Comments of Heart of America Northwest Research Center and Heart of America Northwest (HoA) on the USDOE's Submitted Draft RCRA and HWMA Permit for Low Activity Waste (LAW) Treatment (Vitrification) Plant and Effluent Management Facility (EMF) under Direct Feed LAW (DFLAW) ("Waste Treatment and Immobilization Plant Project Proposed Operating Permit for the Low-Activity Waste Facility and Effluent Management Facility," WA Ecology 7890008967).

via Electronic Submission August 29, 2019 to:
http://wt.ecology.commentinput.com/?id=eRmW5

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Heart of America NWRC and Heart of America NW (jointly referred to as HoANW) submit these comments with major objections to proceeding with piecemeal permitting decisions for portions of the Direct Feed Low Activity Waste (DFLAW) system without providing the public with the overview of, and opportunity to comment on, the potential significant environmental, health and safety impacts from USDOE's decision to substitute DFLAW for pre-treatment and separation of waste from High Level Waste tanks in a contained Pretreatment facility.

HoANW believes that Ecology cannot proceed with permitting absent a Supplemental Environmental Impact Statement (SEIS) pursuant to both the State and National Environmental Policy Acts (SEPA and NEPA). We have voiced this concern repeatedly over the course of several years. Had USDOE listened to concerns, there would be no delay in permitting. However, USDOE has been intransigent and failed to prepare a SEIS.

Further, the proposal is not accompanied by any NEPA or SEPA analyses and determinations as required. There is no link provided for NEPA or SEPA documents in the public notice fact sheet for this comment period, nor in the permit application submission and draft from USDOE to Ecology.

As we discuss in these comments, the public involvement and information effort for this draft has had a dismal record, which continues with the failure to provide a SEIS, failure to link any NEPA analysis to accompany the proposal, and failure to meet the minimum requirements for "technical fact sheets," which are required to accompany the draft permit chapters.

Each of these concerns was raised by our organizations In November 2016, for the initial review of this set of draft permit additions and modifications. USDOE has had three years to properly respond, and to prepare a SEIS.

Our serious concerns include numerous substantive flaws in the proposed permit. Review of the draft permit has been made far more difficult by USDOE's failure to meet the requirements for technical fact sheets to accompany each chapter and for each facility for which a permit is proposed. This has greatly impacted our ability to inform and involve the public, with the difficulty of providing an overview of potential impacts multiplied by the lack of an SEIS.

Ecology should reject the draft permit and require a new submission accompanied by an SEIS and technical fact sheets which meet requirements. Further, Ecology should not proceed to review in a piecemeal fashion other draft permits for elements of the DFLAW system without the benefit of an overview of the potential impacts, alternatives and potential mitigation measures for the new facilities and drastically changed DFLAW system in comparison to the system and facilities discussed in the Tank Closure and Waste Management EIS (TCWMEIS: USDOE EIS-0391, December 2012; RoD 2013).

The TCWMEIS considered constructing and operating a massive "Pretreatment" plant and High Activity Waste treatment plant in addition to the LAW facility. This DFLAW system is dramatically different than the system and facilities analyzed in the Tank Closure and Waste Management Environmental Impact Statement (TCWMEIS). USDOE acknowledges in a formal Supplemental Analysis, January 2019, that one facility included in this permit proposal, the Effluent Management Facility (EMF) was never considered in the TCWMEIS; and, acknowledges that other related key facilities with potential significant impacts such as unenclosed Tank Side Cesium Removal (TSCR) were never considered in the TCWMEIS.

Notice and opportunity to comment on this USDOE's Supplemental Analysis (SA) (EIS-0391-SA-02, January 2019); and, the Supplemental Analysis did not meet the legal requirements under SEPA or NEPA to justify the decision not to prepare a SEIS**. The SA cannot be relied upon by Ecology in lieu of a Supplemental EIS** (even if it were adequate, the agencies failed to ensure that it accompanied the proposed permit for public review).

There are potential significant impacts from these major changes from the system considered in the TCWMEIS to DFLAW, which were never considered in the TCWMEIS (which USDOE refers to as the "baseline" configuration). The SEIS should accompany the draft permit for Ecology to be able to consider if alternatives or additional mitigation in the form of permit conditions should be required pursuant to SEPA. An SEIS is also vital for the public, advisory board and tribes to be able to comment effectively in regard to whether proposed permit conditions for the new DFLAW configuration will appropriately protect health, safety and the environment.

USDOE made a major change in the entire programmatic approach to High Level Nuclear Waste treatment at Hanford, substituting Direct Feed LAW and Tank Side Cesium Removal (TSCR) in replacement of the massive derailed Pretreatment Plant. This dramatic change required a supplemental EIS, considering the changes in safety envelopes, waste streams, final waste form and leachability characteristics, potential air emissions and solid wastes from secondary waste streams from LAW and EMF, which are the focus of the current permit modification request.

USDOE attempts to portray the change from the use of a massive, permitted contained Pretreatment plant with DFLAW as a potentially temporary arrangement. Even so, the change requires a Supplemental EIS. But, USDOE has repeatedly acknowledged in budget and TPA filings that it may not be able to construct and operate the Pretreatment Plant in the decade of the 2020's, and perhaps not during the 2030's.

As USDOE and Bechtel say in the draft permit: "The DFLAW configuration is independent of the Baseline configuration." The DFLAW configuration was not analyzed in the TCWMEIS. The dramatic changes in this configuration with potential significant impacts include: the use of facilities to treat waste that are not in containment, e.g., TSCR; the EMF facility which was never envisioned in the TCWMEIS; delays in emptying leaking or potentially leaking Single Shell

Tanks or potentially leaking Double Shell Tanks ; not removing sludges from tanks when retrieving for DFLAW because the LAW plant cannot accept tank sludge; and treating wastes without removal of all the waste streams utilizing ultrafiltration analyzed for the Pretreatment Plant.

The environmental, safety and health impacts of the entire system are required to be considered throughout the administrative processes by both USDOE and WA Ecology. Because the permitting of the DFLAW system is phased, with permits for different system elements being prepared and issued for comment on a staggered schedule, it is vital for the impacts of the entire system to be considered in a Supplemental EIS.

Federal regulations require preparation of a Supplemental EIS when, as here, there has been a major change in the federal agency's proposal based on technical inability to utilize one technology (pretreatment) and substituting another set of technologies and facilities which have not been previously evaluated for potential impacts on human health, safety and the environment (Tank Side Removal taking place in facilities that lack basic containment features for releases or accidents, changes in transfer lines, changes in waste composition for LAW vitrification and byproduct waste treatment (EMF). None of these examples were examined in the TCWMEIS or TWRS EIS.

While the TCWMEIS and prior chapter of the draft permit describe secondary containment and extensive emission / ventilation controls for processing Hanford tank wastes at the Pretreatment Facility and related storage or transfer tanks, the DFLAW configuration "bypasses" pretreatment and utilizes a "Tank Side Cesium Removal" process that does not have secondary liquid or air containment and other important safety measures. The potential risks and impacts from this new configuration have never been analyzed in an EIS. They are not described in any environmental analyses accompanying this proposed permit modification.

Importantly, *the Supplemental Analysis (January 2019) issued by USDOE utterly fails to discuss or consider the lack of a safety envelope for TSCR, and differences in controls for emissions and in event of releases between an unenclosed tank side Cesium removal equipment and the massive controlled Pretreatment Plant*. The environmental, safety and health impacts of the entire system are required to be considered throughout the administrative processes by WA Ecology for permitting any element of this system.

40 CFR 1502.9 requires:

> (c) Agencies:
> (1) Shall prepare supplements to either draft or final environmental impact statements if:
> (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
> (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.
> (2) May also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so.
> (3) Shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists.

(4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.

Pursuant to CEQ guidance for when supplemental EISes are required, this permit modification must be accompanied throughout the decision making process by a Supplemental EIS since there has not been a NEPA review of these massive changes:

i. "As a rule of thumb […] EISs that are more than 5 years old should be carefully reexamined to determine if the criteria in Section 1502.9 compel preparation of an EIS supplement.
ii. "If an agency has made a substantial change in a proposed action that is relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts, a supplemental EIS must be prepared for an old EIS so that the agency has the best possible information to make any necessary substantive changes in its decisions regarding the proposal. Section 1502.9(c)"

Ecology's own rules similarly require a Supplemental EIS for the substantive change to the DFLAW program with new facilities, new risks and new waste streams that were never contemplated or considered in the old TCWMEIS:

(4) A supplemental EIS (SEIS) shall be prepared as an addition to either a draft or final statement if:
(a) There are substantial changes to a proposal so that the proposal is likely to have significant adverse environmental impacts; or
(b) There is significant new information indicating, or on, a proposal's probable significant adverse environmental impacts.
Preparation of a SEIS shall be carried out as stated in WAC 197-11-620.
(5) Agencies may use federal EISs, as stated in Part Six

WAC 197-11-405.

The draft permit describes numerous wastes whose form, quantities and composition are likely to have changed significantly with the switch to DFLAW and removal of pretreatment. Disposition of these wastes, such as entrained resins or dangerous mixed liquid wastes, has potential significant impacts for hundreds and thousands of years. Yet, these changes have not been considered in a Supplemental EIS.

NEPA and SEPA require the environmental assessments, including assessments of risk with potential mitigation strategies and conditions, to accompany and be considered on the record PRIOR to permitting. USDOE seeks to replace this with an "environmental risk assessment" for critical risks arising from processes, waste characterization, analysis and acceptance criteria. However, the draft permit is not even accompanied by this undefined risk assessment (a risk assessment would be expected to be incorporated by reference into, and summarized in, the Supplemental EIS). Draft Permit Chapter 3B.3, page 3B.8.

The draft permit says that the waste acceptance criteria may be updated following periodic revisions to the waste feed data quality objective report. That report is appropriately subject to periodic update. It is not permissible to fail to include in the permit specific conditions for when

and under what circumstances it must be updated. The risk assessment should be available for review DURING permitting and public review as part of the SEIS:

> "The RDQO Optimization Reports are designed to address the regulatory needs of the WTP and will be re-evaluated as a result of the environmental risk assessment, which is currently under development. The environmental risk assessment is scheduled for completion prior to the commencement of cold operation commissioning of the WTP. The RDQO Optimization Report's and the DFLAW DQO Report's processes are subject to periodic evaluation and may affect the list of analytes, selection of analytical methods, and associated QA/QC requirements."

Page 3B.8.

The Supplemental Analysis is legally inadequate and cannot be relied upon. The SA utterly ignores key safety issues such as the lack of any confinement for TSCR.

The SA states that the DFLAW system was analyzed in the TCWMEIS on the basis of the TCWMEIS discussing that the start-up of the WTP facilities would be "phased" with a short delay between startup of the HAW facility after the LAW facility, in order to gain operational experience and to avoid attempting simultaneous startup of the world's most complex nuclear and chemical processing plants.

However, the TCWMEIS never analyzed a system without operation of the Pretreatment Plant, which is the basis for the DFLAW system.

The Supplemental Analysis acknowledges that the EIS and 2013 Record of Decision includes "pretreatment of all tank waste, with separation into LAW and HLW." Supplemental Analysis at 1-4, citing the Record of Decision, 2013 TC&WM EIS ROD (78 FR 75913). Now, pretreatment, as considered in the TCWMEIS, is abandoned for at least fifteen years, if not permanently.

USDOE cannot pretend that the operations and potential impacts of DFLAW – with tank side Cesium removal - were fully considered in the TCWMEIS as "phased startup" of LAW before the start of HAW Plant operations. However, the processes considered in the TCWMEIS and RoD included pretreatment as fully described in the TWCWMEIS in regard to operation of the Pretreatment Facility.

The portable Tank Side Cesium Removal operation was never mentioned in the TCWMEIS. Nor was there any consideration of directly feeding LAW to the LAW facility for extended periods of time without the extensive, and fully contained, removal and pretreatment of wastes in the described Pretreatment Facility.

USDOE acknowledges in the SA that the TCWMEIS did not even foresee, much less consider, safety and environmental impacts from many of the facilities that are now proposed to be permitted as part of the DFLAW system:

> "DFLAW would, however, perform some of these functions in facilities that are different from those described in the EIS. To accomplish DFLAW, DOE would need to complete construction of the following facilities: the EMF, a cesium removal system (initially a TSCR unit followed by either an additional TSCR unit or construction and use of a permanent cesium removal capability-all under the LA WPS project), necessary transfer lines, and an IX Column Storage Pad. The facilities would all be located in the 200 East Area, which over the past several decades has been a heavily impacted and highly disturbed, industrial area. The

functions of vaporation, filtration, and cesium IX that the WTP Pretreatment Facility would have performed on tank waste would instead be performed by the EMF and the cesium removal system."

Supplemental Analysis at Section 2.1, page 2-1.

USDOE acknowledges that it is now proposing to utilize facilities which are radically different in size, risk, treatment processes, secondary waste production; and, which it never forecast in the TCWMEIS. TSCR, EMF, Cesium Ion Exchange storage, are examples of facilities which were never considered in the TCWMEIS.

The corrosion prevention system for the High Level Waste transfer piping is changed in the DFLAW "configuration" from the system analyzed in the TCWMEIS. Instead of cathodic protected buried lines, in some cases the double transfer line will be HDPE encased. The new HDPE encased transfer lines will have to intersect and join the existing transfer lines to LERF/ETF. Cathodic protection is the preferred methodology to prevent corrosion. The changes increase risk both from the transfer points between systems and long-term corrosion or freezing and movement. However, the impacts from the change have never been considered. It is imperative that the potential impacts from these changes are analyzed in order to *adopt appropriate permit conditions – such as requiring integrity assessments every decade for transfer lines that will not have cathodic protection*.

Risks were never considered in the TCWMEIS from use of Tank Side Cesium Removal without the defense in-depth containment in a massive Pretreatment Plant for emissions or releases and additional potential radiological exposures.

USDOE inherently acknowledges that the portable TSCR without permanent constructed containment, ventilation, etc. has additional, unanalyzed risks compared to a permanent concrete and steel TSCR facility. See SA Section 2.3.2. USDOE has failed to consider the potential significant impacts and alternatives, including holding off cesium removal until a permanent facility is constructed, in any NEPA or SEPA analyses, as required by both statutes. Ecology cannot issue permits for the related facilities that rely on a system with potential significant impacts and alternatives which have never been considered.

In the Supplemental Analysis, USDOE failed to consider the potential for "facility accidents" to include seismic, fire, pressurization, accidental or other events causing a release from the unshielded, uncontained Tank Side Cesium Removal unit and equipment. **This failure is inexcusable**. Instead, in section 3.3.2, USDOE considered the straw man potential for a fire or dropping of a dry cesium exchange capsule on the storage pad and concluded that this risk was too low with a low probability of release to justify further analyses. The analysis considered only radiological dose from a fire involving the dry ion exchange column storage pad, not chemical or radionuclide release and exposure from a fire, leak, or over pressurization, valve failure, etc. during operations of the TSCR equipment (it's not as if USDOE has never had an accidental release of High Level Waste during transfers in tank farms). The risk from release during operation, however, is much greater than from the storage of the columns – ranging from vapor exposures to natural or human caused major accidental releases.

USDOE seeks to justify rushing forward with a Tank Side Cesium Removal to meet the TPA milestone for operating LAW facility by December 31, 2023. See SA inset box at page 2-7. A TPA milestone cannot legally justify proceeding with construction and operation of a dangerous facility, creating new unanalyzed waste streams, in violation of NEPA and SEPA. Further, USDOE has been urged to comply with NEPA and SEPA by preparing a Supplemental EIS for the TSCR and permanent cesium removal facilities and DFLAW configuration by many parties for several years. Any failure is due to USDOE's intransigence.

USDOE does acknowledge that the outdoor storage of the highly radioactive cesium ion exchange (IX) columns with new chemical wastes, resulting from the substitution of TSCR and DFLAW for the analyzed pretreatment facility, was never considered in the EIS:

> "the TC&WM EIS did not explicitly analyze interim storage of spent IX columns loaded with IX media and cesium, nor did it specifically address the construction and operation of an IX Column Storage Pad."

Supplemental Analysis at Table 2-1, page 2-3.

However, USDOE did not even prepare a Supplemental EIS for the indefinite storage of the ion exchange columns. Instead in SA Section 3.3, USDOE justifies failure to prepare a Supplemental EIS for the storage of the Cesium Ion Exchange columns by pointing out that USDOE did complete a full NEPA analysis in the TCWMEIS for storage of dry casks with Cesium and Strontium capsules from B-Plant. This actually illustrates that NEPA and SEPA required a Supplemental EIS for the DFLAW Cesium Ion Exchange column storage.

The TSCR ion exchange generates significant new wastes, whose storage and disposal has not been considered, compared to the Pretreatment Facility housed cesium removal ion exchange analyzed in the TCWMEIS. The Pretreatment Plant was analyzed on the basis of using "elutable" ion exchange column technology. Elutable ion exchange means that the cesium is not permanently bound to the ion exchange medium and would be regularly "washed" out or removed from the ion exchange. This would greatly reduce the volume of highly dangerous ion exchange wastes to be disposed in the IDF landfill. However, USDOE now intends to use "non-elutable" cesium ion exchange resins columns. See SA at 2-3. This will greatly increase the wastes for disposal. The impacts of the increased waste generation and disposal, or increased difficulties in vitrifying the ion exchange columns with Cesium, have never been considered. Additional wastes from "dewatering" the cesium ion exchange columns would be generated and added back into the AP High Level Waste tanks. SA page 2-6 and 2-7.

It is reasonable to forecast that at least 780 of these extremely radioactive ion exchange columns would be sitting in some unanalyzed "temporary" outdoor site prior to any startup of the WTP's High Activity Waste (HAW) facility. See SA page 2-7 (120 columns with as much as 150,00 Ci of Cs produced every five years per TSCR unit. USDOE proposes two units. HAW cannot start operations, according to USDOE, prior to 2035 without a massive, unanticipated influx of construction funds).

The generation of these numerous additional wastes is NOT consistent with Washington's Waste Management Priorities pursuant to RCW Chapter 70.105 and WAC Chapter 173-303.

Ecology has a duty under Chapter 70.105 and SEPA to analyze the impacts from the additional generation of wastes and to use its authorities under Chapter 70.105 and SEPA to mitigate impacts by requiring use of technologies that generate less dangerous wastes.

In the Supplemental Analysis, USDOE acknowledges that the total secondary wastes will increase from the amounts considered in the TCWMEIS, but fails to disclose what those amounts or types of wastes will be, or how they will be disposed: "the secondary waste generated as a result of DFLAW would represent an additional, but small, fraction of the waste streams presented in the TC&WM EIS (see Tables 4-86 and 4-155)." SA at 3-12.

The potential impacts from the admitted increase in secondary wastes need to be fully considered in a Supplemental EIS. Ecology has a duty under the IDF permit to ensure that these impacts are considered and that the permit conditions barring disposal in IDF are not exceeded. If they may be exceeded, the SEIS must address where the wastes will be disposed. Furthermore, HoANW does not believe that USDOE can legally dispose of non-elutable Cesium Ion Exchange columns or the Cesium from the columns in IDF, because it is High Level Waste (the NWPA bars disposal of High Level Waste in landfills, as does the IDF permit). The SA fails to consider that being "non-elutable", it will not be easy to remove and vitrify the Cesium. See SA 2-3. This should be considered, with alternatives, in a Supplemental EIS.
The quantities and characteristics of highly radioactive dangerous resin wastes (mixed waste) from use of non-elutable Cesium ion exchange columns in a portable facility, and the potential significant impacts from generating, treating and disposing of these new waste streams have never been considered. A Supplemental EIS is required to consider them. Further, Ecology has a duty to examine if there are alternatives to minimize the production of these wastes pursuant to RCW Chapter 70.105, and to consider mitigating conditions in all permitting actions.

The SA baldly, and falsely, asserts that the cumulative impacts from the new DFLAW system are within the bounds of cumulative impacts considered in the TCWMEIS. However, USDOE admits that the secondary waste streams will exceed – and differ from – the secondary waste streams considered in the TCWMEIS.

The assertion on cumulative impacts is based on the non-sequitur that will not operate TSCR or a hypothetical permanent new Cesium removal facility at the same time as it operates the Pretreatment Facility. However, as we noted earlier, at best, USDOE will not operate the Pretreatment Facility until the mid-2030's. Of course, the Pretreatment Plant may never operate. As we have shown, TSCR will create different waste streams using more dangerous uncontained equipment (there is no definitive plan for a permanent Cesium removal facility, which would also trigger an EIS requirement) that lacks the confinement and containment of the Pretreatment Facility:

> "DOE does not intend to operate the Pretreatment Facility at the same time as the EMF and the cesium removal system. Therefore, potential environmental and human health impacts associated with those facilities would not result in added cumulative impacts compared to the impacts presented in the TC&WM EIS for the WTP Pretreatment Facility."

Supplemental Analysis at 2-1.

The cumulative impacts from entirely new liquid waste streams, which will be treated in a new facility (EMF), cannot be said to be the same as under the prior system just because they will not operate simultaneously. USDOE acknowledges that the Pretreatment Facility analyzed in the TCWWMEIS utilized extensive "ultrafiltration" processes to pretreat waste, in addition to use of cesium ion exchange to remove cesium. However, in the DFLAW / TSCR proposal, ultrafiltration is entirely dropped. There is no discussion in the Supplemental Analysis of the potential impacts from the removal of ultrafiltration. This may change characteristics and

treatability of the waste streams entering the LAW Facility, impact final glass formulation and will change secondary wastes streams.

The potential for significant changes to liquid waste streams in comparison to those considered in the TCWMEIS is high. This draft permit modification includes the Effluent Management Facility. There is no record of consideration of those changes to waste effluents, evaporation emissions, liquid waste discharges and treatment processes. The SA has a one sentence acknowledgement that total secondary waste streams will be greater than analyzed in the TCWMEIS, without discussion of quantities or types / characteristics of the additional waste.

All of these numerous potential impacts are required to be considered in a Supplemental EIS for tribal and public comment, as well as for decision makers to consider before permitting. We urged Ecology and USDOE to prepare a Supplemental EIS starting in 2016. There is no excuse for USDOE's intransigence. Ecology should not reward that failure by proceeding without a Supplemental EIS. If Ecology does proceed, Ecology's action is likely to be successfully challenged. There is no record of decision makers from USDOE and WA Department of Ecology considering the significant impacts, risks, alternatives, and mitigation for those risks as part of the record for this draft permit.

In sum, 40 CFR 1502.9 and WAC 197-11-405 require a Supplemental EIS because USDOE has proposed numerous substantial changes to the proposal, with probable significant impacts, including: replacing Pretreatment with TSCR and proposing new waste streams and substantial new risks. There is substantial new information and circumstances since issuance of the TCWMEIS more than five years ago, including that the analyzed Pretreatment Facility may never be used. Ecology cannot accept or rely upon the inadequate SA issued by USDOE.

In addition to denying the public the opportunity to review and comment on the significant potential impacts from the new facilities, wastes and processes covered in these draft permits, the public ability to review and comment has been undermined by <u>USDOEs failure to prepare legally required technical fact sheets to accompany the permit proposal for each facility and permit chapter being modified</u>.

In order to facilitate review by tribes, other governmental agencies and the public, each portion of the draft permit or permit modification is required to be accompanied by a "technical fact sheet," pursuant to Ecology's regulations (WAC 173-303-840). Each facility for which a permit is proposed to be issued or modified, must have a technical fact sheet. (WAC 173303-840)[1]

The proposed LAW and EMF permit modifications and proposed new permits cover several distinct facilities. There should be a separate fact sheet for each facility. Instead, USDOE has one, woefully inadequate fact sheet.

USDOE and Ecology were urged in 2016 by our organizations to prepare adequate fact sheets for each chapter and facility subject to this permitting proposal when it was initially proposed for review on November 28, 2016. Ecology acknowledged that the permit was incomplete and that

[1] WAC 173-303-840(i): A fact sheet will be prepared for every draft permit for a major dangerous waste management facility

USDOE would need to meet a compliance schedule “to (provide) detail what additional design and operations information is required to ensure the permit application for EMF is complete..."

The permit is still woefully incomplete. The necessary risk assessments, as discussed in conjunction with our SEPA comments above, were not produced, Instead, Ecology is being asked to permit, and the public to comment on permit conditions, without the requisite risk assessments on which permit conditions should be based.

Instead of individual technical fact sheets for each facility and chapter being modified or permitted for the first time, USDOE has submitted one fact sheet without any of the required summaries of the facilities, waste streams, risks and permit conditions.

See Attachment 2, “technical fact sheet” to USDOE’s transmission of the proposed permit modification on June 26, 2019. USDOE-ORP Submittal of Proposed Class 3 Permit Modification Operating Permits for LAW and EMF from ORP Manager Brian Vance to Ecology Manager Alex Smith. This was not even easily found by the public (if anyone other than our organizations found it) since the notification fact sheet did not provide a link or notice that the technical fact sheet, which is supposed to function to provide more readily reviewable document (compared to the entire 863 page submission), was available.

The technical fact sheet fails to disclose the changes in waste streams from tanks which will be treated in the LAW and EMF Facilities following the substantive change from removal of pretreatment in the Pretreatment Facility.

WAC 173-303-840 requires the fact sheet to include waste types and quantities.

The technical fact sheet should, in fact, be a set of technical fact sheets describing each facility and chapter proposed to be modified. Wastes for each unit and facility are not described (or identified by characteristics), processes are not described, waste products and disposition are not described.

A fact sheet should be prepared for the LAW facility, describing how it is not proposed to be utilized for the foreseeable future and how this will change waste streams and processing.

A fact sheet should include the proposed changes to transfer lines within the WTP complex, which are subject to the site RCRA permit.

A fact sheet should describe the outdoor tanks and secondary containment conditions proposed for dangerous mixed wastes, as well as for the numerous tanks and vessels inside the facilities.

A fact sheet should describe air emissions and liquid wastes treated and generated in EMF, including changes to the waste streams compared to prior versions of the permit application and to the wastes and processes considered in the TCWMEIS.

The fact sheets should describe results of risk assessments used to support permitting. However, instead of submitting them with the permit, these are left to be submitted at an undefined time in the future. The fact sheets should describe mitigation of those risk via permit conditions. It cannot because the risk assessments are not provided. However, this does not eliminate Ecology’s duty to describe mitigation in the fact sheets and adopt such mitigating conditions.

Risk assessments should evaluate receptors based on Yakama Nation and Umatilla Nation Members' use of nearby ceded lands. The LAW and EMF facilities, along with the other WTP facilities, are being constructed to the east of the existing 200 Areas. TSCR operations in 200 East will not have containment from a structure. Routine emissions and accidents have the potential to impact the health of tribal members utilizing lands and resources to which the tribes have reserved rights under the Treaties of 1855. These impacts and restrictions may last eighty years – without any accidents.

USDOE should stop basing risk assessments for facilities on hypothetical human "receptors" who are not living on, or utilizing, the Hanford site. USDOE's draft permit states that USDOE assesses risk based on a "plausible exposure scenario," which is "based on where potential receptors currently exist or may reasonably be expected to exist within the foreseeable future." Draft Permit Page 4.33. Therefore, USDOE only analyzes air emission impacts on the public more than six miles from the LAW, EMF and TSCR sites.

In the NEPA Supplemental Analysis for DFLAW (January, 2019), USDOE claims that the nearest potentially exposed public for purposes of analyzing risk from Tank Side Cesium Removal (TSCR) "is more than 6. 8 miles from the IX Column Storage Pad." SA at 3-10. (IX refers to the Cesium Ion Exchange storage pad). This callously ignores the Treaty rights of the Yakama Nation to utilize ceded lands and resources on the Hanford site, including the Central Plateau outside the operational areas.

Ecology Should Consider Environmental Justice and Treaty Rights in Permitting:
Ecology (and DoH for radioactive air emissions) should be honoring our States commitment to consultation and consideration of environmental justice principles in permitting. This should start with these permits by notifying USDOE that its risk assessments for air emissions under the permits must be based on the reasonably foreseeable use of treaty or NHPA guaranteed rights by tribal members to be present on Central Plateau areas outside the 200 Area fences.

The State of Washington should not join USDOE in failing to recognize that the reasonably foreseeable uses of land and resources includes members of the Yakama Nation living on lands and utilizing resources on the Hanford site as guaranteed by the Treaty of 1855 and pursuant to the provisions of the NHPA. The relevant requirement for a Washington State Dangerous Waste permit is to utilize the risk assessment elements of MTCA, which call for use of the reasonable maximum exposure scenario. *This reasonable maximum exposure scenario is tribal use of ceded lands and a tribal exposure scenario.*

Permit air emission limit conditions should be based on tribal use of resources and exposures, including being protective of the plants and wildlife which the tribes have rights ensured by treaty and the NHPA to use for food, religious and cultural practices.

Ecology should demonstrate in the record for permitting hos it has minimized emission from evaporation and other operations, including alternatives to evaporation of liquid wastes if evaporator emissions impact nearby areas.

Vitrified LAW waste and numerous secondary wastes from LAW are planned to be disposed in Hanford's Integrated Disposal Facility (IDF) landfill. USDOE admits that the secondary waste streams will exceed those analyzed in the TCWMEIS (see infra). Further, USDOE's use of non-elutable Cesium exchange columns may lead to USDOE seeking to dispose of other

unanalyzed waste streams being disposed in IDF. Permitting of this landfill was contentious because of the potential for IDF to be used for unanticipated large quantities of waste, in unanticipated forms and without knowing the waste characteristics. Waste will leach from IDF and contaminate groundwater. Ecology appropriately adopted permit conditions for IDF requiring updated performance assessments and limits on waste acceptance if the performance assessments predict that any waste constituent will exceed 75% of maximum contaminant limits (MCL) in groundwater at any time in the future.

Secondary mixed radioactive and hazardous wastes which will be disposed in IDF include massive contaminated LAW Vitrification melters and large "ancillary equipment," contaminated pumps, offgas emission HEPA filters and other emission control systems, resins and catalysts.

With the switch in processes to DFLAW, there are major changes in waste streams for disposal in IDF which have not been analyzed in any environmental assessment. There has not been an updated EIS for the DFLAW system, or a new performance assessment for IDF considering if the changes in anticipated wastes may impact performance. Relevant permit conditions for EMF, LAW and IDF should include:

- EMF: the permit should bar disposal of solidified liquid effluent stream in the IDF landfill if the quantities and characteristics of the waste streams are not considered or if releases will exceed 75% of MCL to groundwater when modeled. Modeling must be updated.
- IDF must have a new performance assessment to review if TSCR increases mobile contaminants. Permit bars disposal of waste above amount which is modeled to reach 75% of MCL in groundwater.
- The LAW and EMF permits should specify specific waste limitations for waste transferred to LAW for treatment that are based on the concentration limits and maximum quantities disposable in IDF pursuant to the IDF permit. Due to removal of pretreatment from the processes, both a new SEPA / NEPA analysis and permit performance assessment must be conducted to set those operating limits.
- A treatment variance for LDR testing of ILAW containers, which will be disposed in IDF is being proposed. This is not supported by reasonable assurance that the changes in waste composition for LAW, without pretreatment, will not be significant and impact the long term performance of IDF to prevent groundwater contamination. This proposed permit exemption should be removed.

How will Ecology assure that these IDF permit limits will not be exceeded without a new Supplemental EIS and without appropriate description of wastes and limitations in this set of permit modifications?

Low Activity Waste Treatment (LAW Facility) and EMF "secondary" waste streams pose serious environmental impacts and safety risks.

Large quantities of secondary liquid waste streams will be generated and sent to the Effluent Management Facility (EMF) for transfer to LERF/ETF (Effluent Treatment Facility) for treatment and discharge to soil or evaporation. This draft permit includes EMF within its scope as well as the LAW Facility, but not the ETF. This limits the ability to review and comment to pieces of a system instead of allowing review and comment on the entire system.

This draft permit does not update sampling and analysis requirements for those secondary waste streams in the LAW facility and units associated with this draft permit. Instead, the draft permit relies on updating the waste acceptance criteria for each of the other permitted recipient units to set appropriate sampling. See Draft Permit at 3.C.8. This leaves a large hole in analysis and permitting. There is no assurance that each receiving unit's permit will be modified before start-up of LAW Vitrification operations in 2022 or 2023.

EMF should be treated as a brand new facility for permitting, not a Class 3 modification. LAW operations provisions are also not modifications.

The permits should require violations or exceedances of emission rate limits during emissions testing and operations to be reported to Ecology immediately upon discovery.

Permit condition 1.E.21 and Part 3, III.10.K.1.h.iii; EMF Specific Operating Conditions III.10.I.18.c and d (Conditions pages 315-317); III.10.I.18.c E.1 at page 30, and III.10.I.18.d E.1, at page 33 and several other provisions allow USDOE 24 hours to notify Ecology of violations of air operating emission limitations during the emission testing phases. As with releases of hazardous substances generally, releases in excess of allowable limits should trigger immediate reporting, ESPECIALLY during the emission testing and Other Emission Testing. We urge Ecology to revise Permit Condition I.E.21.

While the conditions require USDOE / Bechtel to immediately stop the feed to LAW Vitrification system whose operation led to the violation of emission limits, the notification to Ecology should be immediate. The draft permit provisions inappropriately assume that USDOE and Bechtel will know why, or from which aspect of operations, the excess emissions are caused or from. This is not likely. Further, there is likely to be technical and professional judgments involved in making that determination. This, Ecology should be notified immediately so determinations to keep processing are not made inappropriately due to contractual or management pressures.

Sampling and Waste Acceptance Permit Conditions Need Significant Strengthening:

The commitment to prevent ignitable or reactive wastes depends on full characterization of wastes in tanks.

> "While operating in the Direct Feed LAW configuration, WTP will not accept and/or treat mixed waste that carries the D001 (ignitable) waste code and/or the D003 (reactive) waste code." Permit Part A, XI.

Chapter 3C, Waste Analysis Plan is supposed to "describe(s) waste analysis during WTP operations." It does not adequately describe and require waste analyses, separation and diversion from wastes in tank farms to meet the requirement that ignitable and reactive wastes will not be within the DFLAW system. The permit should list and bar wastes with worker health and safety risks (e.g., vapor) and wastes which may generate other chemical reactions from entering the system.

How will wastes with potential volatile toxic or other health risks going to be identified and removed from the tanks before entering the DFLAW system? How will this be achieved to reduce worker exposure?

Part A of the permit lists 16,300 Ton (T) of D-1 Ignitable waste per year for the Pretreatment facility despite the contradictory statement that no ignitables will be transferred to or stored at the Pretreatment Facility.

The limitation on waste in Part A has the notation that ignitable (D-0001) and reactive (D-0003) wastes will only be present and are listed solely for the pretreatment facility, and will be removed in PTF. However, DFLAW operation will not include PTF. Therefore, it is necessary to list and describe removal and storage of ignitable and reactive wastes:

> "*Waste codes for ignitability (D001) and reactivity (D003) apply only to the waste while it is in the pretreatment facility, LAW feed receipt FRP vessels and the HLW feed receipt vessel. Downstream of these vessels, the D001 and D003 waste codes are administratively removed from the project's waste streams."
>
> Footnotes Section XIV, Line 1, Part A.

A description of these wastes by specific chemical properties and safety requirements should be provided, so that appropriate requirements specific to the wastes are incorporated. This requires characterization / identification of wastes upstream, which is not described.

Entering one quantity for D-0001 of 16,300 T (tons) and having absolutely no permit limitation on wastes within this quantity is not acceptable practice and does not provide Ecology with appropriate oversight. All other wastes are listed as being included in the 16,300 T, with no further breakout of quantities for each code. This does not meet the waste description requirements.

The permit fails to specify how sampling for organics, PCBs, volatile organics, metals or ignitables will be representative of all wastes transferred. **The permit should require a minimum number of samples for a given volume of waste from each portion or layer of a tank prior to transfer to the DFLAW system**.

The permits should require representational sampling from wastes in each portion of a tank and each waste phase prior to transfer. ***One sample of 170mL from each tank is not representative of a tank with tens of thousands to over a million gallons of waste and is woefully inadequate***: Section 3.A.5.8 at 3.A.19 requires only ONE sample per tank. This one sample is "anticipated" to be just 300 mL of "slurry" containing 30g of solid and 170 mL of supernatant liquid. Table 3B-3, page 3B.26, footnote 3. For HLW being transferred in the DFLAW configuration to the LAW Facility, the permit specifies the lower figure of just 170 mL of waste as the anticipated sample size. Page 3C.6. This fails to ensure that all phases and layers of tank wastes to be transferred will be sampled. Tank wastes are not uniform. Sampling requirements should vary by phase and layer, e.g., increased sampling for metals from sludges; and, increased sampling for ammonia and semivolatile organics for supernates.

- Section 3B.5.2.3. addresses representativeness as well. This section also fails to require appropriate representative sampling prior to initial treatment campaigns or to incorporate minimum sampling requirements for various types or phases of wastes in given feed tanks as well as for tanks within the LAW facility:

> "The number of samples collected for the characterization of waste feed and secondary waste streams will be evaluated during the development of standard operating procedures to ensure that sampling is representative of the total waste being sampled. Sample requirements will be periodically re-evaluated as characterization data from previous treatment campaigns and additional process knowledge becomes available."

  This fails to provide any meaningful, enforceable requirement for sampling to ensure that secondary waste streams to meet limitations (which should be in the permit).

- DFLAW processing of waste batches would be allowed based on submission of a waste profile for each batch of waste to the WTP operator (contractor). Draft Permit Section 3C.5. The draft has no requirement for the waste profile to be based on truly representative sampling.
  - The draft permit has no requirement for sharing the profile with Ecology with a review period. This should be added.
  - The draft permit has no requirements in place to ensure that constituents from the sludge in tanks is not present. Sludge is not defined and there may not be a rigid line between waste forms and phases.

- Ecology should not accept the proposed draft permit language allowing for the waste acceptance criteria for processing HLW in the LAW facility to be waived by contractor personnel. Draft Permit at Section 3C.5, page 3.C.5 ("Alternately, a change to the waste acceptance criteria may be made on a case-by-case basis (as long as there are no design or safety basis impacts and permit compliance is maintained)." See also Section 3.A.5.6.

  Waste acceptance criteria are permit conditions based on analyses to prevent serious environmental, health and safety impacts (including cumulative impacts from repeatedly waiving criteria). Waiving of criteria, therefore, must be done only with notice to, and approval by, Ecology (and air regulators when there are potential air impacts). The permit should establish that analyses and updates to waste performance or potential emission calculations may be required for waiver, and that cumulative impacts from all waivers may not exceed any estimate of impacts considered in prior analyses.

- For ignitables, the permit asserts that only Tank C-103 contains a separate organic solvent phase and that there is no history of fires in tank wastes. This ignores the documented history of ignitable and explosive waste precursors being disposed in tanks from facilities such as PUREX, with lower temperature limits for ignitability.

These chemical precursor wastes, e.g. tributyl phosphate, which were disposed in tanks, were ignitable above 60 degrees Centigrade, the regulatory threshold.

The permit should establish clear sampling, analysis, training qualification and processing conditions. Of particular concern is the lack of requirements for specific employee qualification and immediate reporting to Ecology of any conditions which are outside normal, expected and permitted analytical ranges or operating conditions.

Ecology should include provisions for immediate reporting of exceedances. Ecology should include training provisions in the permit requiring that personnel regularly demonstrate that they understand their obligations to report to Ecology as a training qualification condition.

- Reports to Management on conditions which MAY have an adverse effect on quality, emissions, should be shared with Ecology, and Ecology should have advance notice of reviews to determine if Ecology personnel or a qualified contractor will participate in reviews as a permit condition. See 3.B.7.3. The permit should specify as a condition that any employee who observes a nonconforming condition or parameter has a duty to report to management, the QA Manager, and to Ecology; and, that the facility management shall post this duty along with how to report and assurances that reporting may be done anonymously.

- The need for these conditions is the numerous documented cases of Hanford workers feeling that they could not report upset conditions or alarms to management without retaliation.

Training: The dangerous waste training plan must be an enforceable permit condition, not just a guide in the "operating record."

Training qualifications should be specified in the permit. We support the draft changes which added a qualification requirement, rather than solely stating that personnel are expected only "to read and understand" sampling procedures. See 3B.6.1.3. However, how qualifications will be established, and personnel demonstrate that they are qualified should be specified in an additional training requirement documents – incorporated by reference into the permit. This is important to specify for operating processes, particularly for recognizing and reporting out of specification waste conditions.

Inspections:

- The addition of weekly inspections of dangerous waste container storage is appropriate. Section 6.A.2.1.4. So are requirements for a seven year schedule for integrity assessments for equipment and lines with high potential for corrosion or erosion (which may be used for decades). See Section 6A.2.1.9.
- Sumps and low point secondary liquid containment equipment should be subjected to actual alarm testing every two years, not just visual or historic record inspection.
- The operator should be required to perform actual testing of alarm response to releases with Ecology on a biennial basis to ensure training is effective and that alarms are operable.

- Section 6A.2.4 should require testing and integrity assessment of the transfer pipes for which cathodic protection against corrosion has been replaced in the DFLAW system with HDPE insulation. This integrity assessment should be on the same schedule as for assessments of equipment and tanks.

Ecology should include permit provisions ensuring access by the Defense Nuclear Facilities Safety Board (DNFSB) for inspections and review of corrective actions. DNFSB oversight has been essential as a primary safety review and to supplement Ecology's oversight. Yet, DNFSB access has been under attack by USDOE. Therefore, Ecology should make access and response by USDOE to DNFSB reports or findings an essential safety condition under the permit (DNFSB oversight includes chemical waste, not just radioactive materials – thus, it is appropriate for inclusion in the RCRA / HWMA permit). DNFSB has expertise that Ecology relies upon.

- The inspection provisions of Chapter 6 of the permit should include enforceable permit conditions guaranteeing DNFSB access to the facility and retaliation free access to staff. The permit should also require USDOE to respond in a timely manner to all DNFSB safety reports issued to DNFSB.
- The permit should have an enforceable condition that retaliation against any employee reporting safety or environmental concerns to Ecology or DNFSB is a violation of the permit.

Ecology should also include permit provisions ensuring that upon Ecology request, the National Institute for Occupational Safety and Health (NIOSH) will be able to join inspections and in reviews of exposures or illness. Ecology and USDOE have relied upon NIOSH expertise for investigating vapor exposures and beryllium exposures. However, NIOSH access is currently limited to being invited by USDOE. Because Ecology has relied on NIOSH in the past, the permit should ensure that NIOSH will be able to join Ecology or conduct an assessment when requested by Ecology.

Storage capacities are proposed to be limited in the Part A Sections XI-XIII solely by total volume of the tanks and storage areas, with no description or limitation based on waste characteristics; e.g., 1.361 million gallons of waste stored in containers. This should be broken out by facility, and by types of waste. The regulations require a description of wastes and quantities, not just a total summation of storage capacity as constructed.

Characterization should list metals which are dangerous waste under WA law, nut just "RCRA metals." For example, Beryllium is a dangerous waste. It must be identified and disposed in accord with WA DW regulations.

USDOE inappropriately seeks exemption from dangerous waste air emission regulation of tanks and containers in the air emissions Chapter 3.C.6:

> "These tanks and containers are excluded under WAC 173-303-692(1)(b)(vi) because they qualify as waste management units "…used solely for the management of radioactive dangerous waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act."

Draft Section 3.C.6 at pages 3.C.16, 17.

However, USDOE does not regulate radioactive dangerous wastes under authority of the AEA and NWPA, and has no “regulations” to manage the dangerous waste “in accordance with”.

USDOE blatantly disregards the provisions of the Federal Facilities Compliance Act (FFCA), which amended RCRA to explicitly require USDOE to submit mixed waste treatment plans to state hazardous waste regulators for approval, which is Ecology for Washington State.

Ecology should add provisions to regulate air emissions from tanks and containers pursuant to WAC Chapter 173-303.

Outdoor tanks lack adequate secondary containment and sampling of storm water, There are eight outdoor tanks at EMF in partially coated cement “vault-like structures”, a caustic collection tank in a cement berm at the LAW Facility and two outdoor process condensate tanks outside the Pretreatment Facility in a “vault-like structure.” Chapter 4.21. These have only been designed to hold the contents of the largest vessel plus precipitation from a 25 year precipitation event. Regulations require secondary containment able to prevent release to the environment of the wastes in tanks. This is particularly important for an outdoor tank storage arear where the release will be straight to the environment

- These draft provisions are not based on consideration of the likely causes for outdoor tanks to leak or fail. The permit ignores reasonably foreseeable scenarios that will cause more than one tank may fail at a given time, e.g., from a seismic / earthquake event, fire, major precipitation event, accidental over pressurization…. (These scenarios should have been analyzed in a Supplemental EIS). For internal storage areas, permit conditions describe gradient and other elements for collection of wastes exceeding the volume of the largest single tank or vessel. Those conditions are not applicable to the outdoor tanks.

- The permit should add testing of storm water collected in the outdoor berms or vaults before discharge. USDOE and contractors have a history of asserting that releases from storage containers were only storm water. For example, at CWC USDOE made this claim. Subsequent analyses showed the releases to be contaminated with dangerous and radioactive wastes from containers stored outdoors. The permit should mandate that testing should occur on a regular basis or on a continual flow for release of “storm water” from the tank berms and vaults.

- Low Point Drain Vessel for EMF: how will leakage be detected? This is not described in Section 4.G.2.1. A steel liner is described in the section. Steel liners may not prevent all releases. The vessel location is not intended for personnel entry, so how will assessments occur, and leakage be detected?