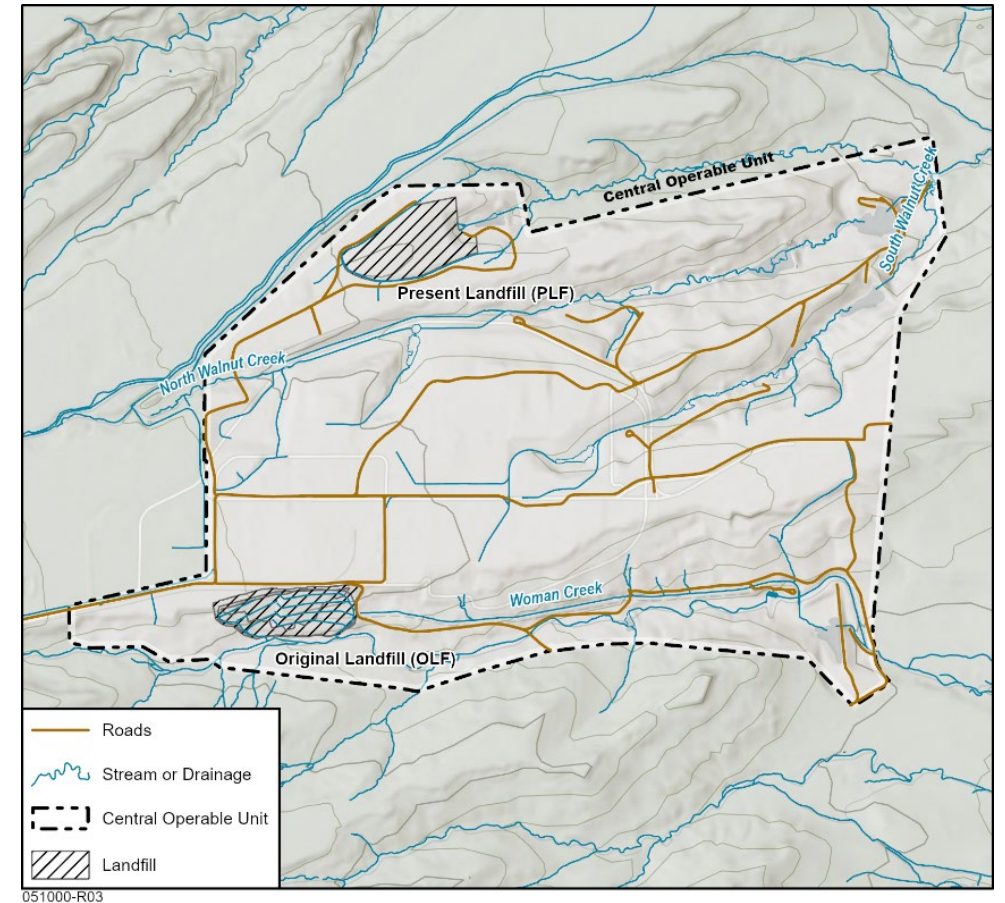


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Site Operations

- All field activities were conducted safely and successfully
- Annual site inspection was conducted
 - No violations of institutional or physical controls
 - No significant subsidence or erosion
- Roads are evaluated year-round
 - In CY 2025, roads were regraded, road base added, rock crossings were refurbished, and dust suppressant was applied



Roads in the Central Operable Unit

Sign and Fence Inspections



Rocky Flats Site signage



- Inspected quarterly
- Wildlife and wind were the most common cause of damage
- Signs and fences were repaired or replaced as needed



Present Landfill

- Quarterly and weather-related inspections were performed at the PLF
- Performing as designed



Aerial of Present Landfill



Original Landfill

- The OLF was inspected as required
- In October 2025, RFLMA parties agreed to modify the inspection frequency from monthly to quarterly
- Eight landfill settlement monuments were surveyed quarterly, and conditions were within design criteria
- No slumping was observed at the OLF hillside during CY 2025



Aerial of Original Landfill



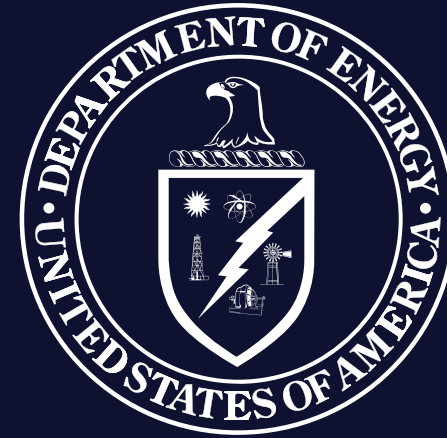
North Walnut Creek Slump (NWCS)

- Nearby infrastructure remains operational
- The swale and rock crossing installed in 2019 to direct surface runoff away from the NWCS continue to function as designed, as do the inclinometers and the piezometer installed in 2020
- 2025 survey data showed less movement than in prior years



Ecological Monitoring

Rocky Flats Site, Colorado



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Vegetation Management and Monitoring

- Noxious weed control
 - Herbicide applied to 136 acres
- Vegetation management
 - Interseeding
 - Mowing and trimming
- Vegetation monitoring
 - Erosion control monitoring
 - Revegetation monitoring
 - Preble's meadow jumping mouse habitat monitoring
 - Wetland mitigation monitoring



Area treated with herbicides is shown to the left of the yellow line

Wildlife Monitoring

- Prairie dog
 - No active prairie dog towns within the COU
- Bird monitoring
 - Pre-project bird nest surveys
 - Nest box surveys
- Elk deterrents
- Wildlife game cameras

No adverse biological conditions were observed in CY 2025.



Temporary fence to prevent elk from damaging equipment



Elk investigating a fence flag on a new enclosure

CY 2025 Annual Report

**Annual Report
of Site Surveillance and
Maintenance Activities at the
Rocky Flats Site, Colorado
Calendar Year 2025**

April 2026



For more information, visit:

<https://www.energy.gov/lm/rocky-flats-site-colorado>

For additional details on any items noted here, please view the Rocky Flats CY 2025 annual report at:

https://lmpublicsearch.lm.doe.gov/lmsites/52783_rfs_cy25_annual_final.pdf



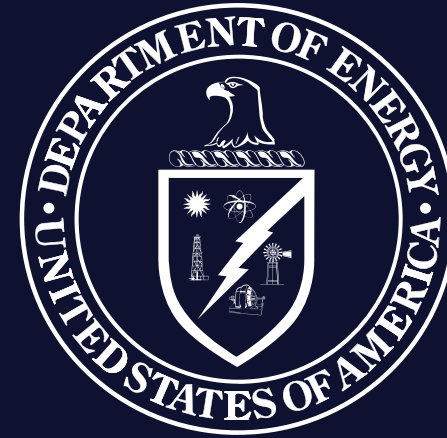


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Q&A

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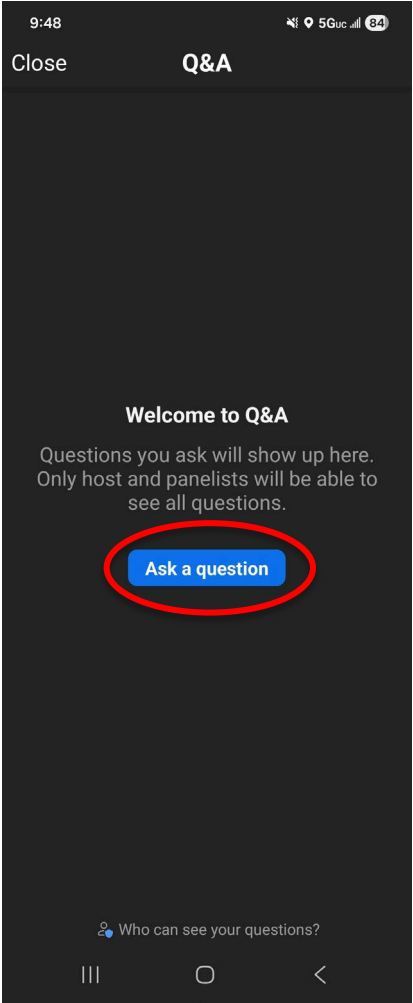
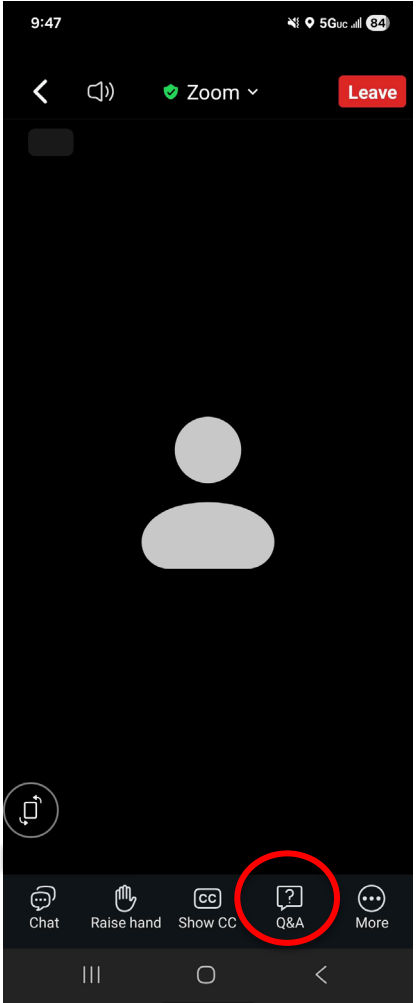
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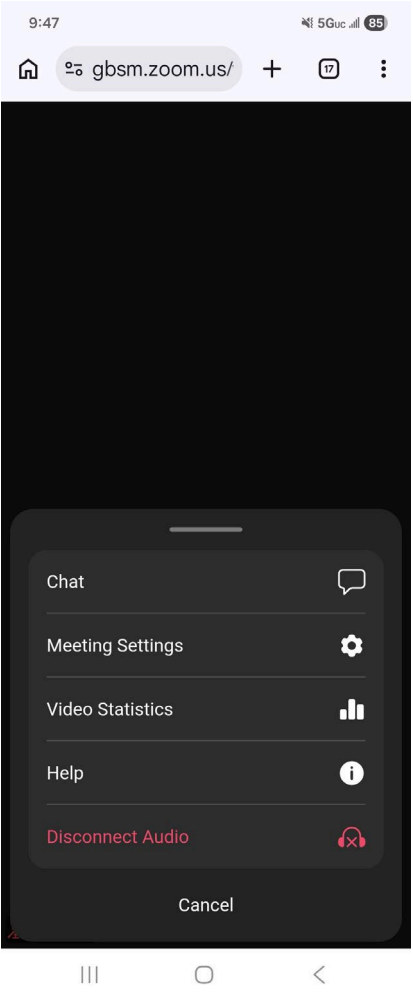
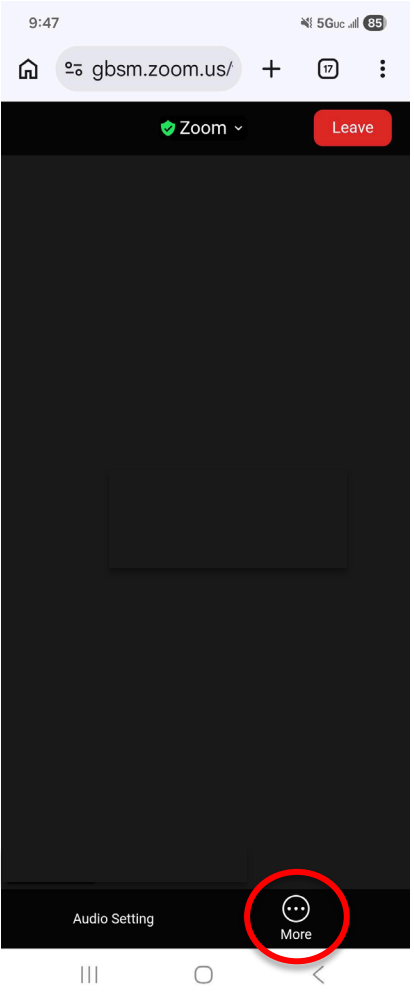


Zoom Chat and Q&A: Mobile View

View in mobile app:

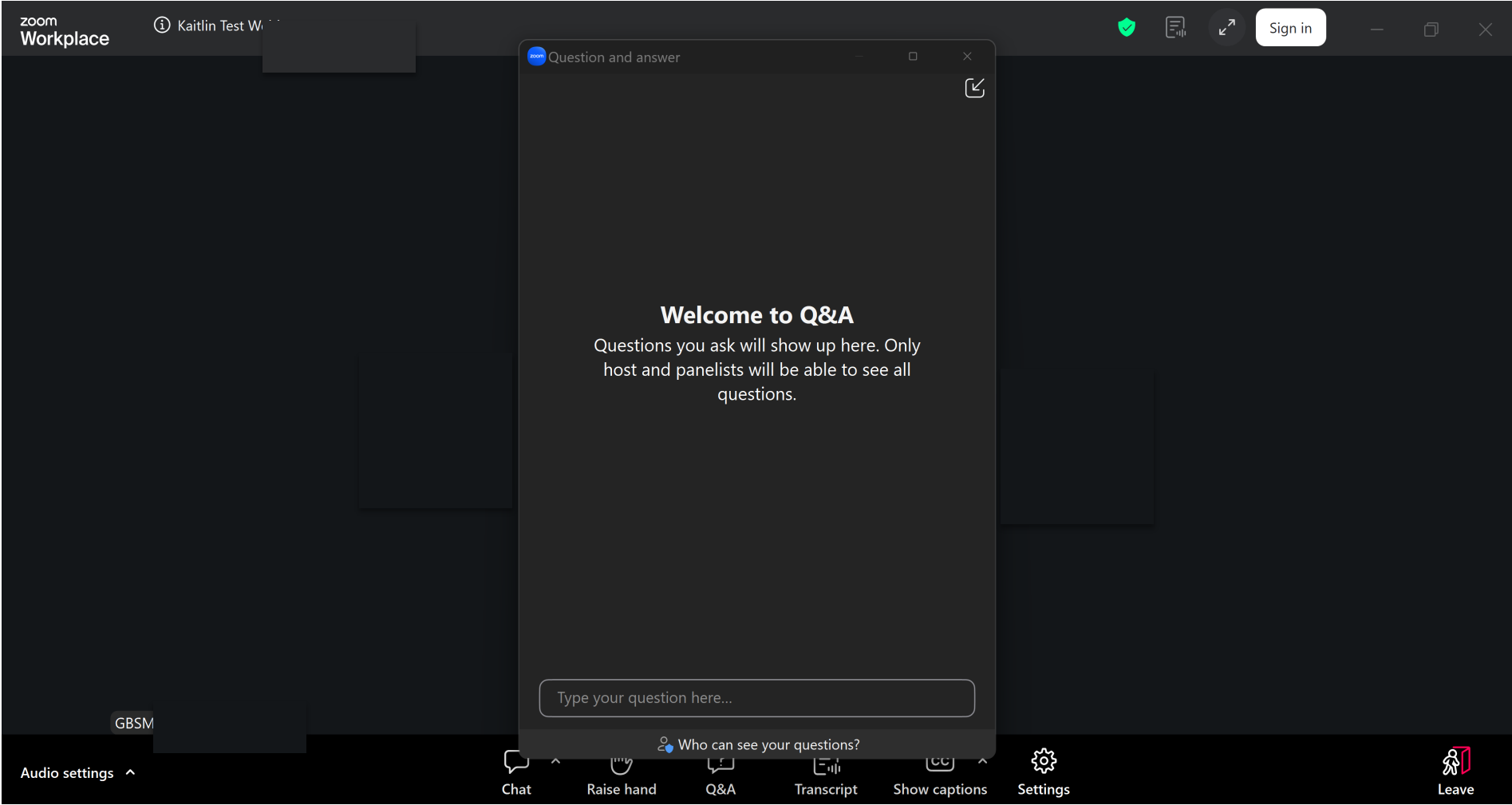


View in mobile browser:



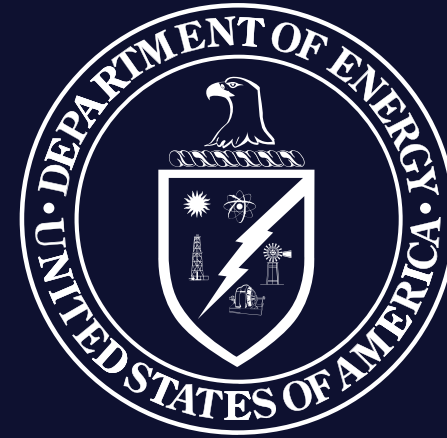
Zoom Q&A: Desktop/Computer View

Q&A feature



Public Comment

Rocky Flats Site, Colorado



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Guidelines: Public Comment

The public comment is a time when members of the community may publicly voice their thoughts or opinions on relevant topics. Comments will be heard on a first-come, first-served basis until the public comment period is over.

- **Process:** Raise your hand and wait to be called on.
- **Identification:** State your name, place of residence, and organizational affiliations, if applicable.
- **Focus:** Comments must be relevant to the 2025 Rocky Flats Site Annual Report.
- **Time limits:** Participants are permitted to speak once. Comments are limited to 2 minutes, but may be shortened to allow all to speak. Comments are nontransferable.
- **No debates:** Neither officials nor staff are expected to respond or engage in discussion.
- **No visual aids:** Participants will not be permitted to share their screen. Visual references or other supporting materials may be shared with the Rocky Flats team at rinfo@lm.doe.gov for review after the meeting.
- **Etiquette:** Speakers must maintain a civil and constructive demeanor. Abusive and inappropriate behavior will not be tolerated.
- **Disruptions:** Behavior that does not comply with these rules may result in the speaker ceding remaining comment time or being removed from the meeting.



Public Comment

Thank you for your comment.

- State your name, place of residence, and organizational affiliations, if applicable
- Focus your comments on the 2025 Rocky Flats Annual Report
- You have two minutes to share your thoughts. You may only speak once and cannot transfer your time to other participants
- Please be respectful and constructive

Reminder:

The opinions shared during the public comment period are those of the speaker. They do not necessarily reflect the views of the U.S. Department of Energy Office of Legacy Management, its affiliates, or its employees.



***Thank you
for attending
today's meeting.***

- For more information, visit:
<https://www.energy.gov/lm/rocky-flats-site-colorado>
- Send additional questions or comments to
rinfo@lm.doe.gov



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