



**Response to Comments
LERF and 200 Area ETF
Construction of LERF Basin 41 -
Class 3 permit modification
Feb. 22 to April 8, 2021**

For the **Nuclear Waste Program**
Washington State Department of Ecology
Richland, Washington
June 2021, Publication 21-05-018



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¹ www.ecology.wa.gov/contact

Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 425-649-7000	Central Region 509-575-2490	Eastern Region 509-329-3400
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Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	3190 160th Ave SE Bellevue, WA 98008	425-649-7000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

Response to Comments LERF and 200 Area ETF Construction of LERF Basin 41 - Class 3 permit modification

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DEPARTMENT OF
ECOLOGY
State of Washington

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Introduction

The Washington State Department of Ecology’s Nuclear Waste Program (Ecology) manages dangerous waste within the state by writing permits to regulate its treatment, storage, and disposal. When a new permit or a significant modification to an existing permit is proposed, Ecology holds a public comment period to allow the public to review the change and provide formal feedback. (See [Washington Administrative Code \[WAC\] 173-303-830](#) for types of permit changes.)

The Response to Comments is the last step before issuing the final permit, and its purpose is to:

- Specify which provisions, if any, of a permit will become effective upon issuance of the final permit, providing reasons for those changes.
- Describe and document public involvement actions.
- List and respond to all significant comments received during the public comment period and any related public hearings.

This Response to Comments is prepared for:

Comment period	LERF and 200 Area ETF Construction of LERF Basin 41 - Class 3 permit modification, Feb. 22 to April 8, 2021
Permit	<i>Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility (Permit)</i>
Permittees	U.S. Department of Energy Washington River Protection Solutions
Original Issuance date	Jan. 28, 1998
Effective date	July 28, 2021

To see more information related to the Hanford Site and nuclear waste in Washington, please visit our webpage, [Hanford Cleanup](#)².

² <https://www.ecology.wa.gov/Hanford>

Reasons for Issuing the Permit

The proposed Class 3 permit modification affects the Liquid Effluent Retention Facility (LERF) and the 200 Area Effluent Treatment Facility (ETF) portion of the Permit. The changes to the Permit will:

- Add a new basin (Basin 41) at the 200 Area LERF to provide additional liquid storage capacity.
- Connect the Waste Treatment and Immobilization Plant's Effluent Management Facility (WTP-EMF) primary transfer line (4"-WTP-001-M17) to the new basin (Basin 41).

Public Involvement Actions

Ecology encouraged public comment on the proposed LERF and 200 Area ETF Class 3 Permit Modification during a 45-day, public comment period held Feb. 22 through April 8, 2021.

The following actions were taken to notify the public:

- Mailed a public notice announcing the comment period to 1,122 members of the public.
- Distributed copies of the public notice to members of the public at Hanford Advisory Board meetings.
- Placed a public announcement legal classified notice in the Tri-City Herald on Feb. 21, 2021
- Emailed a notice announcing the start of the comment period to the Hanford-Info email list, which has 1,306 recipients.
- Posted the comment period notice on the Washington Department of Ecology – Hanford's Facebook and Twitter pages.

The Hanford information repositories located in Richland, Spokane, and Seattle, Washington, and Portland, Oregon, received the following documents for public review:

- Focus sheet
- Transmittal letter
- Fact Sheet for the proposed LERF/ETF Permit Modification
- Draft LERF/ETF Permit Modification

The following public notices for this comment period are in [Appendix A](#) of this document:

- Focus sheet
- Classified notice in the Tri-City Herald
- Notices sent to the Hanford-Info email list
- Notices posted on the Washington Department of Ecology – Hanford's Facebook and Twitter pages

List of Commenters

The table below lists the names of organizations or individuals who submitted a comment on the [unit name] Permit modification. The comments and responses are in [Attachment 1](#).

Commenter	Organization
Mike Conlan	Citizen
Anonymous	Citizen
Nancy and Jim Kroening	Citizen
U.S. Department of Energy Hanford Site	U.S. Department of Energy

Attachment 1: Comments and Responses

Description of comments:

Ecology accepted comments from Feb. 22 through April 8, 2021. This section provides a summary of comments that we received during the public comment period and our responses, as required by RCW 34.05.325(6)(a)(iii). Comments are grouped by individual and each comment is addressed separately.

I-1: MIKE CONLAN

Comment I-1-1

- 1) Remove all nuclear waste
- 2) Do not allow anymore nuclear waste into the facility,
- 3) Replace all the single storage tanks,
- 4) Stop all the nuclear leakage entering the Columbia River
- 5) Glassification!

Mike Conlan, Redmond WA

Response to I-1-1

Thank you for your comment.

1) Ecology is working to ensure that long-term storage, treatment and disposal of the waste is protective of human health and the environment.

2) The proposed permit changes are not to allow new waste, but to better manage the waste already at Hanford.

3) Single-shell tanks are not in the scope of this comment period. Ecology does agree the tanks pose a threat. We believe a better approach to addressing it is to remove the waste from the single-shell tanks and put it in the compliant double-shell tanks to prepare for eventual treatment in the Waste Treatment and Immobilization Plant now being built.

4) The LERF and 200 Area ETF maintains a groundwater monitoring program in which groundwater is sampled to detect for releases from the facility. Monitoring is performed on a quarterly and semiannual basis. This monitoring program helps prevent migration of contaminated groundwater into the Columbia River.

(5) When completed the Waste Treatment and Immobilization Plant will have the treatment capability to vitrify tank waste.

I-2: ANONYMOUS CITIZEN

Comment I-2-1

1. Recent public comments objected to Ecology's acceptance of DOE's piecemeal, out of date, informal, mass balance information¹ in fulfillment of TPA Milestone M-052-50² which was supposed to: Submit to Ecology, as a secondary document, a Mass Balance Flow from Tank Farms to Low Activity Waste Pretreatment Capability to Low Activity Waste to Effluent Management Facility to Recycle to Tank Farms and to LERF/ETF. Ecology in response to comments noted that "while Ecology accepted the milestone as complete, it is important to

¹ See 20-ECD-0057, COMPLETION OF TRI-PARTY AGREEMENT MILESTONE M-062-50, December 4, 2020

² Response to Comments LERF/ETF Load-In Station Expansion/Backup Facility- Class 2 Permit Modification Dec. 15, 2020 to Feb. 13, 2021, Ecology Nuclear Waste Program Publication 21-05-009.

acknowledge that DOE 's letter **committed to continued work** on the mass balance ... " This answer points out that Ecology was aware that the work was not really completed, and that the milestone submittal was accepted by Ecology based on "promises" of future work. This is contrary to quality assurance requirements, for which a completed document is the only satisfactory work product. Ecology's acceptance of shoddy, incomplete, disjointed, work is disappointing and it can have adverse effects on future decisions and safety. It's very hard to know if the proposed capacity change and equipment addition is reasonable if you don't have a flow sheet and a mass balance.

Response to I-2-1

The mass balance analysis does not determine a waste streams' acceptability at the LERF and 200 Area ETF. This is determined by the facility's Waste Acceptance Criteria and a Waste Analysis Plan, which are included in this LERF and 200 Area ETF permit modification.

Requirements under the Hanford Federal Facility Agreement and Consent Order, and any Tri-Party Agreement milestones, are out of scope for this permit modification.

Comment I-2-2

2. Ecology further noted that *"Ecology's permitting decision is not dependent on acceptance of the milestone [M-062-50] as complete. Therefore, Ecology is not including the requested documents as part of this permit modification's administrative record."*

Ecology has declined to use what could have been relevant mass balance data. In contrast, I think the missing mass balance data has value as a source of information that could be used as a basis for informed public comment. The TPA administrative record is not restricted to items associated with specific permit decisions. I thought all TPA milestone work products were supposed to be provided in the TPA Administrative Record (AR). Can you please add these records to the AR as one file so that the public can see them? In particular, the M-062-50 record document should contain or provide links in the Administrative Record to the following:

- Waste Treatment and Immobilization Plant (WTP) Direct Feed Low-Activity Waste and Effluent Management Facility (EMF) mass balance information submitted but ORP in April 2017.
- Tank Side Cesium Removal mass balance information submitted by ORP in May 2019.
- Information provided by ORP employee Erik Olds, including revised information for EMF mass balance to the Liquid Effluent Retention Facility/Effluent Treatment Facility to Washington State Department of Ecology (Ecology) on March 25, 2020.

Also the briefing that was provided on April 13, 2020, and the subsequent briefing that was provided on October 27, 2020.

The March 25th information and both briefings should be included. These are not in the administrative record as far as I can tell.

Response to I-2-2

Requirements under the Hanford Federal Facility Agreement and Consent Order, and any Tri-Party Agreement milestones, are out of scope for this permit modification.

Comment I-2-3

3. I looked at the items in the proposed permit change package and was unable to find specific process flow diagrams with chemical concentrations and mass flow rates. It is hard to find a complete basis to underpin decisions. For example, RPP-IQRPE-50063, *IQRPE Design Assessment Report for LERF Basin 41*, has a corrosion assessment that relies on the "waste compatibility" section. The waste compatibility section refers to RPP-RPT-62215, *2020, LERF Basin 41 Material Compatibility with Wastewater*. But RPP-RPT-62215 says the criterion is that the wastewater will meet acceptance criteria in HNF-3172. Nowhere does the documentation show the expected composition of effluent versus the HNF-3172 criteria. In addition, HNF-3172 only addresses two materials in the basin 41 system. Further, the recipe used in laboratory testing was based on out-of-date data. If Ecology had insisted that DOE correctly complete milestone M-062-50, we might have a better idea if the new wastewater recipes (including from the EMF) actually meet the corrosion criteria - or if the constituents were ever even addressed by those criteria. This is just one example. It appears the IQRPE omits EMF/SBS condensate information on corrosion.

Response to I-2-3

The mass balance analysis does not determine a waste streams' acceptability at the LERF and 200 Area ETF. This is determined by the facility's Waste Acceptance Criteria and a Waste Analysis Plan, which are included in this LERF and 200 Area ETF permit modification.

Requirements under the Hanford Federal Facility Agreement and Consent Order, and any Tri-Party Agreement milestones, are out of scope for this permit modification.

Comment I-2-4

4. Does the Delisting Petition need an upgrade? The Unit-Specific Permit Conditions refer on page Conditions.3 to state and federal delisting actions dating to 2005. A considerable number of flowsheet and composition changes have occurred since then, including new compounds that are generated in the LAW melter off-gas, and concentrations of species that were not originally considered. What work has been performed to evaluate whether the delisting petition remains valid? When I look at the original application, the compositions did not include operation of the EMF, for example, and the vague nature of the compositions from WTP were thought to require *verification sampling*. Has the sampling plan for delisting verification been updated?

Response to I-2-4

The delisting petition is being modified to account for the for the liquid effluents expected to be generated from vitrification of certain low-activity mixed wastes. A 30-day public comment period to address the changes to the existing delisting to support Direct-Feed Low Activity Waste (DFLAW) operations started June 7.

Comment I-2-5

5. Lastly, the omission of a genuine, updated, integrated, process mass balance contributes to project risk and creates a future risk to the safety of Richland residents. "Breaking the WTP recycle loop" or disposing of difficult effluents off-site at Perma-Fix Northwest, in order to maintain WTP operations, is a likely scenario, given the lack of good planning information afforded by a genuine mass balance. The result will be an attempt to push risks and wastes into the Richland PFNW facility, which is hundreds of feet closer to the water table than the Hanford 200 Areas. See the link below for recently documented safety and regulatory problems at PFNW³. DOE should be required to treat all tank related waste on-site at Hanford, far from the public, where it belongs.

Response to I-2-5

Generators of dangerous wastes must send their wastes to authorized facilities. Neither generator requirements nor permit requirements (for Treatment, Storage, or Disposal Facilities) need to specify where those wastes must be sent, merely that they must go to an authorized facility. However, Ecology will ensure the disposition of all waste streams is determined prior to commencement of treatment operations.

I-3: NANCY KROENING

Comment I-3-1

Thank you for helping me navigate the information system. I learned that contaminated water from many, many sources are treated and stored. The specifications for the concrete of the new basin are complicated. Hanford likely has temperature fluctuations much like Phoenix, only not to 118 degrees in the summertime, but that may come. I observe here that swimming pools made of concrete and plaster leak. There are companies that find the leaks and fix them and do only that! It looks like the planners are trying to cover all foreseeable contingencies. However, the best plan is to process quickly and have clean water to let go. Question: Is the water ever clean enough to grow crops of any kind? Or enhance food and cover for wildlife? I'd like to see that as a goal. The public has NO IDEA what all is involved in treating wastes from so long ago. The expense involved. A movie really should be made of it. We are grateful that there are people who will do this work and do it well and carefully. And Congress needs to support the work and we still need a finish timeline. 80 years should be enough, but clearly it extends beyond that. This is dangerous stuff and not just the radioactive toxics. Thank you for your work. May someday it be possible to have a cleaned up site along the Columbia. Sincerely, Nancy and Jim Kroening

Response to I-3-1

Thank you for your comment.

After the shutdown of the production facilities during the 1970s and 1980s, the U.S. Department of Energy (DOE) ended the production of nuclear materials for weapons at the Hanford Site. The disturbed and actively used land area for industrial purposes was approximately 6%. The contaminated area of the groundwater aquifer was approximately 100 square miles. Current activities at the Hanford Site are focused on waste management, environmental restoration, facility stabilization, research and technology development.

Wastewater that is treated at the Hanford Site and intended for disposal to ground must meet specific criteria set forth in the various State Waste Discharge Permits issued to the Site. There are strict controls in place to ensure these treated wastewaters are clean enough to be disposed of to ground and not conserve the natural groundwater quality.

A-1: USDOE

Comment A-1-1

Comment 1, Response to Comments. According to the response to comments, Response to I-3-2 and I-4-2, "Ecology shares similar concerns with the public as to the adequacy of leak detection systems for the 4"-WTP-001-M17 transfer line. As a result, Ecology has drafted permit conditions with this permit modification.

Public Comments I-3-1, I-3-2, I-4-1, I-4-2 commented to "Require Protective Leak Inspections: Ensure that the timing and rigor of leak detection inspections are not decreased by the permit modification."

The public commented on the frequency of inspections, and did not comment that additional leak detection equipment should be installed on the existing transfer line as suggested in Ecology's Response to I-3-2 and I-4-2, which states: "Ecology shares similar concerns with the public as to the adequacy of leak detection systems for the 4"-WTP-001-M17 transfer line. As a result, Ecology has drafted permit conditions with this permit modification. The draft permit conditions were drafted in response to public comments and require USDOE to upgrade the leak detection systems for this line prior to use. This upgrade will require a permit modification and the public will have an opportunity to review the permit changes and any relevant documentation.

The assertion that additional leak detection equipment should be installed on these lines as a means to address public comments is a remedy that goes far beyond addressing the concerns expressed by the public.

Response to A-1-1

The public had several concerns in addition to frequency of inspections. For example, see the following comments:

Comment I-8-5 states "Ecology should require USDOE to install more robust leak detection."

Comment O-2-9 which begins "Leak Detection Requirements Are Inadequate and Do Not Meet Legal Requirements...". Additionally, this comment states, "The capability of the single endpoint electronic leak detection (and visual sight glass backup) is woefully inadequate."

Ecology performed a review of the system design and determined it does not meet the regulatory requirements of WAC 173-303-640(4)(c)(iii), as documented in letter 19-NWP-072-Reissue, dated April 19, 2019, from Alexandra K. Smith to Glyn D. Trenchard. Therefore Ecology is requiring upgrades to the leak detection system in the permit conditions associated with this permit modification.

Comment A-1-2

Comment 2, Delete Proposed Permit Condition III.3.J.2: "The Permittees must upgrade the existing leak detection system for the Waste Treatment and Immobilization Plant-Effluent Management Facility (WTP-EMF) transfer line to LERF Catch Basin 242AL-41 and 242AL-42 (4"-WTP-001-M17) to meet the requirements of WAC 173-303-640(4)(c)(iii)."

This condition exceeds the scope of this permit modification. The 4" WTP-001-M17 transfer line from the Waste Treatment and Immobilization Plant Effluent Management Facility (WTP EMF) to LERF Catch Basin 242AL-42 and associated leak detection system was determined to meet the requirements of WAC 173-303-640(4)(c)(iii), with issuance of the Final Class 3 Permit Modification 8C.2020. 6F to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), WA7890008967, (20-NWP-079, May 19, 2020).

The Permittees did not propose changes to the Permit for the 4"-WTP-001-M17 transfer line from WTP-EMF to LERF Catch Basin 242AL-42 and associated leak detection system. The proposed change is to connect a transfer line from Basin 41 to the 4"-WTP-001-M17 transfer line and add additional leak detection at LERF Catch Basin 242AL-41.

While extensive communication has occurred between the Permittees and Ecology, the Permittees have not received a satisfactory explanation of Ecology's regulatory basis for stating the existing leak detection on this transfer line is not compliant with WAC 173-303-640. The Permittees understand WAC 173-303-640(4)(c)(iii) provides two alternative means to provide adequate leak detection. One is to show that a leak, of an unspecified de minimis leak rate, can be detected within 24 hours. The other option allows for a demonstration that site conditions or existing technologies allow for detection as soon as practicable if not detected within 24 hours. The Permittees have provided information showing a leak of approximately 1.6 gallons per hour can be detected within 24 hours. Additionally, the Permittees generated report RPP-RPT-61976, Effluent Management Facility (EMF) to Liquid Effluent Retention Facility (LERF) Process Condensate Transfer Pipeline Leak Detection, concluding the site conditions and nature of the already installed pipeline and available technologies could not be well adapted to install additional equipment that are also effective for leak detection and reliable for operation. The Permittees do not interpret WAC 173-303-640(4)(c)(iii) to be a mandate that drives development of new technology or adaptation of technologies for retrofit on a system for which they are not well adapted.

Furthermore, the Permit conditions must be consistent with the provisions of the Hanford Federal Facility Agreement and Consent Order (HFFACO). All schedules of compliance must be maintained and controlled in the HFFACO to ensure proper consistency and prioritization of work. The Permit conditions must not place the DOE, through its own actions, or those of its contractors, in a position where the conditions of the Permit only can be met by a violation of the HFFACO. This condition risks impact to the Consent Decree for Start LAW Cold Commissioning by 12/31/2022, and Complete LAW Hot Commissioning by 12/31/2023 .

Upgrading the Permitted leak detection system could require significant modifications to the piping; thereby risking delays to the overall mission at Hanford and Direct Feed Low-Activity Waste (DFLAW). Delay of DFLAW would result in a violation of the HFFACO; and would be more harmful to human health and the environment than utilizing the existing Permitted leak detection system for the 4"-WTP-001-M17 waste transfer system, which is arguably in compliance with the regulatory requirements, since WAC 173-303-640(4)(c)(iii) does not specify an assumed leak rate, only that leaks must be detectable within 24 hours unless other criteria is met.

Key DFLAW HFFACO Milestones that could be impacted.

- Milestone M-062-54B, 12/31/2022, Achieve Substantial Completion of LAW Pretreatment Capability Construction for DFLAW Initial Ops.
- Milestone M-062-54, 4/30/2023, Low Activity Waste Pretreatment Capability; Cold Commissioning Complete.
- Milestone M-062-53, 8/15/2023, Effluent Management Facility (EMF) Cold Commissioning Start.
- Milestone M-062-52, 6/30/2023, Achieve Substantial Completion of Secondary Waste Construction Necessary for LAW Hot Commissioning.

Response to A-1-2

As previously stated in the Ecology letter 19-NWP-072, dated April 19, 2019, the leak detection system for 4"-WTP-001-M17 (known as 310) primary transfer line does not meet the requirements of WAC 173-303-640(4)(c)(iii). WAC 173-303-815(2)(b)(i) requires Ecology to include permit conditions as necessary to achieve compliance with the Hazardous Waste Management Act and the Dangerous Waste regulations. Further, WAC 173-303-815(2)(b)(ii) requires that each permit contain terms and conditions as determined necessary to protect human health and the environment.

For the benefit of the Permittees and the public, Ecology provides the following summary of the history of how the leak detection system for the 310 primary transfer line was initially permitted and why the current system does not meet applicable leak detection requirements.

Because the connection of the WTP 310 line to Catch Basin 242AL-42 was needed to support the DFLAW schedule, Ecology approved installation of a single low-point electronic leak detector for the 310 line at Catch Basin 242AL- 42 in May 2020. In order to satisfy regulatory requirements,

Ecology added Permit Condition III.3.J.2, requiring the Permittees to submit a report with 90 days to demonstrate that the leak detection system was designed and operated in compliance with WAC 173-303-640(4)(c)(iii) and to evaluate the feasibility of additional upgrades to the leak detection system. DOE did not appeal this permit condition.

In accordance with Permit Condition III.3.J.2, DOE submitted a demonstration report to Ecology on March 10, 2020. In its June 2020 comments on the demonstration report, Ecology concluded that the report failed to address existing leak detection technologies and site conditions as required by WAC 173-303-640(4)(c)(iii). In particular, Ecology noted that certain leak detection technologies that are currently in use on the Hanford Site could readily be implemented on the 310 line, but DOE failed to consider or rejected without adequate justification these existing technologies. In its August 2020 response, DOE largely rejected Ecology's comments and claimed that further changes to the leak detection system were not feasible. Ecology replied on October 12, 2020, that DOE's comment dispositions were non-responsive and contained numerous conflicting and unsupported claims.

Pursuant to WAC 173-303-830(3)(a)(ii), Ecology determined that new permit conditions were needed to address the newly available information from the demonstration report, which failed to properly address existing leak detection technologies and site conditions.

With that historical context, Ecology will now address the specific issues raised in this comment.

The existing one-point leak detection system does not meet regulatory requirements and requires upgrades. Ecology is responsible for inserting permit conditions that achieve compliance with the Dangerous Waste regulations and conditions that are necessary for the protection of human health and the environment. [WAC-173-303-815(2)(b)(i)-(ii)].

The use of the sight glass was clearly only as a backup to the electronic leak detection system. The permit states that "In accordance with Permit Condition III.3.J.4.a, if the electronic leak detection system is not available, visual inspection can be employed at LERF Catch Basins 242AL-41 and 242AL-42 sight glasses (FG-60M-003 and/or FG-80W-001 respectively)."

Having performed an integrity assessment in the past is no guarantee that a leak will not occur the next time the line is used. The demonstration report claimed that fiberglass lines such as the 310 line are subject to large sudden failures rather than small leaks. Further, the tightness test has no relation to the ability to detect leaks in accordance with -640(4)(c)(iii). And past compliance with requirements related to tightness testing and integrity assessments does not justify noncompliance with applicable leak detection requirements.

As Ecology stated in the letter 19-NWP-072, the existing system is not capable of detecting "any release" as required by WAC-173-303-640(4)(c)(iii). DOE's previous estimate of being able to detect a leak greater than 1.67 gph or 40 gallons in 24 hours was calculated for the system before it was modified to connect to LERF Basin 41 by DOE's current permit modification request. A revised estimate was not provided for the proposed changes. DOE stated in the informal review that it was unknown how the changes would affect the minimum detectable leak rate. In particular, DOE could not answer Ecology's questions about which leak detector (Basin 41 or Basin 43) would detect a leak first and whether the flow would be split.

Ecology reviewed the demonstration report and was clear in the letter 20-NWP-110: "The report does not adequately address available leak detection technologies and site conditions" as required by WAC-173-303-640(4)(c)(iii). DOE's conclusory statement that available technologies could not be adapted to provide effective and reliable leak detection is false and unsupported. Technologies are currently in use elsewhere on the Hanford Site which could readily be implemented.

Ecology was also clear in the letter 19-NWP-072 that the leak detection system does not meet regulatory requirements. Despite Ecology's repeated and consistent expression of concern regarding the adequacy of the replaced leak detection system, DOE has delayed taking any action for more than two years for unknown reasons. If DFLAW schedules are now at risk, it is not due to Ecology's lack of communication of the regulatory requirements. Further, the claim that upgrading the leak detection system would be more harmful to human health and the environment is simply without merit. The need to meet a milestone does not justify noncompliance with the Dangerous Waste regulations; both can and should be achieved simultaneously. DOE is responsible for coordinating and implementing work schedules for all of its projects in a manner that achieves compliance with applicable regulatory requirements.

Comment A-1-3

Comment 2, Delete Proposed Permit Condition III.3.J.2.a: "The upgrades must include the installation of additional leak detectors along the 4"-WTP-23 001-M17 line."

This condition exceeds the scope of this permit modification. The 4"-WTP-001-M17 transfer line from the WTP EMF to LERF Catch Basin 242AL-42 and associated leak detection system was determined to meet the requirements of WAC 173-303-640(4)(c)(iii), with issuance of the Final Class 3 Permit Modification 8C.2020.6F to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), WA7890008967 (20-NWP-079, May 19, 2020).

Permit conditions to provide a leak detection report considering alternate technologies and site conditions was added by Ecology in two separate permit modifications (20-NWP-079 and 19-NWP-182, Final Class 3 Permit Modification 8C.2020.6F to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), WA7890008967).

While extensive communication has occurred between the Permittees and Ecology, the Permittees have not received a satisfactory explanation of Ecology's regulatory basis for stating the existing leak detection on this transfer line is not compliant with WAC 173-303-640. The Permittees understand WAC 173-303-640(4)(c)(iii) provides two alternative means to provide adequate leak detection. One is to show that a leak, of an unspecified de minimis leak rate, can be detected within 24 hours. The other option allows for a demonstration that site conditions or existing technologies allow for detection as soon as practicable if not detected within 24 hours. The Permittees have provided information showing a leak of approximately 1.6 gallons

per hour can be detected within 24 hours. Additionally, the Permittees generated report RPP-RPT-61976, Effluent Management Facility (EMF) to Liquid Effluent Retention Facility (LERF) Process Condensate Transfer Pipeline Leak Detection, concluding the site conditions and nature of the already installed pipeline and available technologies could not be well adapted to install additional equipment that are also effective for leak detection and reliable for operation. The Permittees do not interpret WAC 173-303-640(4)(c)(iii) to be a mandate that drives development of new technology or adaptation of technologies for retrofit on a system for which they are not well adapted.

The Permit conditions must be consistent with the provisions of the Hanford Federal Facility Agreement and Consent Order (HFFACO). All schedules of compliance must be maintained and controlled in the HFFACO to ensure proper consistency and prioritization of work. The Permit conditions must not place the DOE, through its own actions, or those of its contractors, in a position where the conditions of the Permit only can be met by a violation of the HFFACO. This condition risks impact to the Consent Decree for Start Low Activity Waste (LAW) Cold Commissioning by 12/31/2022, and Complete LAW Hot Commissioning by 12/31/2023.

Upgrading the Permitted leak detection system could require significant modifications to the piping; thereby risking delays to the overall mission at Hanford and Direct Feed Low-Activity Waste (DFLAW). Delay of DFLAW would result in a violation of the HFFACO; and would be more harmful to human health and the environment than utilizing the existing Permitted leak detection system for the 4"-WTP-001-M17 waste transfer system, which is arguably in compliance with the regulatory requirements since WAC 173-303-640(4)(c)(iii) does not specify an assumed leak rate, only that leaks must be detectable within 24 hours unless other criteria is met.

See Comment 1 for Key DFLAW HFFACO Milestones that could be impacted.

Response to A-1-3

Please see the Ecology response to Comment A-1-2. The existing leak detection system does not meet regulatory requirements and requires upgrades. Ecology is responsible for inserting permit conditions that achieve compliance with the Dangerous Waste regulations and conditions that are necessary for the protection of human health and the environment. [WAC-173-303-815(2)(b)(i) - (iii)]

Comment A-1-4

Comment 3, Delete Proposed Permit Condition 111.3.J.2.b: "The Permittees must submit a permit modification for upgrades to the leak detection system for the 4"-WTP-001-M17 line. The permit modification must include the final design of the upgrades."

This condition exceeds the scope of this permit modification. The 4"-WTP-001-M17 transfer line from the WTP EMF to LERF Catch Basin 242AL-42 and associated leak detection system was determined to meet the requirements of WAC 173-303-640(4)(c)(iii), with issuance of the Final Class 3 Permit Modification 8C.2020.6F to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), WA7890008967, (20-NWP-079, May 19, 2020).

Response to A-1-4

Please see the Ecology response to Comment A-1-2. The existing leak detection system does not meet regulatory requirements and requires upgrades. Ecology is responsible for inserting permit conditions that achieve compliance with the Dangerous Waste regulations and conditions that are necessary for the protection of human health and the environment. [WAC-173-303-815(2)(b)(i) - (iii)]

Comment A-1-5

Comment 4, Delete Proposed Permit Condition III.3.J.2.c: "The Permittees must submit a schedule to Ecology for completing the permit modification and the upgrades within 30 days of the effective date of this permit condition."

This condition exceeds the scope of this permit modification. The 4"-WTP-001-M17 transfer line from the WTP EMF to LERF Catch Basin 242AL-42 and associated leak detection system was determined to meet the requirements of WAC 173-303-640(4)(c)(iii), with issuance of the Final Class 3 Permit Modification 8C.2020.6F to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), WA7890008967, (20-NWP-079, May 19, 2020).

Implementation of the required schedule relies on Ecology actions to assure completion; and therefore Permittee compliance, by the deadline provided in Permit Condition III.3.J.2.c. The permittees have no assurance of Ecology actions or the permit modification process will support the deadline imposed by Permit Condition III.3.J.2.d. Permittee reliance on Ecology to take actions on permit conditions that cannot be made enforceable for Ecology in order for the permittees to achieve permit compliance is not a reasonable proposition.

In order to undertake design, permitting, and installation of additional leak detection equipment, the permittees must have certainty that the new equipment will operate as designed, without false alarms or other issues that would be a detriment to DFLAW operations. Doing so requires development or adaptation of technologies to unique circumstances of current installed line; a significant challenge that will take a significant time commitment. Ecology has repeatedly stated they believe current technologies could be implemented on this line; however, as the design authority and operators of this line, the Permittees can assure Ecology that such design and installation is not as feasible as Ecology seems to expect.

The permittees request additional time to implement Permit Conditions III.3.J.2 through III.3.J.2.d, if the permit conditions must remain, and WTP EMF transfers be allowed to proceed so as to not interfere with DFLAW operation. The relative low hazard of EMF liquids and reliable end point leak detection support this approach.

Response to A-1-5

Permit condition III.3.J.2.c does not rely on Ecology actions to assure completion. The condition only requires DOE submit a schedule to Ecology within 30 days of the effective date. The deadline (prior to waste transfers) imposed by III.3.J.2.c requires processing a permit modification by Ecology. Though historically permit modifications of this scope may take time to

process, Ecology has expressed concerns over the single low-point leak detection measures currently installed for the 4"-WTP-001-M17 since informal discussions began on permitting the 4"-WTP-001-M17 line connecting to LERF Basin in late 2018. Ecology formally expressed the position that the single low-point leak detection system does not meet regulatory requirements in letter 19-NWP-072, dated April 19, 2019. DOE is solely responsible for any impacts on Direct Feed Low Activity Waste treatment.

Ecology is not granting additional time for the permittees to submit a schedule according to permit condition III.3.J.2.c. The permit condition does not establish specific timeframes required for submission of the permit modification or for completion of the upgrades, other than the upgrades must be operational prior to waste transfers.

Comment A-1-6

Comment 5, Delete Proposed Permit Condition III.3.J.2.d: "The upgraded leak detection system must be operational prior to waste transfers from WTP to the LERF."

This permit condition exceeds the scope of this permit modification. The 4"-WTP-001-M17 transfer line from the WTP EMF to LERF Catch Basin 242AL-42 and associated leak detection system was determined to meet the requirements of WAC 173-303-640(4)(c)(iii), with issuance of the Final Class 3 Permit Modification 8C.2020.6F to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 3, Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), WA7890008967, (20-NWP-079, May 19, 2020).

In addition, requiring an upgraded leak detection system to be operational prior to waste transfers from WTP to the LERF risks delay in startup of WTP operations. This proposed permit condition does not take into consideration that Permit Condition III.3.J.2.e, requires the Permittees to submit the tightness test for 4"-WTP-001-M17 waste transfer system to the department prior to receipt of dangerous waste in accordance with WAC 173-303-640(3)(e); and Permit Condition III.3.J.2, requires this tightness test be performed for this transfer line at a frequency of every 10 years. Furthermore, Permit Condition III.3.P.1.b requires the Permittees to conduct periodic integrity assessments according to the schedule. The integrity assessments are conducted every 10 years, and are certified by an Independent Qualified Registered Professional Engineer.

The tightness testing of the 4"-WTP-001-M17 primary and encasement lines is a control in place to ensure the pipelines do not leak, in addition to the integrity assessments performed by an IQRPE who certifies that this transfer line is structurally sound and does not leak.

The Permit conditions must be consistent with the provisions of the HFFACO. All schedules of compliance must be maintained and controlled in the HFFACO to ensure proper consistency and prioritization of work. The Permit conditions must not place the DOE, through its own actions, or those of its contractors, in a position where the conditions of the Permit only can be met by a violation of the HFFACO. This condition risks impact to the Consent Decree for Start LAW Cold Commissioning by 12/31/2022, and Complete LAW Hot Commissioning by 12/31/2023.

See Comment 1 for Key DFLAW HFFACO Milestones that could be impacted.

Response to A-1-6

Please see the Ecology response to Comment A-1-2. The existing leak detection system does not meet regulatory requirements and requires upgrades. Ecology is responsible for inserting permit conditions that achieve compliance with the Dangerous Waste regulations and conditions that are necessary for the protection of human health and the environment. [WAC-173-303-815(2) (b)(i) - (iii)]

Appendix A. Copies of All Public Notices

Public notices for this comment period:

- Focus sheet
- Classified notice in the Tri-City Herald
- Notices sent to the Hanford-Info email list
- Notices posted on Washington Department of Ecology – Hanford’s Facebook and Twitter pages

LERF and 200 Area ETF permit modification

Adding a basin and waste transfer line from Hanford tank waste treatment system

Public comment invited

The Washington State Department of Ecology (Ecology) is proposing a change to the Hanford Facility Resource Conservation and Recovery Act Permit, Revision 8C.

This change affects the Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste for the Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF).

This permit modification would allow the addition of a liquid retention basin to LERF and a waste transfer line from the Waste Treatment and Immobilization Plant (WTP) to LERF.

The permittees are:

U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN: H6-60
Richland, WA 99352

Washington River Protection Solutions
P.O. Box 850, MSIN: H3-04
Richland, WA 99352

We invite you to comment on this proposed LERF and 200 Area ETF Class 3 permit modification. The 45-day public comment period is from Feb. 22, 2021, through April 8, 2021.

This proposal includes changes to multiple sections of the permit, including:

- Unit-Specific Permit Conditions
- Addendum A, Part A Form
- Addendum B, Waste Analysis Plan
- Addendum C, Process Information

- Addendum F, Preparedness and Prevention
- Addendum I, Inspection Plan
- Addendum J, Contingency Plan/Facility Response Plan

Background

The Hanford Site occupies 580 square miles in southeastern Washington State. Beginning in 1943, the site produced plutonium for the nation's defense program. Plutonium production ceased in the late 1980s. Today, waste management and environmental cleanup are the primary missions at Hanford.

The 200 Area ETF is located near the center of the Hanford Site in the 200 East Area. (See map on page 3.)

LERF and 200 Area ETF receive process wastewater from the 242-A Evaporator and other Hanford remediation and waste management activities. Wastewater from LERF is pumped to the 200 Area ETF for treatment to remove contaminants.

Overview of changes

The improvements include:

- Construction of a fourth LERF basin, Basin 41.
- Adding a connection from the primary transfer line from WTP to LERF Basin 41.

Modifications to the permit addenda include:

- Increased storage and treatment capacity for LERF from the added Basin.
- Updated topographic map, showing Basin 41.

- Added references to Basin 41 for waste acceptance and process information related to the LERF Basins.
- Leak detection, inspection, preparedness and Prevention and Emergency response requirements for the additional basin.

Ecology added permit conditions that require the permittees to submit a permit modification for upgrading the leak detection system for the primary transfer line from WTP to LERF. The modification will include the installation of additional leak detectors along the transfer line.

The permittees will need to install the upgraded leak detection systems before transferring waste from WTP to LERF.

Why this permit change matters

LERF and 200 Area ETF play a vital role in supporting Hanford’s Direct-Feed Low-Activity Waste program (DFLAW), which is an important part of the Hanford cleanup process. The proposed permit modifications will allow the permittees to construct and operate an additional LERF Basin (Basin 41) so that LERF can accept additional waste coming from WTP.



200 Area ETF and LERF with proposed Basin 41

Reviewing the proposed changes

Ecology invites you to review and comment on this proposed LERF and 200 Area ETF permit modification. See Page 4 for comment period dates and information on how to submit comments.

Copies of the application for the proposed permit and supporting documentation will be available during the public comment period online at Ecology’s website at [Ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods](https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods). The documents will also be available at the Hanford Public Information Repositories listed on the next page.

Ecology will consider and respond to all significant comments received during the public comment period. We will document our responses and issue a response to comments document when we make our final permitting decision.

Hanford's Information Repositories

Ecology Nuclear Waste Program
Resource Center
3100 Port of Benton Blvd.
Richland, WA 99354
509-372-7950

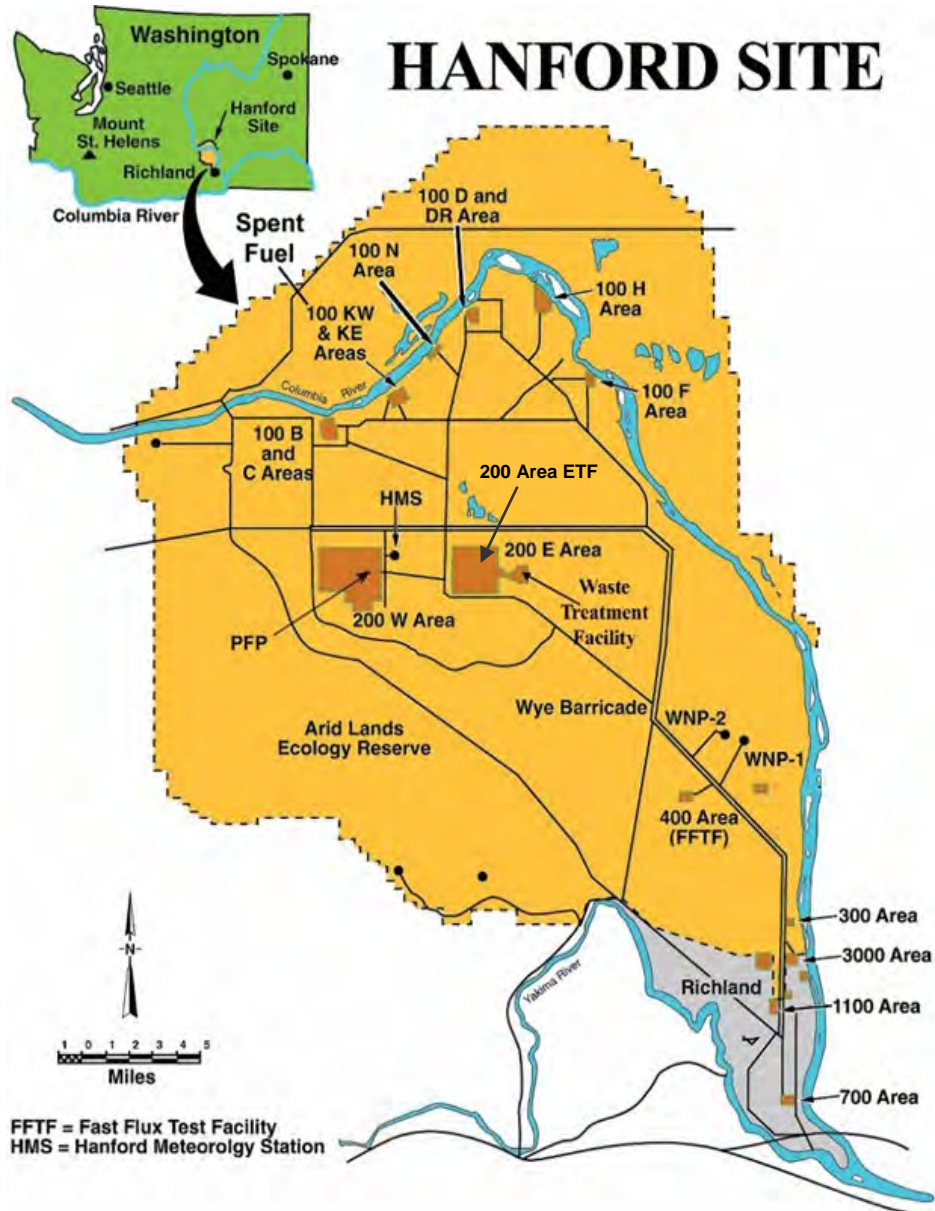
U.S. Department of Energy
Administrative Record
2440 Stevens Drive, Room 1101
Richland, WA 99354
509-376-2530

Washington State University Tri-Cities
Department of Energy Reading Room
2770 Crimson Way, Room 101L
Richland WA 99354

University of Washington
Suzzallo Library
P.O. Box 352900
Seattle, WA 98195
206-543-5597

Gonzaga University
Foley Center
502 E Boone Avenue
Spokane, WA 99258
509-313-6110

Portland State University
Millar Library
1875 SW Park Avenue
Portland, OR 97207
503-725-4542





3100 Port of Benton Blvd
Richland WA 99354

LERF and 200 Area ETF permit modification

Public comment period Feb. 22 to Apr. 8, 2021

Electronic submission (preferred):
<http://nw.ecology.commentinput.com/?id=7FcUQ>

Mail or hand delivery

Daina McFadden
3100 Port of Benton Blvd
Richland, WA 99354

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden
509 372 7950
Hanford@ecy.wa.gov

To request an ADA accommodation, contact Ecology by phone at 509 372 7950, email at Daina.McFadden@ecy.wa.gov, or visit <https://ecology.wa.gov/accessibility>. For Relay Service or TTY call 711 or 877 833 6341.

From: [McFadden, Daina \(ECY\)](#)
To: HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV
Subject: LERF and 200 Area ETF upcoming comment period
Date: Friday, January 22, 2021 12:49:25 PM

LERF and 200 Area ETF permit modification 30-Day advance notice

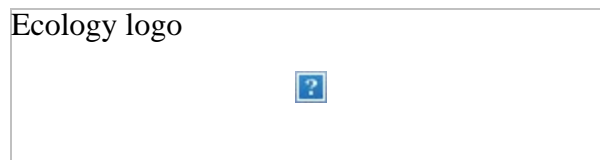
The Washington State Department of Ecology is providing notification of a 45-day public comment period starting mid to late February 2021. This comment period will address proposed modifications on the Liquid Effluent Retention Facility (LERF) and the 200 Area Effluent Treatment Facility (ETF). The Permittees are U.S. Department of Energy, Office of River Protection and Washington River Protection Solutions. LERF and the 200 Area ETF are located on the Hanford Site in southeastern Washington.

What changes are being proposed?

This permit modification would allow the addition of a liquid retention basin to LERF and a waste transfer line from the Waste Treatment and Immobilization Plant to LERF.

Public Hearing

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:
Daina McFadden
Hanford@ecy.wa.gov
509-372-7950



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From: [McFadden, Daina \(ECY\)](#)
To: HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV
Subject: LERF and 200 Area ETF upcoming comment period - corrected text
Date: Friday, January 22, 2021 4:26:40 PM

****The corrected text is in italics****

[LERF and 200 Area ETF permit modification 30-Day Advance Notice](#)

The Washington State Department of Ecology is providing notification of a 45-day public comment period starting mid to late February 2021. This comment period will address proposed modifications on the Liquid Effluent Retention Facility (LERF) and the 200 Area Effluent Treatment Facility (ETF). The Permittees are U.S. Department of Energy, Office of River Protection and Washington River Protection Solutions. LERF and the 200 Area ETF are located on the Hanford Site in southeastern Washington.

[What changes are being proposed?](#)

This permit modification would allow the addition of a liquid retention basin to LERF *and connect the facility's existing transfer line to the new basin.*

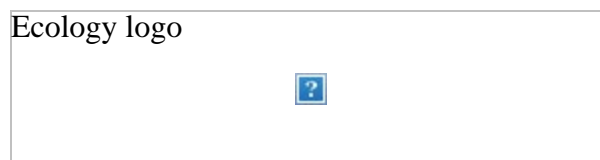
[Public Hearing](#)

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden

Hanford@ecy.wa.gov

509-372-7950



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From: [McFadden, Daina \(ECY\)](#)
To: HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV
Subject: New comment period for LERF and 200 Area ETF starts today!
Date: Monday, February 22, 2021 1:26:18 PM

LERF and 200 Area ETF permit modification public comment period notification

The Washington State Department of Ecology is providing notification of a 45-day public comment period starting Feb. 22 to April 8, 2021. This comment period will address proposed modifications to the *Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste* for the Liquid Effluent Retention Facility (LERF) and the 200 Area Effluent Treatment Facility (ETF). The Permittee(s) are U.S. Department of Energy and Washington River Protection Solutions. The LERF and 200 Area ETF facilities are located on the Hanford Site in southeastern Washington.

What changes are being proposed?

This permit modification would allow the addition of a liquid retention basin to LERF.

The improvements include:

- Construction of a fourth LERF basin, Basin 41.
- Adding a connection from the primary transfer line from WTP EMF to LERF Basin 41.

Modifications to the permit addenda include:

- Increased storage and treatment capacity for LERF from the added Basin.
- Updated topographic map, showing Basin 41.
- Added references regarding Basin 41 for waste acceptance and process information related to the LERF Basins.
- Inspection (Addendum I), Preparedness (Addendum F), and Prevention and Emergency response requirements (Addendum J) for the additional basin.

How to comment

Ecology invites you to review and comment on the proposed LERF and ETF

permit modification. The proposed modification is online at the Nuclear Waste Program's [public comment page](#). Copies of the proposed modification are located on the [Administrative Record](#) and at [Information Repositories](#).

Please submit comments by **April 8, 2021**. Electronic submission (preferred):

<http://nw.ecology.commentinput.com/?id=7FcUQ>

Mail or hand-deliver to:

Daina McFadden
3100 Port of Benton Blvd
Richland WA 99354
Fax 509-372-7971

[Public hearing](#)

A public hearing is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:

Daina McFadden
Hanford@ecy.wa.gov
509-372-7950

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Washington Department of Ecology - Hanford

Published by Ecology Ryan · 5m · 🌐



Two new #Hanford public comment periods held by our agency began today, involving the 242-A Evaporator and the Liquid Effluent Retention Facility/Effluent Treatment Facility. Check them out and comment by April 8 here: <https://ecology.wa.gov/.../Nuclear.../Public-comment-periods>



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Two new #Hanford public comment periods held by our agency began today, involving the 242-A Evaporator and the Liquid Effluent Retention Facility/Effluent Treatment Facility. Check them out & comment here: ecology.wa.gov/Waste-Toxics/N... @EcologyWA @HanfordSite @EPANorthwest



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