DEPARTMENT OF
ECOLOGY
State of Washington

Response to Comments

Air Permit Revision to Facilitate Waste Retrieval from Hanford Tank AY-102

January 24 – February 23, 2016

Summary of a public comment period and responses to comments

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Response to Comments

Air Permit Revision to Facilitate Waste Retrieval from Hanford Tank AY-102

January 24 – February 23, 2016

Department of Ecology
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TABLE OF CONTENTS

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INTRODUCTION

The Washington State Department of Ecology's Nuclear Waste Program (NWP) regulates air pollution sources at the Hanford Site through permits. These permits ensure Hanford's air emissions stay within regulatory limits to protect people and the environment.

The permittee is the U.S. Department of Energy (USDOE) Office of River Protection (ORP). The permit is for USDOE's Hanford Site in south-central Washington, north of Richland.

Activities at Hanford's tank farms require occasional changes to the permit as the permittee improves ventilation systems or installs new equipment to support management and retrieval of waste in the underground storage tanks. Through Approval Orders, the permittee can seek, and Ecology can approve, certain changes that are later incorporated into the Hanford Air Operating Permit.

The purpose of this Response to Comments is to:

- Describe and document public involvement actions.
- List and respond to all significant comments received during the public comment period.

This Response to Comments is prepared for:

Comment period:	*Air Permit Revision to Facilitate Waste Retrieval from Hanford Tank AY-102, January 24 – February 23, 2016*
Permit:	*Approval Order DE11NWP-001, Rev. 3*
Permittee(s)	*USDOE-ORP*

To see more information related to the Hanford Site and nuclear waste in Washington, please visit our website: www.ecy.wa.gov/programs/nwp.

REASONS FOR ISSUING THE PERMIT

At the Hanford Site, USDOE is engaged in a cleanup effort to address the waste resulting from decades of plutonium production. Much of the waste to be cleaned up is stored in underground tanks near the center of Hanford, several miles from any residence or agricultural land.

The waste in Hanford's double-shell tank AY-102 must be removed because the tank is leaking. Under an Order from Ecology, the waste retrieval must start by March 4, 2016.

In support of retrieving waste from tank AY-102, USDOE-ORP performed a new analysis on dimethyl mercury emission risks from all emission points under USDOE-ORP control. The analysis set an upper limit on dimethyl mercury releases and all subsequent permit requests that have dimethyl mercury emissions will use a portion of the total analyzed limit. This process protects the public by setting an upper dimethyl mercury emission value for all work USDOE-ORP is performing (Tank Farm emissions, Waste Treatment Plant emissions, etc.).

The Approval Order will approve the project proposed by the permittee and describe conditions and restrictions they must meet.

PUBLIC INVOLVEMENT ACTIONS

Ecology sought public comment on the proposed changes for Tank AY-102's ventilation system during a 30-day comment period held January 24 to February 23, 2016.

To publicize the comment period, Ecology:

- Emailed an advance notice of the comment period on January 4, 2016, to the approximately 1,500 subscribers on the Hanford-Info listserv.
- Placed a legal classified advertisement in the *Tri-City Herald* on January 25, 2016.

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

- Transmittal letter
- Application
- Second Tier Petition
- Approval of Second Tier Petition
- Draft approval order DE11NWP-001, Rev. 4

The following public notices for this comment period are in Appendix A of this document:

1. Classified advertisement in the *Tri-City Herald*
2. Notice sent to the Hanford-Info email list

LIST OF COMMENTERS

Commenter Identification:

The table below lists the names of organizations or individuals who submitted a comment on the draft Approval Order DE14NWP-001, Rev. 3 and where you can find Ecology's response to the comment(s).

Commenter	Organization	Comment Number	Page Number
Green, Bill	Citizen	1-21	9-24

RESPONSE TO COMMENTS

Ecology accepted comments on the draft Approval Order DE11NWP-001, Rev. 4 from January 24 to February 23, 2016. This section provides a summary of comments we received during the public comment period and our responses, as required by the Revised Code of Washington (RCW) 34.05.325(6)(a)(iii).

Comments are grouped by individual, and each comment is addressed separately. Ecology's responses directly follow each comment in italic font. Verbatim copies of all written comments are attached in Appendix B.

Comment #1 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

A new public review will be required before conditions in this NOC Order (DE11NWP-001, Rev. 4) can be added to Hanford's Air Operating Permit (AOP), because the current public review conducted under WAC 173-400 does not meet the minimum requirement for public review pursuant to WAC 173-401, *The Operating Permit Regulation*.

Ecology Response:

*The current Hanford Air Operating Permit (AOP) is undergoing revision (the current enforceable AOP is identified as **Revision A)** at this time. **Revision B** has received public comments following the requirements in Washington Administrative Code (WAC) 173-401. The public comment period for **Revision B** has closed and Ecology is working on responding to these comments.*

*The issuance of this Notice of Construction will result in a change to the applicable requirements of the Hanford AOP. WAC 173-401-730 provides timeframes to complete changes to the AOP from the date the applicable requirement is effective. In this specific case, the Hanford AOP will need to be revised (**Revision C**) within eighteen months of when this NOC is issued.*

*Ecology will follow the requirements of WAC 173-401 for all revisions of the Hanford AOP. No timeframe currently exists in regards to a public comment period for **Revision C**.*

*WAC 173-400-111 (2) states {emphasis added} "A **person seeking approval** to construct or modify a source that requires an operating permit **may elect** to integrate review of the operating permit application or amendment required under chapter 173-401 WAC and the notice of construction application required by this section. A notice of construction application designated for integrated review must be processed in accordance with operating permit program procedures and deadlines in chapter 173-401 WAC and must comply with WAC 173-400-171."*

The US Department of Energy is the "person" seeking approval, and they did not request integration of this notice of Construction with the Hanford AOP. It is not a requirement to process and issue a Notice of Construction concurrently with an AOP.

*Ecology will incorporate all new applicable requirements that have occurred since **Revision B** of the Hanford AOP was opened for public comment in the next revision (**Revision C**) of the Hanford AOP. **Revision C**, when it is issued, will follow the requirements of WAC 173-401 and will include a public comment period.*

No change to the permit is required.

Comment #2 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

There is no question the federal radionuclide air emission requirements of 40 C.F.R. 61 subpart H apply to activities contemplated by this NOC Order (DE11NWP-001, Rev. 4); yet, the **application** offered to the public for review doesn't address this federal requirement. Washington Administrative Code (WAC 173-400) doesn't allow the permittee to overlook emissions to be emitted by the proposed modification in its **application**, independent of whether Ecology chooses {to} enforce the federal radionuclide air emission requirements.

Ecology Response:

*Washington Administrative Code (WAC) 173-400-111 (1)(b) states "At a minimum, the application must provide information on the nature and amounts of emissions to be emitted by the proposed new source or increased as **part of a modification**, …" [emphasis added] This NOC Order is a modification of the previously issued NOC Order (DE11NWP-001, Rev. 3). As required, the permittee provided information on the nature and amounts of all of the emissions that will be increased as part of the permittee's request to modify the source. The emissions of radionuclides will not increase as a result of this request for modification. As no increase will occur, WAC 173-400-111 (1)(b) does not require information concerning radionuclides to be submitted.*

The only potential to increase radiological emissions would be from the change of the AY-102 portable exhauster emission rate limit from 1600 scfm to 3000 scfm. However, the stack flow rate permitted for the AY-102 unit is already 3000 cfm. See the Washington Department of Health Office of Radiation Protection Radioactive Air Emission License (RAEL) for AY-102. As the RAEL has already established the 3000 scfm flow rate, no increase to radiological emissions will occur and the permittee was not required to provide information concerning radionuclide emissions under WAC 173-400-111 (1)(b).).

Ecology requested copies of the RAELs used for tank farm emissions from the Department of Health. These RAELs are identified by their exhibit identifier in the Reference section. The following table shows a crosswalk of which exhibit is for which RAEL and the unit(s) that RAEL covers. All of the RAELs contain the requirements of 40 CFR 61, subpart H.

Exhibit Identifier	RAEL Identifier	Emission Unit Description
Exhibit A	*EU 56*	*Existing SY Farm exhauster*
Exhibit B	*EU 93*	*Existing AY/AZ Farm exhauster*
Exhibit C	*EU 204*	*Existing AP Farm exhauster*
Exhibit D	*EU 886*	*Proposed AY-102 portable exhauster*
Exhibit E	*EU 1328*	*New AP Farm exhauster being installed*
Exhibit F	*EU 1329*	*New AP Farm exhauster being installed*

Ecology will add to the findings portion of this permit, "The requirements for federally enforceable requirements of 40 CFR 61, subpart H, are contained in Radiological Air Emission License(s) (RAELs) issued by the Washington State Department of Health, Office of Radiation Protection."

Comment #3 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

The assessment of risk to the public overlooks harm resulting from decay of radioactive isotopes of the anticipated toxic air pollutants (TAPs) along with harm from all expected radioactive decay, in general. In the highly radiogenic environment of the tanks it is nor possible for a TAP to exist absent any of it radioactive isotopes.

Ecology Response:

Please see response to Comment #2.

The Washington Department of Health, Office of Radiation Protection, issues Radioactive Air Emission License(s) (RAELs) for specific emission units. The RAELs are issued independently of the Notice of Construction Permits issued by Ecology. It is in the RAELs where the requirements from consideration of potential harm from decay of all radioactive constituents in the tank vapor and gases occurs. Ecology determined from the RAELs issued by the Department of Health, listed in the response to Comment # 2, that radiological emissions have been considered and appropriate controls required.

No change to the Permit is required.

Comment #4 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

In general monitoring is insufficient to verify continuous compliance with the required emission limits. If or when terms and conditions from this NOC Order are subject to incorporation as "federally enforceable" requirements (40 C.F.R. 70.6 (b)) into Hanford's CAA Title V permit, monitoring must be sufficient to demonstrate continuous compliance. The Title V permit must include "periodic monitoring" (sometimes referred to as "gap-fill" monitoring) sufficient to assure continuous compliance with permit terms and conditions [40 C.F.R. 70.6 (a)(3)(i)(B)]

Ecology Response:

This Notice of Construction Approval Order is being issued to authorize the modification of operations at the Hanford facility in compliance with Washington Administrative Code (WAC) 173-400. 40 CFR 70.2 defines an "applicable requirement" to include "(2) Any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under title I, including parts C or D, of the Act;". WAC 173-400 has been approved under Title I, Part A, Section 110 of the Act Thus, this permit is considered an applicable requirement.

This Notice of Construction Approval Order will result in a change to the applicable requirements of the Hanford AOP. WAC 173-401-730 provides timeframes to complete changes to the AOP once a new applicable requirement is effective. In this specific case, the Hanford AOP will need to be revised within eighteen months of when this NOC Approval Order is issued.

In the meantime, both the requirements for Hanford AOP and the requirements in this Notice of Construction Permit are concurrently applicable, and the U.S. Department of Energy is bound by both sets of permit conditions concurrently.

Each permit is separately enforceable, so even if different permit conditions exist for the same discharge point, enforcement of permit conditions in one permit is not superseded by conditions in the other permit. (For example, if a newly issued NOC that hasn't been incorporated into an AOP yet has emission rates more stringent than emission limits in the AOP, enforcement of the NOC can occur even if the emission limits in the AOP are not exceeded).

The U.S. Environmental Protection Agency (EPA) issued an Order granting in part and denying in part two petitions for objection to permits (Exhibit G). This Order granted the Petitioner's request to object to the Hanford Title V Permit for Claim 3B.

The Hanford Title V permit (AOP) is currently undergoing revision (Revision B as discussed in response to Comment #1 above), and Ecology is preparing the Response to Comments received on the Draft Revision B. Revision B addresses EPA's Order.

For the above reasons, this Notice of Construction permit can be issued without the Hanford AOP being amended concurrently. The Hanford AOP needs to be and will be amended within the timeframes provided in WAC 173-401 to reflect the new applicable requirements put in place by this new NOC permit. The monitoring concerns raised in this comment will be addressed during the next AOP revision (Revision C).

No change in the permit is required.

Comment #5 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Compliance demonstration § 1.3.5, pg. 9 of 30) Condition 1.3.5 states: "Compliance with Approval Condition 1.2.1 shall be demonstrated by stack gas flow and temperature measurement annually." However, an annual measurement cannot verify the range of flow rates allowed by this NOC Order was never exceeded sometime during the year: only continuous flow rate measurements can do so. Require continuous flow rate measurements.

Ecology Response:

The stack gas temperature has been conservatively selected to be 0°C for this revision (Rev. 4) of the permit. As the temperature selected will always be lower than conditions in the headspace allow, no temperature measurements are needed.

The ventilation rates for Maximum Operations in section 1.2.1 of the permit are the maximum rates achievable by each exhauster (Tank Farm) system. As it is the maximum and lower flow rates will result in decreased risk to the general public, it isn't required for the ventilation rates to be recorded. However, requirements in the Radioactive Air Emission Licenses require the flow rate to be recorded.

Ecology will change section 1.3.5 to "Compliance with Approval Condition 1.2.1 shall be demonstrated by stack gas flow measurements at the same intervals as required by the RAELs."

Comment #6 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 2.1, Addressing) Add "or other address as provided by Ecology". As written Energy could be in technical violation should Ecology relocate or wish submissions be received at a different location.

Ecology Response:

Ecology agrees with the comment and will change the text in Section 2.1 to "Any required notifications and submittals required under these Approval Conditions shall be sent to the address below or to other addresses as provided by Ecology:"

Comment #7 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraphs 11, 1.1.3, 1.3.3.2, and Table 6) Paragraph 1.1.3 requires, in part, that "ALL TAPs…as found in Table 6 of this order, shall be below their respective ASIL…" However, Table 6 only addresses ammonia. Ecology should at least address or reference the basis for equating "All TAPs" with ammonia.

Ecology Response:

Ecology made an incorrect reference to Table 6 in the permit in section 1.1.3. The correct reference is to Tables 7, 8, and 9. These three tables were developed from the Permittee's Notice of Construction Application.

Ecology will change section 1.1.13 to read "All TAPs, as submitted in the Permittee's Notice of Construction Application, as found in Tables 7, 8, and 9 of this Order, shall be below their respective ASIL or approved through a Second Tier review."

Comment #8 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.1, Baseline Assessment) Paragraph 3.1 requires: "All baseline assessments shall be conducted with ninety (90) days after commencement of operations." By definition, a baseline is "information that is used as a starting point by which to compare other information." (*See* http://www.merriam-webster.com/dictionary/baseline) Because the "starting point" cannot occur "after commencement of operations", Ecology should require all baselines be established before operations begin to conform with the definition of "baseline".

Ecology Response:

In order to establish a baseline of operating conditions, conditions being measured have to be the same as future operating condition being measured and compared to the baseline established at the start. The emission baseline before operations commence is zero, as operations have not started and emissions through the stacks have not started. This is not what is needed to be measured for a baseline.

The provision allowing up to 90 days timeframe after commencement of operations is for the emission system to come to a steady state condition. Initial commencement has frequent start and stop cycles (e.g. mechanical checks, correction of unforeseen conditions, etc.) and balancing of the system. When these activities are completed, the system will be operating with the same parameters it will be operated to in the future. This allows for a baseline to be established for future emissions comparisons to the baseline and to each other.

No change to the permit is required.

Comment #9 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraphs 2.5 Reporting, and 3.3 RAPs Emission Assessment) Paragraph 2.5 requires, in part, the "[i]dentification of any TAP not previously identified…shall be submitted to Ecology within ninety (90) days of completion of laboratory analyses which verify emissions of that toxic air pollutant from the project." Paragraph 3.3 states the "[p]ermittee will develop and implement an annual sampling and analysis plan (SAP)…" However, absent a specific date or a specific event by which the annual SAP will be prepared, this condition and the cited portion of condition 2.5 are both meaningless and unenforceable. Revise the 1st sentence in paragraph 3.3 to state a specific date or a specific event by which the SAEP will be develop.

Ecology Response:

The permit is a revision of an established permit that has been active for many years. As a result, the requirement to develop and implement an annual sampling plan has been previously established and complied with by the permittee. The permittee has been using calendar years to fulfill the obligation of the "annual" permit condition. Although no change is needed, Section 3.3 will be changed to reflect current practices.

Section 3.3 will be changed to "Permittee will develop and implement a sampling and analysis plan (SAP) for each exhauster system on a calendar year basis. A calendar year runs from January 1 to December 31. Each SAP …"

Comment #10 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.3, 2nd sentence "Each SAP shall … to dimethyl mercury.") Add "chromium hexavalent: soluble, except chromic trioxide" (see Finding 11) and "n-Nitrosodimethylamine" (NDMA) (*see* 1.1.6, 3.5.2.1, and 3.5.2.2.1) so the sentence ends "… dimethyl mercury, chromium

hexavalent: soluble, except chromic trioxide, and N-Nitrosodimethylamine (NDMA)." These two additions are needed to be consistent with the remainder of this NOC Order.

Ecology Response:

Ecology agrees. The 2nd sentence of Section 3.3 will be changed to "Each SAP shall address the emission of a minimum of the three TAPs with the highest potential ambient concentration relative to their ASILs of WAC 173-460-150 in addition to dimethyl mercury, n -nitrosodimethylamine (NDMA), and chromium hexavalent: soluble, except chromic trioxide."

Comment #11 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.3, 3rd sentence "The TAPs addressed … tank content data.") Edit this sentence to read: "The TAPs addressed in the SAP shall ~~be identified from Table 6 and based upon best engineering judgment and~~ minimally include the most current tank content data." "Table 6" references only ammonia and "engineering judgment" cannot be substituted for the most current tank content data.

Ecology Response:

The reference to Table 6 was in error. The correct Tables are 7, 8, and 9.

Best engineering judgment is equated to the process of forming an opinion or evaluation (conforming to the technical and ethical standards of engineering requiring specialized knowledge and intensive academic preparation) by discerning and comparing.

Through the use of best engineering judgment, the SAP will be prepared not only with the most current tank content data, but with all of the data as it relates to the tanks. Depending solely on the requirement for the most current tank content data could provide erroneous sample data. For example, if the most current tank content data was generated before supernatant transfers and sluicing influents occurred (say to support single shell tank emptying) the latest data could be missing compounds introduced into the tank. On the other hand, using best engineering judgment to determine compounds in the SAP would allow for the evaluation of the most current tank content data and the influent and effluent impacts to the compounds of concern in the SAP.

Ecology will change Section 3.3 to reflect the correct Tables, but will leave the use of best engineering judgment coupled with the most current tank content data. The third paragraph of Section 3.3 will be changed to "The TAPs addressed in the SAP shall be identified from Tables 7, 8, and 9 and based upon best engineering judgment and most current tank content data."

Comment #12 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.4 Ammonia Emission Assessment and Table 2) Paragraph 3.4 requires "quarterly assessment of ammonia stack emissions", and Table 2 (Paragraph 1.1.4) requires that ammonia emissions "shall not exceed" a specific lbs/24 hr. value. It is not possible to ensure a specific lb/24 hr value has not been exceeded by sampling only quarterly. The only way to ensure ammonia

emissions don't exceed the allowed lbs/24 hr value is to require continuous sampling and recordkeeping. Require continuous sampling and recordkeeping.

Ecology Response:

The quarterly assessment requirement in Condition 3.4 is for quiescent conditions, and Table 2 is for conditions during retrieval activities (non-quiescent). The analysis of acceptable exposure to toxic air pollutants (TAPS) under the Clean Air Act uses average exposure over periods of 1 hour, 24 hours, or 1 year, depending on the TAP (see WAC 173-460-150). These time-weighted averages must be met in areas over which the permittee does not have control, e.g., at the fence line.

Historical data and past practice indicate little variability in emissions when the tanks are quiescent. From this information, quarterly sampling as required in Section 3.4 is adequate to gather emission data.

No change to the permit is required.

Comment #13 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.5, pg. 11/30, general) In paragraph 3.5 Ecology is proposing a mathematical relationship to equate disparate chemicals (e.g. x amount of ammonia = y amount of dimethyl mercury) as a means of ensuring compliance with specific emission limits. Such a relationship overlooks the fact that each chemical is characterized by a unique chemical structure and related physical properties. This concept is particularly problematic for Ecology when the unstable and continually changing chemical composition of emissions from the tanks is considered.

Ecology Response:

The data presented in the Hanford Tank Vapor Assessment Report (TVAR) is not being questioned, but the applicability or relevancy of the data to the Federal Clean Air Act and the Washington Clean Air Act is not clear as the data is lacking important meta-data (e.g. where was the sample collected, how was the sample collected, what protocols were used for sample collection, etc.).

Ecology doesn't have access to the actual data presented in the TVAR and can only depend on the information as presented in the report. This raises a question on how relevant the data are for use in determining ambient air concentration data to be compared to acceptable source impact level (ASIL) values of Washington Administrative Code 173-460.

The objective of the Hanford Tank Vapor Assessment Team is stated on page 12 of 153 of the TVAR as "WRPS asked the Savannah River National Laboratory (SRNL) to assemble and lead the Hanford Tank Vapors Assessment Team (TVAT) 2014 to determine the adequacy of the established WRPS program and prevalent site practices to protect ***workers*** *from adverse health effects of exposure to the chemical vapors on the Hanford tank farms."* [emphasis added]

This Approval Order is being issued under the Clean Air Act (CAA) and its amendments regulating ambient air. Ambient air is defined in 40 CFR Part 50.1 (e) as "… that portion of the atmosphere, external to buildings, to which the ***general public*** *has access."* [emphasis added]

In addition, WAC 173-460-070 requires compliance with the state TAPs requirements to be demonstrated "in any area to which the applicant does not restrict or control access."

The Hanford site is land owned or controlled by the source and to which general public access is precluded by a fence or other physical barriers. The air at the Hanford Site doesn't qualify as ambient air. Therefore, the State TAP requirements need not be met within the boundaries of the Hanford Site. However, on-site personnel are covered by other laws, rules, and regulations in regards to their safety.

Accepting the TVAR data as presented and acknowledging it was gathered in reference to worker protection and not general public protection, the highest percent increase presented in the TVAR is ~2,300 %. A comparison of the emissions parameters submitted in the original application for the permit to the TVAR reported increases must be examined to determine if the ~ 2300% percent increase creates a condition outside of the bounding assumptions used. If the TVAR data is within the bounding assumptions, then the emission release rate and modeling is still valid and no change in the permit is needed.

The application and Health Impact Assessment were based on a number of conservative assumptions designed to overestimate emissions:

1. *The highest emission rate from any given tank for each toxic air pollutant (TAP) was assumed to be the emission rate for that pollutant for all tanks in the Double Shell Tank (DST) tank farm. This results in a 'worse case tank' in regards to TAPs emitted.*
2. *When a TAP had values below the laboratory detection limit, the laboratory detection limit was assumed to be the TAP's value.*
3. *Based upon mixer pump tests in DST 241-AZ-101, it was assumed the headspace concentrations increased by a factor of 10 during waste mixing activities.*
4. *The maximum per tank emission rate was multiplied by a factor of 25 for each assumed mixing tank and 1 for each quiescent tank.*
5. *The tank farm with the smallest number of tanks in the permit is the AY/AZ tank system with four tanks, so the multiplication factor was 52 (2 mixed tanks for 500 and 2 quiescent tanks for 2 more, yielding 22).*

In preparing the application and analysis of model results, the concentrations of all of the TAPs were standardized to mg/m^3 at 25°C to allow for uniformity, and then multiplied by the flow rate from the tank (provided by the exhauster) and converted to a flux per tank in grams per second (g/s). The flux was multiplied by the dispersion factor determined from the approved modeling program to yield the maximum offsite concentration in µg/m^3. This value was directly compared to the Acceptable Source Impact Levels (ASIL) from Washington Administrative Code 173-460-150.

The results indicated that dimethyl mercury was the only compound that had a calculated value in excess of the ASIL value (3.23E-08 µg/m^3 and 1.00E-99 µg/m^3 respectively). It was for this exceedance the permittee applied for a Tier 2 analysis.

The next two TAPs closest to exceeding an ASIL limit were n-Nitrosodimethylamine (2.17E-4 µg/m^3 ASIL and 6.82E-5 µg/m^3 calculated) at ~ 31.4% of the ASIL and Chromium Hexavalent (6.40E-5 µg/m^3 ASIL and 2.63E-5 µg/m^3 calculated with abatement conditions in place) at ~38.8% of the ASIL.

The multiplication factor of 52 applied to the model input data used in developing NOC Approval Order DE11NWP-001, Rev. 3 yields a 5,200% increase to the highest values of quiescent tank waste. This 5,200 % increase is greater than the 2,300 % increase shown in the TVAR and indicates the model assumptions used in the Approval Order still bound the anticipated scenario.

Dimethyl mercury is the only compound exceeding the non-abated ASIL values in WAC 173-460. No certified instrumentation currently exists to provide real time monitoring of dimethyl mercury emissions. Instrumentation does exist for mercury emissions, but this instrumentation measures all of the mercury being emitted (as elemental mercury) and is not specific to dimethyl mercury. Therefore, using a mercury monitor would not be indicative of dimethyl mercury release values.

In addition, elemental mercury has a distinct and different ASIL value from dimethyl mercury, and, while a mercury monitor would provide information relevant to the elemental mercury ASIL, it would not provide information relevant to the dimethyl mercury ASIL.

Because real-time monitoring of dimethyl mercury is not possible, analysis of dimethyl mercury in the emissions would require collecting a sample, submitting the sample to a laboratory, waiting for analysis and notification of results, and then comparing the results to emission limits, a process that typically takes weeks or months. As this process isn't timely, it was deemed prudent to select a more readily measured compound to use as a surrogate for dimethyl mercury.

The permit was based upon the highest measured value for each pollutant emitted from all quiescent tank sampling events. Ecology used these values to establish the ratio between the emissions of all tank emission compounds. This ratio was the basis for estimating compound-by-compound emissions values from dispersion modeling.

Using this ratio, it is possible to estimate the emissions of any emitted compound if the emissions of just one compound has been measured. Consistent with this analysis, NOC approval order DE14NWP-001 Rev 3 uses measured emissions of ammonia to estimate emissions of dimethyl mercury. Thus, Ecology is not considering all toxic air pollutants expected from the tank to be ammonia, but is using ammonia and the modeled ratio between ammonia and all other toxic air pollutants.

Ammonia was selected as a representative compound for dimethyl mercury as it:

1. *Can be directly measured using monitoring equipment.*
2. *Is emitted from the tanks in concentrations facilitating measurement with a variety of instruments.*
3. *Has EPA-established sampling and analysis protocols.*

Ecology used the ratio representation approach outlined above to use ammonia emission concentrations to determine the dimethyl mercury emission concentrations. The dimethyl mercury emission concentration from the dispersion modeling has a corresponding emission concentration for ammonia. It is this ammonia value that Ecology is using as a representative measurement. This has nothing to do with molecular structure, associated physical properties, atmospheric conditions, etc. It is strictly the ratio between ammonia and dimethyl mercury in the 'worse case' tank. In fact, the emission ratios for all compounds were established in the dispersion modeling and allow for the use of ammonia as a representative compound.

The dimethyl mercury to ammonia ratio is the closest ratio to exceeding the ASIL or permitted value. N-nitrosodimethylamine is the compound next closest to exceeding the ASIL and chromium

hexavalent: soluble, except chromic trioxide would exceed the ASIL if it was unabated. As these three compounds are the closest to the ASIL and all compounds are in ratio with each other, it is possible to focus on these three compounds as they will be the first ones to exceed the ASIL or permit values. Therefore controlling and monitoring the three compounds ensures the other compounds don't exceed the ASIL values.

As the limits in the Approval Order have not been invalidated, ammonia is an acceptable indicator compound for other compounds, and the three monitored compounds will exceed ASIL or permit values before any of the other HAPs do, no change is required to the Approval Order.

Comment #14 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.5, 1st sentence "Ammonia shall be … measured near real time … waste solids disturbances.") This sentence states the reason for using ammonia as an indicator for compliance with TAP emission limits is that ammonia can be measured near real time. However, this order does not require "near real time" monitoring for ammonia. Revise this paragraph to require "near real time monitoring" of ammonia.

Ecology Response:

The term "near-real time" as used in Section 3.5 is indicative of the instrument used to measure ammonia concentrations in parts per million. This is juxtaposed to the requirement to collect a vapor sample on sample media, ship it to a lab, have the lab analyze the media, and then report back results.

As the instruments readings are near real time, no change to the permit is required.

Comment #15 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.5, next-to-last sentence, "Ecology must be notified … exceeding Table 6 values." This sentence requires notification within 24 hours of any reading exceeding a Table 6 value. However, without requiring "near real time" monitoring there is no way of determining when a Table 6 value has been exceeded, thus starting the 24-hour notification clock. Require "near real time monitoring" for ammonia.

Ecology Response:

Ecology required the Permittee to report any readings in excess of Table 6 values. This is specifically stated in Section 3.5 "Ecology must be notified within 24 hours of any reading exceeding Table 6 values."

No change is required to the permit.

Comment #16 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Section 3.5.2 thru 3.5.2.5, pg 12/30) This section proposes to modify the order-allowed levels of ammonia based on reasonably-concurrent measurements of both ammonia and dimethyl mercury (DMM) during waste-disturbing activities. However, this process overlooks "chromium hexavalent …" (*see* Finding 11), "N-Nitrosodimethylamine" (NDMA) (*see* 1.1.6, 3.5.2.1, and 3.5.2.2.1), and the 31 TAPs that exceed an SQER (*See* Finding 11). According to Paragraph 3.5 "A maximum concentration of ammonia in part per million (ppm) by volume of ammonia emitted will be used as an indicator for compliance with release rates of TAPs." Because Ecology is using emissions of ammonia to determine compliance for all TAPs, Ecology should either force fir its mathematical model to accurately reflect emissions of all implicated TAPs and not just DMMM, or implement a process that does monitor for all implicated TAPs.

Ecology Response:

Ecology used the ratio representation approach outlined in comment # 13 to use ammonia emission concentrations to determine the dimethyl mercury emission concentrations. The dimethyl mercury emission concentration from the dispersion modeling has a corresponding emission concentration for ammonia. It is this ammonia value that Ecology is using as a representative measurement. This has nothing to do with molecular structure, associated physical properties, atmospheric conditions, etc… It is strictly the ratio between ammonia and dimethyl mercury in the 'worse case' tank. In fact the emission ratios for all compounds were established in the dispersion modeling and allow for the use of ammonia as a representative compound.

The dimethyl mercury to ammonia ratio is the closest ratio to exceeding the ASIL or permitted value. N-nitrosodimethylamine is the compound next closest to exceeding the ASIL and chromium hexavalent: soluble, except chromic trioxide would exceed the ASIL if it was unabated. As these three compounds are the closest to the ASIL and all compounds are in ratio with each other, it is possible to focus on these three compounds as they will be the first ones to exceed the ASIL or permit values. Therefore controlling and monitoring the three compounds ensures the other compounds don't exceed the ASIL values.

As the three monitored compounds will exceed the ASIL or permit values before any of the other HAPs, no change is required to the Approval Order.

Comment #17 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Section 3.5.1 Exceedance of Table 6 Values) This paragraph requires that operations, but not ventilation, cease if a Table 6 value for an ammonia concentration limit is exceeded. However, because this order does not specify a monitoring frequency for ammonia emissions, it is near-impossible to determine if or exactly when an ammonia concentration limit has been exceeded. Only continuous monitoring for ammonia can be used to determine exactly when an ammonia concentration limit has been exceeded. Require continuous monitoring.

Ecology Response:

Please refer to the response for Comment #13 in addition to the following:

The monitoring frequency for ammonia emissions is established in Section 3.5.3. The permit allows for the relaxation of sample collection times when emission values are shown to be statistically stable. The frequency of analysis in section 3.5.3 is acceptable as exposure to toxic air pollutants (TAPS) under the Clean Air Act uses average exposure over periods of 1 hour, 24 hours, or 1 year, depending on the TAP (see WAC 173-460-150). These time-weighted averages must be met in areas over which the permittee does not have control, e.g., at the fence line.

No change to the permit is required.

Comment #18 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Paragraph 3.5.2.1 "During the start of … and ammonia.") Add "Chromium hexavalent: soluble, except chromic trioxide" to the 1st sentence so it reads: "During the start … sampled for, at a minimum, dimethyl mercury, n-nitrosodimethylamine, Chromium hexavalent: soluble, except chromic trioxide, and ammonia." (*See* Findings 10 and 11)

Ecology Response:

Ecology agrees that chromium hexavalent should be added to Section 3.5.2.

The permit will be changed to:

3.5.2.1.2 *Dimethyl mercury sample collection will start no sooner than 12 hours and be completed no later than 24 hours after the start of the activity described in 3.5.2.1 that requires sample collection.*

3.5.2.1.3 *Chromium hexavalent: soluble, except chromic trioxide sample collection will start no sooner than 12 hours and be completed no later than 48 hours after the start of the activity described in 3.5.2.1 that requires sample collection.*

3.5.2.1.4 *Analytical results will be reported to Ecology as soon as possible, but no later than 30 days after collection of the sample. It is acceptable to report preliminary data and to use an informal transmittal method (e.g. email).*

Comment #19 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Monitoring in general) Monitoring in this draft order overlooks emissions during periods when waste disturbing activities are not occurring or when active ventilation ceases. However, emission of tank head space gases occurs at all times, 24 hours a day, seven days a week; under all atmospheric conditions; and during operating and non-operating periods.

Ecology Response:

The data presented in the Hanford Tank Vapor Assessment Report (TVAR) is not being questioned, but the applicability or relevancy of the data to the Federal Clean Air Act and the Washington Clean Air Act is not clear, as the data is lacking important meta-data (e.g. where was the sample collected, how was the sample collected, what protocols were used for sample collection, etc.).

Ecology doesn't have access to the actual data presented in the TVAR and can only depend on the information as presented in the report. This raises a question on how relevant the data are for use in determining ambient air concentration data to be compared to acceptable source impact level (ASIL) values of Washington Administrative Code 173-460.

The objective of the Hanford Tank Vapor Assessment Team is stated on page 12 of 153 of the TVAR as "WRPS asked the Savannah River National Laboratory (SRNL) to assemble and lead the Hanford Tank Vapors Assessment Team (TVAT) 2014 to determine the adequacy of the established WRPS program and prevalent site practices to protect ***workers*** *from adverse health effects of exposure to the chemical vapors on the Hanford tank farms."* [emphasis added]

This Approval Order is being issued under the Clean Air Act (CAA) and its amendments regulating ambient air. Ambient air is defined in 40 CFR Part 50.1 (e) as "… that portion of the atmosphere, external to buildings, to which the ***general public*** *has access."* [emphasis added]

In addition, WAC 173-460-070 requires compliance with the state TAPs requirements to be demonstrated "in any area to which the applicant does not restrict or control access."

The Hanford site is land owned or controlled by the source and to which general public access is precluded by a fence or other physical barriers. The air at the Hanford Site doesn't qualify as ambient air. Therefore, the State TAP requirements need not be met within the boundaries of the Hanford Site. However, on-site personnel are covered by other laws, rules, and regulations in regards to their safety.

In the event an exhauster shuts down, the tank contents will continue to emit the same compounds to the atmosphere. The amount released to the atmosphere will remain fairly constant, the difference is that the emissions will not be "propelled" upward into the atmosphere by the exhauster. As the amount emitted is the same and isn't lofted into the atmosphere, the general public will not see any increase. It is surmised that workers could see increased emission concentration around the passive/fugitive release points, but worker protection is covered under other laws, rules, and regulations.

As no change to the ambient air will occur, no change to the permit is required.

Comment #20 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Finding 8 and Paragraphs 1.1.2, Table 1, 1.3.3.1, and 3.2) Finding 8 on page 3 of 30 states, in part, that: "Criteria air pollutant emission increases from the proposed project are below the de 32 minimis levels in WAC 173-400-110(5)(d) with the exception of … volatile organic compounds (VOCs) …". [WAC 173-400-110 (5)(d) is a part of Washington's approved SIP]. Table 1 (page 5 of 30) limits emissions of volatile organic compounds (VOCs) from the different tank farms to a specific maximum tons per year value. Verification of these limits is through a

single annual measurement, one for each exhauster (paragraph 3.2, page 11 of 30). Use of a single annual measurement for each exhauster as verification a specific "tons/year" limit has not been exceeded assumes a relatively constant flow rate over the entire year along with homogeneous emissions over the same period. NO condition in this NOC Order actually verifies a relatively constant flow rate over the year-long period (*see* Comment 5, above), and it has been known for decades that tank emissions are not homogenous.

Ecology Response:

Please see responses to comments # 12, # 13, # 16, and # 20.

In addition, VOC values presented in Table 1 are a summation of all VOCs in Tables 7, 8, and 9. The analysis of acceptable exposure to toxic air pollutants (TAPS) and VOCs under the Clean Air Act uses average exposure over periods of 1 hour, 24 hours, or 1 year, depending on the compound (see WAC 173-460-150).

These time-weighted averages must be met in areas over which the permittee does not have control, e.g., at the fence line. Historical data and past practice indicate little variability in emissions when the tanks are quiescent.

To provide conformity with the other parts of the permit, the VOC samples should be collected at the same frequency as other quiescent tank sample collection. For this reason, Ecology will change the annual assessment to quarterly.

Section 3.2 will be changed to "VOC emissions shall be assessed quarterly in accord with EPA approved procedures for each exhauster system.'

Comment #21 from Bill Green, Citizen, dated February 22, 2016

Ecology is only showing the first portion of this comment in this summary. For the complete comment with all citations, footnotes, and explanations, please refer to Appendix B.

(Finding 8, page 3/30) Finding 8 on page 3 of 30 states, in part: "Criteria air pollutant emission increases from the proposed project are below the de minimis levels in WAC 173-400-110(5)(d) **with the exception of nitrogen oxides (NOx)**…" (emphasis is mine) Finding 8 on page 3 of 30". [WAC 173-400-110 (5)(d) is a part of Washington's approved SIP]. However, the remainder of this draft order overlooks monitoring, reporting, recordkeeping, and emission control for NO_X emissions. Add requirements to the order that address monitoring, reporting, recordkeeping, and emission control for expected NO_X emissions.

Ecology Response:

The reference to WAC 173-400-110(5)(d) was from the original issuance of this permit in 2007. That reference was to an exemption level table that is now found in WAC 173-400-110 (5) Table 110(5). WAC 173-400-110 (1)(d) states "[n]ew source review of a modification is limited to the emission unit or units proposed to be modified and the air contaminants whose emissions would increase as a result of the modification.

WAC 173-400-110 (5)(a)(ii) states "[a] modification to an existing emissions unit that increases the unit's emissions by less than each of the threshold levels listed in Table 110(5) Exemption level of this subsection is exempt from new source review."

NOx emissions will not change as a result of the modifications addressed by this revision to the Approval Order. Therefore, the NOx emissions are not subject to new source review at this time.

A statement will be added to the approval order clarifying that NOx emissions will not change as a result of this modification. Finding 8 will have the following added at the end "NO_X emissions will not change as a result of this modification, so the NO_X emissions are not subject to new source review at this time (WAC 173-400-110 95)(a)(ii)).”

No other change to the permit is required.

APPENDIX A: COPIES OF ALL PUBLIC NOTICES

Public notices for this comment period:

1. Notice sent to the Hanford-Info email list
2. Classified advertisement in the *Tri-City Herald*

From: Bohrmann, Dieter (ECY) <DBOH461@ECY.WA.GOV>
Sent: Monday, January 04, 2016 3:18 PM
To: HANFORD-INFO@LISTSERV.WA.GOV
Subject: Advance notice: Upcoming comment period on Hanford air permit change

This is a message from the Washington Department of Ecology

Ecology plans to start a 30-day public comment period in late January on a proposed modification to an air permit for Hanford's AY/AZ tank farm (DE11NWP-001, Rev. 4). The proposed change incorporates a Health Impact Analysis to determine the maximum allowable limit of dimethyl mercury emissions for double-shell tanks covered under the permit.

More information on the proposed change will be available on Ecology's website, the Hanford Public Information Repositories, and other document review locations when the comment period begins.

For more information, email HanfordAir@ecy.wa.gov or call 509-372-7954.

Visit us on the web or social media.

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Sales

NUMERICA CREDIT UNION

Dealer Center Buyer

Come Join our Winning Team!
With the goal of enhancing lives, fulfilling dreams, and building communities, this position examines, evaluates, and authorizes or recommends approval of member applications for autos, motorcycles, RVs, boats, and off-road loans using established policies and procedures of the credit union's indirect lending department. This position requires an individual that can work with and call on established dealers, dealer networks, and potential new dealers to build relationships and further the growth of the department and credit union.

A high school education or GED. Three to five years of similar or related experience. Thorough knowledge of the indirect department's computer system for performing basic input/output tasks. Ability to operate a CRT unit and standard office equipment. Familiar with the differences in products and services offered by other financial institutions to those offered by the credit union.

May have supervisory/managerial responsibilities that are usually partial or part time, and or are restricted to assigning work and supervising the efforts of one or a small subordinate group of employees. This position may be titled lead. Much of the time is spent performing work of the type supervised. Additionally, may provide input into the evaluation process and have limited discretion to approve time off.

Numerica offers competitive compensation along with an excellent benefit package. Please apply on line at ***www.numericacu.com/careers*** , fax a resume to (509) 462-6271, email to ***hr@numericacu.com,*** or mail to Numerica Credit Union, Human Resources Department, PO Box 4000, Spokane, WA 99037. Applicants will be reviewed as received. EOE/AA

Immediate Opening for F/T Account Executives who can be passionate about radio, social media and digital platforms to help their clients succeed! Fast paced environment where no two days are ever the same. Excellent compensation pkg including benefits. Media experience is helpful but not required. However a GREAT ATTITUDE is. Drop off or Mail resume:***ATTN: Account Executive, Radio Tri-Cities, 4304 W 24th Ave, Ste 200. Kenn WA 99338. EOE***

Auto Savers
Vehicles $6,000 or less, 4 lines for 14 days
Sell it fast!

Sales

Tri-City Herald
tricityherald.com
VOICE OF THE MID-COLUMBIA

MARKETING TEAM ASSOCIATE
The Tri-City Herald is seeking a detail oriented individual who exhibits a high level of professionalism to support our digital media sales team and its clients.

Advertising and marketing sales is a competitive, fast-paced field. Our Marketing Team Associates provide order entry and fulfillment support for online advertising campaigns including online display, video, ad words, social media, and native advertising. They develop their knowledge and skills about broad based and targeted media strategies in order to best meet our clients' needs.

Strong communication, exceptional organizational skills, math skills and detail orientation are critical to success in this position.

This key position will partner with our professional sales team to organize targeted market research and create customized sales presentations.

Job Requirements:
Execute online advertising campaigns
Track and report on fulfillment of online advertising campaigns for clients and salespeople
Build sales presentations using market research.
Process online ads and billing.
Work closely with team members to ensure goals are achieved.
Track Customer Needs Analyses (CNAs) and proposals for sales team.
Proficient with administrative and sales software (MS Word, PowerPoint, Excel, Gmail and Google docs,).
Ability to communicate technical/product information to both a technical and non-technical audience.

If you would like to join our team, please send your resume and cover letter to:
sflaherty@tricityherald.com

Skilled Labor Trades

Assistant Irrigation Manager

AgriNorthwest, a local agricultural operation in Plymouth, WA, has an immediate opening for a full time Assistant Irrigation Manager. The AIM will assist the irrigation manager with day to day operations, responsible for supervision, timely maintenance, and development of water distribution methods. The AIM needs to have 5-7 years of progressive management experience with center pivots or related field. Also, mechanical, electrical and hydraulics aptitude and background. Benefits include medical/dental/vision, 401k plan, and retirement plan. Qualified applicants may send cover letter, and resume to: ***careers@ari-slc.com***

Equal Opportunity Employer
Drug Free Workplace

AUTOMOTIVE TECHNICIAN
Looking for experienced Automotive Technician. Excellent pay and benefits - DOQ. Bring resume to:
Tri-Cities Battery Tire Pros

Skilled Labor Trades

CITY OF WALLA WALLA
MAINTENANCE WORKER - STREETS, STORM, WASTEWATER
(1 STREETS POSITION - 2 STORM POSITIONS)
Opening Date: January 24, 2016
Salary Range: $3257-4157/month
Closing Date: Open until filled
NATURE OF POSITION
Perform preventive maintenance and repair of the City's streets and related storm and wastewater systems. REQUIREMENTS: High school graduation or equivalent; 1 year operating light/heavy equipment & 2 years' of increasingly responsible street maintenance and heavy vehicle experience; CDL with tanker & air brake endorsement.

For complete application package visit: ***www.wallawallawa.gov***
Open until filled. EOE/ADA

Civil Construction Field Engineer/QC Inspector - Idaho Falls, ID
Experience: Prefer BS degree in Civil Engineering or Construction Management Duties: Provide assistance to Project Engineers and Managers with completing day-to-day QA/QC and technical documentation requirements. Seeking personable self-motivated and reliable candidates with excellent written/verbal communication skills and proficiency in MS Office. Must be a U.S. citizen and willing to travel. EEO
Please submit a resume to: employmentsubmittal@gmail.com

Civil Construction Foreman - Idaho Falls, ID
Experience: +5 years
Duties: Trench excavation/backfill, installation of underground mechanical systems including potable water, sewer, fire water, hydrants, tie-ins, and hydro pressure testing. DOE site experience preferred. Must be a U.S. citizen and willing to travel. EEO
Please submit resume to employmentsubmittal@gmail.com

Civil Construction Grade Checker
Experience: +5 years
Duties: Lay out/set slope stakes, control grade for roads, sitework, utilities, and large quantity earthwork cut/fill. Must be able to read specs/plans, possess working knowledge of Trimble GPS survey equipment and be proficient in Excel, AutoCAD and Civil 3D. Must be U.S. citizen and willing to travel. EEO
Please submit resume to employmentsubmittal@gmail.com

Immediate opening for UL Control Panel Assembly Technician.
Experience preferred.
Wage commensurate with experience. Full benefit package including health insurance, retirement plan, paid vacation and holidays. Drug testing is required.
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333 West Canal Drive
Kennewick, WA 99336

Bargains
Free 3-line ad for items priced under $200

Skilled Labor Trades

CRF FROZEN FOODS, LLC
A SUBSIDIARY OF THE R.D.OFFUTT COMPANY

CRF Frozen Foods has an immediate opening for a **Consumer Packaging Technical Mechanic.** Responsible for ensuring packaging equipment is operating with authorized guards, repairing minor and major breakdowns of high speed packaging equipment and follows the preventative maintenance program to ensure line efficiencies and that all equipment is in safe working condition. Candidate must have minimum 2 years experience with food processing and packaging equipment. Equivalent experience outside the food processing industry will be considered. High school diploma or equivalent required. This position requires overtime, weekend and shift work.

CRF Frozen Foods offers a competitive pay and benefit package.

Please submit resume to:

CRF Frozen Foods
P.O. Box 2508
Pasco, Washington 99302
Attn: Personnel Department EOE

Electronic Technician II
Benton County Facilities
4040.00.00-5243.00 monthly plus benefits. Performs maintenance and repair of all electronic security and life safety systems in the Benton County Justice Center complex and other County buildings as needed. For more details and to apply please visit: ***www.co.benton.wa.us***

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Vehicles $6,000 or less, 4 lines for 14 days
Sell it fast!
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Walla Walla Public Schools
TECHNOLOGY SPECIALIST I
$16.47/hour
8 hours per day/
260days per year

Apply on-line at ***www.wwps.org*** . For specific information regarding this position please call Forrest Baker, Director of Technology at 509-526-6744. Applications will be accepted through February 5, 2016.
EOE/ADA.

Transportation

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Driver/Service Technician
Full-time Service Technician needed to be based in Eltopia. Responsibilities: Product delivery, customer service, equipment maintenance. Requires CDL Class B with tank and hazmat endorsements or the ability to obtain; farm experience helpful. Full benefit package! The McGregor Company is a recognized leader in providing excellent service to local farm families. Call 509-297-4296, Email hr@mcgregor.com Apply online at www.mcgregor.com

Transportation

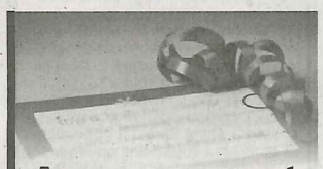
Long Haul Truck Driver *Duties include loading and unloading trucks, being responsible for logging your loads as well as tracking your driving hours.

JOB REQUIREMENTS
*Must have a valid Class A CDL.
*Must have a minimum of 12 months CDL experience with a 3 year COMPLETE driving record .
*Must be able to lift up to 50 lbs.
*Must be neat and have organizational skills for logging driving hours and loads.
*Must be able to pass a drug test, background check and supply references.

PREFERRED QUALIFICATIONS
*Employer prefers to hire applicants over 21 years of age because of insurance costs.
*Prefers experience with refrigerated

HOURS/DAYS/SCHEDULE
Various days and shifts/as you are willing to work.. With Very Family Oriented and Flexible schedule..

SALARY/WAGE/BENEFITS
Excellent pay , 30% of Load after Expenses with 6 month Bonus.. and lots of growth potential within the company ..
Contact Hiring Manager:
Mina, 509-668-7296 or 509-668-7298



Announcements

Lost

Lost camera, Cannon, Howard Amon Park, Lee Blvd sectioin. Down stream. Call 547-1766

Misc. Announcements

ABANDONED VEHICLE AUCTION
Wed, 01/27 @ 9 a.m. Viewing 1 hour prior. Casaday Bee-Line Towing . Auction to be held at: 1708 W. Lewis St., Pasco. 9 Vehicle

Going nowhere *FAST*?
Tri-City Herald tricityherald.com careerbuilder

CLASSIFIED LEGALS

Benton and Franklin Counties Department of Human Services Advisory Board Meeting

The Benton and Franklin Counties Human Services Advisory Board will meet on February 8, 2016 at 4:00 pm at the Benton Franklin Health District Board Room, 7102 W. Okanogan Place, Kennewick, WA 99336.
#2195681 01/24/2016

CITY OF PASCO
NOTICE OF PUBLIC HEARING

PLEASE TAKE NOTICE that the Pasco City Council will hold a Public Hearing on February 1, 2016, at 7:00 p.m., in the Council Chambers, at 525 N. 3rd Ave, to consider vacating the 20 foot sanitary sewer easement along the southern boundary of the First Place subdivision as recorded under Auditors File Number 1626377.
Debra Clark, City Clerk
#2196415 01/10 & 01/24/2016

CITY OF PASCO
NOTICE OF PUBLIC HEARING

PLEASE TAKE NOTICE that the Pasco City Council will hold a Public Hearing on February 1, 2016, at 7:00 p.m., in the Council Chambers, at 525 N. 3rd Ave, to consider vacating the east/west easement between Lots 18-25, Block 1, Lot 2, Block 2, Broadmoor Terrace, Phase 1.
Debra Clark, City Clerk
#2196366 01/10 & 01/24/2016

Educational Service District 123
PHASE II
INVITATION TO BID

Educational Service District 123
3918 W Court Street
Pasco, WA 99301

DESIGN WEST ARCHITECTS
254 East Main Street
Pullman, WA. 99163

You are invited to bid on a General Contract for construction in the City of Pasco for the Construction of the New Educational Service District 123 - Phase II Addition. A new 2 story building addition consisting of approximately 12,000 square feet, including Site Work, Structures, Finishes, Fire Protection, Mechanical, and Electrical work.

Preliminary Estimate :
BaseBid: $2,350,000
Bid Alternates: $100,000

Proposals will be accepted by the District until **4:00pm** , prevailing time, on **February, 9th, 2016** at the Educational Service District Building at **3918 W. Court Street , Pasco, WA**. Bid proposals will be opened publicly and read aloud at **4:00pm**. Interested parties are invited to attend.

A Pre-Bid Conference, for all General Contractor prospective bidders, will be held **January, 27, 2016 at 2:00pm** at the project site, 3924 W. Court Street, Pasco, WA.

Plans and Specifications are available, **beginning January 18, 2016** , through the Architect.Printed paper sets are available at $100 per set (limit 2 sets to General Contractors and 1 set for subcontractors). The cost is refundable provided the documents are returned in good condition within 10 days after bid opening. Additional sets may be purchased at cost, non-refundable. E-mailed PDF plans and specifications are available at no cost (highly encouraged). Contact Chelsea Holstad, Office Manager with Design West Architects by e-mail at cholstad@designwestpa.com to request documents.

Bid security amounting to five percent (5%) of the total Base Bid and Bid Alternates must accompany each Bidder's proposal in accordance with Instructions to Bidders.

Bid documents will be available for examination during the bidding period at the following locations:
Associated Builders & Contractors, Inc. - Spokane Valley, WA
Abadan Regional Plan Center - Spokane, WA
Hermiston Plan Center - Hermiston, OR
Southwest Washington Contractors Association - Vancouver, WA
Spokane Regional Plan Center - Spokane, WA
Tri-City Construction Council - Kennewick, WA
Walla Walla Valley Plan Center - Walla Walla, WA
Wenatchee Plan & Copy Center - Wenatchee, WA
Yakima Plan Center - Yakima, WA
Builders Exchange of Washington - Everett, WA
CMD Group (formerly Reed Construction Data) - Norcross, GA
No bidder may withdraw his proposal after the date and time set for opening thereof or before Award of Contract, unless said award is delayed beyond 30 days. Substantial Completion shall be achieved in compliance with Section 01 10 00 of the project specifications.
The project requires compliance with prevailing wage under RCW 39.12 and apprenticeship participation of 15% under RCW 39.04.320. Educational Service District 123 reserves the right to accept or reject any or all proposals, and in particular, to reject a proposal not accompanied by the required bid security or data required. The process shall comply with WAC 180-29-105, RCW 28A.335.190 and RCW 43.19.1906.
END OF INVITATION TO BID
#2210526 01/17 & 01/24/2016

CALL FOR BIDS

NOTICE IS HEREBY GIVEN that Public Utility District No. 1 of Franklin County will receive sealed bids until 3:00 p.m., **Tuesday, February 9, 2016,** at the offices of the District at 1411 West Clark Street, Pasco, Washington, 99301. This bid is for furnishing labor and equipment services to perform miscellaneous work on the District's electrical system, as per specifications, which may be obtained from the office of the District in Pasco, Washington.
Bid prices shall be firm for a minimum of sixty (60) days from the date of the bid opening. All bid prices shall exclude State and local sales taxes and use taxes. All bids shall be sealed and shall be marked:
"BID DOCUMENT 8871 - MISCELLANEOUS DOCK CREW PROJECTS"
Bids will be publicly opened in the District office at 1411 West Clark Street, Pasco, Washington, on **Tuesday, February 9, 2016, at 3:00 p.m.** The District reserves the right to reject any or all bids, to waive informalities and to accept any bid deemed to be in the best interest of the District.
Each bid shall be accompanied by a certified or cashier's check payable to the order of the Commissioners of Public Utility District No. 1 of Franklin County, for a sum not less than five percent (5%) of the amount of the bid or accompanied by a bid bond in an amount not less than five percent (5%) of the bid with a corporate surety licensed to do business in the State of Washington. This Call for Bids is in conformity with RCW. 54.04.070 and 54.04.080 and Chapter 220, Laws, Executive Session 1971, and incorporate herein the terms of said laws by this reference.
PUBLIC UTILITY DISTRICT NO. 1 OF FRANKLIN COUNTYw CLARK
By: _____/s/_____
Rebecca Diaz
Contract Specialist
#2226059 01/24/2016

SUPERIOR COURT OF WASHINGTON COUNTY OF BENTON JUVENILE COURT

No. 15-7-00283-5
Notice and Summons by Publication (Dependency) (SMPB)

Dependency of:
JOCELYNN EDWARDS,
D.0 B. 01/20/2015

To' William Kroner, Alleged Father
To' To Whom It Concerns As To Unknown Fathers A Dependency Petition was filed on August 21, 2015. A Fact Finding hearing will be held on this matter on: February 23, 2016 at 1:30 p.m. at:
Benton/Franklin Juvenile Justice Center, 5606 W. Canal Place, Kennewick, WA 99336. You should be present at this hearing The hearing will determine if your child is dependent as defined in RCW 13.34.050(5) This begins a judicial process which could result in permanent loss of your parental rights. If you do not appear at the hearing, the
court may enter a dependency order in your absence.

To request a copy of the Notice, Summons, and Dependency Petition, call DSHS at (509) 585-
3000 To view Information about your rights, including right to a lawyer, go to www atq wa gov/DPY

DATED this 6 day of January, 2016
DEPUTY CLERK

NT and Summons by Pub (Dep) (SMPB)
WPF JU 03.0230 (11/2009) - RCW 13 34 080

ATTORNEY GENERAL OF WASHINGTON
Regional Services Divlsion
8127 W Klamath Court. Suite A
Kennewick. WA 99336-2607
#2204478 01/10, 01/17, 01/24/2016

ORDINANCE NO. 01-16

AN ORDINANCE of the City of Richland amending Title 11, Traffic, of the Richland Municipal Code for the purpose of prohibiting on-street parking on various City streets in the Westcliffe Plat. Ordinance effective the day following its publication. Ordinance available at the City Clerk's Office, 975 George Washington Way, Richland, WA 99352 or (509) 942-7388.
#2227635 01/24/2016

Kennewick Irrigation District (KID)
Vendor List

Per RCW 87.03.437 and RCW 39.04.190 notice is hereby given that the KID is now updating its Vendor List to award contracts for materials, equipment, supplies or services up to $50,000 in lieu of the requirements for formal sealed bidding. The Vendor List shall consist of all responsible vendors who have requested to be on this list, and where required by law are properly licensed or registered to provide materials, equipment, supplies or perform such services in this state. If you are currently on our vendor list, you do not need to reapply. To be added on our 2016 Vendor List go to: www.kid.org, click "Business" then "Vendors" and complete the **Vendor List Form** . KID retains the right to use the sealed bid or any other legal process for future purchases at the District's option. Minority, women-owned, federally disadvantaged and small businesses are encouraged to apply. For KID projects covered by Federal or State funding, Vendors must also not be included on the list of parties suspended or debarred from doing business with the Federal or State government. If you do not have access to the internet you may contact Brad at (509) 586-9111 for assistance.
#2223487 01/24 & 01/31/2016

NOTICE OF PUBLIC HEARING
PORT OF PASCO

The Port of Pasco, is **rescheduling the Public Hearing of January 28, 2016 to Thursday, February 11, 2016** , beginning at 10:35 AM at the offices of the Port located at 1110 Osprey Pointe Boulevard, Suite 201, Pasco, Washington to receive public input on proposed amendments to its Comprehensive Scheme of Harbor Improvements.
The public is invited to attend the hearing and present oral.or written testimony regarding the project, or to submit written comments to the Port at the above address to be received no later than the time of the hearing. Oral testimony will be limited to 2 minutes per speaker.
A draft version of the Comprehensive Scheme is available on the Port's website, **www.portofpasco.org** , under the Current News / Public Hearings link.
For more information, please contact Vicky Keller at phone number 509-547-3378 or by email to **vkeller@portofpasco.org** .
Randy Hayden, Executive Director
Port of Pasco, Washington
#2211995 01/14, 01/20, & 01/24/2016, 02/07/206

The Washington State Department of Ecology invites you to comment on a modification to an air emission permit for the AY/AZ, AP, and SY Tank Farm ventilation units.The public comment period runs from January 24 through February 23, 2016.

The formal name for this change is the "Approval Order for Notice of Construction". It will revise the already issued Approval Order DE11NWP-001, Rev. 3. The approval order will ensure that Hanford's air emissions stay within safe limits that protect people and the environment.The U.S. Department of Energy Office of River Protection (the permittee) performed a new analysis (Health Impact Analysis) on the emission of dimethyl mercury. Dimethyl mercury emissions on the Hanford site exceed regulatory limits and require an analysis by Ecology to determine that it is not likely to result in increased health risks of any kind for people near Hanford.
The analysis evaluated all of the permittee's emission units for the concurrent emission of dimethyl mercury. This establishes a maximum emission value for all dimethyl mercury emissions on the site. Each new permit request that contains the emission of dimethyl mercury will use a portion of the dimethyl mercury release limit.The permittee has submitted the request to revise their existing permit DE11NWP-001, Rev.3, to use a portion of the dimethyl mercury emission limit.
Decision Process When the comment period closes, Ecology will consider the comments received and revise the permit as needed before issuing the Approval Order and Response to Comments. The approval order will become part of the site-wide Air Operating Permit during a future update. The Permittee/Site Owner is U.S. Department of Energy Office of River Protection, PO Box 450, Richland, WA 99352. Please send comments or questions by February 23 via email (preferred) to **HanfordAir@ecy.wa.gov** , postal mail, or hand deliver them to:

Philip Gent
Department of Ecology
3100 Port of Benton Blvd.
Richland, WA 99354

Public meeting:
A public meeting is not scheduled, but if there is enough interest, we will consider holding one. To request a hearing or for more information, contact:
Dieter Bohrmann
Department of Ecology
509-372-7950
Hanford@ecy.wa.gov
Information for Public Review:
Ecology invites you to review and comment on the documents for our decision to change the permit.
- The application letter
- The draft approval order, conditions, and restrictions.
- The Health Impact Analysis

These documents are available at the locations listed below:
Air Pollution Regulations
Ecology is following Washington Administrative Code 173-400, General Regulations for Air Pollution Sources, to process the U.S. Department of Energy's request to change the permit.
Information Repositories and other document review locations
Online
www.ecy.wa.gov/programs/nwp/commentperiods.htm

Richland
Ecology's Nuclear Waste Program Resource Center
3100 Port of Benton Blvd.
Richland, WA 99354
Contact: Valarie Peery
509-372-7950
Valarie.Peery@ecy.wa.gov

Department of Energy
Administrative Record
2440 Stevens Drive, Room 1101
Richland, WA 99354
Contact: Heather Childers
509-376-2530
Heather_M_Childers@rl.gov

Department of Energy Reading Room
2770 Crimson Way, Room 1011
Richland, WA 99354
Contact: Janice Scarano
509-372-7443
DOE.reading.room@pnnl.gov
Portland

Portland State University
Branford Price Miller Library
1875 SW Park Avenue
Portland, OR 97201
Contact: Claudia Weston
503-725-4542
Westonc@pdx.edu
Seattle

University of WA Suzzallo Library
PO Box 352900
Seattle, WA 98195
Contact: Cass Hartnett
206-685-3130
Cass@uw.edu

Spokane
Gonzaga University Foley Center
502 E. Boone Ave.
Spokane, WA 99258
Contact: John Spencer
509-313-6110
spencer@gonzaga.edu
#2227791 01/24/2016

Public Notice

AutoZone Parts, Inc., Joseph Lorson, 123 S. Front Street, Memphis, TN 38103, is seeking coverage under the Washington State Department of Ecology's Construction Stormwater NPDES and State Waste Discharge General Permit. The proposed project, Project Sunrise, is located at NE corner of Hillsboro Street & Capitol Avenue in Pasco in Franklin County. This project involves 59.75 acres of soil disturbance for Industrial construction activities. The receiving waterbodies are Columbia River, Unnamed Tributary to Snake River. Any persons desiring to present their views to the Washington State Department of Ecology regarding this application, or interested in Ecology's action on this application, may notify Ecology in writing no later than 30 days of the last date of publication of this notice. Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320.
Comments can be submitted to:
Department of Ecology
Attn: Water Quality Program, Construction Stormwater P.O. Box 47696,
Olympia, WA 98504-7696
#2176394 12/28-12/31/2015, 1/1-1/10, 1/18-1/31/2016

SMALL WORKS ROSTER

Franklin County Irrigation District is updating its 2016 Small Works Roster, pursuant to RCW 87.03.436, whereby competitive bids may be solicited for Irrigation District construction and maintenance when the estimated cost of the project is less than $300,000. Registered contractors interested in being listed on the Small Works Roster should submit a letter, stating qualifications and categories you would like to bid, to the District office at PO Box 3907, Pasco, WA 99302.
#2209610 01/20 & 01/24/2016

APPENDIX B: COPIES OF ALL WRITTEN COMMENTS

February 22, 2016

Mr. Philip Gent
Department of Ecology
3100 Port of Benton Blvd.
Richland, WA 99354

Re: Public comments, draft NOC Order DE11NWP-001, Rev. 4

Dear Mr. Gent:

Enclosed are my comments on draft NOC Order DE11NWP-001, Revision 4. This draft order increases allowed emissions of dimethyl mercury over previous versions and adds N-Nitrosodimethylamine to those toxic air pollutants (TAPs) addressed by approval conditions in Revision 3 of this NOC Order. As originally proposed, the project "consisted of replacement of primary tank ventilation exhaust systems for each of the 241-AP and 241-SY tank farms, and component upgrades or modifications to the existing ventilation system for 241-AY/AZ tank farm. Activities included installation of two mixer pumps per tank farm during Waste Feed Delivery operations. The tank farm ventilation systems will be constructed, installed, tested, and fully operational in three phases, beginning with 241-AP, to be followed by 241-SY and 241-AY/AZ, respectively. The 241-AY/AZ phase was completed under NOC Order DE11NWP-001, Revision 2."[1] These comments generally note:

1. that the permittee cannot act on Ecology's final order until all relevant requirements under WAC 173-401 and 40 C.F.R. 70 have been satisfied and objections by the Administrator of EPA to the issuance of Hanford's Title V permit have been satisfactorily addressed;
2. that using emissions of ammonia to quantitatively assess emissions of all other anticipated TAPs overlooks the unique chemical and physical properties characteristic of each implicated chemical; in effect Ecology's approach reduces the *Periodic Table of Elements* to just two entries, nitrogen and hydrogen; and
3. that the proposed sampling merely perpetuates a level of ignorance regarding the composition of tank emissions that existed when the tanks were first used.

Several of the comments quote from the *Hanford Tank Vapor Assessment Report*[2] (TVAR). Based on this report Attorney General Bob Ferguson filed a lawsuit[3] in federal district court against the U.S. Department of Energy, and its contractor, Washington River Protection Solutions, for failure to control hazardous chemical vapors from tank farm emissions that continue to jeopardize worker health and safety. It is not surprising

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[1] Draft Order DE11NWP-001, Rev.4, at 3

[2] W.R. Wilmarth et al., *Hanford Tank Vapor Assessment Report*, SRNL-RP-2014-00791, Rev.0, Oct. 30, 2014. Available at: http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf

[3] http://www.atg.wa.gov/news/news-releases/ag-sues-federal-government-over-hanford-worker-safety

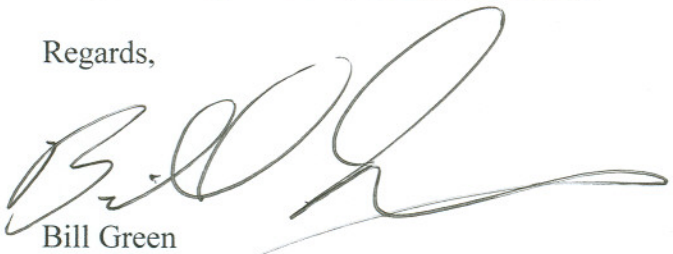
Ecology overlooks this report. After all, had any previous Ecology Order contained adequate sampling requirements, all harmful emissions would have been characterized; injury from these emissions could have been avoided; and there would be no basis for the Washington State Attorney General to file such a lawsuit. This draft order not only counters actions by Attorney General Ferguson, but also acts in opposition to existing knowledge and sound science.

Sound science is predicated, in part, on the fact that each chemical compound is unique and has unique physical and chemical properties. Ecology overlooks this fact when it requires ammonia emission measurements to be used to determine compliance with air emission limits for all other expected TAPs.[4]

The *Hanford Tank Vapor Assessment Report* (TVAR) was prepared by an independent panel of experts. This independent panel of experts was given full access to data and Hanford Site personnel without influence from any Hanford Site contractor or the U.S. Department of Energy (Energy). The Washington State Department of Health (Health) also participated. Ecology apparently didn't participate and Ecology has not published a reason why it didn't. Additionally, Energy and Hanford Site personnel were given an opportunity to review a pre-publication draft of the TVAR. Energy and its contractors have not publicly challenged the TVAR. Health has not publicly challenged the TVAR. It is now problematic for Energy, its contractors, or Ecology to ignore or to reject findings and recommendations expressed in the TVAR. Unless Ecology now wishes to challenge the independent panel of experts, Ecology is obligated to implement their recommendations, particularly with regard to sampling needed to accurately characterize emissions. To do otherwise will result in using emission data and sampling techniques known to be inaccurate and unrepresentative.

I hope Ecology finds my comments useful.

Regards,



Bill Green
424 Shoreline Ct.
Richland, WA 99354

Enclosure
cc: w/encl. via email
P. Gent, Ecol.

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[4] "A maximum concentration of ammonia in part per million (ppm) by volume of ammonia emitted will be used as an indicator for compliance with release rates of TAPs." Condition 3.5, draft NOC Order DE11NWWP-001, Rev. 4, at 11

Comment 1: A new public review will be required before conditions in this NOC Order (DE11NWP-001, Rev. 4) can be added to Hanford's Air Operating Permit (AOP), because the current public review conducted under WAC 173-400 does not meet the minimum requirements for public review pursuant to WAC 173-401, *The Operating Permit Regulation*. The specific deficiencies include:

- failure to publish a public notice in the *Permit Register* [WAC 173-401-805 (2)];
- failure to provide a thirty day comment period as specified in WAC 173-401-800 (3); and
- failure to provide notification via Ecology's mailing list. [WAC 173-401-800 (2)(c)]

That portion of Washington's SIP codified at WAC 173-400-111 (2)[1] requires that a notice of construction application designated for incorporation into the source's AOP must be processed in accordance with the operating permit program procedures and deadlines. Such procedures and deadlines are codified at WAC 173-401. It is apparent from the bulleted items above that the application was not processed in accordance with the procedures required to revise an AOP. Therefore, a new public review will be required before conditions in this regulatory order can be added to Hanford's AOP.

[1] 79 Fed. Reg. 59,653, 59,655 (Oct. 3, 2014)

Comment 2: There is no question the federal radionuclide air emission requirements of 40 C.F.R. 61 subpart H apply to activities contemplated by this NOC Order (DE11NWP-001, Rev. 4); yet, the **application** offered to the public for review doesn't address this federal requirement. Washington Administrative Code (WAC 173-400) doesn't allow the permittee to overlook emissions to be emitted by the proposed modification in its **application**, independent of whether Ecology chooses enforce the federal radionuclide air emission requirements.

> "At a minimum, the **application** must provide information on the nature and amounts of emissions . . . increased as part of a modification. . ." (emphasis is mine) WAC 173-400-111 (1)(b)

An increase in emissions of radionuclides cannot be avoided during activities covered by this NOC Order, yet the permittee's **application** offered to the public for review overlooks radionuclides. WAC 173-400-111 (1)(b), which defines a complete **application**, has been incorporated into Washington State's *State Implementation Plan* (SIP). (*See* 79 Fed. Reg. 59,653, 59,654-655 (Oct. 3, 2014)) Washington's SIP is an "applicable requirement" as defined under 40 C.F.R. 70.2. Because the requirement to submit a complete **application** containing the nature and amounts of all expected emissions (including all expected emissions of radionuclides addressed by 40 C.F.R. 61 subpart H), has been incorporated into Washington's SIP, WAC 173-400-111 (1)(b) is *federally enforceable*[1] pursuant to 40 C.F.R. 70.6 (b). As *federally enforceable*, any deficiencies to address relevant federally-regulated emissions in the **application** may be challengeable under 40 C.F.R. 70, when it is applicable.

[1] Enforceable by EPA and the public in accordance with provisions of the federal *Clean Air Act*. *See* also WAC 173-400-030 (36).

Comment 3: The assessment of risk to the public overlooks harm resulting from decay of radioactive isotopes of the anticipated toxic air pollutants (TAPs) along with harm from all expected radioactive decay, in general. In the highly radiogenic environment of the tanks it is not possible for a TAP to exist absent any of its radioactive isotopes.

> The waste material is radioactive, continually generating heat, continually catalyzing both known and unknown chemical reactions in all layers, and continually generating gases and known and unknown chemical products that are continuously created and destroyed via chemical, thermal, radiocatalytic and radiolytic processes in all layers."[1]

Furthermore, vapors and gases of all toxic and radioactive constituents in the tanks freely pass through the nuclear grade high efficiency particular air (HEPA) filters proposed as emission controls under this order.

> "Vents and stacks ventilate the underground tanks that store mixtures of radioactive chemical wastes. . . . There are high-efficiency particulate air (HEPA) filters at the top of the vent risers to control radioactive contaminants while allowing gases and vapors to readily pass through."[2]

An accurate assessment of risk to the public should have considered all sources of potential harm from vapors and gases including from decay of all radioactive constituents in the tank vapors and gases.

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[1] Savannah River Report (W.R. Wilmarth et al., *Hanford Tank Vapor Assessment Report*, SRNL-RP-2014-00791, Oct. 30, 2014.) at 21 (This federally-funded report was prepared by an independent panel of experts, commissioned through the Savannah River National Laboratory. Available at: http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf)

[2] *Id.* at 22

Comment 4: In general monitoring is insufficient to verify continuous compliance with the required emission limits. If or when terms and conditions from this NOC Order are subject to incorporation as "federally enforceable" requirements (40 C.F.R. 70.6 (b)) into Hanford's CAA Title V permit, monitoring must be sufficient to demonstrate continuous compliance. The Title V permit must include "periodic monitoring" (sometimes referred to as "gap-fill" monitoring) sufficient to assure continuous compliance with permit terms and conditions. [40 C.F.R. 70.6 (a)(3)(i)(B)]

While entire NOC Order DE11NWP-001, Rev. 4 is an "applicable requirement" under WAC 173-401 (state law), this order is not an "applicable requirement" pursuant to 40 C.F.R. 70 (federal law). (*See* 40 C.F.R. 70.2) "Applicable requirements" under 40 C.F.R. 70 (Part 70) include requirements in Washington's *State Implementation Plan* (SIP). Terms and conditions in this order needed to implement portions of Washington's SIP are "federally enforceable" requirements (40 C.F.R. 70.6 (b); WAC 173-401-625). As "federally enforceable" requirements, such terms and conditions are subject to Title V permit modification processes codified at 40 C.F.R. 70.7. Federal law requires that every significant change in periodic monitoring be considered as a "significant modification" of the source's Title V permit.[1] The periodic monitoring in this particular revision of the order changes monitoring required for this project contained in Hanford's "enforceable" Title V permit. As such, the permittee may be subject to substantial delay[2] before it can implement all monitoring terms and conditions of NOC Order DE11NWP-001, Rev. 4.

Owing to an objection by the Administrator of EPA on Renewal 2 and Renewal 2, Revision A of the Hanford Title V permit (AOP), and Ecology's failure to address the Administrator's objection, Hanford's "enforceable" AOP is the expired version that pre-dates both AOP Renewal 2 and AOP Renewal 2, Revision A. Because an expired AOP cannot be changed, any permit modification or amendment needed to comply with Part 70 may need to be postponed until a "final permit"[3] has been issued.

[1] "At a minimum, every significant change in existing monitoring permit terms or conditions and every relaxation of reporting or recordkeeping permit terms or conditions shall be considered significant." 40 C.F.R. 70.7 (e)(4)(i)
[2] ". . . significant permit modifications shall meet all requirements of this part [40 C.F.R. part 70], including those for applications, public participation, review by affected States, and review by EPA, as they apply to permit issuance and permit renewal. . . " 40 C.F.R. 70.7 (e)(4)(ii)
[3] "*Final permit* means the version of a part 70 permit issued by the permitting authority that has completed all review procedures required by §§ 70.7 and 70.8 of this part." 40 C.F.R. 70.2

Comment 5: (Compliance demonstration § 1.3.5, pg. 9 of 30) Condition 1.3.5 states: "Compliance with Approval Condition 1.2.1 shall be demonstrated by stack gas flow and temperature measurement annually." However, an annual measurement cannot verify the range of flow rates allowed by this NOC Order was never exceeded sometime during the year; only continuous flow rate measurements can do so. Require continuous flow rate measurements.

Comment 6: (Paragraph 2.1, Addressing) Add "or other address as provided by Ecology". As written, Energy could be in technical violation should Ecology relocate or wish submissions be received at a different location.

Comment 7: (Paragraphs 11, 1.1.3, 1.3.3.2, and Table 6) Paragraph 1.1.3 requires, in part, that "All TAPs . . . as found in Table 6 of this order, shall be below their respective ASIL. . ." However, Table 6 only addresses ammonia. Ecology should at least address or reference the basis for equating "All TAPs" with ammonia.

Comment 8: (Paragraph 3.1, Baseline Assessment) Paragraph 3.1 requires: "All baseline assessments shall be conducted within ninety (90) days after commencement of operations." By definition, a baseline is "information that is used as a starting point by which to compare other information." (*See* http://www.merriam-webster.com/dictionary/baseline) Because the "starting point" cannot occur "after commencement of operations", Ecology should require all baselines be established before operations begin to conform with the definition of "baseline".

Comment 9 (Paragraphs 2.5 Reporting, and 3.3 TAPs Emission Assessment) Paragraph 2.5 requires, in part, that "[i]dentification of any TAP not previously identified . . . shall be submitted to Ecology within ninety (90) days of completion of laboratory analyses which verify emissions of that toxic air pollutant from the project.". Paragraph 3.3 states the "[p]ermittee will develop and implement an annual sampling and analysis plan

(SAP). . .” However, absent a specific date or a specific event by which the annual SAP will be prepared, this condition and the cited portion of condition 2.5 are both meaningless and unenforceable. Revise the 1st sentence in paragraph 3.3 to state a specific date or a specific event by which the SAP will be developed, for example;

- “By June 1, 2016, the permittee will develop an annual sampling and analysis plan. . .”, or
- “Before actions approved by this NOC Order can occur, the permittee will develop an annual sampling and analysis plan. . .”.

Ecology is correct when it states annual means yearly. However, without a specific starting date or event to anchor when the first SAP is to be developed, the term annual (defined as “happening once a year” *see* *http://www.merriam-webster.com/dictionary/annual*) is meaningless in the context of Condition 3.3 and the cited portion of Condition 2.5.

Comment 10: (Paragraph 3.3, 2nd sentence “Each SAP shall . . . to dimethyl mercury.”) Add “chromium hexavalent: soluble, except chromic trioxide” (*see* Finding 11) and “N-Nitrosodimethylamine” (NDMA) (*see* 1.1.6, 3.5.2.1, and 3.5.2.2.1) so the sentence ends “. . . dimethyl mercury, chromium hexavalent: soluble, except chromic trioxide, and N-Nitrosodimethylamine (NDMA).” These two additions are needed to be consistent with the remainder of this NOC Order.

Comment 11: (Paragraph 3.3, 3rd sentence “The TAPs addressed . . . tank content data.”) Edit this sentence to read: “The TAPs addressed in the SAP shall ~~be identified from Table 6 and based upon best engineering judgment and~~ minimally include the most current tank content data.”. “Table 6” references only ammonia and “engineering judgment” cannot be substituted for the most current tank content data.

Comment 12: (Paragraph 3.4 Ammonia Emission Assessment and Table 2) Paragraph 3.4 requires “quarterly assessment of ammonia stack emissions”, and Table 2 (Paragraph 1.1.4) requires that ammonia emissions “shall not exceed” a specific lbs/24 hr. value. It is not possible to ensure a specific lb/24 hr value has not been exceeded by sampling only quarterly. The only way to ensure ammonia emissions don’t exceed the allowed lbs/24 hr value is to require continuous sampling and recordkeeping. Require continuous sampling and recordkeeping.

Comment 13: (Paragraph 3.5, pg. 11/30, general) In Paragraph 3.5 Ecology is proposing a mathematical relationship to equate disparate chemicals (e.g. *x* amount of ammonia = *y* amount of dimethyl mercury) as a means of ensuring compliance with specific emission limits. Such a relationship overlooks the fact that each chemical is characterized by a unique chemical structure and related physical properties. This concept is particularly problematic for Ecology when the unstable and continually changing chemical composition of emissions from the tanks is considered.

> “The Hanford tank waste is a complex matrix of aqueous soluble and insoluble inorganic salts combined with an inventory of water and organic components that number into the thousands.

> These organic components are constantly undergoing radiolysis from the tank radioactivity plus thermal and chemical reactions with tank contents.[1]"

and:

> "The waste material is radioactive, continually generating heat, continually catalyzing both known and unknown chemical reactions in all layers, and continually generating gases and known and unknown chemical products that are continuously created and destroyed via chemical, thermal, radiocatalytic and radiolytic processes in all layers.[2]"

A purely mathematical relationship that overlooks molecular structure, associated physical properties, emissions impacted by atmospheric conditions, and an extremely dynamic and radiogenic environment cannot accurately determine emissions of any particular TAP. Only continuous emission monitoring has the potential to capture actual emissions. Paragraph 3.5.2 does propose a method to force fit dimethyl mercury (DMM) into the purely mathematical model, however, it does so only during waste disturbing activities. While "[w]aste disturbing activities can greatly alter the concentration and composition of the head space gases and vapors"[3], such activities affect all regulated air pollutants not only DMM. Additionally, "[p]assive ventilation is driven by thermal buoyancy and wind-driven Venturi effects, with a smaller contribution from barometric pressure changes.[4]" Emissions from the highly radiogenic tank environment occur at all times, during all operational and non-operational periods, and under all atmospheric conditions. Tank emissions include all TAPs, not just ammonia and DMM.

Furthermore, an independent panel of experts reported that under operating conditions, emissions of some of the most humanly-toxic chemicals increased at different percentage rates of their individual occupational exposure limits. The independent experts examined analyses of samples taken from Tank C-101 before waste transfer, at the start of waste transfer, and mid-way through the waste transfer operation. During these periods, Mercury emissions increased more than 900% of the *occupation exposure limit*; emissions of N-Nitrosodimethylamine (NDMA) increased more than 2,900% of the *occupational exposure limit*; Formaldehyde emissions increased slightly more than 64% of the *occupational exposure* limit. However, Ammonia emissions only increased slightly more than 18% of the *occupation exposure limit* [5]. It is thus apparent that a simple mathematical relationship based on ammonia and only one other of these toxins (dimethyl mercury) can never reliably account for the variable rates among all highly toxic vapors implicated in this NOC Order.

Require continuous monitoring and analyze for all TAPs.

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[1] Savannah River Report (W.R. Wilmarth et al., *Hanford Tank Vapor Assessment Report*, SRNL-RP-2014-00791, Oct. 30, 2014.) at 16 (This federally-funded report was prepared by an independent panel of experts, commissioned through the Savannah River National Laboratory. Available at: http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf)
[2] *Id.* at 21
[3] *Id.* at 23
[4] *Id.* at 26
[5] *Id.* at 27

Comment 14: (Paragraph 3.5, 1st sentence "Ammonia shall be . . . measured near real time . . . waste solids disturbances.") This sentence states the reason for using ammonia as an indicator for compliance with TAP emission limits is that ammonia can be measured near real time. However, this order does not require "near real time" monitoring for ammonia. Revise this paragraph to require "near real time monitoring" of ammonia.

Comment 15: (Paragraph 3.5, next-to-last sentence, "Ecology must be notified . . . exceeding Table 6 values.") This sentence requires notification within 24 hours of any reading exceeding a Table 6 value. However, without requiring "near real time" monitoring there is no way of determining when a Table 6 value has been exceeded, thus starting the 24-hour notification clock. Require "near real time monitoring" for ammonia.

Comment 16: (Section 3.5.2 thru 3.5.2.5, pg. 12/30) This section proposes a process to modify the order-allowed levels of ammonia based on reasonably-concurrent measurements of both ammonia and dimethyl mercury (DMM) during waste-disturbing activities. However, this process overlooks "chromium hexivalent . . . " (*see* Finding 11), "N-Nitrosodimethylamine" (NDMA) (*see* 1.1.6, 3.5.2.1, and 3.5.2.2.1), and the 31 TAPs that exceed an SQER (*See* Finding 11). According to Paragraph 3.5: "A maximum concentration of ammonia in part per million (ppm) by volume of ammonia emitted will be used as an indicator for compliance with release rates of TAPs." Because Ecology is using emissions of ammonia to determine compliance for all TAPs, Ecology should either force fit its mathematical model to accurately reflect emissions of all implicated TAPs and not just DMM, or implement a process that does monitor for all implicated TAPs.

Comment 17: (Paragraph 3.5.1 Exceedance of Table 6 Values) This paragraph requires that operations, but not ventilation, cease if a Table 6 value for an ammonia concentration limit is exceeded. However, because this order does not specify a monitoring frequency for ammonia emissions, it is near-impossible to determine if or exactly when an ammonia concentration limit has been exceeded. Only continuous monitoring for ammonia can be used to determine exactly when an ammonia concentration limit has been exceeded. Require continuous monitoring.

Comment 18: (Paragraph 3.5.2.1 "During the start of . . .and ammonia.") Add "Chromium hexavalent: soluble, except chromic trioxide" to the 1st sentence so it reads: "During the start of . . . sampled for, at a minimum, dimethyl mercury, n-Nitrosodimethylamine, <u>Chromium hexavalent: soluble, except chromic trioxide</u>, and ammonia." (*See* Findings 10 and 11)

Comment 19: (Monitoring in general) Monitoring in this draft order overlooks emissions during periods when waste disturbing activities are not occurring or when active ventilation ceases. However, emission of tank head space gases occurs at all times, 24 hours a day, seven days a week; under all atmospheric conditions; and during all operating and non-operating periods.

> ". . . [U]nder certain weather conditions, concentrations approaching 80% of the head space concentration could exist 10 feet downwind from the release point . . . ." [1]

and:

> The exhausters used for active venting occasionally shut down, as described earlier. When this occurs, an interlock shuts down sluicing and retrieval operations, and the inlet vent on any tank involved is effectively rendered a passive exhaust vent. Although the waste disturbance activities have ceased, the head space then being vented through the inlet vents and fugitive pathways is potentially at orders of magnitude[a] greater concentration of vapors than during routine passive venting. This venting of higher concentration emissions is through a relatively short stack and without the motive force of the exhausters to assist in dispersion. [2]

[a] "[A]n increase of one order of magnitude is the same as multiplying a quantity by 10. An increase of two orders of magnitude is the equivalent of multiplying by 100, or 10^2." (http://whatis.techtarget.com/definition/order-of-magnitude)

Furthermore, an independent panel of experts that studied Tank Farm tank emissions has recommended characterization include emissions under all conditions.

> Characterization of releases from the tank head spaces should be further differentiated on the basis of whether the release would be expected to be diluted, as is the case for stack exhaust during active ventilation, or undiluted, as is the case for releases through passive vents or fugitive pathways. It is imperative to account for the unusual operating scenarios when planning to prevent the unusual exposure incidents.[3]

Monitoring in this draft order is insufficient to capture all expected emissions of TAPs as recommended by the experts. Add monitoring sufficient to capture all expected TAPs emissions under all atmospheric conditions and during all operating and non-operating periods.

[1] Savannah River Report (W.R. Wilmarth et al., *Hanford Tank Vapor Assessment Report*, SRNL-RP-2014-00791, Oct. 30, 2014.) at 9 (This federally-funded report was prepared by an independent panel of experts, commissioned through the Savannah River National Laboratory. Available at: http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf)
[2] *Id.* at 28
3 *Id.* at 28

Comment 20: (Finding 8 and Paragraphs 1.1.2, Table 1, 1.3.3.1, and 3.2) Finding 8 on page 3 of 30 states, in part, that:

> "Criteria air pollutant emission increases from the proposed project are below the *de minimis* levels in WAC 173-400-110(5)(d) with the exception of . . . volatile organic compounds (VOCs). . . ". [WAC 173-400-110 (5)(d) is a part of Washington's approved SIP]

Table 1 (page 5 of 30) limits emissions of volatile organic compounds (VOCs) from the different tank farms to a specific maximum tons per year value. Verification of these limits is through a single annual measurement, one for each exhauster (paragraph 3.2, page 11 of 30). Use of a single annual measurement for each exhauster as verification a specific "tons/year" limit has not been exceeded assumes a relatively constant flow rate over the entire year along with homogeneous emissions over the same period. No condition in this NOC Order actually verifies a relatively constant flow rate over the year-long period (*see* Comment 5, above), and it has been known for decades that tank emissions are not homogenous. One of the more recent studies by an independent panel of experts reported the continually changing nature of tank emissions, in part, as follows:

> "The Hanford tank waste is a complex matrix of aqueous soluble and insoluble inorganic salts combined with an inventory of water and organic components that number into the thousands. These organic components are constantly undergoing radiolysis from the tank radioactivity plus thermal and chemical reactions with tank contents." [1]

and:

> "The [tank] waste material is radioactive, continually generating heat, continually catalyzing both known and unknown chemical reactions in all layers, and continually generating gases and known and unknown chemical products that are continuously created and destroyed via chemical, thermal, radiocatalytic and radiolytic processes in all layers."[2]

The only way to assure no VOC limit has been exceeded is to require continuous monitoring. Require continuous monitoring of VOC emissions.

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[1] Savannah River Report (W.R. Wilmarth et al., *Hanford Tank Vapor Assessment Report*, SRNL-RP-2014-00791, Oct. 30, 2014.) at 16 (This federally-funded report was prepared by an independent panel of experts, commissioned through the Savannah River National Laboratory. Available at: http://srnl.doe.gov/documents/Hanford_TVAT_Report_2014-10-30-FINAL.pdf)

[2] *Id.* at 21

Comment 21: (Finding 8, page 3/30) Finding 8 on page 3 of 30 states, in part:

> "Criteria air pollutant emission increases from the proposed project are below the *de minimis* levels in WAC 173-400-110(5)(d) **with the exception of nitrogen oxides (NOx)** . . ." (emphasis is mine) Finding 8 on page 3 of 30 ". [WAC 173-400-110 (5)(d) is a part of Washington's approved SIP]

However, the remainder of this draft order overlooks monitoring, reporting, recordkeeping, and emission control for NOx emissions. Add requirements to the order that address monitoring, reporting, recordkeeping, and emission control for expected NOx emissions.

REFERENCES

Emission Unit ID: 56

200W P-296SY-001

296-P-23

This is a MINOR, ACTIVELY ventilated emission unit.

241-SY TANK FARM

Emission Unit Information

Stack Height: 17.30 ft. 5.27 m. Stack Diameter 0.51 ft. 0.16 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 83.07 ft/second. 25.32 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Deentrainer	1	
	Heater	Non-Operational	
	Prefilter	1	
	HEPA	2	In series
	Fan	1	

Monitoring Requirements

state enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(3)	40 CFR 61, Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	1 week sample/4 times per year.

Sampling Requirements Record Sample

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status This emission unit (241-SY B Train - western most unit) is a primary exhauster used to support tank farm operations by ventilating the DSTs in 241-SY Tank Farm during storage, maintenance, and normal operations. Any activity other than storage, maintenance, and normal operations will be regulated and/or permitted under the applicable regulations and/or permits for the activity being performed and the emission units associated with the activity. This emission unit is operated in alternation with the "A" train (296-S-25) when "B" train is not operational. The emission unit operates intermittently.

Emission Unit ID: 93

200E P-296A042-001

296-A-42

This is a MAJOR, ACTIVELY ventilated emission unit.

241-AY/AZ TANK FARM

Emission Unit Information

Stack Height: 55.00 ft. 16.76 m. Stack Diameter 0.83 ft. 0.25 m.

Average Stack Effluent Temperature: 75 degrees Fahrenheit. 24 degrees Celsius.

Average Stack ExhaustVelocity: 30.56 ft/second. 9.31 m/second.

Abatement Technology

BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Condenser	1	(In the common exhaust train) At common header. Downtime to be reported by the Tank Farm air emissions notification procedure.
	Water Chiller	1	(In the common exhaust train) Downtime to be reported by the Tank Farm air emissions notification procedure.
	HEME	1	(In the common exhaust train) Downtime to be reported by the Tank Farm air emissions notification procedure.
	Heater	1	(In the common exhaust train) 2 parallel flow paths with 1 operational. Downtime to be reported by the Tank Farm air emissions notification procedure.
	HEPA Filter Stages/Bank	2	(In the common exhaust train) 2 parallel flow paths. 1 filter per stage/ bank, Downtime to be reported by the Tank Farm air emissions notification procedure.
	Chiller Pump	1	(In the common exhaust train) Downtime to be reported by the Tank Farm air emissions notification procedure.
	Fan	1	(In the common exhaust train) 2 parallel flow paths. 1000 CFM Downtime to be reported by the Tank Farm air emissions notification procedure.

Monitoring Requirements

state enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(2)	40 CFR 61, Appendix B Method 114	Sr-90, Cs-137, Am-241	Continuous

Sampling Requirements Record Sample

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status This emission unit is a primary exhauster used to support tank farm operations by ventilating the DSTs in 241 AY/AZ Tank Farm during storage, maintenance, and normal operations. Any activity other than storage, maintenance, and normal operations will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit is a primary exhauster ventilation system that operates intermittently.

This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
296-A-42 Exhauster Operation (Replaces NOC 901)	AIR 15-822	8/19/2015	971

Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)

1) The total abated emission limit for this Notice of Construction is limited to 2.42E+00 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 4.83E+03 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

The authorized activities of this NOC are to install, remove, and operate waste management systems (e.g., mixer pumps, transfer pumps, sluicing, and other required equipment) in tanks 241-AZ-101, 241-AZ-102, 241-AY-101, and 241-AY-102 for the receipt and transfer of waste. Emissions from these tanks are ventilated through exhauster 296-A-42. Based on operational needs, a tank may be isolated from the common header to facilitate installation of a portable exhauster which would be authorized under a separate license.

The 241-AY-101, 241-AY-102, 241-AZ-101, and 241-AZ-102 tanks are double shell tanks (DST). The inner shell is constructed from heat treated, stress-relieved steel. The outer shell is constructed of non-stress relieved steel. The two shells are separated by a 2.5 ft. annulus and contained inside a concrete shell.

The 241-AY and 241-AZ tanks are part of a Resource Conservation and Recovery Act treatment, storage, and/or disposal unit. The tanks contain mixed waste in the form of liquids or contained solids (suspended or settled). The contents in each of the four tanks may be mixed periodically to control gas entrapment in the settled solids, to control temperature, for chemical treatment to control corrosion, or for waste retrieval. Contained solids will be mobilized, as required, as part of this process by hydraulic action of the mixer pumps, sluicers, or by use of air-lift circulators in each of the tanks. During such activities, as well as during storage, the ventilation system maintains the vapor space in each tank below atmospheric pressure.

PRIMARY EXHAUSTER

The air flows from the tanks to a common header. The common header is the point in the overall system at which ventilation flow is provided to the abatement control system. Also, a portion of each tank's exhaust can be recirculated to assist in moisture control.

The recirculation system is not part of the primary abatement control system and the use is optional. The recirculation fan can be removed and replaced with a spool piece, to allow recirculation system's condenser and

moisture separator to reduce the loading of the overall system moisture removal equipment.

The tank farm exhaust system provides ventilation for all 241-AZ and 241-AY tank primary vapor spaces. The system removes heat, water vapor, and particulates, and maintains a negative pressure on the tanks. The existing ventilation and abatement control systems for the 241- AY/AZ Tank Farm will be used during the transfer of waste to and from the 241-AY and 241-AZ tanks, unless supplemental ventilation is available. Based on operational needs, a tank may be isolated from the common header to facilitate installation of a portable exhauster which would be authorized under a separate license.

Inlet air for the 241-AZ and 241-AY tanks is provided through the inlet air filters. Air is exhausted from each tank independently through exhaust ducts. The discharge to atmosphere will flow through a condenser, high-efficiency mist eliminator, heater, and two stages of HEPA filters in series. For purposes of calculating abated emissions, only the HEPA filter control efficiencies are used.

The abatement control system consists of two filtration trains and a single stack. Each train consists of a heater, two stages of HEPA filters in series and fan that can ventilate all the tanks. Only one train operates at a time.

SALTCAKE DISSOLUTION WASTE RETRIEVAL SYSTEM

The saltcake dissolution waste retrieval system may be used to retrieve soluble saltcake waste. This method retrieves the soluble portion of the waste only, resulting in very few of the solids being pumped from the tank. The saltcake dissolution waste retrieval system deployed is for water, chemical agent, or catalyst liquid to be added to the tank using a variety of spray nozzles or "sprinklers". The approach is to sprinkle the waste surface with water, chemical agent, or catalyst liquid. The added water, chemical agent, or catalyst liquid must stay in contact with the saltcake for a long enough period of time for the brine to become saturated. Once the brine is saturated, it is pumped to a receiver tank, staging tank, storage DST, or other staging/storage vessel associated with the supplemental treatment, packaging, or disposal. Salt solution will be removed using the existing saltwell pump or other pump placed into the tank.

A tank not equipped with a saltwell pump, a transfer pump (progressive cavity, vertical turbine) can be installed and operated.

Remotely directable water distribution devices will be located in risers spaced as far apart as practical. A combination of spraying water, chemical agent, or catalyst liquid to dissolve the saltcake can be used in conjunction with directing a flow of water or recirculating water at the waste to move it to the pump suction to allow the pumping of waste from the tank. Recirculated waste from the pump may be sent back to the tank as an alternative to using water to direct dissolution waste to the pump suction.

MODIFIED SLUICING WASTE RETRIEVAL SYSTEM

Modified sluicing can be used for some waste retrieval. Modified sluicing is the introduction of liquid at low to moderate pressures and volumes into the waste. The liquid dissolves and breaks apart solid materials and suspends them in the waste slurry. A transfer pump installed in the tank provides the motive force to transfer the liquid slurry to a receiver tank.

Modified sluicing introduces sluice liquid in a controlled fashion using multiple sluicing nozzles at varying pressures and flows, then pumps out the resultant waste slurry. This maintains minimal liquid inventories within the tank at all times. The liquids that could be used in modified sluicing include water, recirculated supernatant/water from the receiving DST, recirculated supernatant/water, chemical agent, or catalyst liquid.

VACUUM WASTE RETRIEVAL SYSTEM

A vacuum waste retrieval system can be used for waste retrieval activities. The vacuum waste retrieval system is introduced into the tanks by means of an articulating mast system (AMS). The AMS has a horizontal reach and rotational capabilities of 360 degrees. The AMS has a retracted position and can be extended vertically. Air is mixed at the suction end of the AMS enabling the required vertical lift for the waste to a topside receiver tank, batch vessel, or a staging single shell tank (SST), storage DST, or other staging/storage vessels associated with supplemental treatment, packaging, or disposal.

The AMS will be deployed through and attached to standard riser flanges that are available on the tanks. Cameras can also be installed in other risers for in-tank viewing and control of the AMS.

For the 200-series tanks in the 241-C, 241-U, 241-B, and 241-T Tank Farms, a vacuum retrieval process tank, staging tank, staging SST, storage DST, or other staging/storage vessel will be deployed. The receiver tank will receive waste in batches from whichever tank is connected into the vacuum retrieval system. The vacuum pressure used to draw up the waste from the tank to the receiver tank is relieved back into the tank being retrieved.

MOBILE RETRIEVAL SYSTEM

A Mobile Retrieval System (MRS) can be used to retrieve waste from some tanks. The MRS consists of two in-tank systems. The first is a robotic crawler inserted through one riser the second is an AMS inserted through a second riser. The AMS retrieves the sludge from the tank using a vacuum with assisting pneumatic conveyance. The AMS vacuum tube has a horizontal reach and can be extended to the bottom of the tank. The arm rotates 360 degrees. The vacuum will be directed through the AMS in the tank to the end effector, which is in contact with the waste. The pneumatic conveyance-assisted vacuum retrieval system will draw the waste up through the vacuum to the waste vessel in the vessel skid in batches. The AMS is then valved out while the waste vessel is emptied and pumped out through the over ground transfer lines to a DST, a staging SST, or other treatment/disposal options. When the waste vessel is nearly empty, the transfer line will be valved out and the AMS will be valved back in and another batch of waste will be removed from the tank. This process will be repeated until waste near the center of the tank is removed. The robotic crawler will be remotely controlled to move and/or wash waste toward the center of the tank.

MOBILE ARM RETRIEVAL SYSTEM

The Mobile Arm Retrieval System (MARS) is a waste retrieval system used to retrieve waste. The MARS employs two design options similar to currently permitted systems: 1) a sluicing retrieval option which is intended for retrieval of non leaker tanks, and 2) a vacuum retrieval option is intended for retrieval of assumed leaker tanks. Both options use an arm and sluicing jets and/or a high pressure water scarifier to break up the waste. The sluicer uses waste supernatant recycled from the DST to form a liquid jet using a nozzle. The scarifier uses filtered, pressurized water that comes from a high pressure water skid.

The equipment portion of the MARS includes a vertical, carbon steel mast (square cross section) as the main structural member. Attached to the vertical mast is a carbon fiber robotic arm. The arm is attached to a traveler that raises and lowers the arm relative to the vertical mast. The arm rotates 360 degrees - 380 degrees on a turntable located in the pit box. The arm also pivots up and down from an elbow at the traveler (hydraulic system) and extends and retracts (hydraulic system). The end of the arm articulates. The arm thus provides for a large range of motion such that the sluicing devices (recycle sluicer, water scarifier) located at the end of the arm can aim at most portions of the tank and from varying (e.g., short) distances.

The containment box which encloses the MARS will be ventilated by two parallel installed radial filters. The purpose of these filters is to minimize contamination from migrating up from the tank into the containment box via the open space on the large riser during retrieval operations. Minimization of contamination inside the containment box is desired should entry into the box ever be required for repairs. Inflow through these filters during retrieval is estimated to reach up to 60 cubic feet per minute (cfm). A valve will be installed between the

filters and the containment box so filters can be isolated from the box. However, because the location of the valve will be approximately 12 feet above ground and difficult to reach without properly installed and inspected scaffolding, the valve will be left open at all times until retrieval of the tank is complete. Once retrieval is complete the valve will be closed.

REMOTE WATER LANCE

The completion of tank retrieval may also be aided by a Remote Water Lance (RWL) that is a high pressure water device, or hydro laser. Alternatively, a High Pressure Mixer (HPM) may be used in the same capacity. The systems will consist of both ex-tank and in-tank components. The ex-tank components will be comprised of high pressure systems, operating controls, cables, and hoses. The in-tank components will be comprised of umbilical, in-tank vehicle, high pressure nozzle(s), or the high pressure mixer.

The high pressure water systems will provide the water at the desired pressure, not to exceed 37,000 psig. A conditioning system will be used to filter the raw water entering the skid to ensure that no abrasive materials are entrained in the water. The water volumetric flow rate will be on the order of 4 to 18 gpm for the HPM and from 6 to 15 gpm for the RWL. The operating controls will be located in a control trailer outside of the farm fence. The cables and hoses will connect hydraulically powered in-tank vehicle with the ex-tank controls and water skid via the umbilical. The HPM consists of an adjustable height pipe with two pairs of opposed, high pressure, low volume water orifices located on the bottom of the pipe. The mixer is capable of being rotated 360 degrees and has an adjustable height range of approximately 7 feet. The positioning of the mixer is performed remotely using a hydraulic system. Additionally, the mixer has a single orifice on the bottom of the unit that can be used as an operational or installation aid. The in-tank vehicle will house one to four high pressure water nozzles. The RWL will be operated with the nozzle submerged to avoid aerosols in the tank. A rupture disc will be used to prevent reaching pressures above 37,000 psig.
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3) **The Annual Possession Quantity is limited to the following radionuclides (Curies/year):**

Ac - 227 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Am - 241 8.20E+04 Contr butes GREATER than 0.1 mrem/yr to the MEI and represents GREATER than 10% of the unabated PTE.	Am - 243 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Ba - 137 m Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	C - 14 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cd - 113 m Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Cm - 242 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cm - 243 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cm - 244 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Co - 60 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cs - 134 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cs - 137 1.10E+07 Contr butes GREATER than 0.1 mrem/yr to the MEI and represents GREATER than 10% of the unabated PTE.
Eu - 152 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Eu - 154 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Eu - 155 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
H - 3 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents		

less than 25% of the abated dose.	I - 129 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Nb - 93 m Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Ni - 59 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Ni - 63 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Np - 237 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Pa - 231 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 238 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 239 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Pu - 240 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 241 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 242 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Ra - 226 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Ra - 228 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Ru - 106 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Sb - 125 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Se - 79 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Sm - 151 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Sn - 126 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Sr - 90 1.80E+07 Contr butes GREATER than 0.1 mrem/yr to the MEI and represents GREATER than 10% of the unabated PTE.	Tc - 99 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Th - 229 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Th - 232 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	U - 232 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
U - 233 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	U - 234 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	U - 235 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
U - 236 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	U - 238 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Y - 90 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Zr - 93 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

4) RELEASE RATES-WDOH Log Approval

The annual possession quantity (APQ) shall be tracked on a WDOH approved log. WDOH authorizes approval of the Tank Waste Information Network System (TWINS) as the logging mechanism for APQs of radionuclide source terms (WAC 246-247-080(7)).

5) WDOH ALTERNATE APPROVAL- Release Fractions

The PTE calculation shall be based on the inventory of material to be managed (tank inventory and supernate)

using the release fraction for the tank inventory of 1.0 E-3 for tank inventory and 8.0 E-5 for supernate.

6) WDOH NOTIFICATION-Change in PTE Calculations
The department will be notified if radionuclides other than Cs-137, Sr-90, and Am-241 are identified that contribute greater than 10% of the PTE or greater than 0.1 mrem/yr TEDE to the MEI (WAC 246-247-040(5) and WAC 246-247-110(8)).

7) WDOH NOTIFICATIONS-Differential Pressure Out of Range
The differential pressure readings for the pre-filters and both stages of HEPA filters shall be monitored recorded and trended a minimum of weekly. The exhaust system will be configured to automatically shut down at 5.9 inches of water (or less) pressure differential across the HEPA filter(s) for the first filter in series or multiple filters in series as indicated by the local readout. If the final HEPA filter in the system exceeds 5.9 inches of water pressure differential across the filter, the cause will be determined and WDOH will be notified through normal established channels (WAC 246-247-040(5) and WAC 246-247-060(5)).

8) STANDARDS-Stack Monitoring Systems
The emission unit stack monitoring system shall meet the requirements of ANSI/HPS N13.1-1969 and the applicable stack monitoring system inspection requirements referenced in 40 CFR 61 App. B, Method 114, Table 2 - Maintenance, Calibration, and Field check requirements (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).

9) ABATEMENT TECHNOLOGY-HEPA Filter Testing
The HEPA filters are in-place leak tested annually in accordance with a written procedure that addresses testing and visual inspections based on ASME N510 and ASME N511, and shall have a minimum efficiency of 99.95%. In addition, HEPA filter replacement requires in-place leak testing of the HEPA filters (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).

10) ABATEMENT TECHNOLOGY-Filter Protection
The relative humidity shall be maintained below 70%. If the relative humidity cannot be directly measured, the ventilation system exhauster operating temperature will be monitored daily to ensure that the appropriate temperature is maintained, based on psychometric charts and engineering calculations, so that the relative humidity remains below 70%. Daily Monitoring is not required over weekends and holidays when no waste disturbing activities are occurring (WAC 246-247-040(5) and WAC 246-247-060(5)).

11) ABATEMENT TECHNOLOGY-Temperature Values in the Airstream
The airstream temperature is also monitored to verify that it is below the 200°F limit established for continuous operation and 250°F limits established for periodic operation to protect the HEPA filters (WAC 246-247-040(5)).

12) ABATEMENT TECHNOLOGY-Ductwork Insulation
All ventilation ductwork that is above ground and not in a temperature controlled building, from the exit of the tank to the inlet of the exhauster filter housing shall be insulated (WAC 246-247-040(5) and WAC 246-247-060(5)).

13) CONTAMINATION CONTROL-Max Operating Pressure
During waste retrieval operations, the maximum pressure for any waste retrieval method shall not exceed 37,000 psig (WAC 246-247-040(5) and WAC 246-247-060(5)).

14) CONTAMINATION CONTROL-Active Ventilation
Tanks shall have active ventilation during waste retrieval operation, unless alternative controls are documented and approved by WDOH. If the exhauster goes down due to off-normal conditions while retrieval is occurring, the system should be placed into a safe configuration, minimizing dose to personnel and the environment. These steps may include: flushing the lines, pumps, and the waste transfer system of slurry solution using DST supernatant or water; pumping down the tank liquid to minimize remaining liquids; and halting waste retrieval (WAC 246-247-040(5) and WAC 246-247-060(5)).

Emission Unit ID: 204

200E P-296AP-001

296-A-40

This is a MINOR, ACTIVELY ventilated emission unit.

241-AP TANK FARM

Emission Unit Information

Stack Height: 19.58 ft. 5.97 m. Stack Diameter 0.55 ft. 0.17 m.

Average Stack Effluent Temperature: 110 degrees Fahrenheit. 43 degrees Celsius.

Average Stack ExhaustVelocity: 37.75 ft/second. 11.51 m/second.

Abatement Technology

BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Deentrainer	1	2 parallel flow paths
	Heater	1	2 parallel flow paths
	Prefilter	1	2 parallel flow paths
	HEPA	2	2 parallel flow paths with 2 HEPAs in series
	Fan	1	2 parallel flow paths, 1 in operation at a time

Monitoring Requirements

state enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(3)	40 CFR 61, Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	1 week sample/4 times per year

Sampling Requirements Record Sample

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status This emission unit is a primary exhauster used to support tank farm operations by ventilating the DSTs in 241 AP Tank Farm during storage, maintenance, and normal operations. Any activity other than storage, maintenance, and normal operations will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit operates intermittently.

This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
Installation and operation of Waste Retrieval System in Tanks 241-AP-102 and 241-AP-104 (Replaces NOC 666)	AIR 12-310	2/23/2012	828

Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)

1) The total abated emission limit for this Notice of Construction is limited to 2.17E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 4.50E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

Install and operate a waste retrieval system (one mixer pump and other required equipment) in the 241-AP-102 and the 241-AP-104 tanks. The pumps will operate in a batch mode as needed. The waste capacity of the tanks will not be altered, nor will the ventilation system.

The 241-AP-102 and 241-AP-104 tanks are 75-foot diameter double-shell tanks (DST) constructed from the latest generation of tank designs, with a reinforced concrete shell and dome, and an insulating concrete base. A heat-treated, stress relieved, primary steel liner and a non-stress-relieved, outer steel liner are separated by a 2.5 foot annulus and contained inside the concrete shell. The tanks have a flat bottom with a usable waste depth of approximately 35 feet (1,160,000 gallons).

Current design calls for modifications to the AP-102 and AP-105 tanks and associated equipment to allow installation and removal of waste retrieval system equipment, and shall be limited to the following major components.

New In-Tank Equipment:

Installation of one mixer pump in each tank for mobilizing the settled solids. The pumps will be equipped with an approximate 300-horse power motor with a variable speed drive to allow operation from approximately 60 percent speed to 100 percent speed. The pump will be capable of pumping waste at a flow rate of approximately 5,200 gallons per minute through each of two, horizontally opposed, discharge nozzles, located approximately 18 inches above the bottom of the tank.

Installation of a high-pressure spray wash system on top of each of the 42-inch risers used for the mixer pumps. The spray wash system will be used for future decontamination of the mixer pumps as they are removed from the tank.

Installation of one transfer pump in each tank for the transfer of waste. The pumps will be capable of maintaining a variable waste transfer at a top rate of up to 140 gallons per minute.

Installation of one closed circuit television for each tank.

New Ancillary Equipment and Buildings:

Construction of an annex to the existing 241-AP-271 Instrument Building to house retrieval instrumentation/electrical equipment and operator stations.

Installation of electrical power and instrument cables and other utility tie-ins and/or upgrades (e.g., sanitary and raw water, and telecommunications).

Upgrade of Existing Pits

Installation of new, double-contained waste transfer piping, water and diluent piping to and from the process pits, and 8-inch diameter annulus ventilation piping. A total of approximately 1,400 linear feet of piping will be installed approximately 5 feet underground.

Installation of jumpers inside existing AP02A, AP02D, and AP04A AP Farm pits.

Installation of three new sets of pit cover blocks for the AP02A, AP02D, AP04A pits.

Removal, Decontamination and Demolition of Existing Equipment:

Removal of one mixer pump from AP-102.

Removal of one transfer pump from AP-102 and one transfer pump from AP-104.

Removal of a slurry distributor from AP-104.

Removal of a drop-leg jumper from AP-102.

Relocation of a dip tube assembly to a different riser (AP-104).

Removal of jumpers form each of the three pits, central pump pit cover blocks, and pump pit cover blocks.

Removal of an existing 2-inch waste line, approximately 15 linear feet.

Use of equipment and containers for removal, cleaning, decontamination, transport, storage, and burial of in-tank components and soil.

Removal of existing 8-inch-diameter annulus ventilation piping, approximately 32 feet.

Construction Activities with the Potential to Emit are:

Construction activities with the potential to emit include soil excavation, work in pump pits, pipe cutting, removal of, and installation of in-tank equipment. Some of these activities are described in, and will be done in accordance with, an applicable Tank Farm ALARACT demonstration, HNF-4327 latest revision, Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities. The specific activities and corresponding ALARACT demonstration are called out as they apply in the following text.

If needed or chosen for use during these activities, the Regulated Guzzler, a Portable/Temporary Radioactive Air Emission Unit, and a HEPA Filtered Vacuum Radioactive Air Emission Unit may be used in accordance with the latest revisions of their NOCs (98-EAP-037, DOE/RL-96-75, and DOE/RL-97-50 respectively).

The AP Tank Farm is posted and maintained as a radiological buffer area, free of surface contamination (entrance is made in street clothes). There are no recorded spills or leaks. Therefore, encountering contamination is not expected during soil excavation activities. Because of the possibility of encountering previously undetected subsurface contamination, all work is performed in accordance with the Hanford Site Radiological Control Manual and the RPP As Low As Reasonably Achievable (ALARA) Program requirements. These requirements are carried out through the activity work packages and associated radiological work permit (RWP).

Soil Excavation:

Soil will be excavated inside and outside the AP Tank Farm to install new piping and construct a new pump pit. A total of approximately 1,000 cubic yards shall be excavated, which includes approximately 600 cubic yards inside the tank farm. Backfill shall be made with the original removed soil or controlled density fill (sand, water and a small amount of cement).

Soil excavation activities inside the tank farm fence will be performed in accordance with ALARACT Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools). Clean soil piles may be moved from one place to another within the tank farm with heavy equipment (backhoe, front-end loader, etc.). Soil excavation outside the tank farm fence also may be performed with heavy equipment. The Regulated Guzzler may also be used as described in its NOC for use in the A Tank Farm Complex (98-EAP-037).

Pipe Cutting:

One existing 2-inch diameter waste transfer line will be cut and replaced with a new 3-inch diameter waste transfer line. The cuts will be made, inside a glove bag, using appropriate equipment such as a sawzall or tri-tool. The tie-ins will be made at the new pit nozzles. If any welding is required, the glove bag will be removed and the weld made.

One 12-inch diameter tank riser will be cut to fit into the new pit being constructed. The riser will be opened and an expandable plug will be installed in the riser to maintain containment of the vapor space and prevent material from falling into the tank while the work takes place. In order to perform the cut without a glove bag, the riser will be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 dpm/100 cm2 beta gamma and 200 dpm/100 cm2 alpha. The cut will be made above the plug with equipment such as a tri-tool or sawzall. If a glove bag is used, it will be removed. The plug will be removed and a flange welded in place. Then the top of the riser flange will be sealed with a temporary shield plug.

Approximately thirty-two feet of 8-inch diameter annulus ventilation pipe will be cut and rerouted. The cuts will be made, inside a glove bag, using appropriate equipment such as a sawzall or tri-tool. The glove bag will be removed and the tie-ins will be made by welding.

If needed or chosen for use during these activities, a Portable/Temporary Radioactive Air Emission Unit, and a HEPA Filtered Vacuum Radioactive Air Emission Unit may be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75, and DOE/RL-97-50 respectively).

Pit Work:

Work to be performed in pump pits includes replacing three existing sets of cover blocks with newly designed cover blocks, core drilling (core drills will be performed as necessary), installing new nozzles, removing existing jumpers, and installing riser extensions (total of two, 42-inch diameter).

Pit access and work will be performed in accordance with ALARACT Demonstrations 6 and 14, TWRS ALARACT Demonstration for Pit Access, and TWRS ALARACT Demonstration for Pit Work. Activities not covered in these ALARACTs are described below.

If needed or chosen for use during these activities, a Portable/Temporary Radioactive Air Emission Unit, and a HEPA Filtered Vacuum Radioactive Air Emission Unit may be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75, and DOE/RL-97-50 respectively).

At the start of the pit work, the cover blocks will be lifted off and radiologically surveyed to determine appropriate disposal protocol and packaged for disposal. A new cover block will be installed when all work in the pit has been completed.

Core drilling will be performed below grade level, on the outside of the pit. The hole will be drilled from the outside to the inside, with the temporary pit cover in place. The drilling bit will be water-cooled. Nozzle installation will generally proceed immediately after the hole is completed. If immediate nozzle installation is not possible, the hole will be temporarily sealed with a plug, tape, or equivalent device, until the nozzle can be installed.

Installation of new nozzles in existing pits will take place in an open pit. All parts of the nozzle will be assembled ahead of time, and will be lowered into position as a single unit. The piping in the back of the nozzle will be threaded through the hole (from the inside of the pit to the outside) and pulled tight into place from the outside of the pit. Grout shall be used to secure and seal the nozzle into place. The front opening of the nozzle, inside the pit, will be fitted with a temporary cap/seal until a jumper is connected to it. Once the nozzle(s) is installed, the temporary pit cover will be replaced until other work inside the pit requires its removal.

Installation of the 42-inch diameter riser extensions will take place in an open pit. Only the risers that will house a mixer pump will have an extension installed. The depth-verification shield plug left in/on the riser from the previously removed mixer pump shall be removed and replaced with the riser extension that has a temporary shield plug inserted at the bottom end. The riser will be open during this step which takes approximately thirty minutes. The extension will be sealed to the cover block with metal bellows. The extensions shall be equipped with spray was rings that will provide a means of decontamination for future mixer pump removals. They will also provide confinement between the pump and the inside of the pit during future pump removals, which will be possible without removing the pit cover blocks.

Removal of In-Tank Equipment

Various in-tank equipment will be removed from both tanks to make room for the water retrieval equipment, or to be replaced with equivalent equipment built to withstand the mixer pump jet forces. The existing flexible receiver equipment will be used to remove and decontaminate, to acceptable levels, a mixer pump (from a 42-inch riser) and two transfer pumps (from 12-inch risers). The remaining equipment will be removed from 4-inch, 12-inch, and 42-inch risers using the general bag out process (sleeving equipment with plastic or piping as it is removed.

Equipment removal will be performed in accordance with ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment. Activities not covered in this ALARACT are described below.

If needed or chosen for use during these activities, a Portable/Temporary Radioactive Air Emission Unit, and a HEPA Filtered Vacuum Radioactive Air Emission Unit may be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75, and DOE/RL-97-50 respectively).

Decontamination of removed equipment is not anticipated, the fewer decontamination activities undertaken the less exposure possibilities there are to the worker and the environment. Contingency decontamination plans, however, are in place if needed. The most likely equipment to be decontaminated would be sections of the flexible receiver. If contingency decontamination is required a two-roomed decontamination tent will be set up within the tank farm fence. Decontamination work will take place in one room and the other will be maintained "clean".

Flexible Receiver Bagging Process

Use of the flexible receiver involves connecting to and disconnecting from a tank riser or pit; lifting/removing the equipment; washing down/decontaminating the equipment; and bagging the equipment. The flexible receiver can be used in a manual or a completely automated mode. Various flexible receiver equipment includes a washer assembly, a radiation monitoring and camera assembly, a bag cinch and cut assembly, a secondary bag seal assembly, and an appropriately sized receiving bag.

The connection process to risers in a concrete pit is different than that to risers outside at, or below, grade level. For risers in pits, the cover block is removed and replaced with the flex receiver platform. The gap between the pit and the platform is sealed with plastic and tape. There is one opening in the platform that is directly above the equipment/riser. The equipment is lifted off the riser, to slightly above the platform, long enough to position the split plates that will support the equipment when it is lowered back down the platform. Generally this step takes less than fifteen minutes and during this time the riser is open around the equipment as it is raised. The equipment is lowered to rest/seal on the split plates. In some instances a gasket may be used between the split plates an the equipment to enhance the seal. At this point confinement is considered restored and work can take place on the upper portion of the piece of equipment, if needed, to prepare it for removal. Once the preparatory work is complete, the equipment is raised slightly to remove the split plates and then lowered back down to rest/seal on the riser. An adapter spool piece assembly (includes the spool piece, the spray wash unit, and alignment bellows) is placed over and around the riser, and the equipment setting on top of the riser. The adapter

spool piece is equipped with a rubber seal on the bottom, which provides a seal against the floor of the pit, and the alignment bellows are bolted to the platform providing a seal against the platform. An impact limiter is installed on top of the platform, around the opening, as a precaution if the equipment free falls during the remote bagging process. The piece of equipment is again raised to rest/seal on the impact limiter. Subsequent confinement is provided by the gaskets between equipment/assembly pieces and the rubber seal on the bottom of the adapter spool piece. The remainder of the flex receiver equipment is bolted into place above the impact liner.

For risers that cannot accommodate an adapter spool piece (outside risers), a split spool piece is used to bolt the flex receiver equipment to the riser flange. In this instance, a seal against a floor cannot be made, so a glove bag is used to confine contamination. A glove bag, with the spool piece in it, is sealed around the riser, the riser is opened, the equipment is raised slightly to allow installation of the split spool piece onto the riser flange. Generally this step takes less than fifteen minutes and during this time the riser is open (within the glove bag) around the equipment as it's raised. The equipment is lowered back down to rest/seal on the split spool piece and the spray wash unit is bolted to the split spool piece. The remainder of the flex receiver equipment, in its entirety, is swung into position, the bottom component is slipped into the glove bag and then bolted to the spray wash unit within the glove bag.

After the riser connection process has been completed, the equipment is slowly lifted through the riser (approximately 1 foot per minute). The washing process takes place concurrently with lifting and uses preheated water pressurized up to 3,000 pounds per square inch. Washing takes place outside of the vapor space and the run-off is returned to the tank through the riser.

After a section of the equipment has been washed it is pulled through the radiation monitoring assembly. Here, spectrum analysis is performed on the equipment and it is viewed via the camera to determine if the washing process needs to be repeated. This process will be repeated until the equipment shows no visual signs of waste residue.

Once washed and dripped dry, the equipment is pulled into the flex receiver bag (herculite-type), which expands as the equipment is hoisted up into it. Once the equipment is completely in the bag, an absorbent mat is attached inside the bag. The mat can absorb up to 8 gallons of liquid, if needed. Next, a mechanical sealing device cinches the bag closed with wire rope and crimps the bottom of the bag in two places, one below the other. The bag is then cut between the two crimps, leaving a sealed top section containing the equipment, and a sealed bottom section sealing the riser opening. The bag is then hoisted into position for secondary bagging of the first seal. Secondary bagging involves lowering the bagged equipment, sealed end first, into another bag that fits around the bottom of the first bag. The secondary bag is also cinched closed with wire rope. The portion of the first bag that was cinched at the riser is then removed and disposed of and the riser is closed. From here the equipment is ready for waste packaging for storage and/or burial.

LLCE Waste Packaging Process

The waste packaging process takes place immediately after the equipment bagging process. It is called the Long Length Contaminated Equipment (LLCE) Disposal System and was designed specifically for application at Hanford Tank Farms. It packages non-contact, remote handled, radioactive waste, for storage or burial. In general, the process involves pushing the LLCE into a storage/burial container (polyethylene piping, various diameters and lengths) and filling the container with lightweight grout (perlite concrete) to attain a greater than or equal to 90 percent filled container. Cold testing has shown that it takes approximately two hours to fill the largest container and dissection of the container has demonstrated that the voids around the bagged LLCE are filled 100 percent.

The previously bagged equipment is placed into the skid assembly of the tilt trailer (vertical position). The skid assembly is lowered to the horizontal position and the equipment is slowly pushed into the container already in place on the transport trailer. The endcap is welded closed, using electrical current to fuse the polyethylene

together, and leak tested in place. A vent penetration is installed at the top of the end cap for venting displaced air while filling. Another penetration is also put into the endcap for installation of the "trimmie tube" (distributes grout evenly into the container). The vent penetration is fitted with, or piped to, a high-efficiency particulate air (HEPA) filter to satisfy ALARA requirements. At the storage/burial area, the container is removed from the transport trailer and placed for storage or burial.

In-Tank Equipment Installation

Equipment installation will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

Waste Staging and Retrieval Process Overview

The retrieval process at the AP-102 and AP-104 tanks will provide feed stock to a waste treatment facility. The low activity waste received from the source tanks may be conditioned and/or diluted to deliver compliant waste. Mixing and dilution may also take place at the source tanks to meet the waste specifications of AP-102 and -104, i.e., solids content must be within a predetermined amount. In-coming waste will be staged in the tank(s) until enough has been accumulated to send, and the treatment facility is ready to receive, a batch. The mixer pump will then be operated to maintain waste uniformity during staging and to mix the waste for a short period of time before transferring it. The mixer pump will be operated at full speed until waste samples verify that adequate mixing has been achieved. Waste samples will be collected in accordance with TWRS ALARACT Demonstration 7, Tank Waste Grab Sampling. If dilution/conditioning is needed, the pH and temperature of the diluent will be adjusted. Once the waste is verified acceptable, the transfer lines will be preheated/flushed with diluent, and a transfer to the treatment facility will follow. After the transfer, the lines will be flushed again with diluent.

3) **The Annual Possession Quantity is limited to the following radionuclides (Curies/year):**

Ac - 227	5.65E-03	Am - 241	2.48E+04	Am - 243	3.11E-02
Ba - 137 m	2.20E+06	C - 14	2.04E+02	Cd - 113 m	5.65E+02
Cm - 242	9.87E-01	Cm - 243	4.85E+00	Cm - 244	1.54E+01
Co - 60	7.59E+02	Cs - 134	2.65E+02	Cs - 137	2.32E+06
Eu - 152	4.07E+01	Eu - 154	3.73E+03	Eu - 155	4.73E+03
H - 3	1.41E+03	I - 129	1.10E+01	Nb - 93 m	7.76E+01
Ni - 59	1.30E+01	Ni - 63	1.28E+03	Np - 237	3.10E+01
Pa - 231	2.50E-02	Pu - 238	3.48E+02	Pu - 239	8.17E+02
Pu - 240	2.25E+02	Pu - 241	8.33E+03	Pu - 242	3.19E-02
Ra - 226	4.81E+00	Ra - 228	2.05E+00	Ru - 106	1.39E+01
Sb - 125	1.33E+03	Se - 79	2.19E+01	Sm - 151	7.72E+04
Sn - 126	3.32E+01	Sr - 90	5.54E+05	Tc - 99	1.46E+04
Th - 229	4.74E-02				

		Th - 232	2.32E-01	U - 232	6.32E+00
U - 233	2.42E+01	U - 234	1.01E+01	U - 235	3.90E-01
U - 236	7.00E-01	U - 238	8.79E+00	Y - 90	5.54E+05
Zr - 93	1.06E+02				

4) Each HEPA filter shall be in-place tested annually in accordance with the requirements of ASME AG-1. HEPA filters shall have a minimum efficiency of 99.95%.
5) All pit work must be performed in accordance with TWRS ALARACT Demonstrations 6 and 14 for Pit Access and, ALARACT Demonstrations for Pit Work.
6) If the wind speeds exceed 30 miles per hour the work in the glove bags will stop. If sustained wind speed exceeds 25 miles per hour pit work must stop. Records of wind speeds reading must be kept and made available to DOH, if requested.
7) Pipe cuts will be made using a sawzall or tri-tool. If removable contamination on only cutting surface is greater than or equal to 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha it must be cut and prepared in a glove bag for welding. If contamination levels are below these levels cutting maybe done outside of a glove bag. Expandable foam and fixatives are approved to fix smearable contamination.
8) Prior to cutting an expandable plug must be in place when a riser is opened in order to maintain constant vapor space and prevent material from falling into the tank during cutting.
9) Sample collection flow rate shall be approximately 120 +/- 12 cubic feet per hour.
10) The use of the regulated Guzzler, Portable/Temporary Radioactive Air Emission Unit and HEPA filtered vacuum radioactive emission units may be used as needed as prescribed by DOH in their latest approved revision.

Emission Unit ID: 886

200 W-296P050-001

296-P-50

This is a MAJOR, ACTIVELY ventilated emission unit.

Tank Farms

Emission Unit Information

Stack Height: 50.00 ft. 15.24 m. Stack Diameter 0.83 ft. 0.25 m.

Average Stack Effluent Temperature: 90 degrees Fahrenheit. 32 degrees Celsius.

Average Stack ExhaustVelocity: 91.72 ft/second. 27.96 m/second.

Abatement Technology

BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Deentrainer	1	Operational at all times, when exhauster is in use.
	Heater	1	Operational at all times, when exhauster is in use.
	Prefilter	1	
	HEPA Filter Stages/Banks	2	In series, two filters per stage/bank
	Fan	1	3000 cfm

Monitoring Requirements

state enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(2)	40 CFR 61, Appendix B Method 114	Sr-90, Cs-137, Am-241, Pu-239/240, Total Alpha, Total Beta	Continuous

Sampling Requirements Record sample

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status This emission unit, also known as POR127, is a skid/mobile type portable exhauster used to support tank farm operations, such as but not limited to, waste characterization, waste retrieval, decommissioning, deactivation, maintenance, and construction and operation support activities. The emission unit is a portable exhauster that operates intermittently.

This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
296-P-50 Operation - Phase II Waste Retrieval and Closure (Replaces NOC 825)	AIR 15-808	7/29/2015	942

Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)

1) The total abated emission limit for this Notice of Construction is limited to 1.31E+00 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 1.61E+03 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in (WAC 246-247-030(16)), may be conducted.

The operation of the waste retrieval system(s) for the removal of radioactive wastes from tanks at the Hanford Site.

SALTCAKE DISSOLUTION WASTE RETRIEVAL SYSTEM

The saltcake dissolution waste retrieval system may be used to retrieve soluble saltcake waste. This method retrieves the soluble portion of the waste only, resulting in very few of the solids being pumped from the tank. The saltcake dissolution waste retrieval system deployed is for water, chemical agent, or catalyst liquid to be added to the tank using a variety of spray nozzles or "sprinklers". The approach is to sprinkle the waste surface with water, chemical agent, or catalyst liquid. The added water, chemical agent, or catalyst liquid must stay in contact with the saltcake for a long enough period of time for the brine to become saturated. Once the brine is saturated, it is pumped to a receiver tank, staging tank, storage double shell tank (DST), or other staging/storage vessel associated with the supplemental treatment, packaging, or disposal. Salt solution will be removed using the existing saltwell pump or other pump placed into the tank.

A tank not equipped with a saltwell pump, a transfer pump (progressive cavity, vertical turbine) can be installed and operated.

Remotely directable water distribution devices will be located in risers spaced as far apart as practical. A combination of spraying waster, chemical agent, or catalyst liquid to dissolve the saltcake can be used in conjunction with directing a flow of water or recirculating water at the waste to move it to the pump suction to allow the pumping of waste from the tank. Recirculated waste from the pump may be sent back to the tank as an alternative to using water to direct dissolution waste to the pump suction.

MODIFIED SLUICING WASTE RETRIEVAL SYSTEM

Modified sluicing can be used for some waste retrieval. Modified sluicing is the introduction of liquid at low to moderate pressures and volumes into the waste. The liquid dissolves and breaks apart solid materials and suspends them in the waste slurry. A transfer pump installed in the tank provides the motive force to transfer the liquid slurry to a receiver tank.

Modified sluicing introduces sluice liquid in a controlled fashion using multiple sluicing nozzles at varying pressures and flows, then pumps out the resultant waste slurry. This maintains minimal liquid inventories within the tank at all times. The liquids that could be used in modified sluicing include water, recirculated supernatant/water from the receiving DST, recirculated supernatant/water, chemical agent, or catalyst liquid.

VACUUM WASTE RETRIEVAL SYSTEM

A vacuum waste retrieval system can be used for waste retrieval activities. The vacuum waste retrieval system is introduced into the tanks by means of an articulating mast system (AMS). The AMS has a horizontal reach and rotational capabilities of 360 degrees. The AMS has a retracted position and can be extended vertically. Air is mixed at the suction end of the AMS enabling the required vertical lift for the waste to a topside receiver tank, batch vessel, or a staging single shell tank (SST), storage DST, or other staging/storage vessels associated with supplemental treatment, packaging, or disposal.

The AMS will be deployed through and attached to standard riser flanges that are available on the tanks. Cameras can also be installed in other risers for in-tank viewing and control of the AMS.

For the 200-series tanks in the 241-C, 241-U, 241-B, and 241-T Tank Farms, a vacuum retrieval process tank, staging tank, staging SST, storage DST, or other staging/storage vessel will be deployed. The receiver tank will receive waste in batches from whichever tank is connected into the vacuum retrieval system. The vacuum pressure used to draw up the waste from the tank to the receiver tank is relieved back into the tank being retrieved.

MOBILE RETRIEVAL SYSTEM

A Mobile Retrieval System (MRS) can be used to retrieve waste from some tanks. The MRS consists of two in-tank systems. The first is a robotic crawler inserted through one riser the second is an AMS inserted through a second riser. The AMS retrieves the sludge from the tank using a vacuum with assisting pneumatic conveyance. The AMS vacuum tube has a horizontal reach and can be extended to the bottom of the tank. The arm rotates 360

degrees. The vacuum will be directed through the AMS in the tank to the end effector, which is in contact with the waste. The pneumatic conveyance-assisted vacuum retrieval system will draw the waste up through the vacuum to the waste vessel in the vessel skid in batches. The AMS is then valved out while the waste vessel is emptied and pumped out through the over ground transfer lines to a DST, a staging SST, or other treatment/disposal options. When the waste vessel is nearly empty, the transfer line will be valved out and the AMS will be valved back in and another batch of waste will be removed from the tank. This process will be repeated until waste near the center of the tank is removed. The robotic crawler will be remotely controlled to move and/or wash waste toward the center of the tank.

MOBILE ARM RETRIEVAL SYSTEM

The Mobile Arm Retrieval System (MARS) is a waste retrieval system used to retrieve waste. The MARS employs two design options similar to currently permitted systems: 1) a sluicing retrieval option which is intended for retrieval of non leaker tanks, and 2) a vacuum retrieval option is intended for retrieval of assumed leaker tanks. Both options use an arm and sluicing jets and/or a high pressure water scarifier to break up the waste. The sluicer uses waste supernatant recycled from the DST to form a liquid jet using a nozzle. The scarifier uses filtered, pressurized water that comes from a high pressure water skid.

The equipment portion of the MARS includes a vertical, carbon steel mast (square cross section) as the main structural member. Attached to the vertical mast is a carbon fiber robotic arm. The arm is attached to a traveler that raises and lowers the arm relative to the vertical mast. The arm rotates 360 degrees - 380 degrees on a turntable located in the pit box. The arm also pivots up and down from an elbow at the traveler (hydraulic system) and extends and retracts (hydraulic system). The end of the arm articulates. The arm thus provides for a large range of motion such that the sluicing devices (recycle sluicer, water scarifier) located at the end of the arm can aim at most portions of the tank and from varying (e.g., short) distances.

The containment box which encloses the MARS will be ventilated by two parallel installed radial filters. The purpose of these filters is to minimize contamination from migrating up from the tank into the containment box via the open space on the large riser during retrieval operations. Minimization of contamination inside the containment box is desired should entry into the box ever be required for repairs. Inflow through these filters during retrieval is estimated to reach up to 60 cubic feet per minute (cfm). A valve will be installed between the filters and the containment box so filters can be isolated from the box. However, because the location of the valve will be approximately 12 feet above ground and difficult to reach without properly installed and inspected scaffolding, the valve will be left open at all times until retrieval of the tank is complete. Once retrieval is complete the valve will be closed.

REMOTE WATER LANCE

The completion of tank retrieval may also be aided by a Remote Water Lance (RWL) that is a high pressure water device, or hydro laser. Alternatively, a High Pressure Mixer (HPM) may be used in the same capacity. The systems will consist of both ex-tank and in-tank components. The ex-tank components will be comprised of; high pressure systems, operating controls, cables, and hoses. The in-tank components will be comprised of; umbilical, in-tank vehicle, high pressure nozzle(s), or the high pressure mixer.

The high pressure water systems will provide the water at the desired pressure, not to exceed 37,000 psig. A conditioning system will be used to filter the raw water entering the skid to ensure that no abrasive materials are entrained in the water. The water volumetric flow rate will be on the order of 4 to 18 gpm for the HPM and from 6 to 15 gpm for the RWL. The operating controls will be located in a control trailer outside of the farm fence. The cables and hoses will connect hydraulically powered in-tank vehicle with the ex-tank controls and water skid via the umbilical. The HPM consists of an adjustable height pipe with two pairs of opposed, high pressure, low volume water orifices located on the bottom of the pipe. The mixer is capable of being rotated 360 degrees and has an adjustable height range of approximately 7 feet. The positioning of the mixer is performed remotely using a hydraulic system. Additionally, the mixer has a single orifice on the bottom of the unit that can be used as an operational or installation aid. The in-tank vehicle will house one to four high pressure water nozzles. The RWL will be operated with the nozzle submerged to avoid aerosols in the tank. A rupture disc will be used to prevent reaching pressures above 37,000 psig.

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3) **The Annual Possession Quantity is limited to the following radionuclides (Curies/year):**

Ac - 227 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Am - 241 2.30E+04 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE	Am - 243 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Ba - 137 m Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	C - 14 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cd - 113 m Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Cm - 242 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cm - 243 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cm - 244 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Co - 60 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cs - 134 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Cs - 137 2.10E+06 Contr butes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE
Eu - 152 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Eu - 154 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Eu - 155 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
H - 3 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	I - 129 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Nb - 93 m Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Ni - 59 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Ni - 63 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Np - 237 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Pa - 231 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 238 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 239 5.30E+03 Contr butes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE
Pu - 240 1.20E+02 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE	Pu - 241 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Pu - 242 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Ra - 226 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Ra - 228 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Ru - 106 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Sb - 125 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Se - 79 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Sm - 151 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Sn - 126 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Sr - 90 5.50E+06 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE	Tc - 99 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Th - 229 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Th - 232 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	U - 232 Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 233	U - 234	U - 235
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
U - 236	U - 238	Y - 90
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.	Contr butes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.
Zr - 93		
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

4) RELEASE RATES-WDOH Log Approval
The annual possession quantity (APQ) shall be tracked on a WDOH approved log. WDOH authorizes approval of the Tank Waste Information Network System (TWINS) as the logging mechanism for APQs of radionuclide source terms (WAC 246-247-080(7)).

5) WDOH ALTERNATE APPROVAL-Release Fractions
WDOH accepts that the PTE calculation shall be based on the inventory of material to be managed (tank inventory and supernate) using the release fraction for the tank inventory of 1.0 E-3 for tank inventory and 8.0 E-5 for supernate (WAC 246-247-040(5) and WAC 246-247-060(5)).

6) WDOH ALTERNATE APPROVAL-Non Destructive Analysis Method
A pre-operational Non Destructive Analysis (NDA) of the exhauster(s) HEPA filters and a post-operational NDA will be performed the first time each of the four waste retrieval methods (mobile retrieval system, vacuum retrieval, supernatant sluicing, and saltcake dissolution with supernatant) when placed into service. The post-operational NDA should occur after one cycle or phase of waste retrieval operation is completed, a method replaces another method during a cycle/phase or six months from the in-service date, whichever occurs first. The facility may opt to replace the exhauster's HEPA filters prior to placing a new waste retrieval method in service and eliminate the pre-operational NDA (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(4)).

7) WDOH ALTERNATE APPROVAL-Standards
General WAC 246-247 technology standard exemptions justified and documented in RPP-19233, WAC 246-247 technology standard exemption justification for waste tank ventilation systems, may be applied to Phase II NOC retrieval exhauster operations. (WAC 246-247-040(5) and WAC 246-247-060(5)).

8) WDOH NOTIFICATION-Leak Testing Cannot be Performed
If new or altered section of ductwork cannot be tested due to tie-ins, WDOH will be notified (WAC 246-247-040(5) and WAC 246-247-060(5)).

9) WDOH NOTIFICATION-Change in PTE Calculations
The department will be notified if radionuclides other than Cs-137, Sr-90, Pu-239/240, and Am-241 are identified that contribute greater than 10% of the PTE or greater than 0.1 mrem/yr TEDE to the MEI when a unit is deployed or redeployed (WAC 246-247-040(5) and WAC 246-247-110(8)).

10) WDOH NOTIFICATIONS-Differential Pressure Out of Range
The differential pressure readings for the pre-filters and both stages of HEPA filters shall be monitored recorded and trended a minimum of weekly. The exhaust system will be configured to automatically shut down at 5.9 inches of water (or less) pressure differential across the HEPA filter(s) for the first filter in series or multiple filters in series as indicated by the local readout. If the final HEPA filter in the system exceeds 5.9 inches of water pressure differential across the filter, the cause will be determined and WDOH will be notified through normal established channels (WAC 246-247-040(5) and WAC 246-247-060(5)).

11) WDOH NOTIFICATION-Retrieval Under Passive Ventilation Contitions
Retrieval activities shall occur under passive ventilation only when an exhauster can no longer be operated on a single shell tank due to structural concerns. The justification for structural concerns with the single shell tank shall be documented and provided to WDOH upon request. (WAC 246-247-040(5) and WAC 246-247-060(5))

12) WDOH NOTIFICATIONS-High Reading on Weekly Smear Surveys
Monitoring of breather filters during retrieval activities shall consist of weekly smear surveys on the inside surface of the ducting and downstream of the HEPA filter or on the outside of the screen covering the outlet of the vent. Levels above 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha shall be reported to WDOH. (WAC

246-247-040(5) and WAC 246-247-060(5))

13) STANDARDS-Startup Leak Testing
New or altered sections of ductwork shall be leak tested in accordance with the requirements of ASME AG-1 Section SA prior to use. Normal maintenance of the system (e.g., replacing gaskets, replacement of in kind components, flow profile analysis in the ductwork, air sampling from test ports in the duct, and demister flushing) are not considered to be alteration (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).

14) STANDARDS-Stack Monitoring Systems
The emission unit stack monitoring system shall meet the requirements of ANSI/HPS N13.1-1999 including the stack monitoring system inspection requirements also referenced in 40 CFR 61 App. B, Method 114, Table 2 - Maintenance, Calibration, and Field check requirements (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).

15) ABATEMENT TECHNOLOGY-HEPA Filter Testing
The HEPA filters are in-place leak tested annually in accordance with a written procedure that addresses testing and visual inspections based on ASME N510 and ASME N511, and shall have a minimum efficiency of 99.95% (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).
In addition, the following conditions require in-place leak testing of the HEPA filters (the filter system to be retested):
•HEPA filter replacement
•Relocating the ventilation system exhauster

16) ABATEMENT TECHNOLOGY-Filter Protection
The relative humidity shall be maintained below 70%. If the relative humidity cannot be directly measured, the ventilation system exhauster operating temperature will be monitored daily to ensure that the appropriate temperature is maintained, based on psychometric charts and engineering calculations, so that the relative humidity remains below 70%. Daily Monitoring is not required over weekends and holidays when no waste disturbing activities are occurring (WAC 246-247-040(5) and WAC 246-247-060(5)).

17) ABATEMENT TECHNOLOGY-Temperature Values in the Airstream
The airstream temperature is also monitored to verify that it is below the 200°F limit established for continuous operation and 250°F limits established for periodic operation to protect the HEPA filters (WAC 246-247-040(5)).

18) ABATEMENT TECHNOLOGY-Ductwork Insulation
All ventilation ductwork from the exit of the tank to the inlet of the exhauster filter housing, shall be insulated (WAC 246-247-040(5) and WAC 246-247-060(5)).

19) ABATEMENT TECHNOLOGY- Ventilation System Exhauster Suspension from Active Service
The following will be implemented when a ventilation system exhauster that has been connected to a radioactive source is shut down and placed in suspension from active service. The following items will be completed 90 days after suspension from active service. Suspension from active service begins when the permit required preventative maintenance tasks are suspended or 365 days from the last day of operation, whichever is sooner.
•Isolate (e.g., valve or blank off) the ventilation system exhauster unit from the source of radioactivity.
•Isolate (e.g., valve or blank off) the source of radioactivity (e.g., tank) or establish an alternative flow path through a registered emission point (e.g., passive filter or powered exhauster).
•Isolate the flow path downstream of the last stage of HEPA filtration by capping the stack or alternative location if the stack has been removed.
•Provide written notification to WDOH documenting completion of the above.
During suspension from active service, the monitoring and associated recordkeeping are not required to be conducted. In addition, the abatement and monitoring system testing (e.g., aerosol testing of the HEPA filters), maintenance, calibration, field checks, and the associated recordkeeping are not required to be conducted (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

20) ABATEMENT TECHNOLOGY-Ventilation System Exhauster Return to Active Service
The ventilation system exhauster will be evaluated for its ability to meet the regulatory requirements to operate prior to placing the exhauster back in service:
•Verify that parts removed during suspension from active service have been replaced-in-kind and the unit has been returned to full function.
•Conduct abatement and monitoring system inspections and field checks.
•Verify that the abatement and monitoring system testing, maintenance, and calibration have been completed. (Note: some testing, maintenance, and calibration can only be completed when the exhauster is running.) The CAM and sampling system are to be operated during aerosol testing.

WDOH will be notified at least seven calendar days prior to conducting operational testing of the ventilation system exhauster (WAC 246-247-040(5) and WAC 246-247-060(5)).

21) CONTAMINATION CONTROL-Max Operating Pressure
During waste retrieval operations, the maximum pressure for any waste retrieval method shall not exceed 37,000 psig (WAC 246-247-040(5) and WAC 246-247-060(5)).

22) CONTAMINATION CONTROL-Monthly Radiological Survey
While the exhauster is operating, and/or tank waste retrieval is underway, all ductwork connections shall have a radiological survey performed monthly to ensure ductwork connections are not degrading (WAC 246-247-040(5) and WAC 246-247-060(5)).

23) CONTAMINATION CONTROL-Exhauster Alternate Usages
The exhauster will be operated occasionally during periods of non-retrieval in support of tank waste retrieval preparation activities and to aid in evaporation of residual flush water or sluicing liquid that remains in the tank (WAC 246-247-040(5) and WAC 246-247-060(5)).

24) CONTAMINATION CONTROL-Active ventilation
All receiver tanks (including waste retrieval process tanks for tank TRU retrieval (staging) SSTs, storage DSTs, or other staging/storage vessels, but not including batch vessel supporting vacuum retrieval) shall have active ventilation during waste receipt, unless alternative controls are documented and approved by WDOH. If the exhauster goes down due to off-normal conditions while retrieval is occurring, the system should be placed into a safe configuration, minimizing dose to personnel and the environment. These steps may include: flushing the lines, pumps, and the waste transfer system of slurry solution using DST supernatant or water; pumping down the tank liquid to minimize remaining liquids; and halting waste retrieval. (WAC 246-247-040(5) and WAC 246-247-060(5))

Emission Unit ID: 1328

200E P-296A048-001

296-A-48

This is a MAJOR, ACTIVELY ventilated emission unit.

241-AP TANK FARM

Emission Unit Information

Stack Height: 40.00 ft. 12.19 m. Stack Diameter 0.80 ft. 0.24 m.

Average Stack Effluent Temperature: 110 degrees Fahrenheit. 43 degrees Celsius.

Average Stack ExhaustVelocity: 46.00 ft/second. 14.02 m/second.

Abatement Technology

BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Deenttrainer	1	Operational at all times, when the exhauster is in use.
	Heater	1	Operational at all times, when the exhauster is in use.
	Prefilter	1	Bank of prefilter NOTE: 1 bank of prefilters not required for abatement control
	HEPA	2	2 HEPA's in series per bank; 2 banks; 1 HEPA per bank required operational.
	Fan	1	

Monitoring Requirements

state enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(2)	40 CFR 61, Appendix B Method 114	137Cs, 90Sr	Continuous

Sampling Requirements Record sample.

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status This emission unit is a primary exhauster used to support tank farm operations by ventilating the DSTs in 241 AP Tank Farm during storage, maintenance and normal operations. Any activity other than storage, maintenance, and normal operations will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. This emission unit may be operated independently or concurrently with emission unit 296-A-49. The emission unit operates intermittenlty.

This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
241-AP Tank Farm Ventilation System Upgrade operational permit for "Radioactive Air Emissions NOC for 241-SY, 241-AP, and 241 AY/AZ Tank Farm Ventilation System Upgrade"	AIR 11-916	9/26/2011	818

Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)

1) The total abated emission limit for this Notice of Construction is limited to 2.62E-01 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 5.09E+02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

2) This approval applies to those additional activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

The upgraded ventilation systems will support future tank farm operation activities and waste feed delivery to Hanford's Waste Treatment and Immobilization Plant (WTP).

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The emissions to the ambient air resulting from the proposed actions covered by this NOC application, in conjunction with other operations on the Hanford Site, shall not exceed the National Emission Standard of 10 millirem (mrem) per year (40 CFR 61, Subpart H).

The new ventilation system shall consist of a de-entrainer system for removal of moisture from vented air, a heater for lowering the relative humidity of the vented air, one bank of pre-filters, two banks of HEPA filters in series, and an exhaust fan. Either subsystem de-entrainer may be used with either HEPA filter subsystem via a ventilation duct cross-tie.

3) **The Annual Possession Quantity is limited to the following radionuclides (Curies/year):**

Ac - 227	3.33E+00	Am - 241	9.17E+04	Am - 243	4.39E+01
Ba - 137 m	1.44E+07	C - 14	1.12E+02	Cd - 113 m	1.32E+03
Cm - 242	8.25E+01	Cm - 243	8.38E+00	Cm - 244	1.86E+02
Co - 60	1.95E+03	Cs - 134	6.82E+02	Cs - 137	1.52E+07
Eu - 152	6.02E+02	Eu - 154	3.28E+04	Eu - 155	1.90E+04
H - 3	6.34E+02	I - 129	8.39E+00	Nb - 93 m	8.69E+02
Ni - 59	5.06E+02	Ni - 63	4.46E+04	Np - 237	4.79E+01
Pa - 231	1.70E+00	Pu - 238	1.02E+03	Pu - 239	1.44E+04
Pu - 240	3.33E+03	Pu - 241	3.69E+04	Pu - 242	2.87E-01
Ra - 226	3.34E-03	Ra - 228	5.91E+00	Ru - 106	1.14E+01
Sb - 125	3.63E+03	Se - 79	4.63E+01	Sm - 151	1.83E+06
Sn - 126	1.65E+02	Sr - 90	2.33E+07	Tc - 99	7.24E+03
Th - 229	1.30E+00				

		Th - 232	5.91E+00	U - 232	6.24E+00
U - 233	5.24E+02	U - 234	6.50E+01	U - 235	2.49E+00
U - 236	3.07E+00	U - 238	5.38E+01	Y - 90	2.33E+07
Zr - 93	1.06E+03				

4) CONTROL TECHNOLOGY- Annual HEPA Filter test
Each HEPA filter shall be in-place tested annually in accordance with the requirements of ASME AG-1. HEPA filters shall have a minimum efficiency of 99.95%. (WAC 246-247-060(5) and WAC 246-247-080(7)).

5) WDOH APPROVED LOG
The Annual Possession Quantity shall be tracked on a WDOH approved log. (WAC 246-247-060(5) and WAC 246-247-080(7)).

6) CONTROL TECHNOLOGY- Ductwork insulation
The ductwork between the de-entrainer and heater, along with the filter housings shall be insulated. (WAC 246-247-040(5) and WAC 246-247-060(5)).

7) CONTROL TECHNOLOGY- Exhauster operation
The exhauster shall be operational during waste transfers, waste disturbing, or vapor space particulate generating activities. In the event there is an unplanned shutdown of the exhauster, waste transfer lines may be flushed. (WAC 246-247-040(5) and WAC 246-247-060(5)).

8) CONTAMINATION CONTROL- ph control
Tank waste will be maintained at a ph of 8 or greater to ensure that the radionuclide C-14 is not emitted as a gas. This condition will be met by maintaining tank sampling and tank analysis documents in accordance with the "Waste Chemistry Limits" outlined in the latest version of document "Operating Specifications for the Double-Shell Storage Tanks, OSD-T-151-00007". (WAC 246-247-060(5) and WAC 246-247-080(7)).

9) CONTAMINATION CONTROL- tracer gas studies
When the tracer gas tests and data collection are conducted on the AP tank farms the tracer gas to be used during the tests is helium. (WAC 246-247-060(5) and WAC 246-247-080(7)).

10) CONTAMINATION CONTROL- Tracer gas injection rate
When the tracer gas tests and data collection are conducted on the AP tank farms the tracer gas helium will be injected into the double shell tanks at a rate not to exceed 10 cubic feet per minute. (WAC 246-247-060(5) and WAC 246-247-080(7)).

11) CONTAMINATION CONTROL- WDOH Notification,Tracer gas vent valves
When the tracer gas tests and data collection are conducted on the AP tank farms the passive filtered vents will be in the open position. If a tracer gas test requires the passive filtered vents to be closed notification to the Washington State Department of Health will be made indicating when the vents will be closed and for how long. (WAC 246-247-060(5) and WAC 246-247-080(7)).

12) CONTAMINATION CONTROL- Operations during tracer gas studies
When the tracer gas tests and data collection are conducted on the AP tank farms no waste disturbing activities will occur. (WAC 246-247-060(5) and WAC 246-247-080(7)).

Emission Unit ID: 1329

200E P-296A049-001

296-A-49

This is a MAJOR, ACTIVELY ventilated emission unit.

241-AP TANK FARM

Emission Unit Information

Stack Height: 40.00 ft. 12.19 m. Stack Diameter 0.80 ft. 0.24 m.

Average Stack Effluent Temperature: 110 degrees Fahrenheit. 43 degrees Celsius.

Average Stack ExhaustVelocity: 46.00 ft/second. 14.02 m/second.

Abatement Technology

BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Deenttrainer	1	Operational at all times, when the exhauster is in use.
	Heater	1	Operational at all times, when the exhauster is in use.
	Prefilter	1	Bank of prefilter NOTE: 1 bank of prefilters not required for abatement control
	HEPA	2	2 HEPA's in series per bank; 2 banks; 1 HEPA per bank required operational.
	Fan	1	

Monitoring Requirements

state enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(2)	40 CFR 61, Appendix B Method 114	137Cs, 90Sr	Continuous

Sampling Requirements Record sample.

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status This emission unit is a primary exhauster used to support tank farm operations by ventilating the DSTs in 241 AP Tank Farm during storage, maintenance and normal operations. Any activity other than storage, maintenance, and normal operations will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. This emission unit may be operated independently or concurrently with emission unit 296-A-48. The emission unit operates intermittenlty.

This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
241-AP Tank Farm Ventilation System Upgrade operational permit for "Radioactive Air Emissions NOC for 241-SY, 241-AP, and 241 AY/AZ Tank Farm Ventilation System Upgrade"	AIR 11-916	9/26/2011	818

Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)

1) The total abated emission limit for this Notice of Construction is limited to 2.62E-01 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 5.09E+02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

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