



THE HANFORD SITE

Proposed Permit Modifications in Support of Liquid Effluent Retention Facility Basin 41

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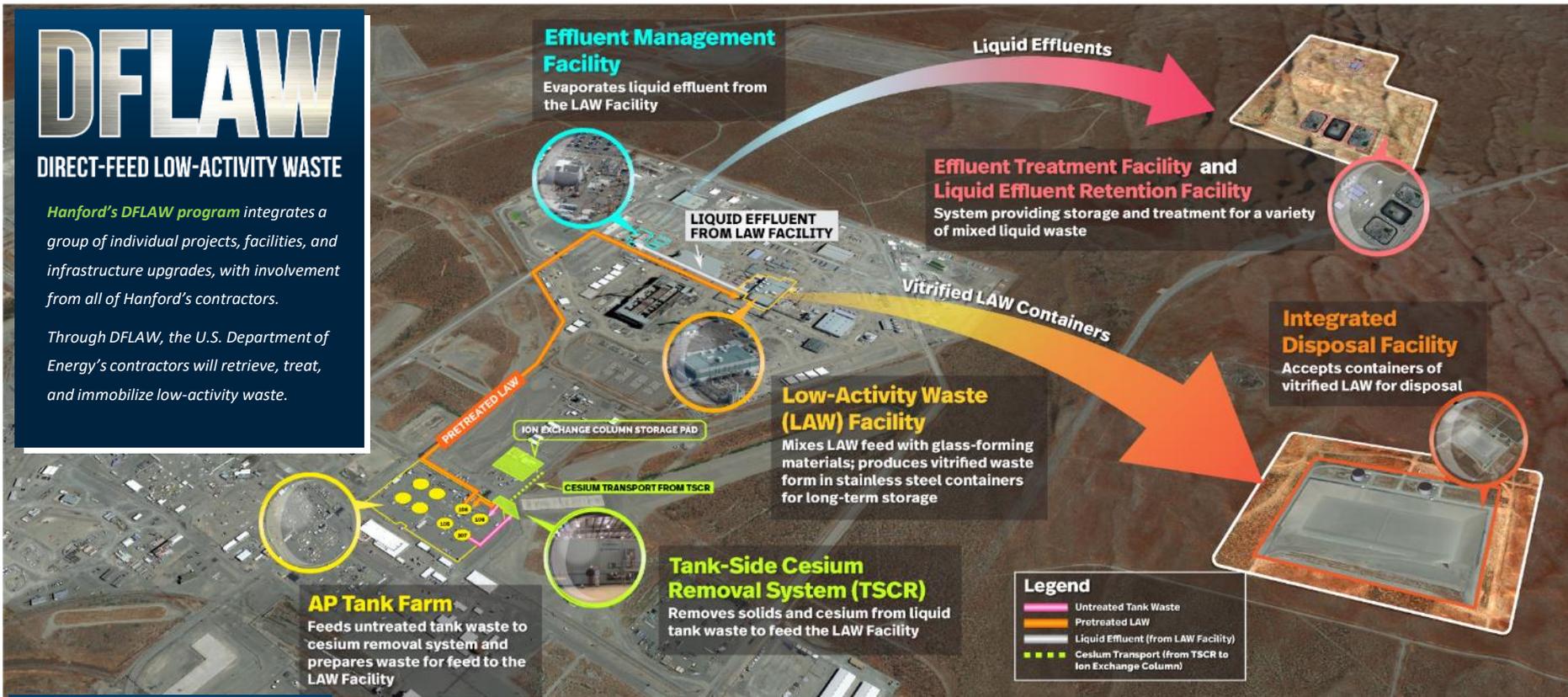
Direct-Feed Low-Activity Waste Configuration

DFLAW

DIRECT-FEED LOW-ACTIVITY WASTE

Hanford's DFLAW program integrates a group of individual projects, facilities, and infrastructure upgrades, with involvement from all of Hanford's contractors.

Through DFLAW, the U.S. Department of Energy's contractors will retrieve, treat, and immobilize low-activity waste.



INFRASTRUCTURE

ELECTRICAL

WATER/SEWER

ROADS

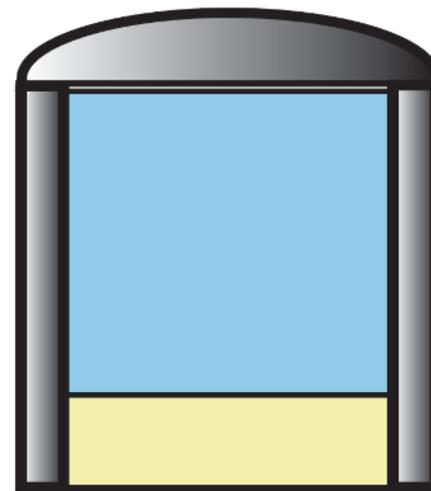
SECURITY

INFORMATION TECHNOLOGY

EMERGENCY PREPAREDNESS

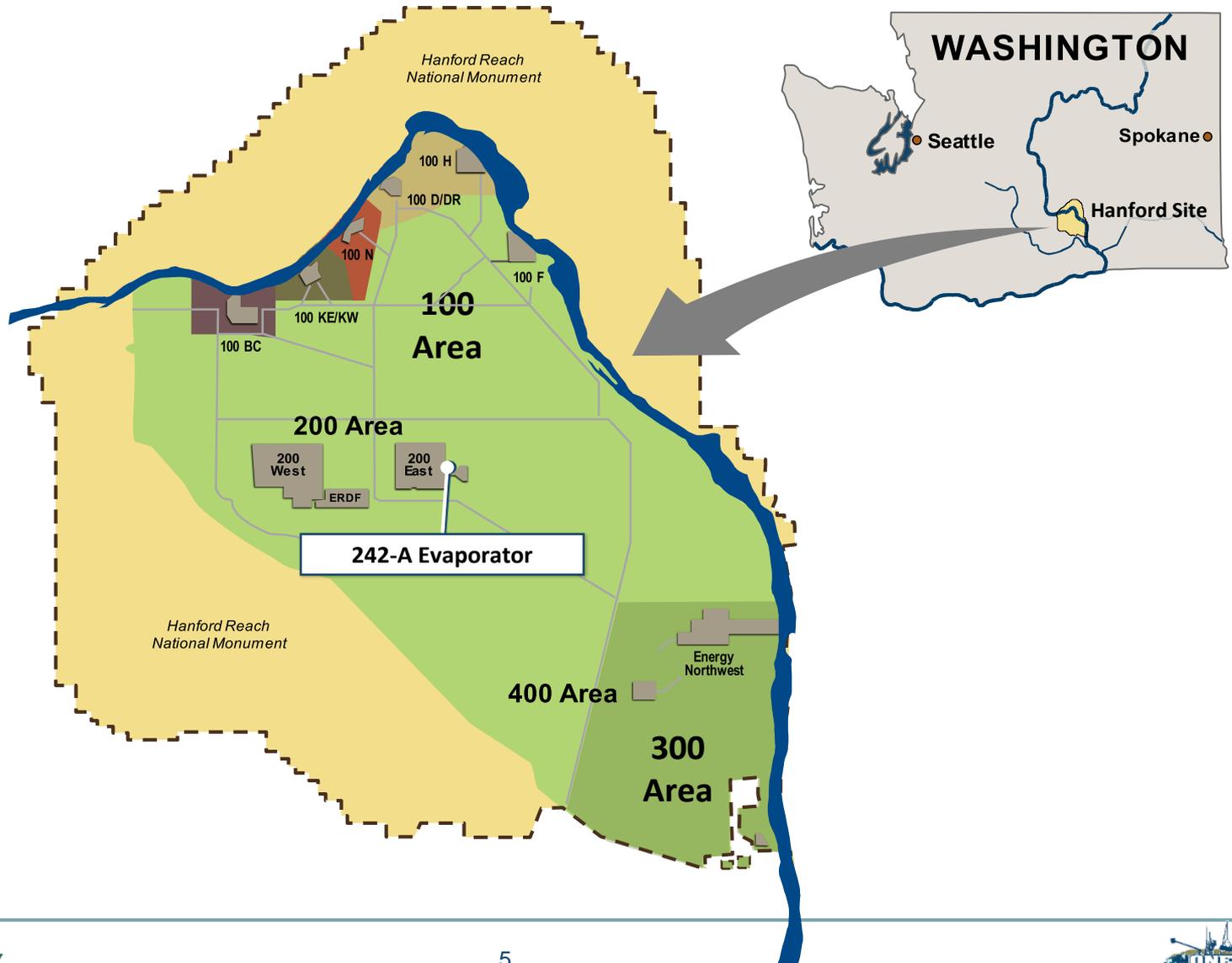
Chemical and radioactive waste is stored in Hanford's tank farms. DOE will safely, efficiently and effectively treat Hanford tank waste through DFLAW and make glass.

- 242-A Evaporator reduces liquid volume within the existing double-shell tanks (DSTs)
- Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF) manage and treat large volumes of liquid waste generated from Hanford Site processes
- During DFLAW, this will include liquid secondary waste, created during the vitrification of low-activity waste from the Waste Treatment and Immobilization Plant (WTP)



- *Resource Conservation and Recovery Act (RCRA)* permit governs hazardous waste treatment, storage and disposal at Hanford
- Washington State Department of Ecology, the regulator, issued the current Hanford Site-Wide RCRA Permit (Revision 8C), which governs hazardous tank waste treatment, storage and disposal
- Permittees (the DOE and contractor Washington River Protection Solutions) are proposing the following modifications to the existing RCRA permit:
 - Class 2 permit modification to the 242-A Evaporator, Operating Unit Group 4
 - Class 3 permit modification to the LERF and 200 Area ETF, Operating Unit Group 3

242-A Evaporator



242-A Evaporator



Purpose:

Removes water from the waste in the DST to concentrate the waste. This creates more space in the DSTs so waste can be transferred in from older, noncompliant single-shell tanks.

The evaporator produces the following two waste streams:

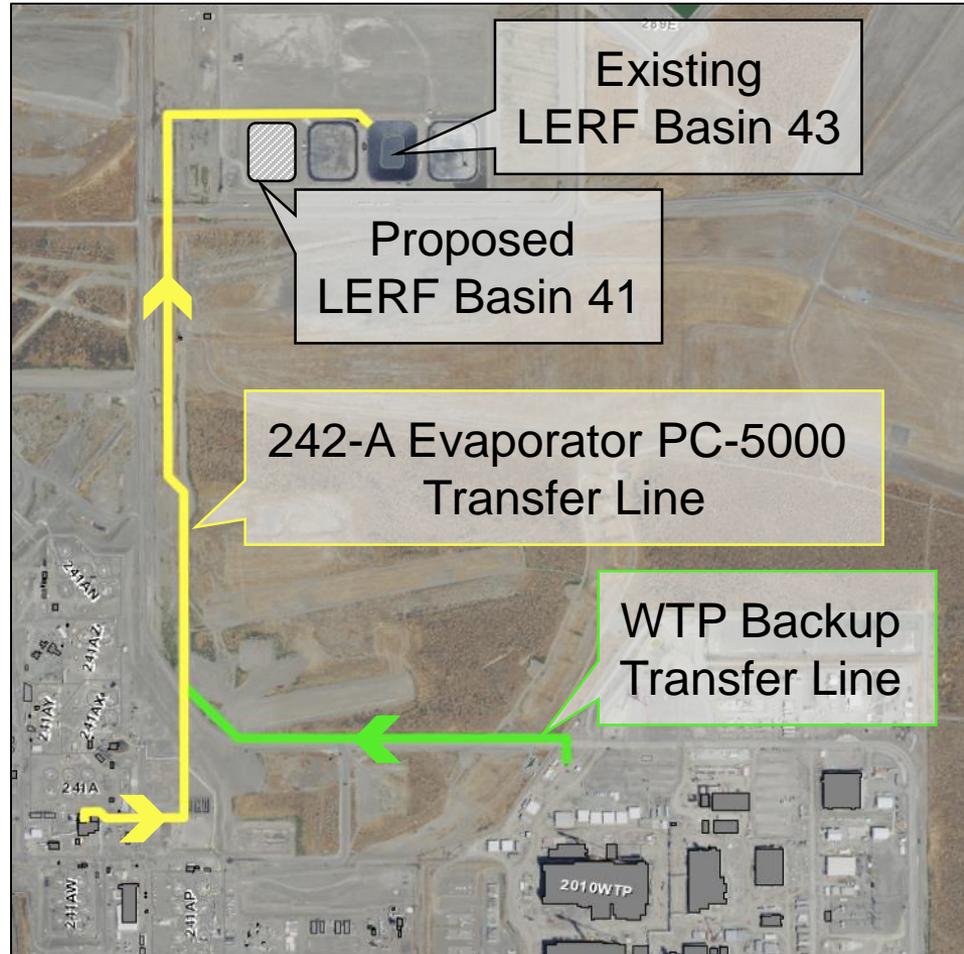
- Concentrated slurry (routed back to the DST system for storage pending further treatment)
- Process condensate (pumped through PC-5000 transfer line to the LERF)

242-A Evaporator: Proposed Permit Modification Purpose

During DFLAW, the LERF will start receiving waste from the WTP. The LERF Basin 41 would be constructed to provide additional capacity to manage this WTP volume.

- WTP backup transfer line merges with the 242-A Evaporator PC-5000 transfer line
- 242-A Evaporator PC-5000 transfer line routes directly to the existing Basin 43
- New connection is needed to route directly to the new Basin 41
- Basin 41 project currently forecasts starting the connection to the 242-A Evaporator PC-5000 transfer line in the summer of 2021

242-A Evaporator: Proposed Permit Modification Purpose

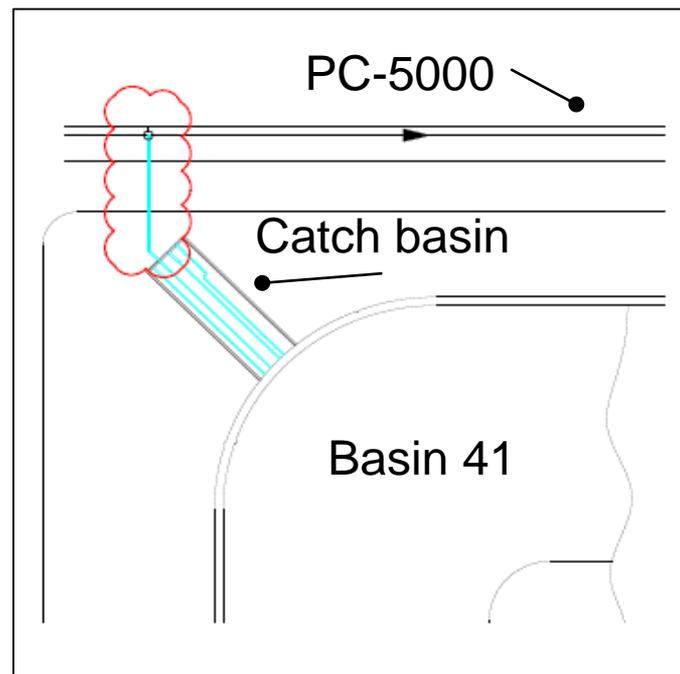


242-A Evaporator: Proposed Permit Modification Purpose

Each LERF basin has a catch basin for aboveground piping and manifolds for transfer pumps. The 242-A Evaporator permit boundary ends at basins 41 and 43.



Existing connections at Basin 43

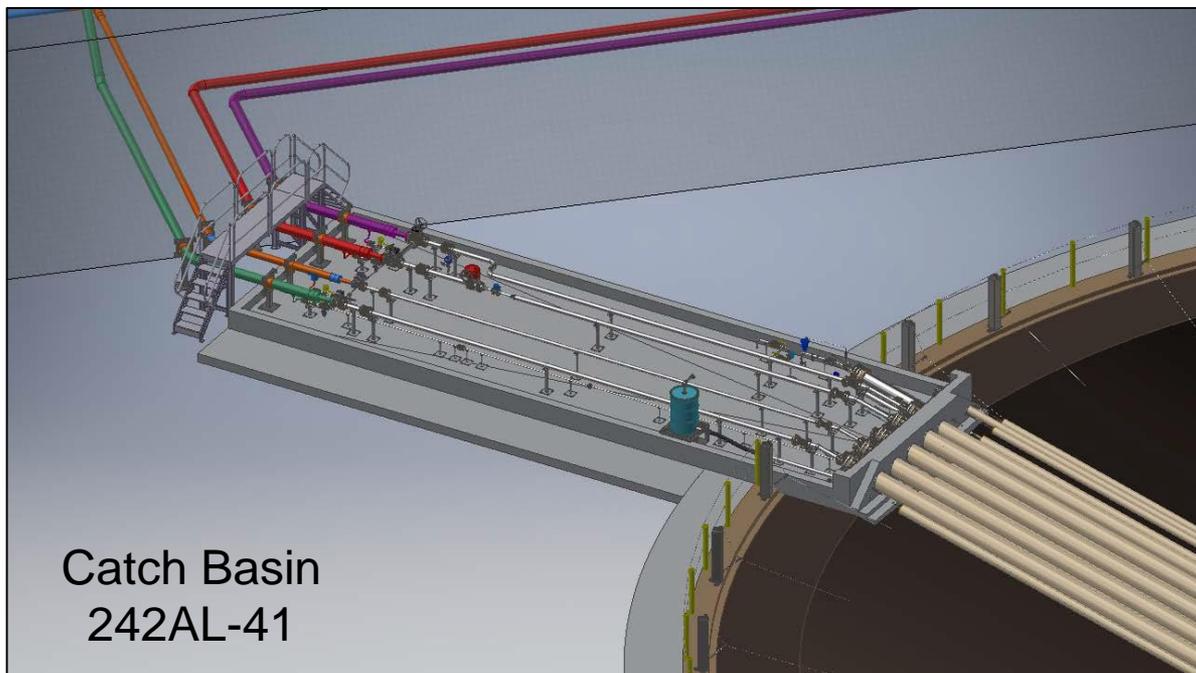


Proposed connections at Basin 41

242-A Evaporator: Proposed Permit Modification Overview

- The following permit chapters were revised to include the PC-5000 transfer line connection to Basin 41
- *Process Information* chapter revised for:
 - PC-5000 transfer line connection to LERF Catch Basin 242AL-41
 - Information on leak detection at LERF Catch Basin 242AL-41
 - *Procedures to Prevent Hazards* chapter revised for inspection frequencies related to leak detection
- Updated topographic map to show the PC-5000 transfer line connection to Basin 41

242-A Evaporator: LERF and Transfer Piping



242-A Evaporator PC-5000 Transfer Line

3"-EVAP_COND-PC5000-M17

Waste Treatment Plant Primary Transfer Line

4"-WTP-001-M17

Inter-Basin Transfer Lines to Basin 42

4"-60M-010-M18

Inter-Basin Transfer Lines to Basin 42

4"-60M-011-M18

242-A Evaporator: Permit Modification Public Process

242-A Evaporator Class 2 Permit Modification

The 60-day public comment period began on July 10 and is open through Sept. 8

Submit comments via mail or electronically (preferred) to the Washington State Department of Ecology at the address below:



Daina McFadden

Washington State Department of Ecology

3100 Port of Benton Boulevard

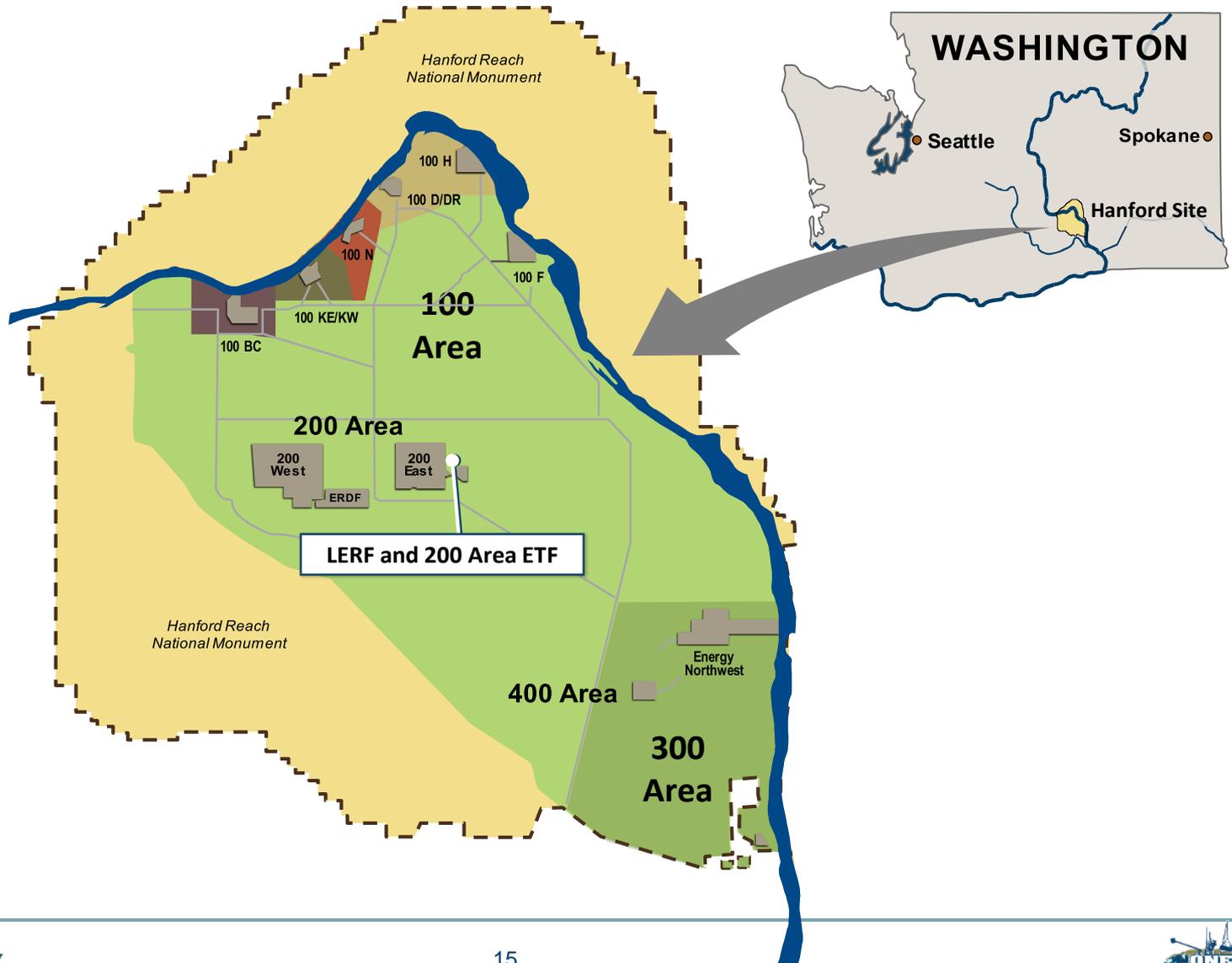
Richland, WA 99354

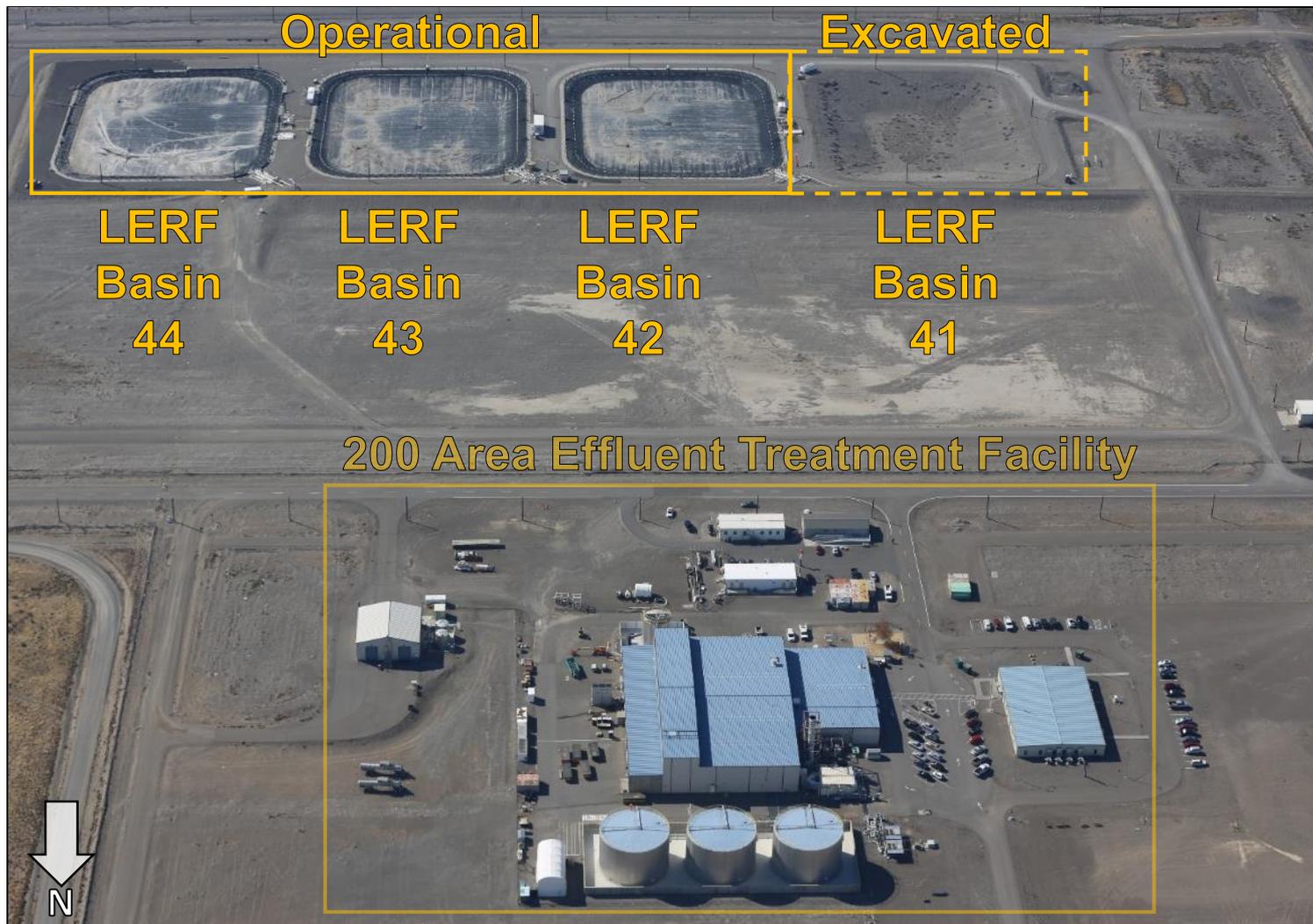
<http://nw.ecology.commentinput.com/?id=cDGs4>

Questions?



The Hanford Reach
White Bluffs Overlooking the Columbia River





Purpose:

Provides interim storage necessary for large volumes of liquid waste prior to treatment

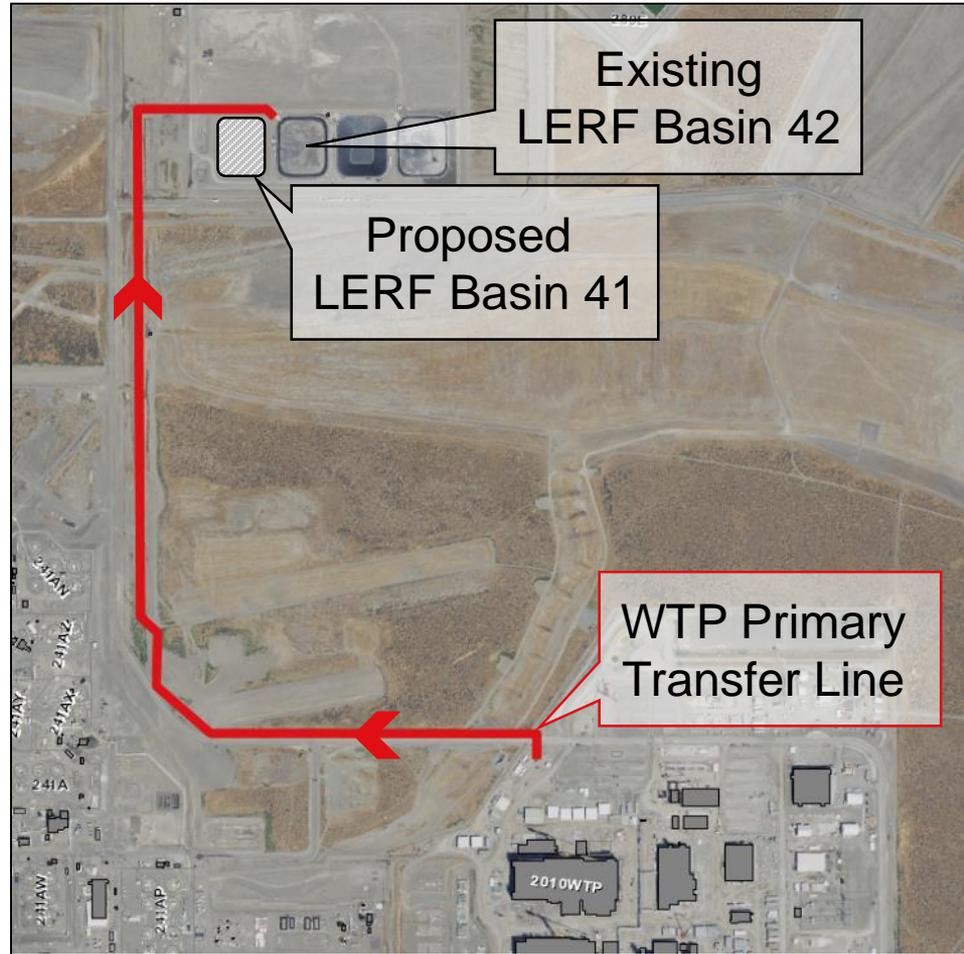
- Currently consists of three RCRA-permitted surface impoundments, or basins
- Permitted storage capacity of 7.8 million gallons in each basin
- Waste consist of process condensates, leachates, and other miscellaneous waste streams

LERF and 200 Area ETF: Proposed Permit Modification Purpose

During DFLAW, the LERF will start receiving waste from the WTP. The LERF Basin 41 would be constructed to provide additional capacity to manage this WTP volume.

- Construction would include installation of Basin 41 with its associated piping and equipment
- Some site preparation will be required beforehand to achieve the proper excavation profile
- WTP primary transfer line currently routes directly to the existing Basin 42
- New connection would be needed for direct routing to Basin 41
- Basin 41 project forecasts starting site preparation in spring 2021 and construction activities in summer 2021

LERF and 200 Area ETF: Proposed Permit Modification Purpose



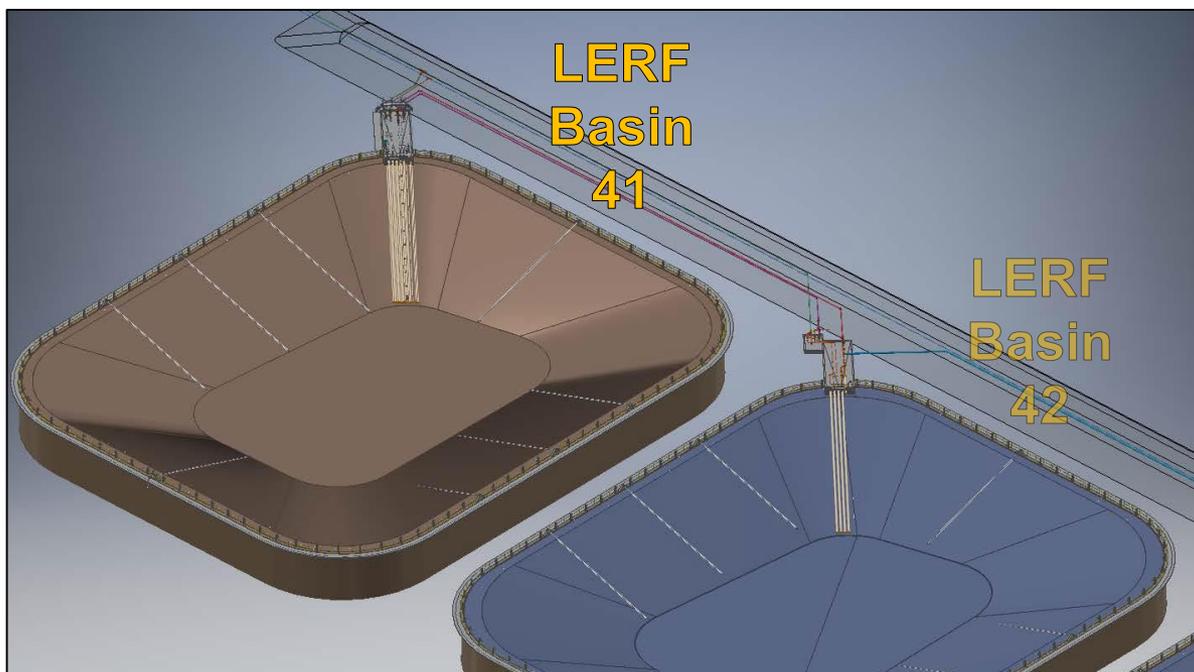
LERF and 200 Area ETF: Basin 41 Background

Construction of the LERF began in May 1990. The initial LERF construction project included a fourth area to be excavated and graded to accommodate the future installation of a fourth basin, if needed.

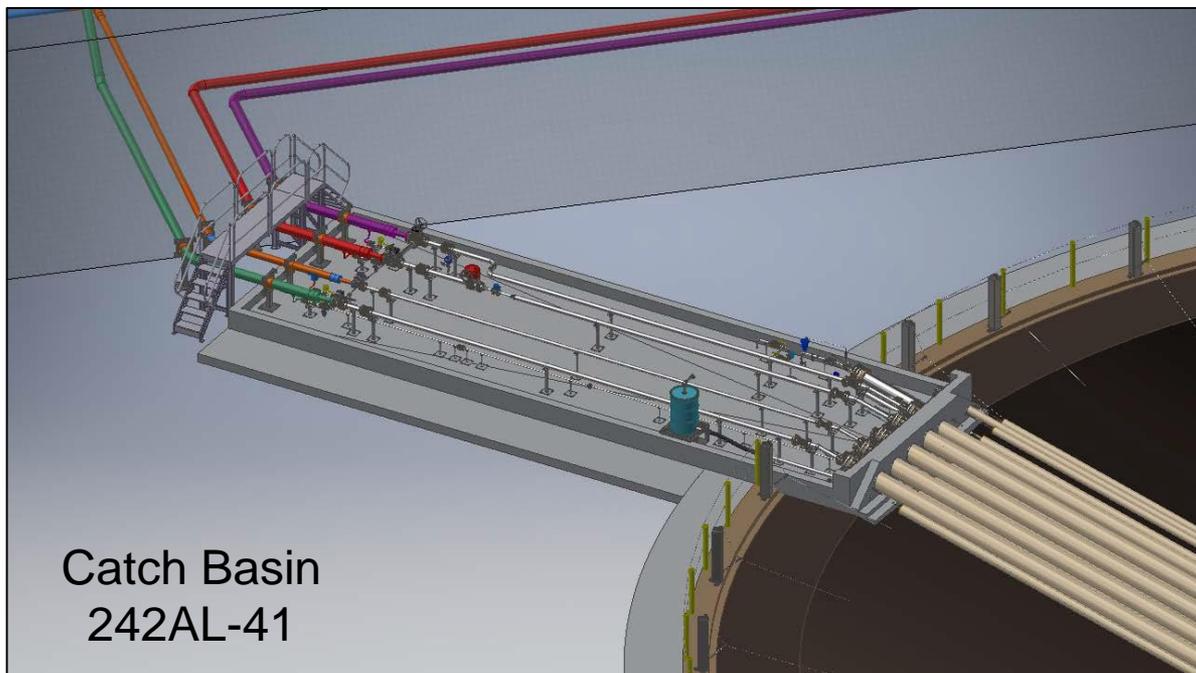


LERF and 200 Area ETF: Basin 41 Design Approach

The design approach replicates the existing basin and catch basin designs to the extent possible, while updating to the latest requirements, materials and best management practices.



LERF and 200 Area ETF: LERF and Transfer Piping



242-A Evaporator PC-5000 Transfer Line

3"-EVAP_COND-PC5000-M17

Waste Treatment Plant Primary Transfer Line

4"-WTP-001-M17

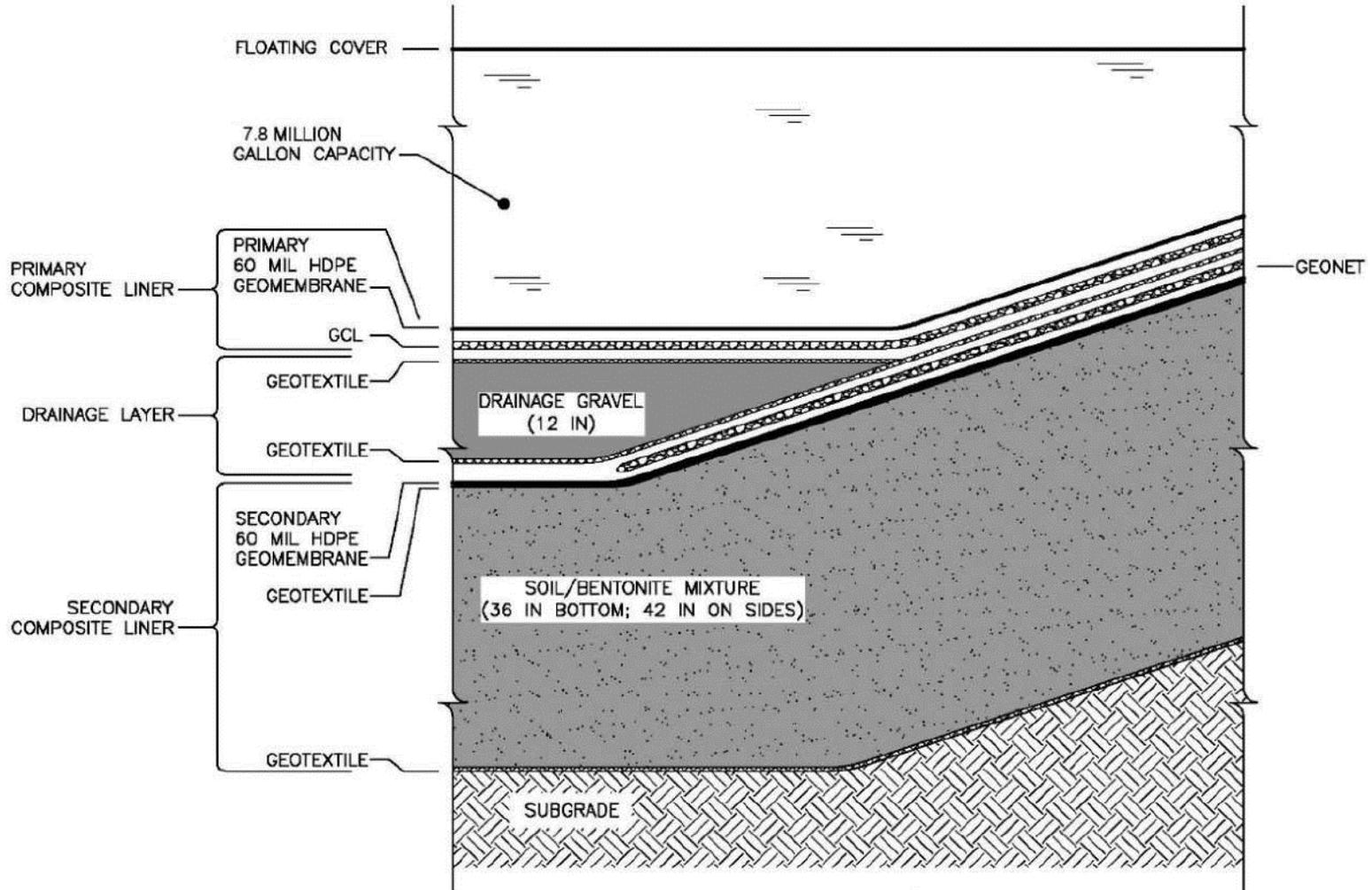
Inter-Basin Transfer Lines to Basin 42

4"-60M-010-M18

Inter-Basin Transfer Lines to Basin 42

4"-60M-011-M18

LERF and 200 Area ETF: Basin 41 Liner System



LERF and 200 Area ETF: Proposed Permit Modification Overview

- Permit addenda revised to include Basin 41
- Updated topographic map showing connections to Basin 41
- The Part A Form was revised to include Basin 41
- Updates were also made to tank and container storage and treatment capacities to address future projects
- These future projects include the following:
 - Acetonitrile Treatment system
 - Effluent Grout Treatment facility
 - Brine Lag Storage tanks
 - 2025ED Load-In Station building expansion
 - 2025EG Backup Load-In Station

LERF and 200 Area ETF: Proposed Permit Modification Overview

- *Waste Analysis Plan* addenda revised to identify that there are four surface impoundments
- *Process Information* addenda revised to include figures, drawing, and specifications for Basin 41
- *Preparedness & Prevention* addenda revised to update information for the LERF Basin 41, including equipment and power failure
- *Inspection Plan* addenda revised to update visual inspections and instrumentation monitoring for Basin 41
- *Contingency Plan* addenda revised to update site plan and add the LERF Basins Response Action Plan

LERF and 200 Area ETF: Proposed Permit Modification Overview

- Groundwater scope will be added with a later permit modification
- The later modification will update the Groundwater Monitoring Plan (Addendum D) to include the addition of a new groundwater monitoring well, and modified sampling (as applicable) to address the new DFLAW waste stream going into the LERF
- There will be other permit modifications for the LERF and 200 Area ETF to support DFLAW, which are not part of this permit modification
- These modifications will occur in fall 2020, and will address additional treatment process changes to support DFLAW

LERF and 200 Area ETF: Permit Modification Public Process

LERF and 200 Area ETF Class 3 Permit Modification

60-day public comment period began on July 10 and is open through Sept. 8

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Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354
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