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January 14, 2026
XO1-26-002

ATTN: Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Presentation Slides - Acceptability of Existing Groundwater Information near Cascade Advanced Energy Facility (Project #99902130)

This letter transmits Energy Northwest New Nuclear LLC's (ENNN) presentation slides relating to the acceptability of existing groundwater information near Cascade Advanced Energy Facility (Enclosure 1). These slides are provided in preparation for a public meeting on January 29, 2026.

ENNN intends to submit a Construction Permit Application (CPA) for up to twelve Xe-100 small modular reactors at a site adjacent to Columbia Generating Station (Columbia). The project will be known as the Cascade Advanced Energy Facility or Cascade. ENNN assessed the acceptability of existing groundwater information near Cascade to satisfy the requirements for establishing groundwater characteristics and hazards for the CPA. This presentation outlines the key sources of information near Cascade, including Columbia and Hanford Site groundwater programs.

This letter contains no commitments. If you have any questions or need any additional information, please contact Nathan Clark at ndclark@energy-northwest.com or 509-377-6069.

Sincerely,

Signed by:
Lisa Williams
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Lisa Williams
Operations, Licensing, Environmental Manager, New Nuclear Development

Enclosures
1. Presentation Slides - “Acceptability of Existing Groundwater Information near Cascade Advanced Energy Facility”, ENNN, January 2026.

cc:
Greg Cullen
Ken Langdon
Eric Andrews
Ms. Denise McGovern, NRR/DANU/UAL2
Ms. Madelyn Nagel, NMSS/REFS/EPMB3

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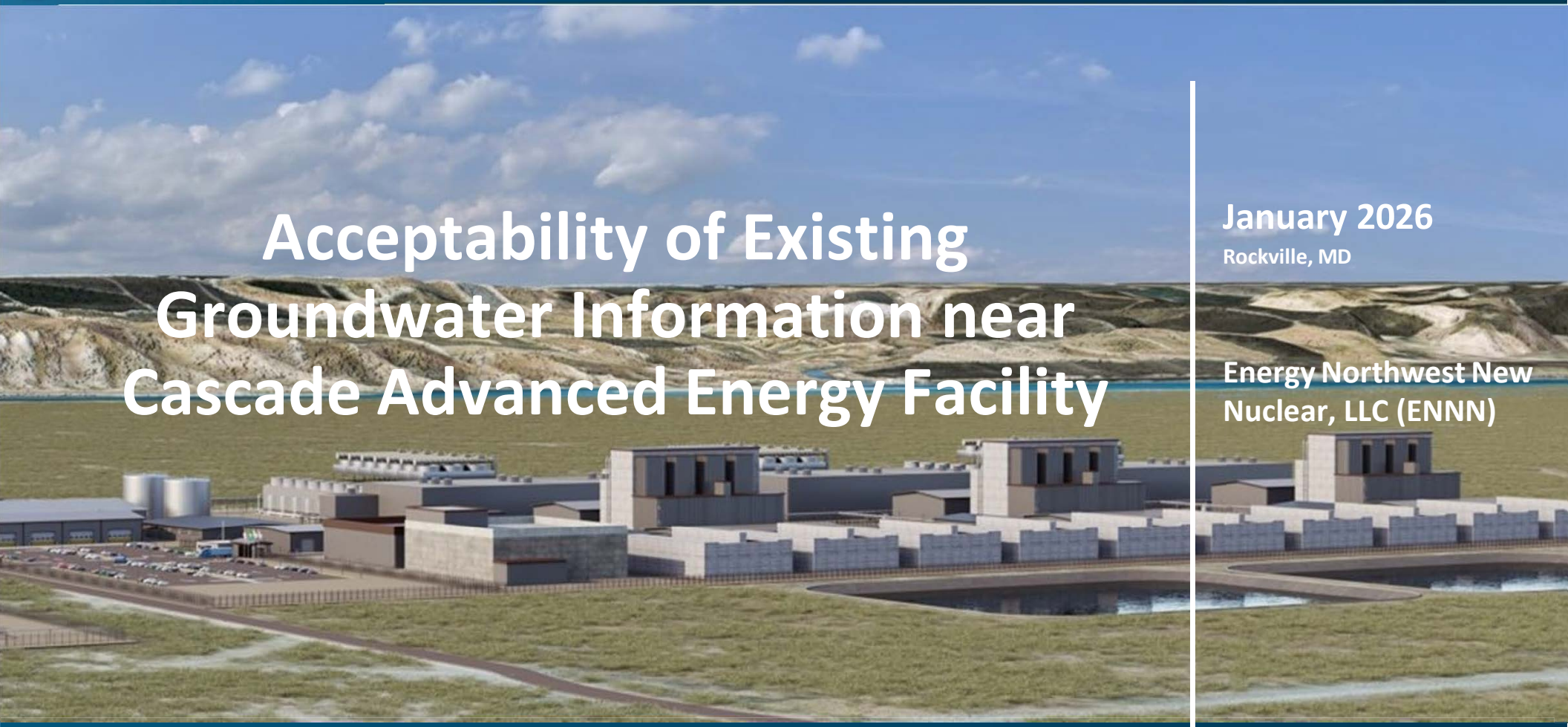

Acceptability of Existing Groundwater Information near Cascade Advanced Energy Facility

January 2026

Rockville, MD

Energy Northwest New Nuclear, LLC (ENNN)

Outline

- Purpose and Introduction
- Cascade Facility Background and Plans
- Columbia's Groundwater Monitoring Program
- DOE Hanford Groundwater Program
- Potential Use of Wells in Vicinity
- Summary and Conclusions

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Purpose and Introduction

Purpose of Meeting

- Engage early with NRC staff on ENNN's approach to using hydrogeologic information from Columbia Generating Station (Columbia) and the DOE Hanford Site.
- Identify technical or policy issues that might affect this approach.
- Ensure predictability in the NRC's response to ENNN's future Construction Permit Application (CPA) related to hydrogeologic site characterization and hazard analyses.

Executive Summary

- Abundance of existing data about the area's groundwater
- Sufficient for a baseline of hydrogeological characteristics for CPA
- ENNN plans to install 3 new shallow monitoring wells prior to construction to establish monitoring during construction and operation.

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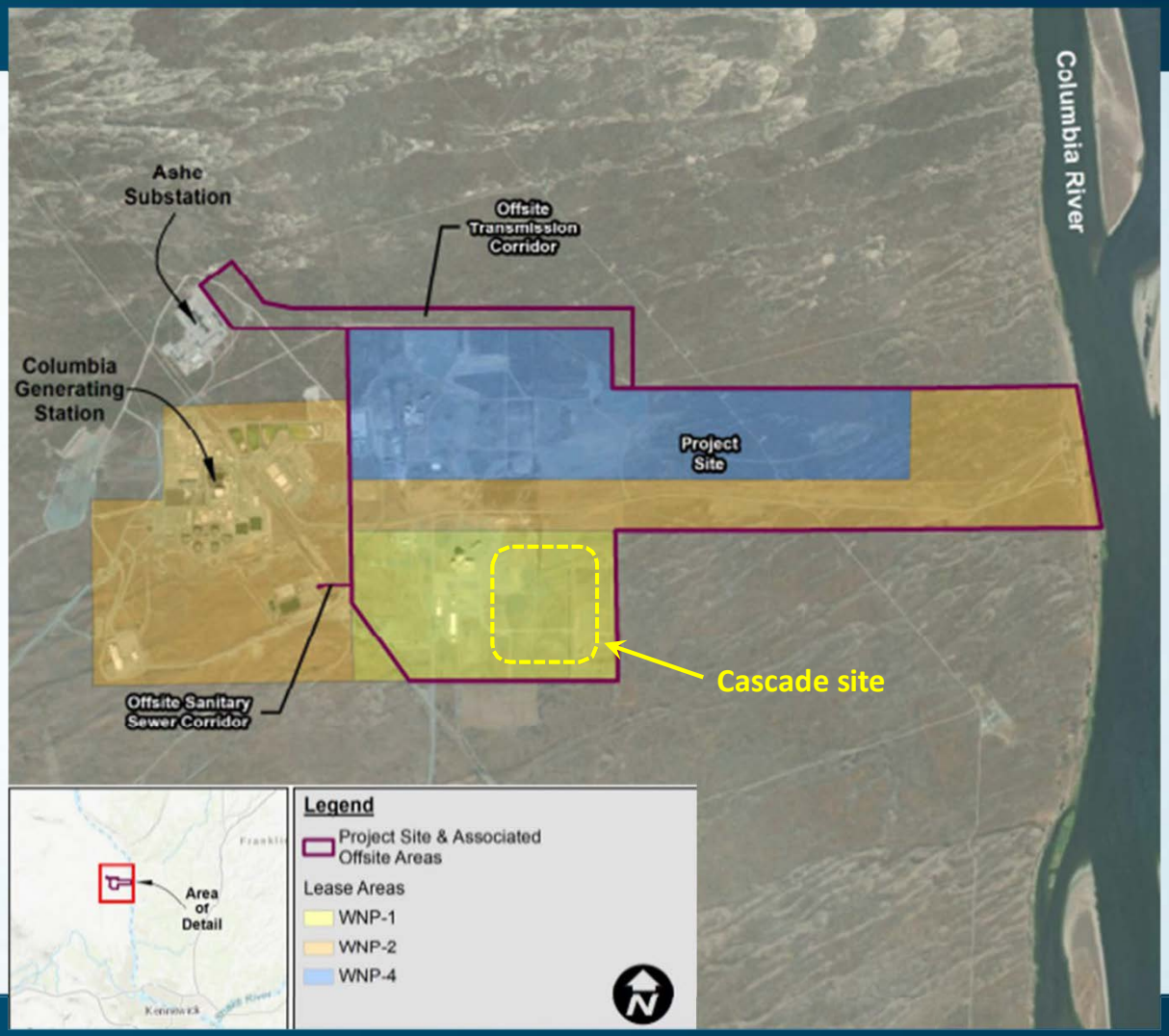
Proposed Cascade Site

(conceptual)



Overview of ENNN Groundwater Approach

- ADVANCE Act Section 505(c) requires licensing basis for existing utilization facilities at the site to be used to the extent practicable.
- Cascade proposed location is east of Columbia, a licensed operating facility.
- Extensive groundwater monitoring exists both regionally (DOE Hanford Site) and locally (Columbia and 618-11 Hanford Waste Site).

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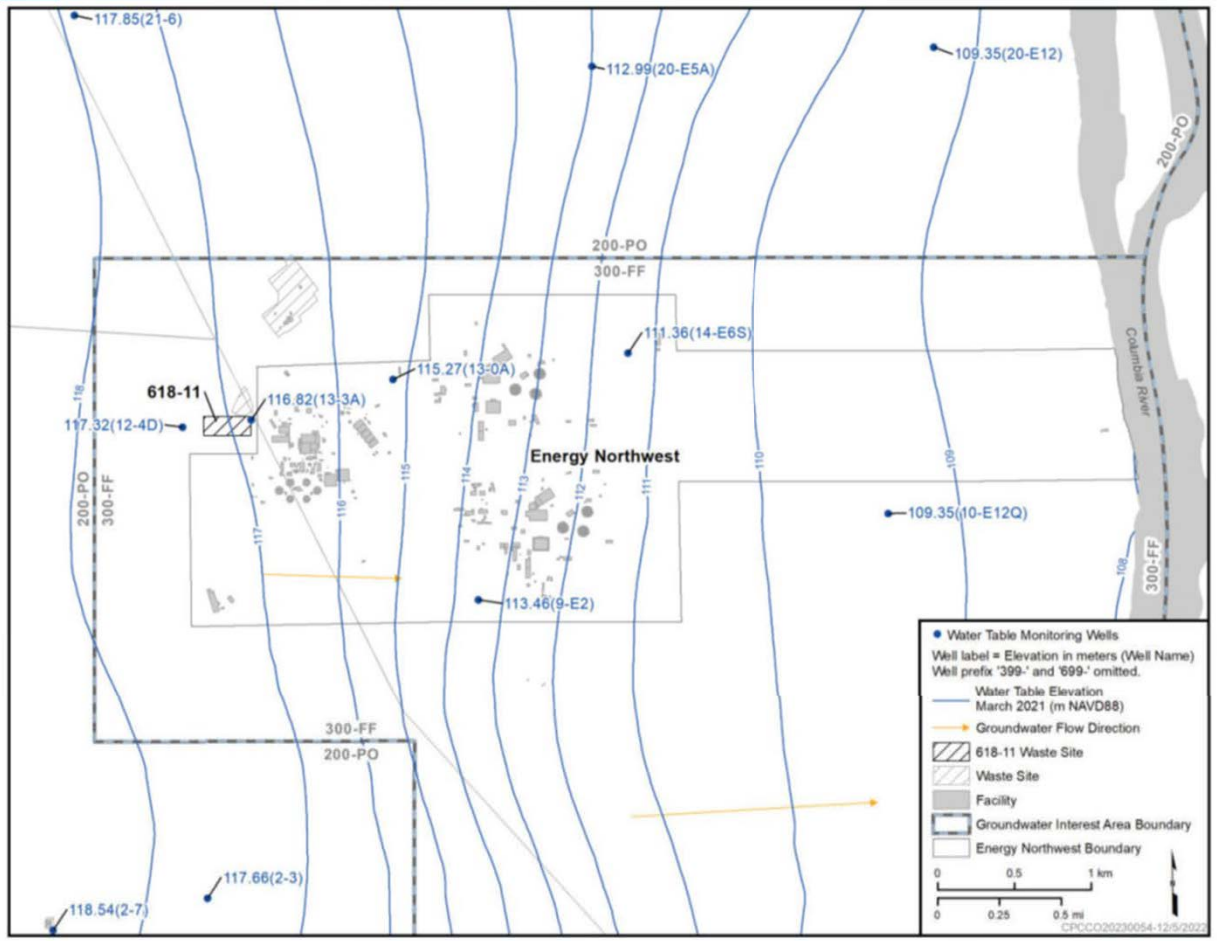
Cascade Facility Background and Plans

History of Energy Northwest Nuclear Projects

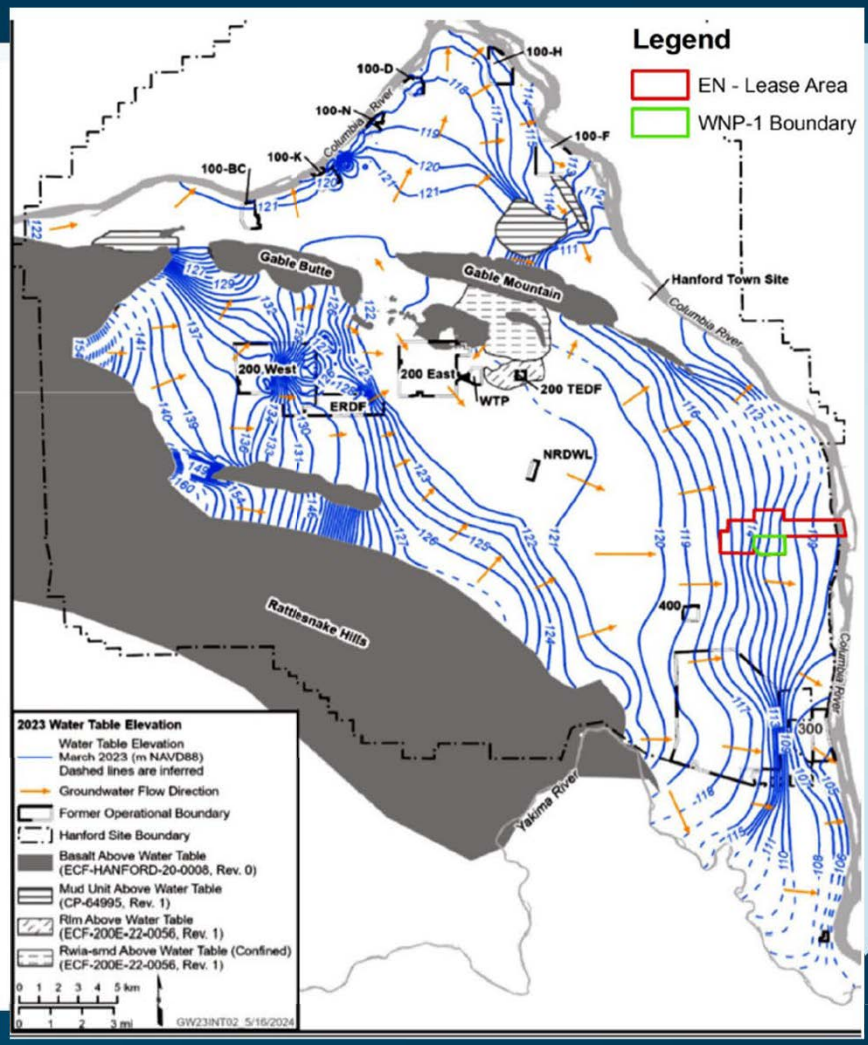
- Columbia Generating Station
  - Licensed in 1984, extension granted 2012
- Washington Nuclear Projects (WNP) 1 & 4
  - CPs issued in 1975 and 1978
  - Construction halted in 1982

Cascade Advanced Energy Facility Background

- Up to 12 Xe-100 high temperature helium gas-cooled reactors on former WNP-1 and 4 sites.
- Total of 960 MWe
- Cascade Site
  - One mile east of Columbia
  - Two miles west of Columbia River
  - Site elevation projected to be 455 - 470 ft NAVD88 (Columbia is 444.4 ft NAVD88)



Water-level elevations for unconfined aquifer near EN lease area, March 2021
(Hanford Site Groundwater Monitoring Report For 2021, DOE/RL-2021-51)



Hanford Site water-level elevations for unconfined aquifer, March 2023
(Hanford Site Groundwater Monitoring Report For 2023, DOE/RL-2023-54)

How Existing Groundwater Information will be used

- Environmental Report Content (RG 4.2)
  - Sect 2.2 groundwater description (characteristics - water quality, transport)
  - Sect 2.2.4 pre-application monitoring (in part)
  - Sect 4.2.4 groundwater monitoring during construction (in part)
  - Sect 5.2.4 groundwater monitoring during operations (in part)
- Preliminary Safety Analysis Content (DANU-ISG-2022-02)
  - Sect 2.5.2 groundwater pathways and timelines for carrying radioactive material
  - Sect 2.5.5 groundwater hazard (levels), potential for impact on foundations or other SR SSCs

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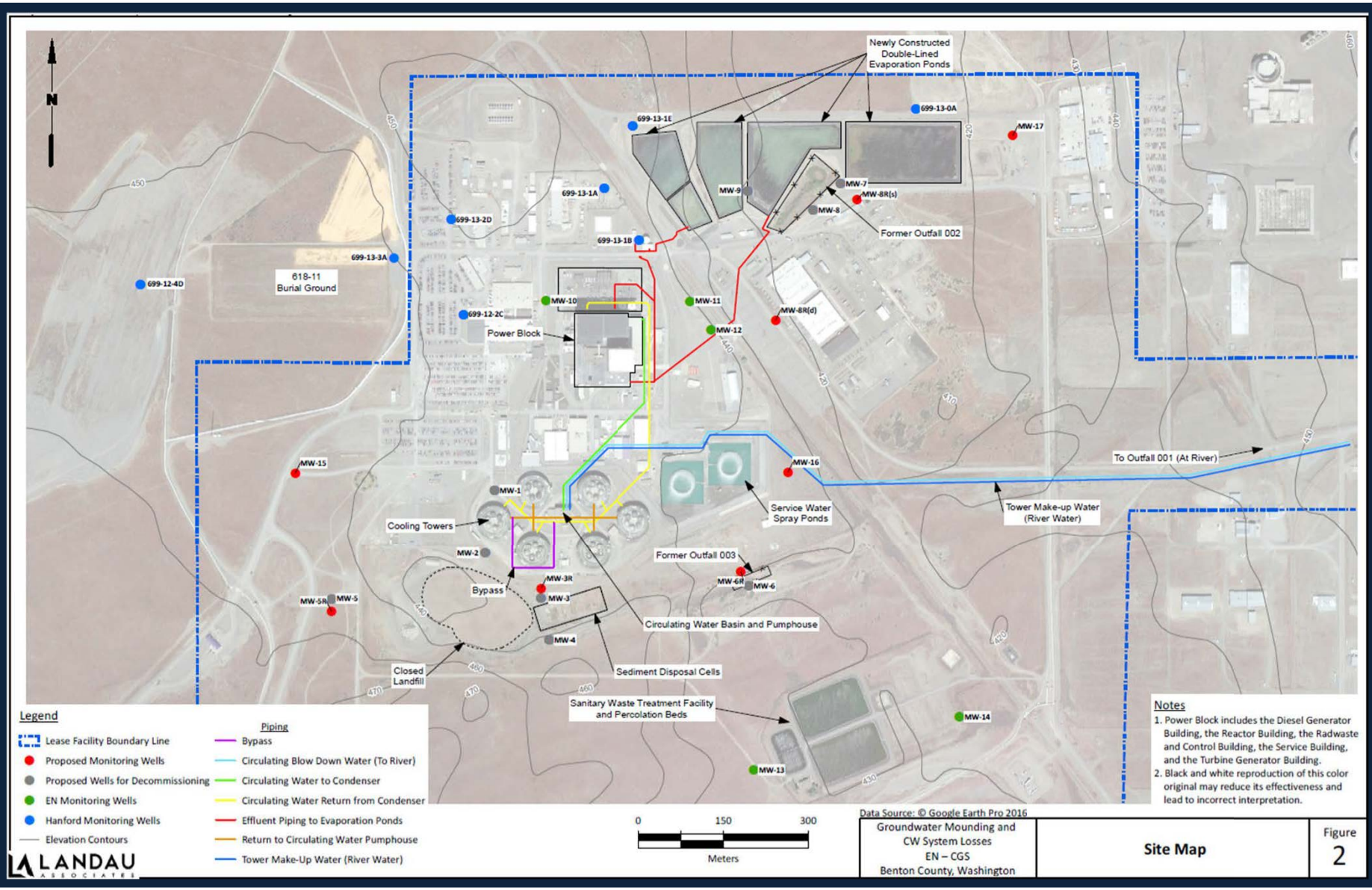
Columbia's Groundwater Monitoring Program

Columbia's Groundwater Monitoring Program

- Three water supply wells were installed during Columbia construction.
- Between 1995 and 2008, 14 shallow monitoring wells (MW-1 through MW-14) were installed around Columbia.
- Changes in 2025 due to wells drying up and NEI 07-07 purposes:
  - 9 of Columbia's 14 monitoring wells decommissioned (still have historical data)
  - 5 new wells replacing the decommissioned wells
  - 3 additional wells in new locations
- DOE is currently not permitting any new water-supply wells.



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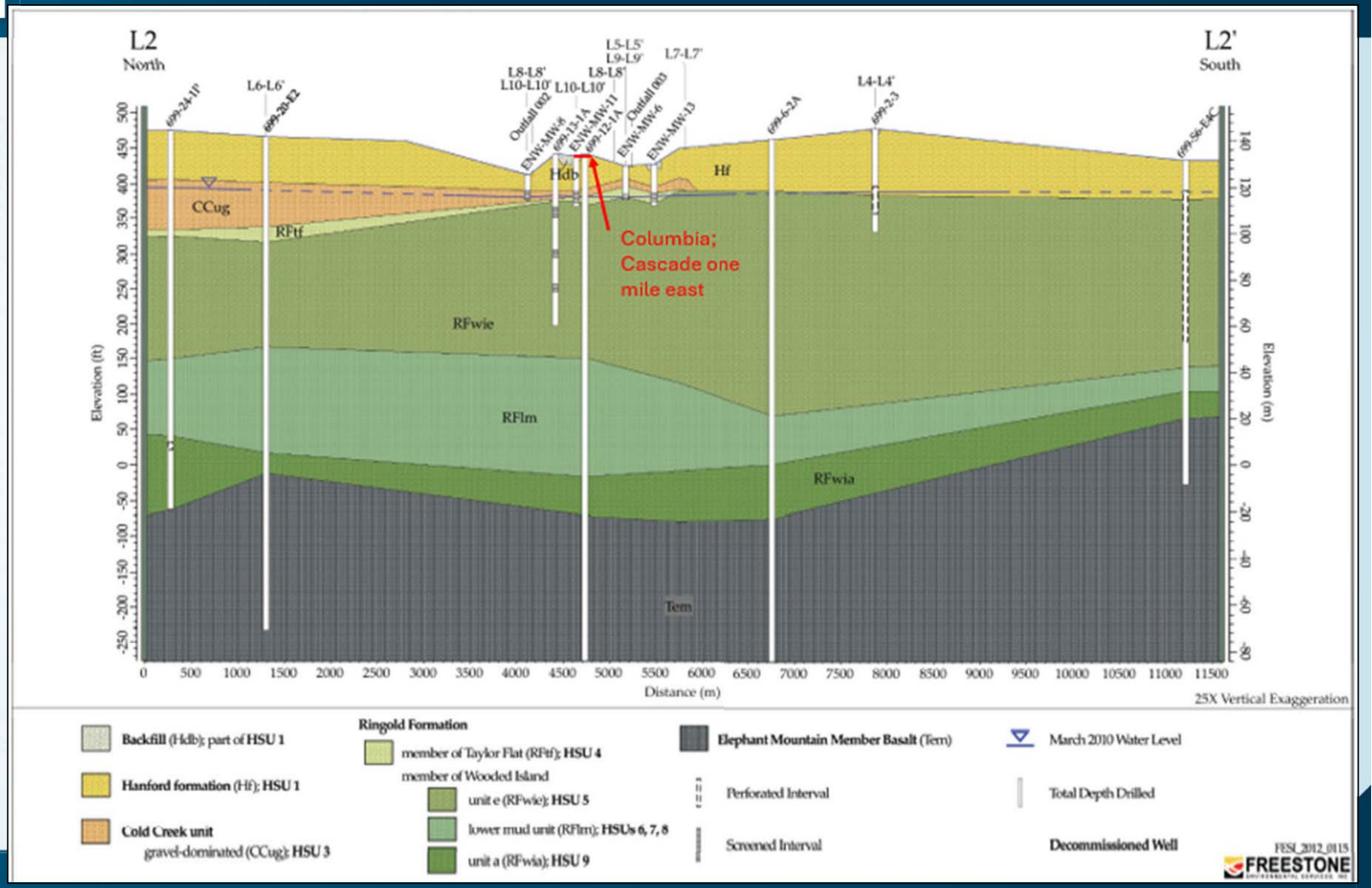
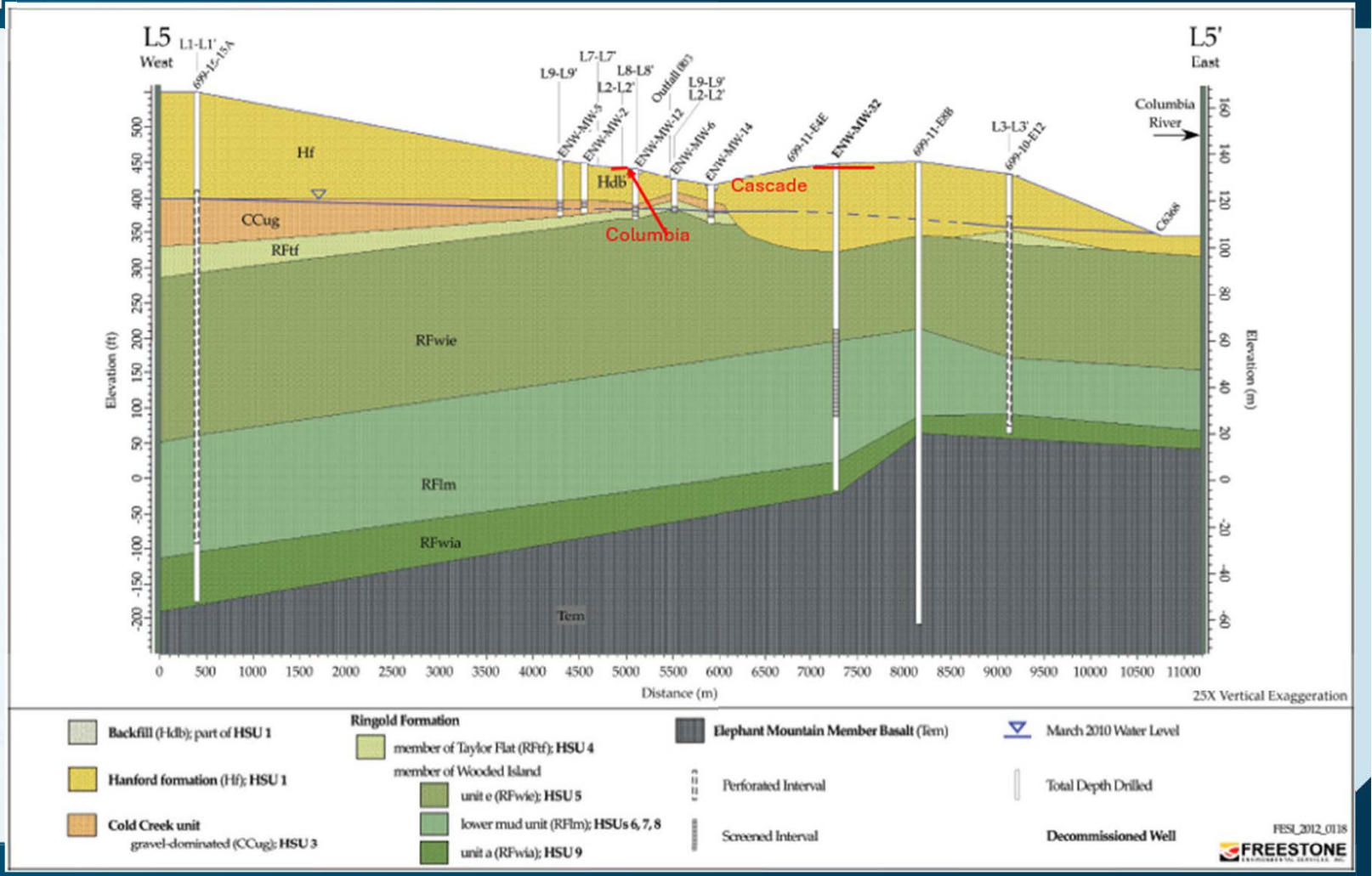
North-South Stratigraphy



East-West Stratigraphy



Applicability of Columbia Monitoring program

- Proximity – Cascade is located 1 mile east of Columbia
- Uniformity – layered stratigraphy and common aquifers

Columbia data is applicable to Cascade groundwater characterization.

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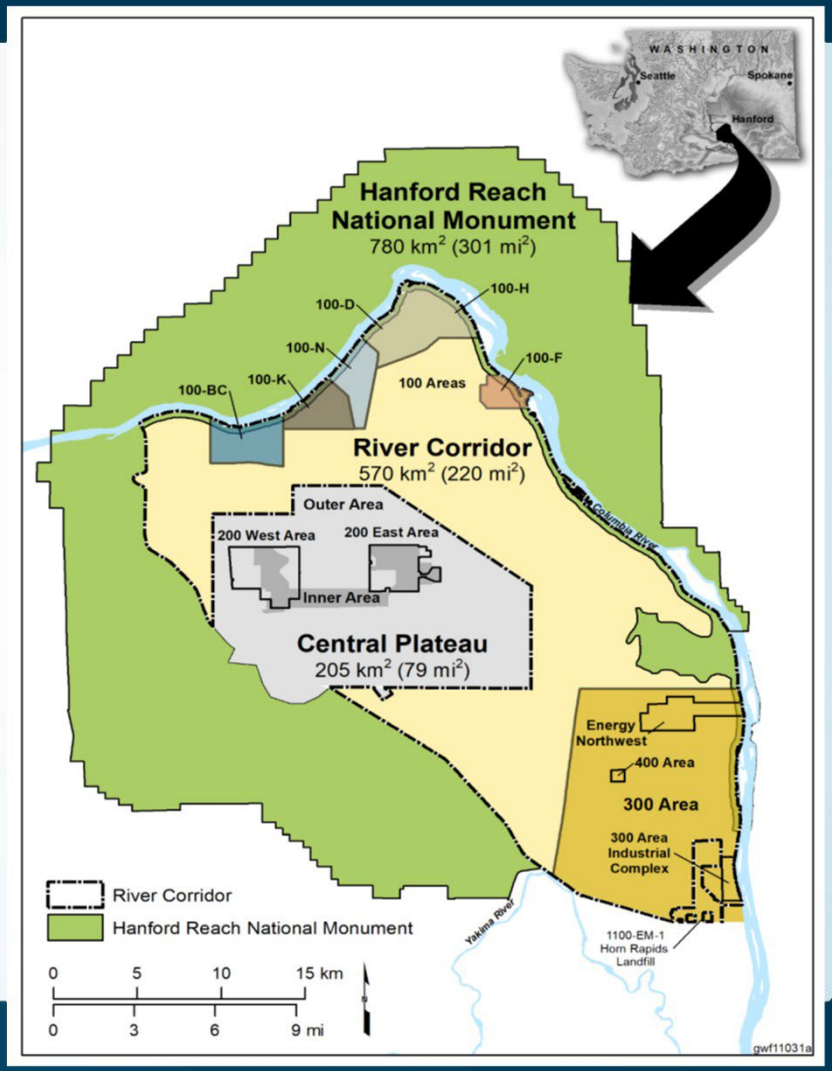
DOE Hanford Groundwater Program

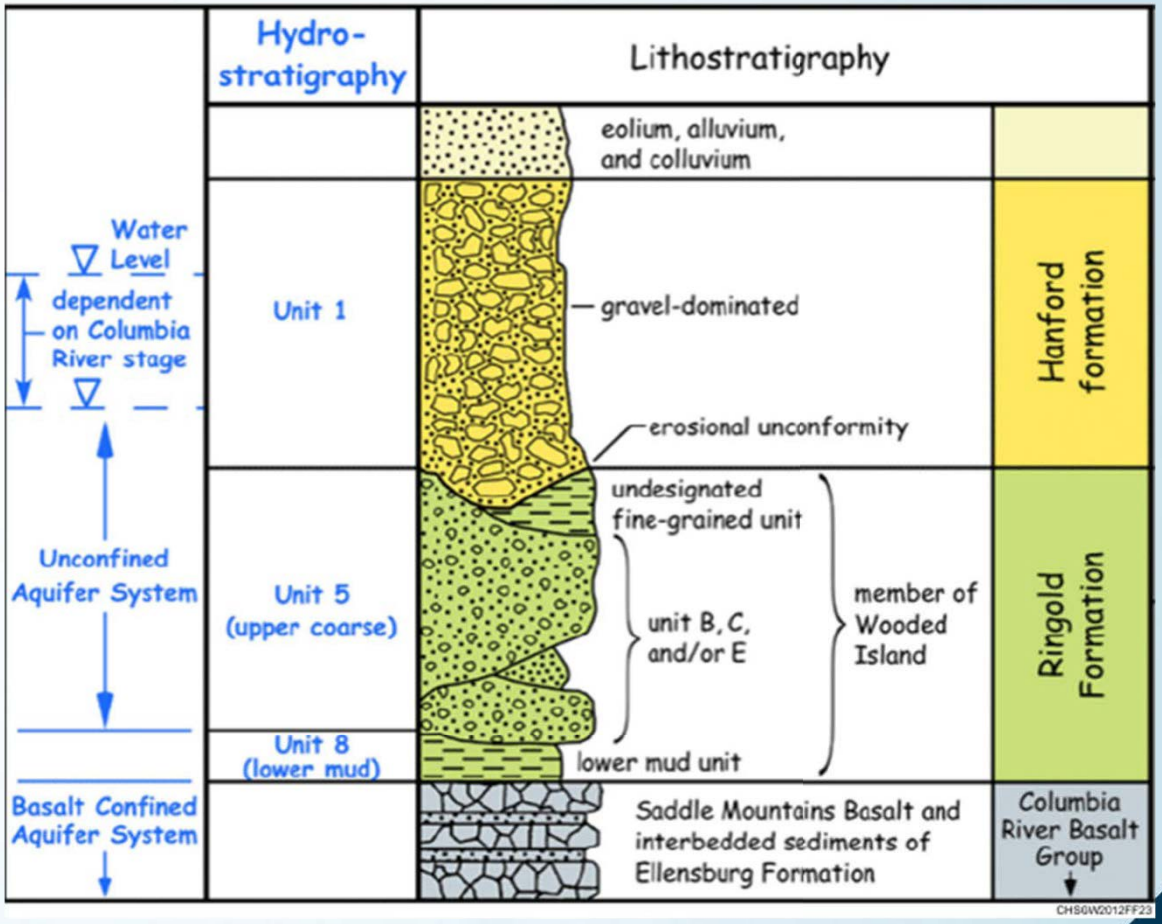
DOE Hanford Site

- EN Lease Area and Cascade Site are located on eastern boundary.
- Groundwater of Hanford has been extensively studied due to radionuclide and chemical contaminant waste streams.
- Over 100 hydrogeological reports have been prepared by DOE over the past 80 years.



Hanford Aquifers

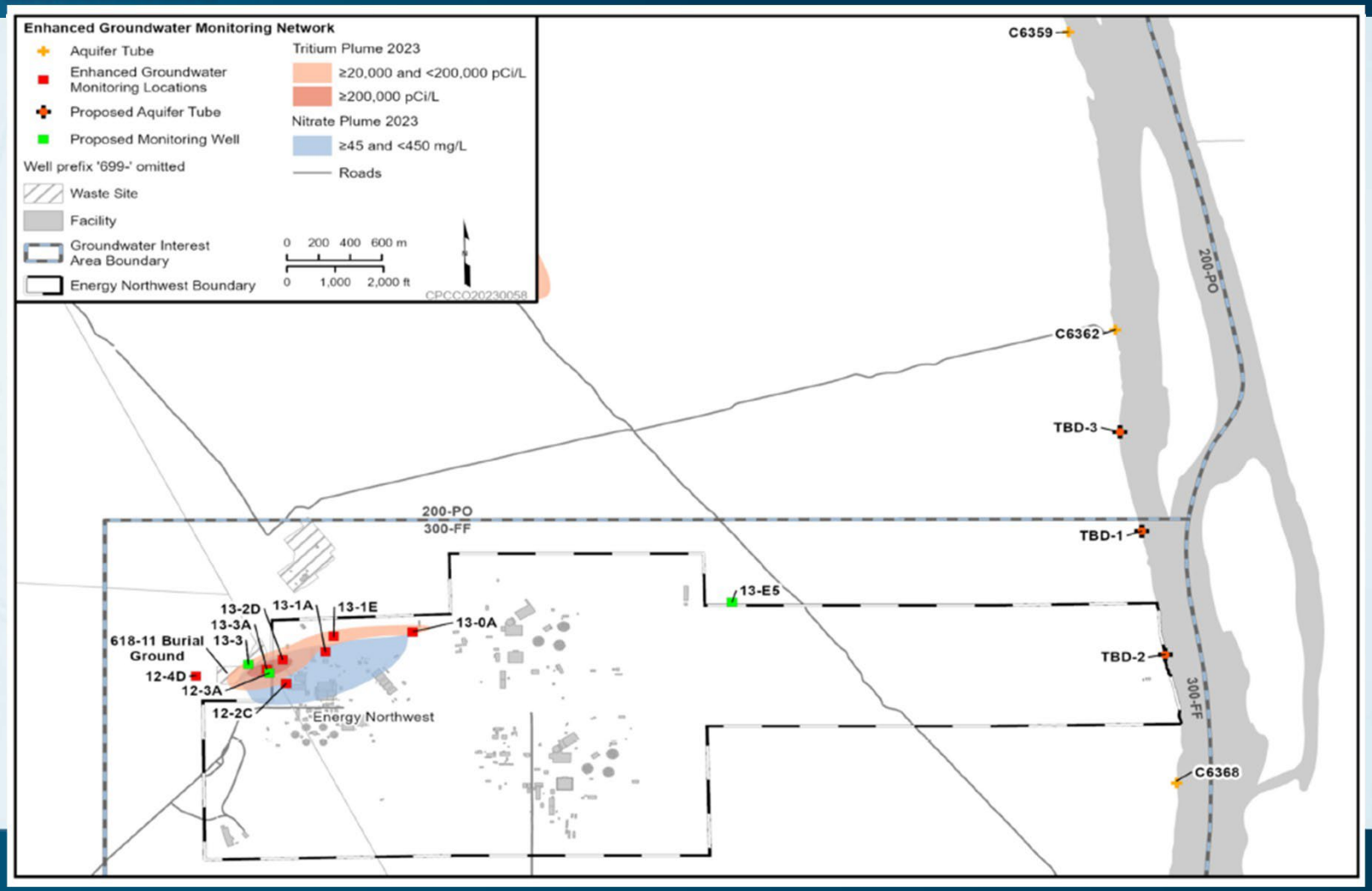
- Unconfined Hanford-Ringold Aquifer lies beneath Hanford, Columbia, and Cascade.
- The Basalt Confined Aquifer lies about 500 feet below ground surface at Cascade Site.



DOE Hanford generalized groundwater and stratigraphy (Hanford Site Groundwater Monitoring Program)

DOE 618-11 Burial Site Monitoring

- Part of CERCLA monitoring on Hanford Site
- Data collected since 1995
- 7 wells around and down-gradient of the 618-11 Hanford Waste Site
  - 3 additional wells installed in 2025, for a total of 10
- 2 historical aquifer tubes on the Columbia River
  - 3 new shallow aquifer tubes were installed on the Columbia River in 2025



Properties of Unconfined Hanford-Ringold Aquifer

- Horizontal Hydraulic Conductivity (Kh)
  - Hanford sands and gravels
  - Cold Creek and Ringold sands and gravels
  - Ringold Formation silt and clay
- Horizontal potentiometric gradient
  - west to east toward Columbia River
- Groundwater elevation: 364 - 371 ft NAVD88
- Groundwater depth: 82 - 105 ft

Applicability of DOE Groundwater Monitoring

- Proximity – DOE study areas encompass Cascade
- Uniformity – geologic stratigraphy and common aquifers

★ DOE data will be used where applicable for characterization.

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Potential Use of Wells in Vicinity

Other Wells in Vicinity

- DOE/Columbia wells exist close to the Cascade Site.
- Not part of regular DOE or Columbia monitoring programs
- Various amounts of historical data (water level and quality data)

ENNN will consider relevant wells for potential incorporation into the groundwater monitoring program for Cascade.

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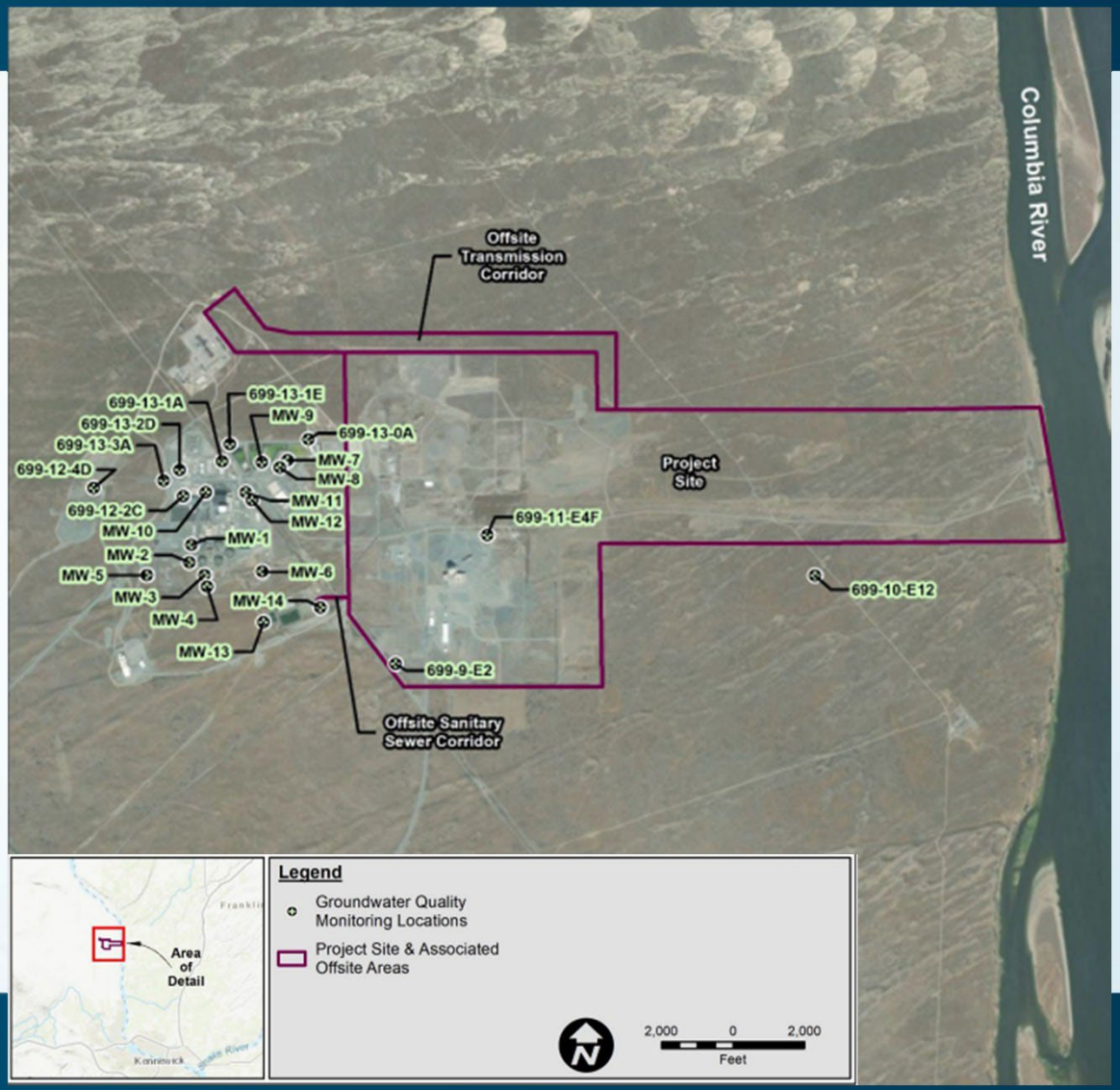
Location of Existing Wells Near the Site



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Summary and Conclusions

Summary of Characterization

- Hydraulic properties of the Unconfined Hanford-Ringold Aquifer are well known in the area.
- Water table beneath Cascade is 82 - 105 ft deep.
- Flow direction is west to east.
- No downstream users

Conclusions

- Existing information about the area's groundwater is sufficient to establish a baseline for construction.
- PSAR will use existing information to describe the hydrogeological characteristics of the site.
- ENNN plans to install 3 new shallow monitoring wells prior to construction to establish monitoring during construction and operation.

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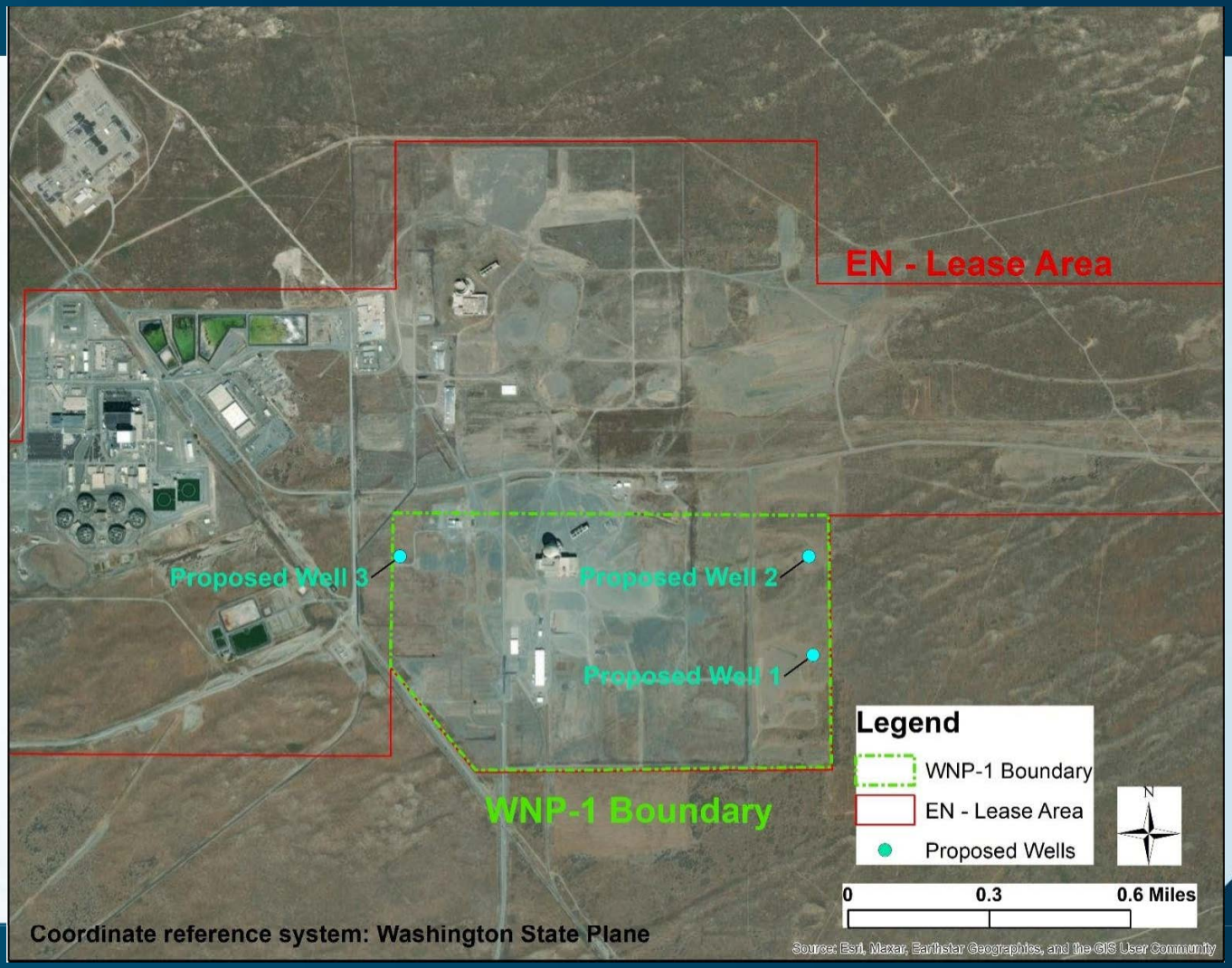
Proposed Well Locations



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Questions and Comments?

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