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Annual Monitoring Review for the GSA Eastern and Western Groundwater Operable Units (U)

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SRNS/ACP

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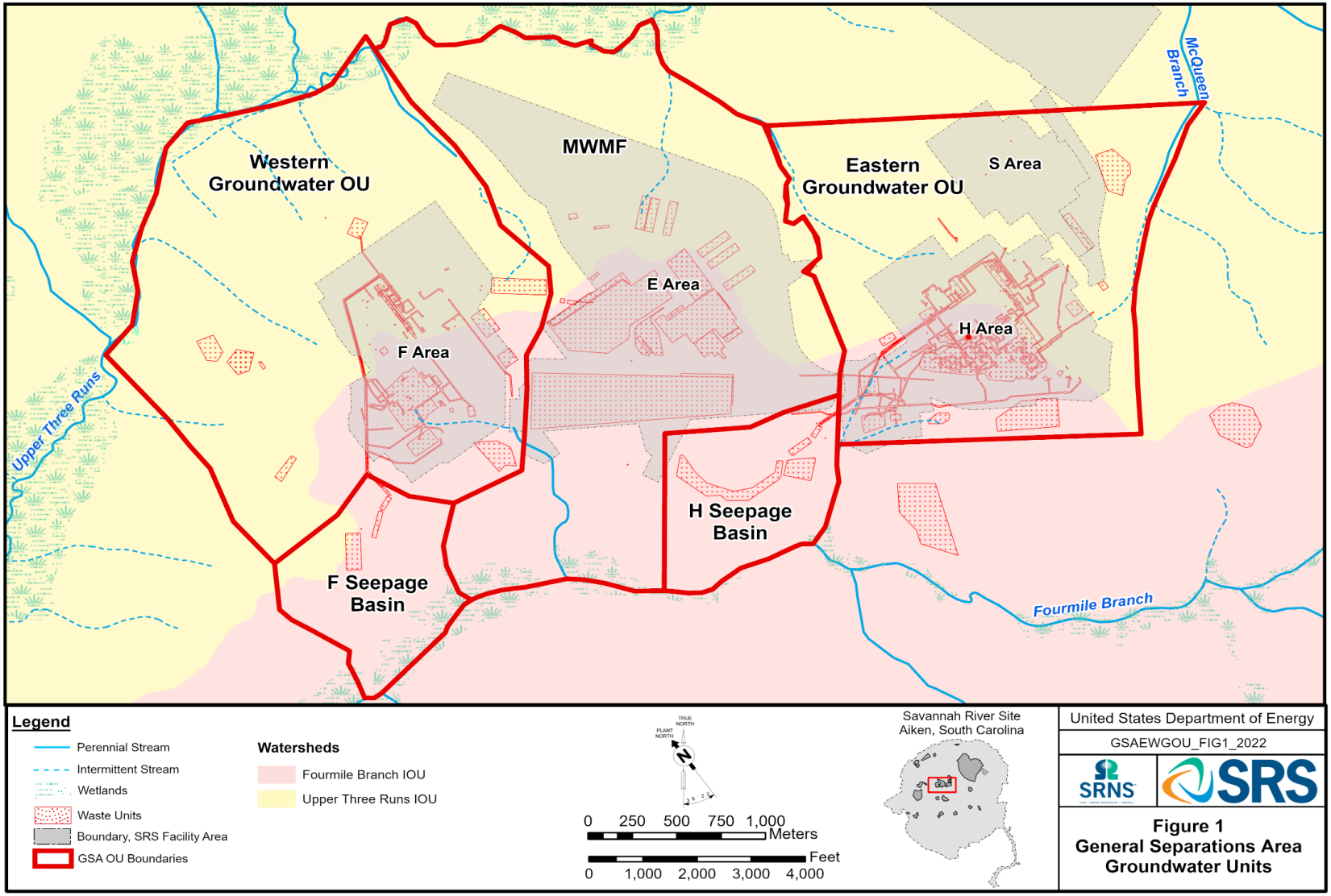
Agenda

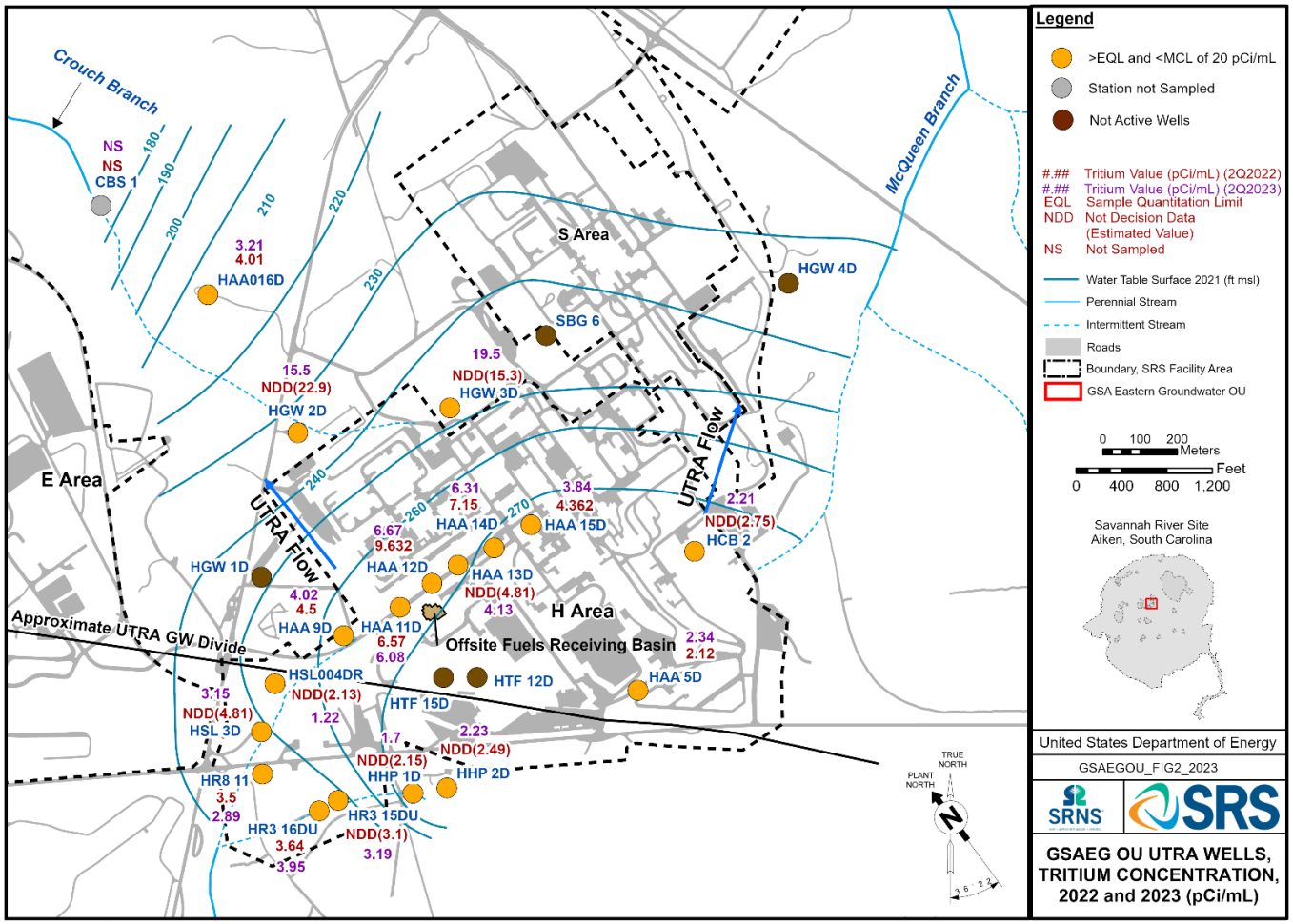
- Introductions – Jones
- GSA Eastern Groundwater Update – Boerstler
- GSA Western Groundwater Update – Boerstler
- Nonvolatile Beta and Strontium-90 in the GSA Western Groundwater OU West Plume – Boerstler
- Wrap up

General Separations Area



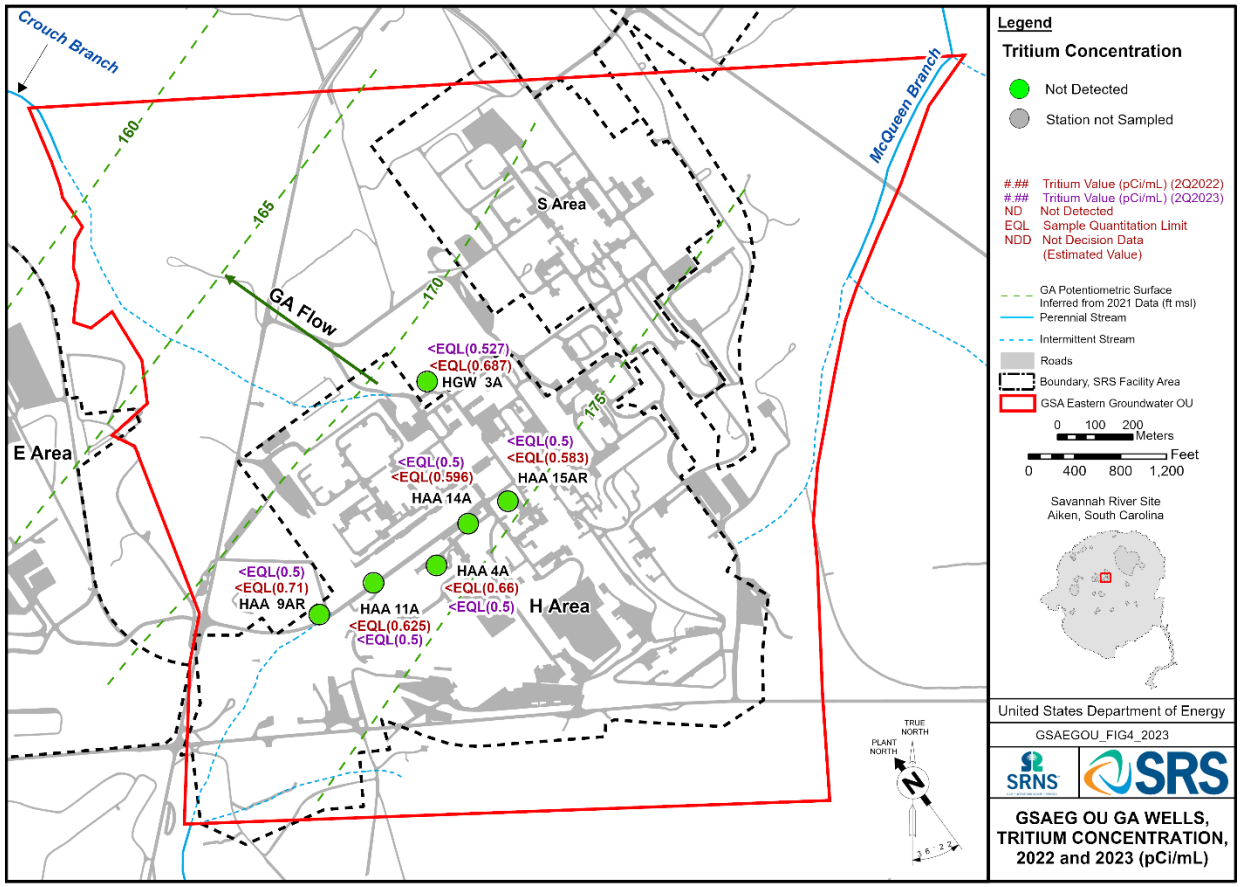
- **Current strategy is monitoring of groundwater in the two uppermost aquifers that underlie the OU.**
- **Upper Three Runs Aquifer**
  - Upper Aquifer Zone
  - Lower Aquifer Zone
- **Gordon Aquifer**
- **Sampled annually (except well HAA-4A)**
- **Primary contaminants are tritium and TCE**

Tritium Upper Three Runs Aquifer



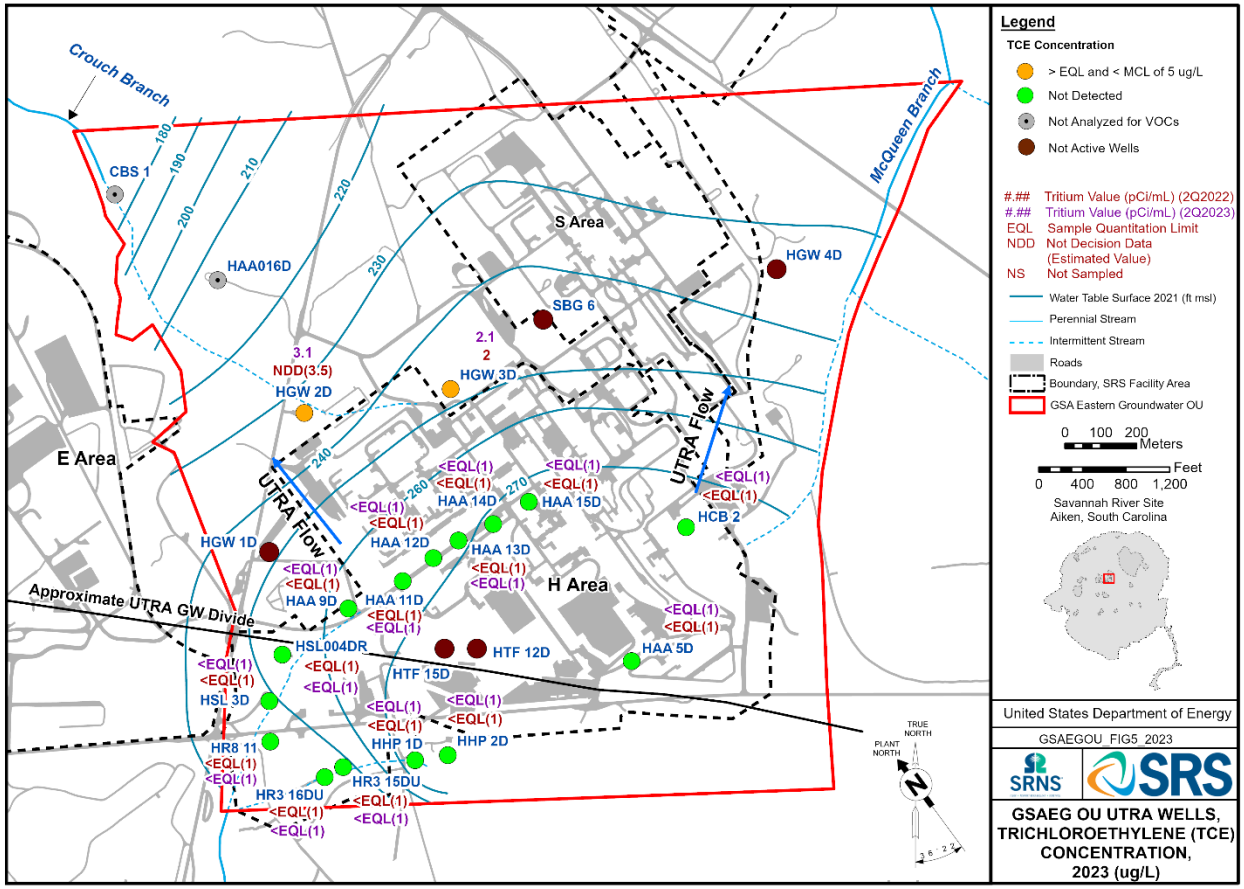
- **Tritium historically present at wells HAA 12D, HGW 2D, and HGW 3D**
- **Seepline (CBS 1) was dry so HAA016D was sampled.**

Tritium Gordon Aquifer



- **Wells HAA 4A and HAA 15AR were sampled for the first time under GSA Eastern GW monitoring program in 2022.**
- **Tritium was non-detect at all wells.**

TCE Upper Three Runs Aquifer



- **TCE detected in only two wells (HGW 2D and HWG 3D) and was below the MCL (5 ug/L)**
- **1,1-Dichloroethane above RSL (2.8 ug/L) at HAA 5D (11 J ug/L and 4.2 ug/L in 2022 and 2023, respectively).**
- **TCE not detected in Gordon Aquifer**

- **Current strategy is monitoring to ensure surface water is protected**
- **Sampled annually**
  - Groundwater, seepline, and surface water
- **Three plume areas**
  - North, West, and South
- **Primary contaminants are radionuclides and VOCs**

GSA Western Groundwater OU Monitoring Network

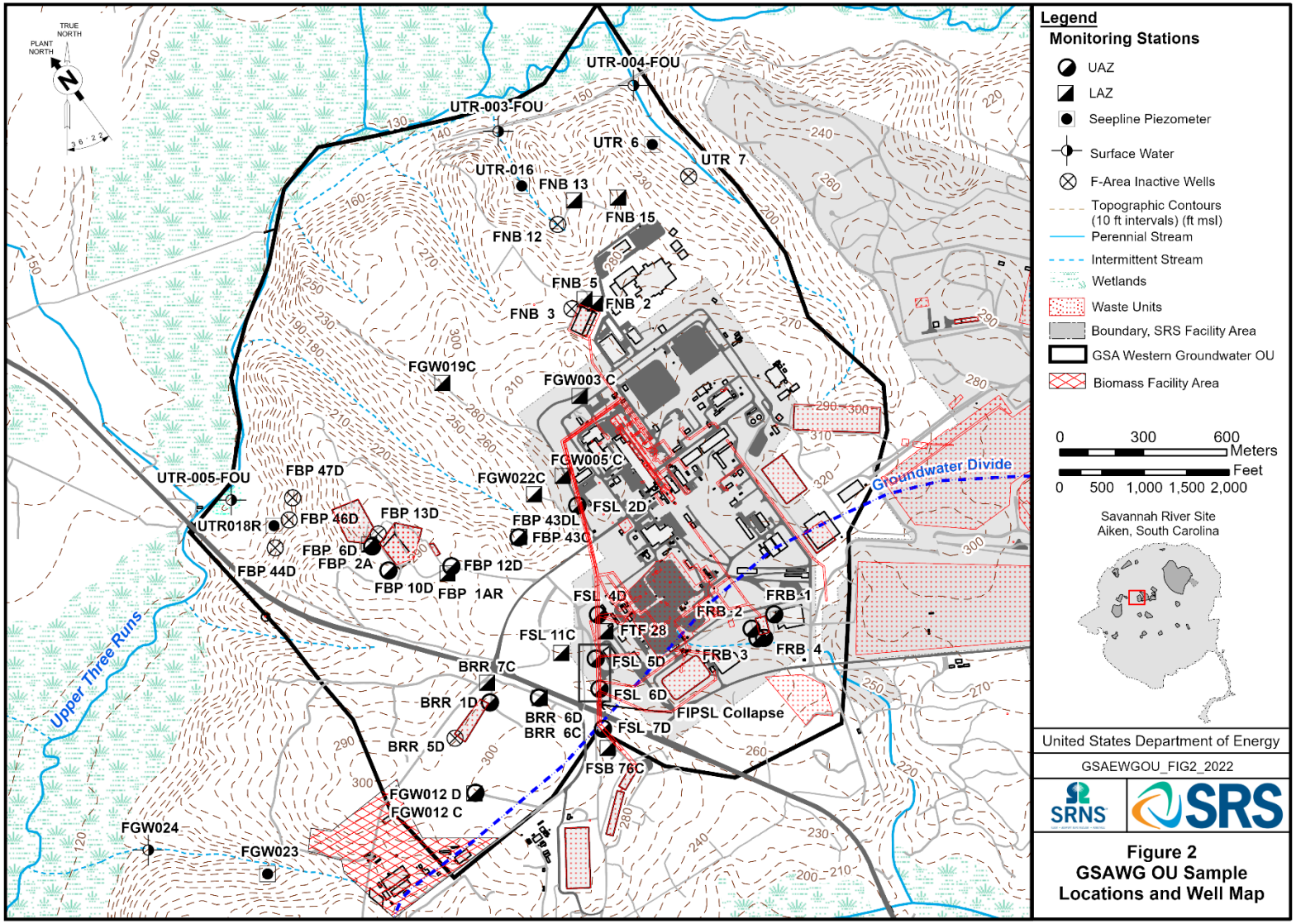
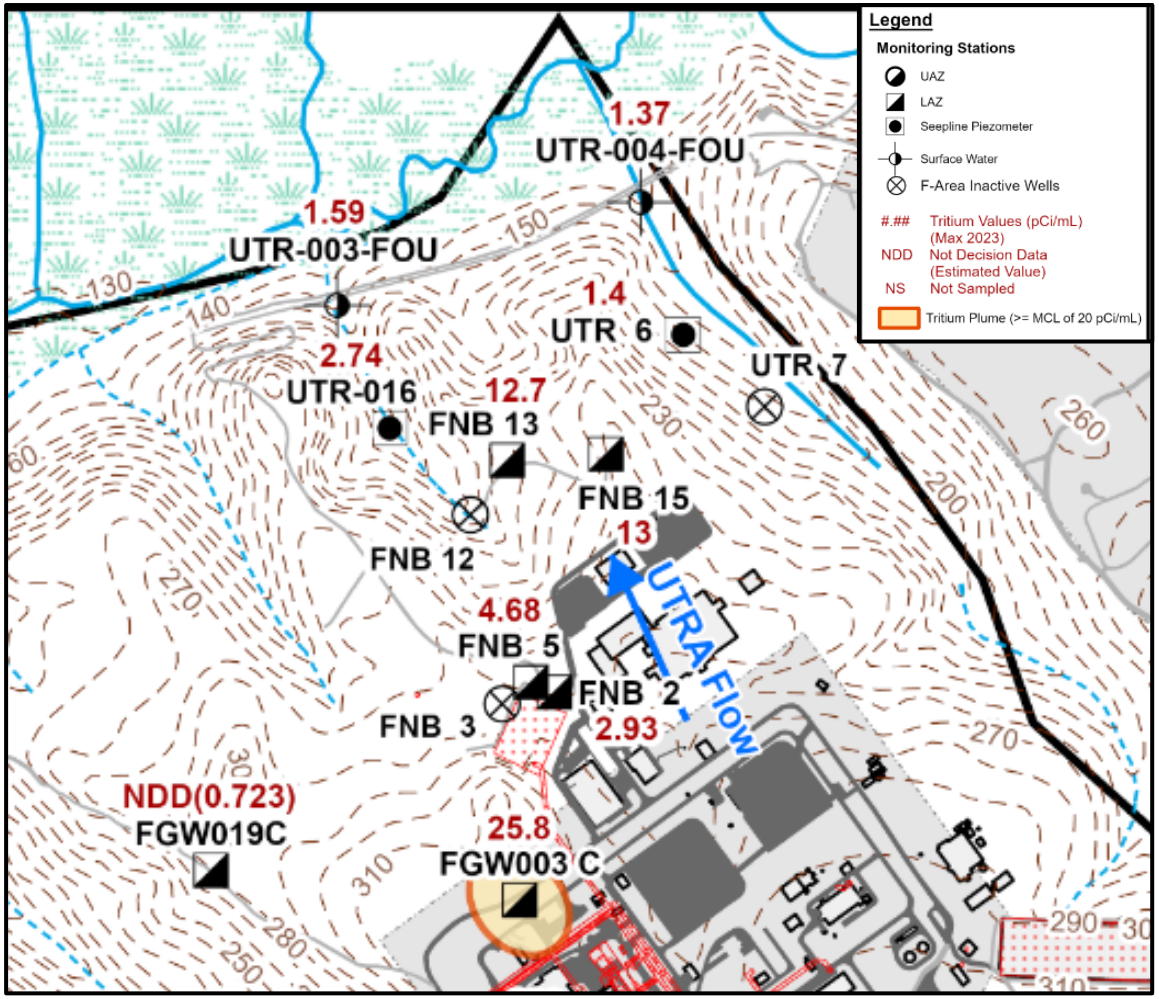


Figure 2
GSAWG OU Sample Locations and Well Map

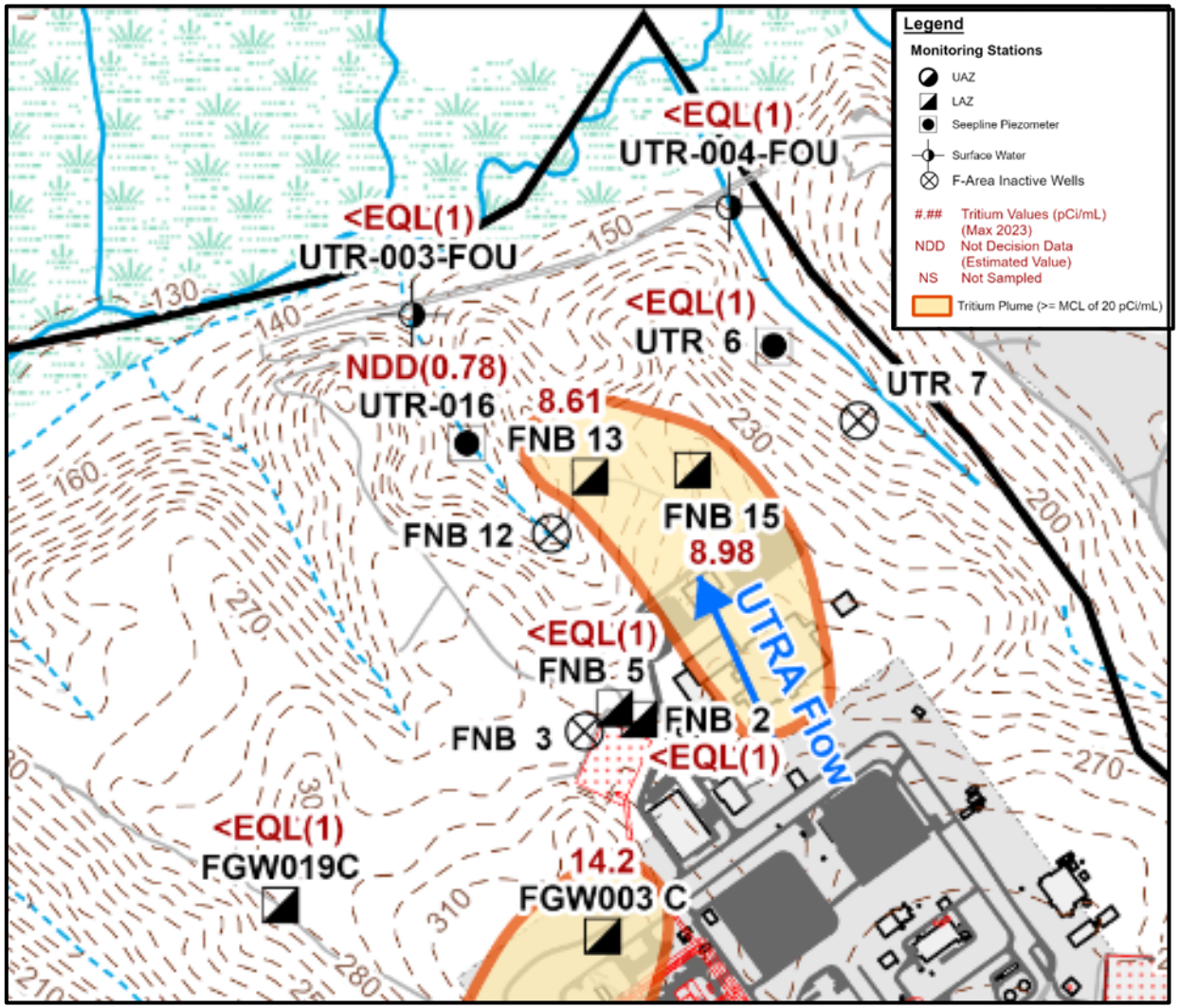
North Plume Tritium

- Groundwater flow is north toward Upper Three Runs creek and tributaries
- Tritium concentrations are low, similar to last year and continue to decrease over time
- Maximum is below MCL at FNB 15 (13 pCi/mL)
- At seeplines tritium is below the MCL (UTR 16 and UTR 6)
- Surface water is below the MCL



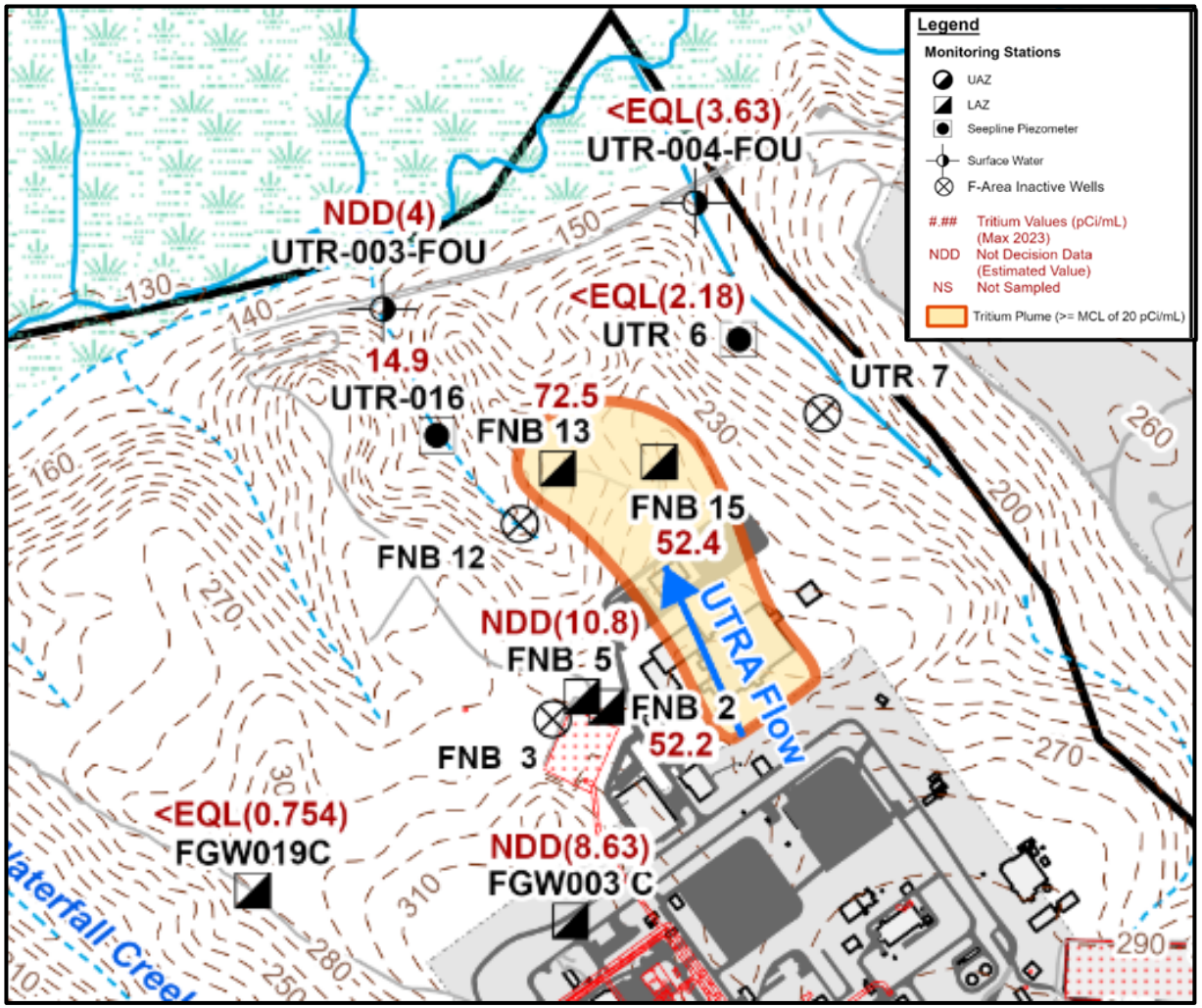
North Plume TCE

- TCE plume is stable, concentrations are similar to 2021 and 2022 results
- Maximum is 8.98 ug/L at FNB 15
- At seeplines TCE was detected at one location (UTR 16)
- Surface water is not being impacted (non-detect)
- PCE and TCFM not detected above MCLs



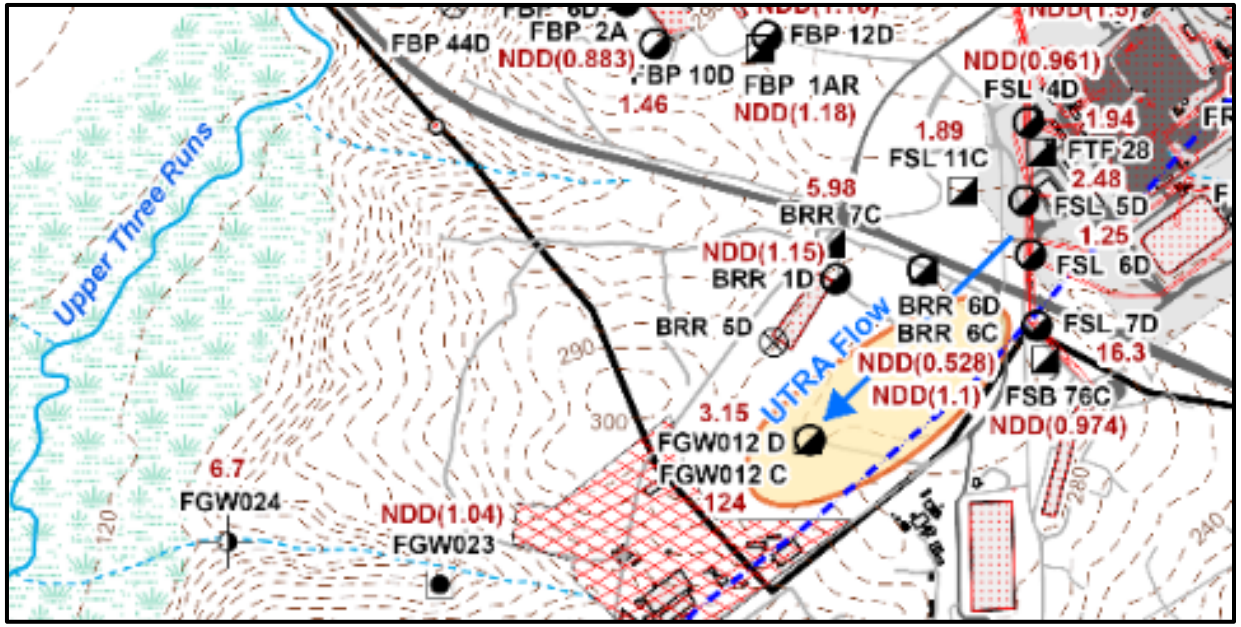
North Plume Nonvolatile Beta

- Similar to 2021 and 2022, NVB > 50 pCi/L at 2 wells (FNB 13 and FNB 15)
- NVB > 50 a FNB 2 (52.2 pCi/L) in 2023
- Sr-90 > MCL at FNB 2 (12.3 pCi/L) and FNB 13 (22.1 pCi/L)
- I-129 > MCL at FNB 2, FNB 13 and FNB 15.
- Max I-129 26.7 pCi/L FNB 2
- Seepline GW and Surface water locations remain below MCLs.



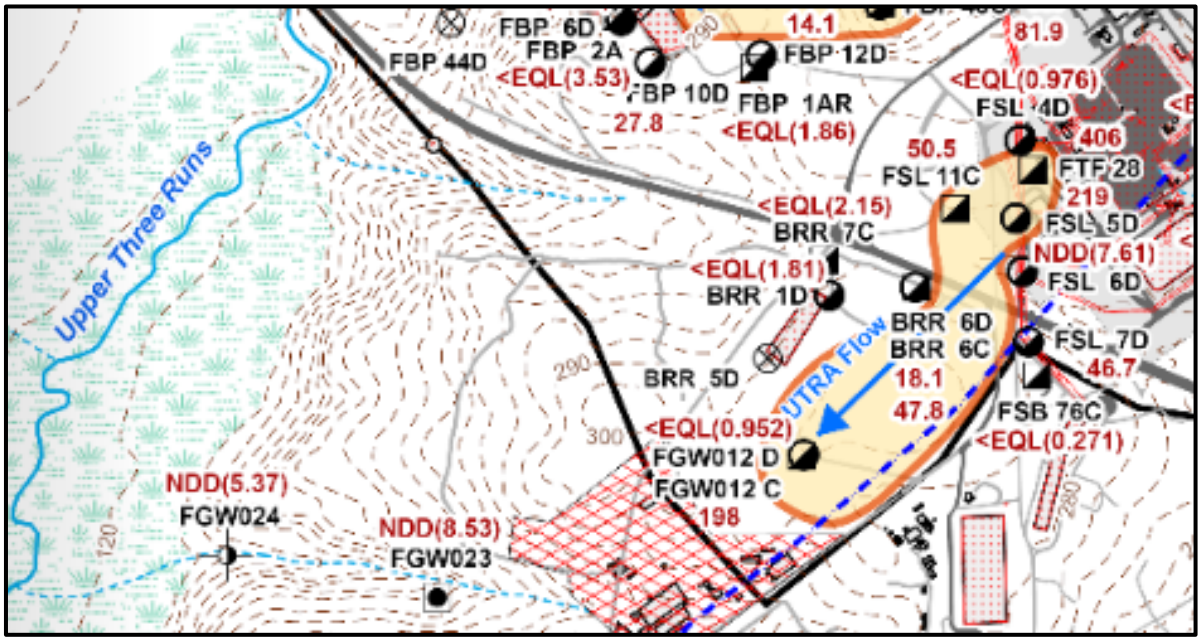
South Plume Tritium

- Tritium present near the IPSL and at well FGW012C
- Highest concentrations at FGW012C (124 pCi/mL)
- Concentrations similar to last year (118 pCi/mL at FGW012C in 2022)
- No impact to seepline or surface water



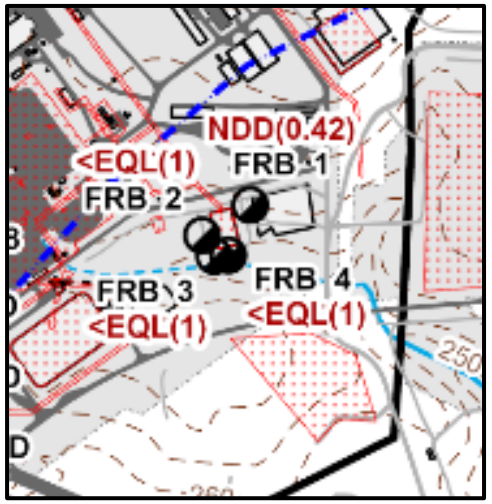
South Plume Nonvolatile Beta

- **Nonvolatile beta isotopes**
  - I-129, Sr-90, TC-99
- **Highest concentrations adjacent to IPSL**
  - Max beta 406 pCi/L (FTF 28)
  - TC-99 1,110 pCi/L
- **Concentrations have decreased since 2020 (917 pCi/L)**
- **Plume attenuates and terminates prior to seepline**
- **No impact to seepline or surface water**

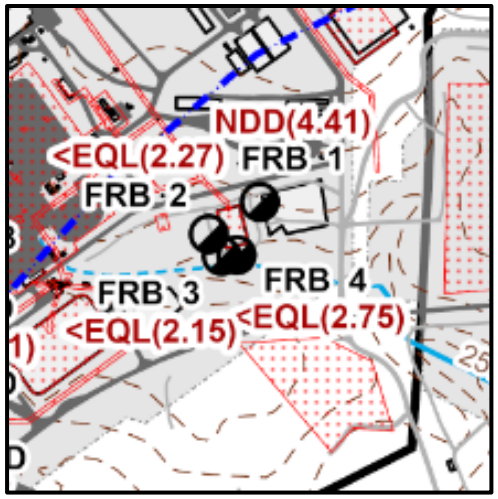


F Retention Basin

- **Closed under ROD**
  - groundwater results reported in this OU; rads and TCE
- **In 2023, all results were below MCLs (consistent with historical trends for these wells)**



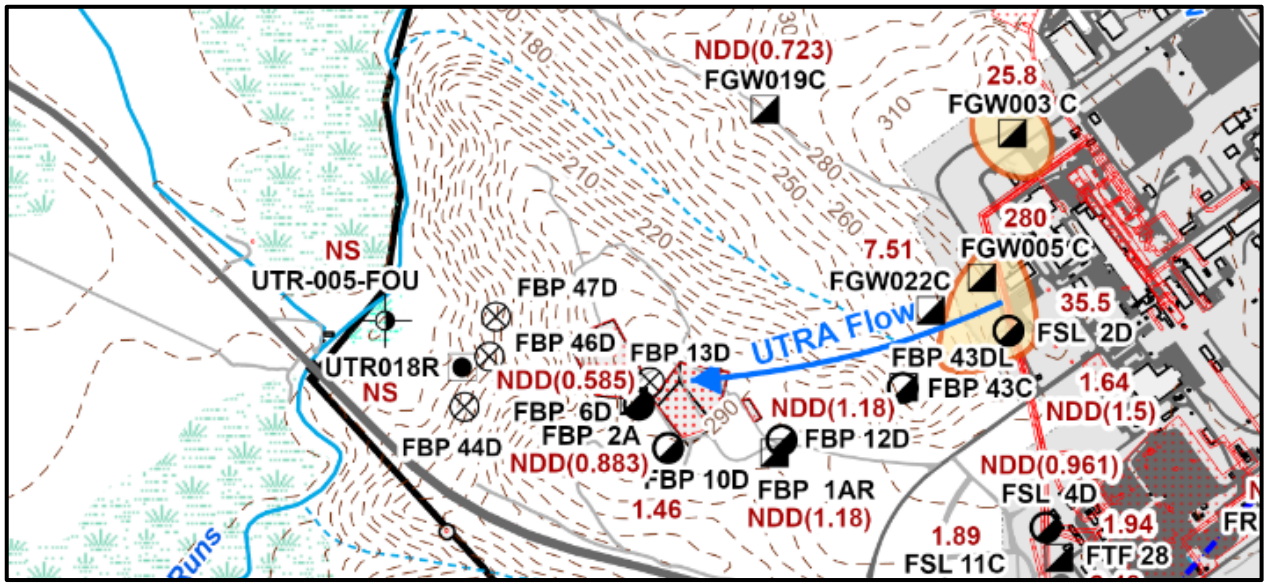
TCE



Nonvolatile Beta

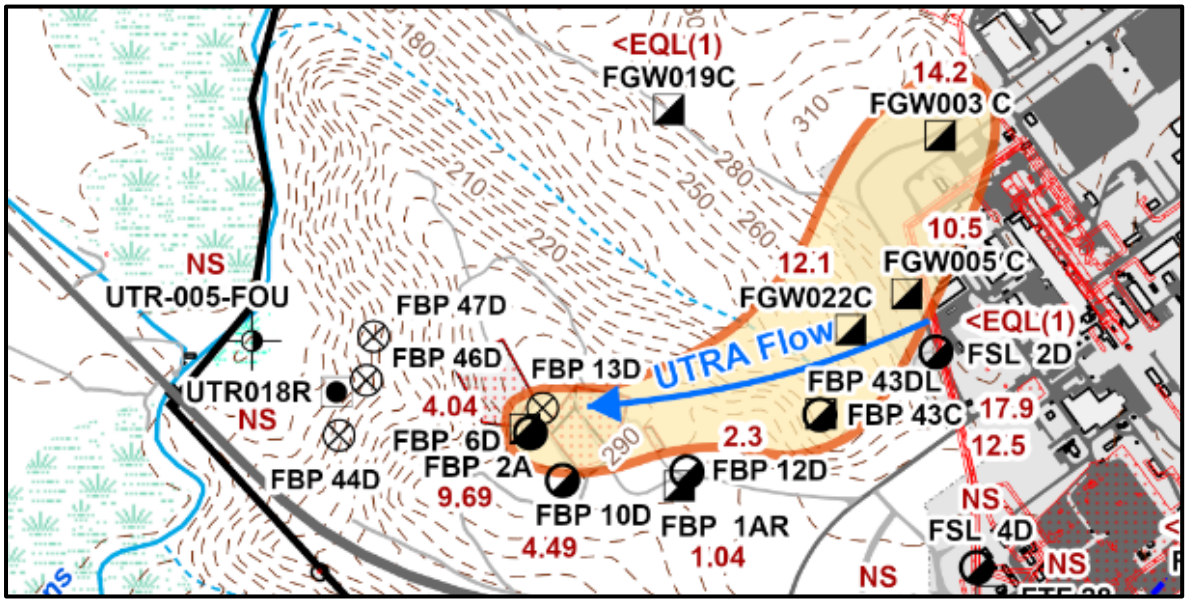
West Plume Tritium

- Groundwater flow is west toward Upper Three Runs Creek
- Exceeds MCL adjacent to facilities and IPSL (Inactive process sewer line) at FGW003C and FBP 43DL.
- Surface water location UTR-005-FOU and seepline piezometer UTR018R were dry.
- Tritium is historically well below the MCL in shallow GW at UTR018R.



West Plume TCE

- VOCs: PCE, TCE, TCFM
- TCE most prevalent
- Highest concentrations near facilities (FGW003C, FGW005C, FGW022C and FBP 43)
- VOC plume is stable to decreasing, concentrations similar to 2021, attenuates with distance
- UTR Surface water and seepline piezometer not impacted (historically VOCs not detected)



West Plume Nonvolatile Beta

- Radionuclides: alpha and beta isotopes
- Alpha: U-233/234, U-238
- Beta: Sr-90, Tc-99
- Highest concentrations adjacent to facilities and IPSL
  - Max alpha 1,530 pCi/L (FGW005C)
  - Max beta 665,000 pCi/L (FGW005C)
- NVB Concentrations increased significantly since 2021 at FGW005C but only increased slightly at FGW022C
- Plume attenuates rapidly and terminates prior to seepline
- No impact to seepline