

**State of Washington Department of Ecology
Notice of Construction (NOC) Approval Order**

In the matter of approving a)	Approval Order No. DE02NWP-002,
modified air contaminant source)	Revision 4.
for the Waste Treatment and)	
Immobilization Plant (WTP) at the)	
Hanford Site)	

Project Summary

The United States Department of Energy, herein referred to as the Permittee, operates the Hanford Site, which is an existing facility located north of Richland, Washington, in Benton County.

The Hanford Site is classified as a major source for the Prevention of Significant Deterioration and Title V permitting programs. The facility covers approximately 585 square miles and includes numerous air emission sources.

For design and New Source Review (NSR) permitting, WTP has been divided into multiple sections which are broken down further in the table below. The Balance of Facilities (BOF) covers the engines, boilers, and turbines which support vitrification but do not directly interact with tank waste. The Laboratory (LAB) analyzes samples collected at specific points to ensure that the tank waste being processed meets acceptance criteria and remains within expected parameters through the vitrification process. There are two vitrification facilities, the Low Activity Waste (LAW) and High-Level Waste (HLW) sections, which are designed to process these specific categories of tank waste independently. Additionally, there is a Pretreatment Facility (PTF) which was originally designed to separate and prepare LAW and HLW feeds for vitrification. Additionally, fugitive dust requirements have been included for the Material Handling Facility (MHF), where construction components for WTP are received and stored prior to installation.

During construction, a design decision was made to begin operation of LAW with PTF bypassed and instead ensure that the incoming waste already met LAW acceptance criteria. This has been identified as the Direct-Feed LAW (DFLAW) operating mode.

The project addressed by Revision 4 of DE02NWP-002 consists of increasing the limit on the number of "LAW 6" samples which can be collected and processed in LAB and identifying replacement burners for the three operating BOF boilers. This ensures that the updated boilers are still covered by a combined fuel use limit on all six BOF boilers.

The following table identifies the primary emission units or processes associated with each of the WTP sections which are covered under this NOC Approval Order, including those which are not being modified for this project:

WTP Section ID – See Above	Emission Unit/Processes	Notes	Operating Status	Subject to Minor NSR for Current Permitting Action?
BOF	Boilers A, B, and C – 50 million British thermal unit per hour (MMBtu/hr) each	Cleaver Brooks Model CBL-100-1200-200, manufactured in 2004 and first operated in 2019. Burner replacement planned for 2026.	Operating	Yes
BOF	Boilers D, E, and F – 50.2 MMBtu/hr each	Cleaver Brooks Model CBL-100-1200-200, manufactured in 2004 but never operated. Equipped with original burners.	Constructed, Not Operated	No, last addressed by DE02NWP-002, Revision 1, Amendment 2 (11/10/2005).
BOF	Emergency Generator Engine – 3,950 Brake Horsepower (bhp)	Also identified as Standby Diesel Generator in Permittee documents.	Operating	No, last addressed by DE02NWP-002, Revision 1 (11/24/2003).
BOF	2 Emergency Fire Pump Engines – 300 bhp Each		Operating	No, last addressed by DE02NWP-002, Revision 2 (4/24/2013).
BOF	2 Emergency Turbine Generators – 3.8 Megawatts (MW) Each		Not Constructed	No, last addressed by DE02NWP-002, Revision 2 (4/24/2013).
LAB	Laboratory Facility - Analytical Equipment and Testing of WTP Samples	Building zones cascade internally (C2 to C3 to C5). Exhaust from each zone has High Efficiency Particulate Air (HEPA) Filter (C2 and C3) or Filters (CC5) and independent stack.	Operating	Yes
LAW	Low Activity Waste Vitrification Facility - 2 Melters	Each melter has dedicated Submerged Bed Scrubber (SBS) and Wet Electrostatic Precipitator (WESP).	Operating	No, last addressed by DE02NWP-002, Revision 3 (1/28/2022).

WTP Section ID – See Above	Emission Unit/Processes	Notes	Operating Status	Subject to Minor NSR for Current Permitting Action?
		Exhaust streams combined for HEPA Filters, Carbon Bed Adsorber, Thermal Catalytic Oxidizer (TCO) with Selective Catalytic Reduction (TCO/SCR), and Caustic Scrubber.		
MHF	Material Handling Facility - Fugitive Emissions from Handling and Storing Components for WTP Construction at Outdoor Laydown Area	Separate outdoor storage location included for fugitive dust control plan (FDCP) only. MHF has stationary engines exempted from NSR.	Operating	No, last addressed by DE02NWP-002, Revision 1, Amendment 4 (11/13/2006).
HLW	High Level Waste Vitrification - 2 Melters	Each melter has dedicated SBS, WESP, High Efficiency Mist Eliminator (HEME), HEPA Filters, Carbon Bed Adsorber, Silver Mordenite Adsorber, and TCO/SCR.	Partially Constructed, Not Operating	No, last addressed by DE02NWP-002, Revision 1, Amendment 1 (8/17/2004).
PTF	Pretreatment Facility - Systems to Separate and Prepare Tank Waste for Vitrification in HLW and LAW Facilities	Not used in Direct-Feed LAW and HLW operating configurations.	Partially Constructed, Not Operating or Under Construction	No, last modification determined to not trigger NSR, addressed by unnamed Ecology letter (7/27/2010) authorizing change from Thermal Oxidizer with 99% removal efficiency TCO with 95% removal efficiency.

Design and Emission Requirements Incorporated by Reference

As addressed by General Condition 7.e, WTP must be constructed and operated in accordance with application materials. Due to the fact that NOC applications have addressed specific WTP sections and equipment as they were redesigned, this includes documents submitted for previous approval order revisions and amendments which are now rescinded by the current active version.

To ensure that the most recent design and emission information is properly identified, portions of historical documents have been incorporated by reference in the approval conditions below. These documents are available in the Hanford Administrative Record (AR) (<https://pdw.hanford.gov/>) using the accession number provided here:

Document	Submittal Letter	Hanford AR Accession Number & Date	Associated Permitting Action	Approval Condition(s) Referencing
24590-WTP-RPT-ENV-01-009, Revision 1	03-ED-121	D2363982 7/25/2003	DE02NWP-002, Revision 1	2.e.ii.A, 2.f.i, 2.h.i.D, 2.h.ii, and 2.k.i
Letter RE: VOLATILE ORGANIC COMPOUND (VOC) CONTROL TECHNOLOGY CHANGE IN THE PRETREATMENT FACILITY (PTF) PROCESS VESSEL VENT (PVV) EMISSION UNIT	10-ESQ-181	0084367 6/10/2010	N/A – Ecology responded with unnamed letter available under Hanford AR Accession 1007300812	2.f.i and 2.l.i
24590-WTP-RPT-ENV-12-002, Revision 1	12-ECD-0051	AR-39111 9/26/2012	DE02NWP-002, Revision	2.h.iii

Equipment Associated with WTP but Authorized Separately

There are facilities and equipment associated with WTP operations which are not covered by this approval order. This includes the waste storage tanks and exhausters in the 241-AP Double-Shell Tank Farm which feeds WTP, the Effluent Management Facility which handles initial processing of WTP wastewater before it is transferred to the primary on-site treatment facility, and portable propane-fired heaters and dehumidifiers which are used for worker comfort.

Legal Authority

The emissions from the proposed project have been reviewed under the legal authority of RCW 70A.15.2210 and the applicable rules and regulations adopted thereunder. The proposed project, if operated as specified, will be in accordance with applicable rules and regulations, as set forth in Chapters 173-400 WAC and 173-460 WAC and the operation thereof, at the location proposed, will not result in ambient air quality standards being exceeded.

This NOC Approval Order rescinds and replaces NOC Approval Order No. DE02NWP-002 and all associated Revisions, Amendments, and Approvals issued prior to DE02NWP-002, Revision 4. This rescission includes, but is not limited to:

1. DE02NWP-002: issued July 8, 2002, with unnumbered letter “Re: River Protection Project-Waste Treatment Plant Notice of Construction (NOC) Approval Order” (Hanford AR Accession #D9103870).
2. Unnamed approval for a second HLW melter and change in PTF mist eliminator design: issued March 12, 2003, with unnumbered letter “Re: “03-ED-007” SUPPLEMENTAL INFORMATION SUPPORTING THE HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) NON-RADIOACTIVE AIR EMISSIONS NOTICE OF CONSTRUCTION (NOC) AND APPROVAL ORDER” (Hanford AR Accession #D1079326).
3. DE02NWP-002, Revision 1 (issuance name listed in transmittal letter)/Amendment 1 (issuance name listed in approval order): issued November 24, 2003, with unnumbered letter “Re: Modification Request for the River Protection Project-Waste Treatment Plant Notice of Construction (NOC) Approval Order.” (Hanford AR Accession #D3440002 has transmittal letter with portion of application materials and Accession #D3429459 has approval order).
4. Unnamed approval for air stripper, nitric acid storage vessels, and removal of HLW HV-C2R emission unit: issued August 23, 2004, with unnumbered letter “Re: “04-ED-069” Hanford Waste Treatment and Immobilization Plant (WTP) Non-Radioactive Air Emissions Approval Order Revision Request” (Hanford AR Accession #D5829055).
5. DE02NWP-002, Amendment 2: issued November 10, 2005, with unnumbered letter “Re: Approval of Non-Radioactive Air Emissions Notice of Construction (NOC) Permit Amendment for the Hanford Tank Waste Treatment and Immobilization Plant (WTP)” (Hanford AR Accession #DA01352375).
6. DE02NWP-002, Amendment 3: issued May 11, 2006, with unnumbered letter “Re: Approval of Non-Radioactive Air Emissions Notice of Construction (NOC) Permit Amendment for the Hanford Tank Waste Treatment and Immobilization Plant (WTP)” (Hanford AR Accession #DA02553826).
7. DE02NWP-002, Amendment 4: issued November 13, 2006, with unnumbered letter “Re: Non-Radioactive Air Emissions Notice of Construction Permit Amendment for the Hanford Tank Waste Treatment and Immobilization Plant (WTP), 1100 Area Marshalling Yard” (Hanford AR Accession #DA03928310).

8. Unnamed approval for PTF design change from a Thermal Oxidizer to a TCO: issued July 27, 2010, with unnumbered letter “Re: Acknowledgement of Pretreatment Facility Process Vessel Vent Control Equipment Change” (Hanford AR Accession #1007300812).
9. DE02NWP-002, Revision 2: issued April 24, 2013, with Letter 13-NWP-043 (Hanford AR Accession #1304300369).
10. DE02NWP-002, Revision 3: issued January 28, 2022, with Letter 22-NWP-010 (Hanford AR Accession #AR-18579).

The above referenced NOC Approval Order, Amendments, Revisions, and Approvals are no longer in effect.

Therefore, it is ordered that the project as described in the NOC application and more specifically detailed in plans, specifications, and other information submitted to the Washington State Department of Ecology (Ecology) is approved for construction and operation, provided the following conditions are satisfied:

Approval Conditions

1. Emission Units/Activities

The following emission units and activities have been identified and are approved for modification in this NOC Approval Order revision; the specified ID number or Equipment ID will be used elsewhere in this Order to identify each unit:

ID No.	Equipment ID & Air Pollution Control Equipment	Serial Number
BOF	Boiler A: Replacement Low-NO _x Burner with Steam Atomization	Boiler: OL103015 Burner: 66621-1
BOF	Boiler B: Replacement Low-NO _x Burner with Steam Atomization	Boiler: OL103016 Burner: 66621-2
BOF	Boiler C: Replacement Low-NO _x Burner with Steam Atomization	Boiler: OL103017 Burner: 66621-3
LAB	Laboratory Testing Equipment: HEPA Filters (C2 and C3 Areas), Dual-Stage HEPA Filters (C5 Area)	N/A

- a. Limits on nitrogen oxides (NO_x) and particulate matter (PM) with an aerodynamic diameter less than or equal to 10 micrometers (PM₁₀) established by Prevention of Significant Deterioration Permit No. PSD-02-01 (Hanford PSD Permit), Amendment 3, are considered enforceable limits on potential to emit, as defined in WAC 173-400-030(76). If the Hanford PSD Permit is revised, amended, or rescinded the Permittee must review it as a potential modification, as defined in WAC 173-400-030(51), for this NOC Approval Order.

- b. Operation of Boilers A, B, and C is authorized with their existing burners or with the replacement burners identified above. Once a burner is replaced, all approval conditions apply to the new configuration and operation with the original burner is no longer authorized. If put into service, Boilers D, E, and F are still authorized to operate with their original burners.
 - i. The Permittee must also continue to demonstrate compliance with requirements established for Boilers A, B, and C under the Hanford PSD Permit with the replacement burners. This includes Best Available Control Technology (BACT) requirements established for NO_x and PM₁₀.
- c. Requirements for equipment and processes other than LAB and Boilers A, B, and C have been incorporated into this NOC Approval Order from DE02NWP-002, Revision 3, with limited updates for permitting consistency and enforceability. The Permittee must comply with these requirements as they are now established by this NOC Approval Order.

2. Operational and Emission Limitations

- a. BOF Operation Limits
 - i. The 6 Diesel Fuel-Fired Boilers (Boilers A, B, C, D, E, and F) are limited to combusting 13,400,000 gallons of Ultra-Low Sulfur Diesel (ULSD) combined per rolling 12-calendar month period.
 - ii. The Emergency Generator Engine is limited to operating 164 hours per rolling 12-calendar month period.
 - iii. The 2 Emergency Fire Pump Engines are limited to operating 230 hours each per rolling 12-calendar month period each.
 - iv. The 2 Emergency Turbine Generators are limited to operating 164 hours each per rolling 12-calendar month period.
 - v. For Approval Conditions 2.a.i through 2.a.iv, fuel combusted in the boilers and hours of operation for engines and turbines must be totaled for each calendar month and rolling period of 12 consecutive calendar months. Boiler fuel use must be tracked with flow meter(s). Hours of operation for engines and turbines must be tracked using non-resettable hour meters.
 - vi. As BACT for sulfur dioxide (SO₂), all BOF emission units identified in Approval Conditions 2.a.i through 2.a.iv must be fired on ULSD exclusively, where ULSD is defined as fuel oil with a maximum sulfur content of 15 parts per million by weight.
 - vii. All BOF emission units identified in Approval Conditions 2.a.i through 2.a.iv must be operated using good combustion practices with reduced operation, where practicable, as BACT for carbon monoxide (CO) and volatile organic compound (VOC) emissions.

viii. The Permittee must meet any installation, operation, maintenance, and testing requirements established by rule for BOF emission units. This may include, but is not limited to:

- A. 40 C.F.R. Part 60, Subpart Dc, and Part 63, Subpart DDDDD, for BOF boilers.
- B. 40 C.F.R. Part 63, Subpart ZZZZ, for the BOF engines
- C. 40 C.F.R. Part 60, Subpart KKKKa, and Part 63, Subpart YYYY, for the BOF turbines.

b. LAB Operation Limits

i. Samples collected for, and processed in, the LAB emission units are limited to the following maximum sampling events for each identified sample point:

Sample Point	Sample Type	Maximum Sampling Events Per Rolling 12-Calendar Month Period
LAWPS 1A/1B	LAWPS Lag Vessels	527
LAW 1A/1B	LAW Concentrate Receipt Vessel	1,232
LAW 3	Plant Wash Vessel	18
LAW 6	LAW Melter Feed Preparation Vessel	1,643
LAW 10A/10B	SBS Condensate Collection Vessel	551
EMF 1A/1B	Evaporator Concentrate Vessel DEP-VSL-00003 A/B/C	137
EMF 2	Overhead Condensate Vessel RLD-VSL-00004 A/B	548
EMF 3	ETF/LERF Lag Storage Vessels RLD-VSL-00005 A/B	110

ii. For Approval Condition 2.b.i, sampling events must be totaled for each calendar month and rolling period of 12 consecutive calendar months. A sampling event may involve collection of multiple samples. Records must be based upon collection date, even if analysis in LAB occurs in a subsequent calendar month.

iii. As BACT for toxics (tBACT) for particulates and aerosols, emissions from the LAB C2 and C3 Areas must be controlled by single-stage HEPA Filters and C5 Areas must be controlled by dual-stage HEPA Filters in series. HEPA filtration is defined as each stage being designed to remove at least 99.97% of PM with an aerodynamic diameter of 0.3 microns.

c. LAW Operation Limits

i. Except during source testing for Approval Condition 5.a, operation of the LAW emission units and control devices must be at no more than the maximum feed rate, and within the parameter ranges, established in the most recent source testing for Approval Condition 5.a.

- A. During source testing for Approval Condition 5.a, LAW emission units and control devices must be operated in accordance with the approved Performance Demonstration Plan. This may be used to establish a new maximum feed rate or parameter range for operation after testing is completed.
- B. Establishment of a new maximum feed rate or parameter range must be specifically documented in either the approved Performance Demonstration Plan or final test report.
- ii. While one or both of the LAW melters contain tank waste, simulant, or other materials which could produce unabated emissions in excess of Approval Condition 2.j.i emission limits:
 - A. The control devices identified in Appendix B, Figure B-1, of this NOC Approval Order must be properly installed and operated to control emissions from the melter(s) with the potential to produce excess emissions.
 - B. As tBACT for sulfur oxides, emissions from LAW exhaust stream LV-S3 must be controlled with a Caustic Scrubber.
 - C. As tBACT for VOC, emissions from LAW exhaust stream LV-S3 must be controlled with a TCO/SCR.
 - D. As tBACT for halide acid gases, emissions from the LAW exhaust stream LV-S3 must be controlled with a SBS, WESP, and Caustic Scrubber
- iii. Quenching and mist elimination sufficient to protect HEPA Filters must be employed while they are exposed to high temperature and/or moisture exhaust streams.
- iv. For periods of planned outage/maintenance where one or more of the LAW control devices is not operating and controlling emissions, the permittee must document the analysis used to determine that emission control was not necessary. At a minimum, this analysis must be based upon:
 - A. Melter feed of tank waste, simulant, and additives/glass formers including time of last addition.
 - B. Removal of melter feed materials by glass pours and other processes.
 - C. Properties of melter feed, the type(s) of emissions produced, and persistence in the melters.
 - D. Data from continuous emission monitoring system (CEMS) and other direct monitoring of LAW operation.
- v. If a report of LAW control device bypass is prepared for the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste (DWP), WTP (OUG 10), Condition III.10.H.1.c.viii, this report must also be transmitted to the Section

Manager and Air Engineer Team Lead for the Waste Management Section of Ecology's Nuclear Waste Program.

d. MHF Operation Limits

- i. As established by the Permittee's FDCP, activities which generate fugitive dust must be curtailed or ceased and preventative measures applied, as appropriate, under the conditions identified in the FDCP.

e. HLW Operation Limits

- i. Except during source testing for Approval Condition 5.a, operation of the HLW emission units and control devices must be at no more than the maximum feed rate, and within the parameter ranges, established in the most recent source testing for Approval Condition 5.a.
 - A. During source testing for Approval Condition 5.a, HLW emission units and control devices must be operated in accordance with the approved Performance Demonstration Plan. This may be used to establish a new maximum feed rate or parameter range for operation after testing is completed.
 - B. Establishment of a new maximum feed rate or parameter range must be specifically documented in either the approved Performance Demonstration Plan or final test report.
- ii. While one or both of the HLW melter tank waste, simulant, or other materials which could produce unabated emissions in excess of Approval Condition 2.k.i emission limits:
 - A. The control devices identified in 24590-WTP-RPT-ENV-01-009, Revision 1, Table 5-1 for exhaust streams HV-S3a, HV-S3b, and HV-S4 must be properly installed and operated to control emissions from the melter(s) with the potential to produce excess emissions.
 - B. As tBACT for halogens (acid gas precursors), emissions from HLW must be controlled with a Silver Mordenite Adsorber.
 - C. As tBACT for VOC, emissions from HLW must be controlled with a TCO/SCR.
- iii. Quenching and mist elimination sufficient to protect HEPA Filters must be employed while they are exposed to high temperature and/or moisture exhaust streams.
- iv. For periods of planned outage/maintenance where one or more of the HLW control devices is not operating and controlling emissions, the permittee must document the analysis used to determine that emission control was not necessary. At a minimum, this analysis must be based upon:
 - A. Melter feed of tank waste, simulant, and additives/glass formers including time of last addition.

- B. Removal of melter feed materials by glass pours and other processes.
- C. Properties of melter feed, expected persistence of feed constituents in the melter and control devices, and the type(s) of emissions produced.
- D. Data from CEMS and other direct monitoring of HLW operation.
- v. If a report of HLW control device bypass is prepared for the DWP, WTP (OUG 10), Condition III.10.J.1.c.viii, this report must also be transmitted to the Section Manager and Air Engineer Team Lead for the Waste Management Section of Ecology's Nuclear Waste Program.
- f. PTF Operation Limits
 - i. PTF is only authorized for the original design and method of operation addressed in 24590-WTP-RPT-ENV-01-009, Revision 1, and modified by Letter 10-ESQ-181. This method of operation is not consistent with current DFLAW operation of WTP. Any design or operation of PTF which is not in accordance with the original configuration must be reviewed as a change in method of operation which is potentially subject to NSR. Project review for NSR applicability must be based upon current emission limits identified in Approval Condition 2.I.i.
 - ii. As tBACT for control of acid gases, emissions from PTF must be controlled with a Caustic Scrubber.
 - iii. As tBACT for VOC, emissions from PTF must be controlled with a TCO
- g. Opacity Limits
 - i. Pretreatment, HLW, and LAW stacks must not exceed 5% opacity.
 - ii. BOF stacks must not exceed 10% opacity.
- h. BOF Emission Limits
 - i. BOF boiler emission limits:
 - A. CO Emissions from any individual BOF boiler must not exceed 3.51 pounds per hour.
 - B. VOC emissions from any individual BOF boiler must not exceed 1.51 pounds per hour.
 - C. SO₂ emissions from any individual BOF boiler must not exceed 0.15 pounds per hour.
 - D. For pollutants other than CO, VOC, and SO₂, emissions from the BOF boilers must not exceed the emission rates identified in 24590-WTP-RPT-ENV-01-009, Revision 1, Page B-111.
 - ii. Emissions from the Emergency Generator Engine must not exceed the emission rates identified in 24590-WTP-RPT-ENV-01-009, Revision 1, Pages B-101 through B-103.

- iii. Emissions from Emergency Turbines and Emergency Fire Pump Engines must not exceed the emission rates identified in 24590-WTP-RPT-ENV-12-002, Revision 1, Tables 5-5 and 5-6.
- i. LAB Emission Limits
 - i. Emissions from exhaust streams LB-S1 and LB-S2 must not exceed the abated emission rates identified in Attachment A, Table A-1, of this NOC Approval Order.
- j. LAW Emission Limits
 - i. Emissions from exhaust stream LV-S3 must not exceed the abated emission rates identified in Attachment A, Table A-1, of this NOC Approval Order.
- k. HLW Emission Limits
 - i. Emission from exhaust streams HV-S3a, HV-S3b, and HV-S4 must not exceed the abated emission rates identified in 24590-WTP-RPT-ENV-01-009, Revision 1, Pages B-3, B-4, and B-27 through B-39.
- l. PTF Emission Limits
 - i. Emissions from exhaust streams PT-C2, PT-S1 and PT-S2, PT-S3, and PT-S4 must not exceed the abated emission rates identified in Letter 10-ESQ-181.

3. Operation and Maintenance

- a. The Permittee must follow all recommended installation, configuration, operation, and maintenance provisions supplied by emission unit and component manufacturers.
- b. An operations and maintenance (O&M) manual or manuals must be developed by the Permittee for each emission unit/process/activity within 90 days of commencing operation of that emission unit/process/activity. The manufacturer's instructions may be referenced in the O&M manual(s).
 - i. The O&M manual(s) must include the following, at a minimum:
 - A. Normal operating parameters for emission units/processes/activities.
 - B. A maintenance schedule for each emission unit/process/activity.
 - C. A description of the monitoring procedures.
 - D. Monitoring and record keeping requirements.
 - E. Actions for abnormal control system operation.
- c. Emission units/processes/activities must be operated and maintained in accordance with the O&M manual(s).
- d. The Permittee must assess all complaints received. The Permittee must initiate corrective action in response to a complaint within three calendar days of receipt of the complaint.

- e. To ensure good combustion practices, emissions from BOF boilers must be monitored for NO_x, CO, and oxygen, by means of a portable emissions analyzer (direct-reading measurement device), during source testing (see Approval Condition 5.d) and after maintenance activities which may affect combustion efficiency. This includes tune-ups, burner/control adjustments such as fuel/air metering ratio and oxygen trim control, and replacement of any portion of the burner assembly.
 - i. Post-maintenance monitoring must be done in the same load range tested for Approval Condition 5.b. If source testing included multiple load ranges, the one which is most representative of expected operation must be checked.
 - ii. Unless approved in writing by Ecology, oxygen-corrected NO_x and CO concentrations must not increase by more than 10 ppm or 20% (whichever is less stringent) compared to the averaged concentration established for that boiler during the most recent source testing, including any correction necessary for Approval Condition 5.d.ii.
 - iii. Oxygen-corrected NO_x and CO concentrations, including any correction necessary for Approval Condition 5.d.ii, must not exceed applicable limits even if this is within the allowable range for Approval Condition 3.e.ii.

4. Monitoring and Recordkeeping

- a. The O&M manual(s) and MHF FDCP must each be reviewed at least annually.
 - i. The date of and person performing a review must be documented in the O&M manual(s) or FDCP, as appropriate, for each review conducted.
 - ii. The O&M manual(s) must be updated to reflect any modifications to emission units or operating procedures.
- b. O&M and FDCP records must be kept on premises in hard copy or readily available on-site electronically.
- c. For all air-quality related complaints, the following records must be kept:
 - i. A written record of the complaint received by the Permittee or forwarded to the Permittee.
 - ii. The Permittee's action to investigate the validity of the complaint, any corrective action that was taken in response to the complaint, and the effectiveness of the remedial action.
- d. The date, time, duration, and cause of any periods where control technology equipment is out of service must be documented and maintained. For planned outages under Approval Conditions 2.c.iv and 2.e.iv, these records must include the analysis used to determine that control technology was not required for that time period.

- e. All data required by this NOC Approval Order must be maintained in a readily retrievable manner for a period of five years and must be made available to authorized representatives of Ecology upon request.
- f. The Permittee must complete any additional monitoring or recordkeeping necessary to determine compliance with the requirements of this NOC Approval Order, as determined by Ecology.
- g. The following records are required to be compiled monthly, on a rolling 12-calendar month basis:
 - i. For the BOF boilers, fuel use.
 - ii. For the BOF engines and turbines, hours of operation.
 - iii. For LAB, samples collected.
- h. The following records are required upon specific triggering events:
 - i. For each fuel purchase, a certification or other documentation from the fuel distributor that the fuel purchased is ULSD.
 - ii. Logs of BOF boiler tune-ups and significant maintenance activities including NO_x, CO and oxygen readings from a direct-reading measurement device.
 - iii. For the MHF, records of actions taken to minimize fugitive dust in accordance with the FDCP.
 - iv. Results of testing conducted for Approval Conditions 5.a and 5.b, including melter feed rates (LAW and HLW) and emission rate calculations (LAW, HLW, and BOF).

5. Testing

- a. For LAW and HLW, the permittee must establish a maximum feed rate and operating parameter ranges through source testing conducted for an Ecology-approved Performance Demonstration Plan.
 - i. For development and approval of the Performance Demonstration Plan, the Permittee must satisfy the requirements identified in the DWP,WTP (OUG 10), Condition III.10.H.5.f for LAW and III.10.J.5.f for HLW.
 - ii. Periodic testing must be conducted in accordance with the frequency identified in the DWP, WTP (OUG 10), Condition III.10.I.1.18 for LAW and III.10.K.1.h for HLW.
 - iii. Source testing for the Performance Demonstration Plan must include opacity using 40 C.F.R. Part 60, Appendix A-4, Test Method 9.
 - iv. To support a change in identified tBACT, source testing for the Performance Demonstration Plan must include source testing LAW exhaust stream LV-S3 for hydrogen fluoride and hydrogen chloride using 40 C.F.R. Part 60, Appendix A-8, Test Method 26A.

- v. In addition to any notification requirements for Ecology staff responsible for the DWP, the Section Manager and Air Engineer Team Lead for the Waste Management Section of Ecology's Nuclear Waste Program must be notified at least 30 days prior to the testing and provided with test plans.
 - vi. In addition to any reporting requirements for Ecology staff responsible for the DWP, a complete demonstration test report must also be supplied to the Section Manager and Air Engineer Team Lead for the Waste Management Section of Ecology's Nuclear Waste Program within 180 calendar days of completion of the source testing.
- b. Within 180 days of initial startup, and every 5 years thereafter, the following source testing is required for each BOF boiler:
- i. CO – 40 C.F.R. Part 60, Appendix A-4, Test Method 10.
 - ii. VOC – 40 C.F.R. Part 60, Appendix A-6, Test Method 18, or Appendix A-7, Test Method 25a.
 - iii. SO₂ – 40 C.F.R. Part 60, Appendix A-4, Test Method 6C.
 - A. As an alternative to direct measurement of SO₂ using Test Method 6C, the Permittee may calculate a worst-case SO₂ emission rate based upon fuel input for 100% load and the maximum sulfur content of ULSD using the following calculation:
 - I. [Fuel] = gallons/hour ULSD at 100% load.
 - II. [D] = density of ULSD in lb/gallons from fuel supplier documentation or 7.3 lb/gal if supplier data is not used.
 - III. Maximum allowable Sulfur content for ULSD = 15 ppm = (15/1,000,000)
 - IV. Molecular Weight of Sulfur = 32.07
 - V. Molecular Weight of SO₂ = 64.07
 - VI. [C] = (15/1,000,000)*(64.07/32.07) = 3.00E-05 lb SO₂/lb ULSD
 - VII. [Fuel]*[D]*[C] = SO₂ in lb/hr.
 - B. If the calculation method is used, the calculation and result must be provided with or included in test reports for testing under Approval Condition 5.b.
 - iv. Opacity – 40 C.F.R. Part 60, Appendix A-4, Test Method 9.
- c. Source testing for NO_x and PM₁₀ from BOF emission units is separately established under the Hanford PSD Permit. Source testing for the Hanford PSD permit must include opacity using 40 C.F.R. Part 60, Appendix A-4, Test Method 9. For the BOF boilers, the same opacity determinations may also be used for Approval Condition 5.b.iv, if testing is simultaneous.

- d. For source testing identified in Approval Conditions 5.b and 5.c, steam production with replacement burners in Boiler A, Boiler B, or Boiler C is considered an initial startup requiring source testing within 180 days.
 - i. This testing is independent of testing requirements for 40 C.F.R. Part 63, Subpart DDDDD, which is not triggered by the burner replacement.
 - ii. For initial testing with replacement burners, testing must be conducted at three load points to establish the worst-case operating scenario(s) for emission limits. These rates are 20-30%, 60-80%, and >90% of maximum load, based upon fuel input rate in gal/hour.
 - iii. Firing rate(s) for future source testing under Approval Conditions 5.b and 5.c will be based upon the results of initial testing. Planned firing rate(s) must be included in source test plans and Ecology may require testing be at specific, or additional, firing rates.
- e. During BOF boiler source testing identified in Approval Conditions 5.b and 5.c, the accuracy of a direct-reading measurement device for NO_x, CO and oxygen must be confirmed according to methods proposed by the Permittee and approved by Ecology in writing before commencing initial startup.
 - i. This device must have a design measurement accuracy of five percent or better at the expected maximum NO_x and CO concentration.
 - ii. If the NO_x or CO concentration read by a direct-reading measurement device is consistently different than the concentration determined by source testing, this must be accounted for with a correction factor when using the device after significant maintenance. This correction factor may be adjusted, if necessary, for subsequent calibration, sensor replacement, or other maintenance on the direct reading measurement device if it is done in accordance with the manufacturer's recommendations.
- f. For BOF source testing under Approval Conditions 5.b and 5.c, the Permittee must submit a test plan to Ecology for review and approval at least 30 days prior to source testing. Ecology may require a new protocol for re-test events conducted after a failed source test, when required, and Ecology may approve a shorter timeframe for submission for the re-test protocol. The test plan must include the following information, at a minimum:
 - i. Identification of each BOF emission unit to be tested.
 - ii. The operating parameters to be monitored during the test, which must include firing rate and fuel consumption.
 - iii. The time and date of the proposed source test.
 - iv. Identification and qualifications of the source test personnel.
 - v. A description of the test methods and procedures to be used.

- g. For BOF source testing identified in Approval Conditions 5.b and 5.c, test reports must be submitted to Ecology within 60 days of completion of the source testing. Test reports must include the following information, at a minimum:
 - i. For Approval Condition 5.b: CO, VOC, and SO₂ emission rates in pounds per hour.
 - ii. For Approval Condition 5.c: emission rates, with appropriate units and averaging periods, for limits established by the Hanford PSD Permit.
 - iii. The information described in the test plan and any subsequent test plan approval requirements established by Ecology.
 - iv. Field and analytical laboratory data.
 - v. Quality assurance/quality control procedures and documentation.
 - vi. Analyzer data recorded during the test.
 - vii. A summary of results, reported in units and averaging periods consistent with the applicable emission limit.
 - viii. A summary of control system and equipment operating conditions, including boiler firing rate as a percentage of maximum capacity and fuel use in gallons per hour.
 - ix. Copies of all field data.
 - x. Chain of custody information.
 - xi. Calibration documentation.
 - xii. Discussion of any abnormalities associated with the results.
 - xiii. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.
 - xiv. Emission calculations.
- h. The Permittee must provide adequate sampling ports, safe sampling platforms, and access to platforms and utilities for sampling and testing, in accordance with 40 C.F.R. 60.8, 40 C.F.R. 63.7(d), and WAC 173-400-105(4).
- i. When information obtained by Ecology indicates the need to quantify emissions, Ecology may require the Permittee to conduct material analysis or air emission testing under WAC 173-400-105. This testing requirement is in addition to any testing required by Ecology in this NOC Approval Order, other permits, or other state or federal requirements.

6. Reporting

- a. All notifications, plans, reports, and other required submittals must be submitted in a manner approved by Ecology.

- i. Physical mail to Ecology's Nuclear Waste Program and emails to NWPMail@ecy.wa.gov are explicitly approved submittal methods. Other submittal methods may be approved on a case-by-case basis.
- b. The following notifications and reports required by the DWP must also be provided to the Section Manager and Air Engineer Team Lead for the Waste Management Section of Ecology's Nuclear Waste Program :
 - i. Test notifications, plans, and reports for Approval Condition 5.a.
 - ii. The Monthly Data Summary for DWP Condition III.10.C.13, including quantity of tank waste in gallons.
- c. The Permittee must notify Ecology within one business day of receipt of any complaint.
- d. The Permittee must notify Ecology of the following within one week:
 - i. Completion of a burner replacement for Boiler A, B, or C.
 - ii. Initial steam production with a replacement burner in Boiler A, B, or C.
- e. The Permittee must submit rolling 12-month BOF fuel use and operating hour totals semiannually.
 - i. Semiannual reporting for this NOC Approval Order may be in the form of a standalone report or included in a semiannual deviation and monitoring report submitted under WAC 173-401-615(3)(a). This requirement does not modify or override any requirements which may be established under Chapter 173-401 WAC.
 - ii. Totals must be submitted to Ecology by September 15th for the most recent 12-month period from July 1st through June 30th and by March 15th for the period from January 1st through December 31st.
- f. The Permittee must notify Ecology within 30 days of the following events:
 - i. Commencement, restart, or planned discontinuance of construction for the BOF Emergency Generator Turbines, PTF, or HLW.
 - ii. Completion of the construction of BOF Emergency Generator Turbines, PTF, or HLW.
 - iii. If construction or operation of any portion of WTP specifically identified in this Approval Order has been discontinued for more than 18 months.
- g. The Permittee must notify Ecology within 60 days (or longer as approved by Ecology) of the following events for any portion of WTP specifically addressed by this NOC Approval Order:
 - i. Changes in operation contrary to information submitted in the most recent NOC application addressing that portion of WTP.

- ii. Discontinued operations. This notification must include a shutdown status maintenance plan containing the following information, at a minimum:
 - A. Maintenance that will be performed during the shutdown to allow startup in a timely manner with minimum amount of work and emissions (allowable emission levels as of the date of shutdown cannot increase upon reopening).
- iii. Reactivating a portion of WTP following discontinued operations of 18 months or more. This notification must include a start-up plan containing the following information, at a minimum:
 - A. Documentation that the shutdown maintenance was performed during shutdown to allow startup in a timely manner with minimum amount of work and emissions (allowable emissions levels as of the date of shutdown cannot increase upon reopening).
 - B. Documentation of testing performed which demonstrates that units are still able to meet the parameters of this NOC Approval Order after being inactive, or other documentation which demonstrates why testing is not necessary.

7. General Conditions

- a. **Activities Inconsistent with this Order** - Any activity undertaken by the Permittee, or others, in a manner that is inconsistent with the data and specifications submitted as part of the NOC application or this NOC Approval Order, must be subject to Ecology enforcement under applicable regulations.
- b. **Availability of Order** - Legible copies of this NOC Approval Order and any O&M manual(s) must be available to employees in direct operation of the equipment described in the NOC application and must be available for review upon request by Ecology.
- c. **Compliance Assurance Access** - Access to the source by representatives of Ecology or the United States Environmental Protection Agency (EPA) must be permitted upon request. Failure to allow access is grounds for enforcement action under the federal Clean Air Act or the Washington State Clean Air Act and may result in revocation of this NOC Approval Order.
- d. **Discontinuing Construction** - Approval to construct or modify a stationary source becomes invalid if construction is not commenced within eighteen months after receipt of the approval, or if construction is discontinued for a period of eighteen months or more. The permitting authority may extend the 18-month period upon a satisfactory showing by the permittee that an extension is justified.
 - i. Discontinuing construction of the BOF Emergency Turbine Generators is based upon the date when tank waste was first vitrified in LAW or any subsequent construction start and stop for the Emergency Turbine Generators. Unless

extended by Ecology, construction must commence, as defined in WAC 173-400-030(20), within 18 months of the latest discontinuance date.

- ii. Construction of HLW continued after the date when tank waste was first vitrified in LAW. Construction is authorized for 18 months, with the potential for extension, from the date of any subsequent discontinuance.
 - iii. Discontinuing construction of PTF is based upon the date when tank waste is first vitrified in LAW or any subsequent construction start and stop for PTF. Unless extended by Ecology, construction must commence, as defined in WAC 173-400-030(20), within 18 months of the latest discontinuance date.
- e. **Equipment Operation** - Operation of the facility must be conducted in compliance with all data and specifications submitted as part of the NOC application and in accordance with O&M manuals, unless otherwise approved in writing by Ecology.
 - f. **Violation Duration** - If the Permittee violates an approval condition in this NOC Approval Order, testing, recordkeeping, monitoring, or credible evidence will be used to establish the starting date of the violation. The violation is presumed to continue until testing, recordkeeping, monitoring, or other credible evidence indicates compliance. A violation of an approval condition includes, but is not limited to, failure of air pollution control equipment, failure of other equipment resulting in increased emissions, or a failed source test indicating an exceedance of an emission limit.
 - g. **Obligations Under Other Laws or Regulations** - Nothing in this NOC Approval Order must be construed so as to relieve the Permittee of its obligations under any state, local, or federal laws or regulations.
 - h. **Maintaining Compliance** - It must not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the operations in order to maintain compliance with the conditions of this NOC Approval Order.
 - i. **Changes in Operations** - Changes in operation, discontinued operation, or inadequate maintenance plans or re-start plans (see “Reporting” requirements), may require a new or amended NOC Approval Order.

Authorization may be modified, suspended, or revoked in whole or part for cause, including, but not limited to, the following:

- Violation of any terms or conditions of this authorization.
- Obtaining this authorization by misrepresentation or failure to disclose all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization or application of any provision to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this authorization, must not be affected thereby.

Your Right to Appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt. The appeal process is governed by RCW 43.21B and WAC 371-08. “Date of receipt” is defined in Chapter 43.21B.001(2) RCW.

To appeal, you must do all of the following within 30 days of the date of receipt of this Order:

- File your notice of appeal and a copy of this Order with the PCHB (see filing information below). “Filing” means actual receipt by the PCHB during regular business hours as defined in Chapter 371-08-305 WAC and -335. “Notice of appeal” is defined in Chapter 371-08-340 WAC.
- Serve a copy of your notice of appeal and this Order on the Department of Ecology by mail, in person, or by email (see addresses below).

You must also comply with other applicable requirements in Chapter 43.21B RCW and 371-08 WAC.

Address and Location Information

Filing with the PCHB

For the most current information regarding filing with the PCHB, visit: <https://eluho.wa.gov/> or call: 360-664-9160.

Service on Ecology

Street Address:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Mailing Address:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

Email Address:

ecologyappeals@ecy.wa.gov

Americans with Disabilities Act Information

Accommodation Requests

To request ADA accommodation including materials in a format for the visually impaired, call Ecology at 360-407-7668 or visit <https://ecology.wa.gov/accessibility>. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.

Dated on <Month> <Day>, 2026.

Prepared by:

Approved by:

Matt Williams, PE
Nuclear Waste Program
Department of Ecology
State of Washington

John Temple, Section Manager
Nuclear Waste Program
Department of Ecology
State of Washington

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Appendix A – Emission Limits for LAW and LAB

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Table A-1: LAW and LAB Toxic Air Pollutant Emission Limitations

CAS	Toxic Air Pollutant	Stack LB-S1 Emission Limit (grams/second)	Stack LB-S2 Emission Limit (grams/second)	Stack LV-S3 Emission Limit (grams/second)
10102-44-0	Nitrogen Dioxide	-	-	1.26E-01
107-13-1	Acrylonitrile	1.48E-12	1.48E-12	3.17E-05
121-14-2	2,4-Dinitrotoluene	8.59E-11	8.59E-11	3.69E-05
189-55-9	Dibenzo[a,i]pyrene	2.63E-11	2.63E-11	1.75E-07
189-64-0	Dibenzo[a,h]pyrene	2.63E-11	2.63E-11	1.75E-07
191-30-0	Dibenzo(a,l)pyrene	2.63E-11	2.63E-11	1.75E-07
193-39-5	Indeno(1,2,3-cd)pyrene	1.58E-11	1.58E-11	4.11E-05
205-99-2	Benzo(b)fluoranthene	6.94E-13	6.94E-13	4.78E-05
207-08-9	Benzo(k)fluoranthene	1.77E-11	1.77E-11	5.61E-05
50-32-8	Benzo(a)pyrene	4.62E-12	4.62E-12	2.58E-05
53-70-3	Dibenz[a,h]anthracene	4.29E-11	4.29E-11	4.32E-05
59-89-2	Morpholine, 4-Nitroso-	1.26E-10	1.26E-10	1.24E-06
74-83-9	Bromomethane	1.62E-14	1.62E-14	2.67E-03
75-05-8	Acetonitrile	6.50E-11	6.50E-11	4.41E-04
7647-01-0	Hydrogen Chloride	-	-	2.65E-02
7664-41-7	Ammonia	2.01E-10	2.01E-10	2.56E+00
77-47-4	Hexachlorocyclopentadiene	1.30E-14	1.30E-14	2.70E-04
91-94-1	3,3'-Dichlorobenzidine	1.36E-10	1.36E-10	1.88E-05

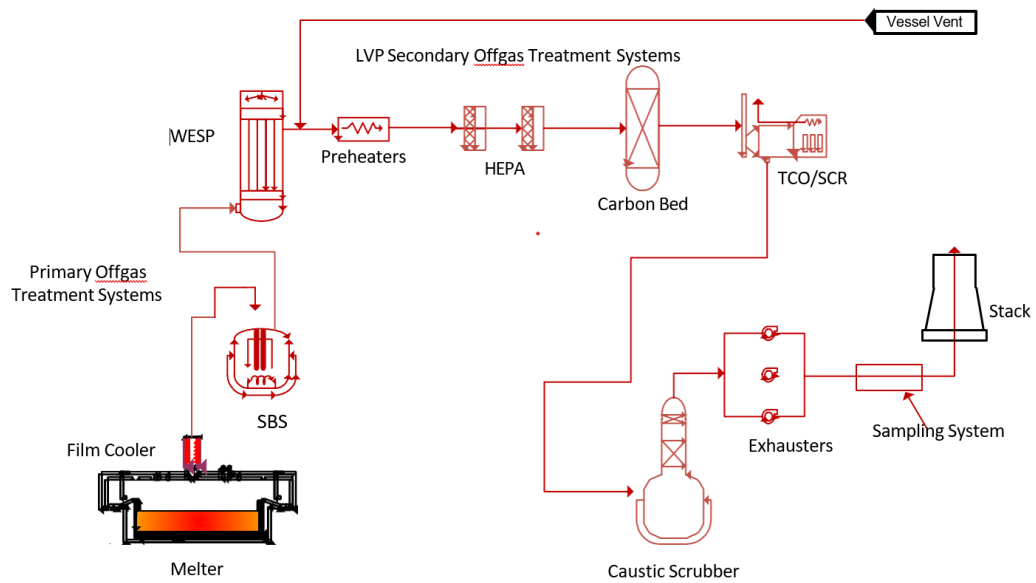
Appendix B – Process Flow Diagrams for Exhaust from Operating, Non-BOF Facilities

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Figure B-1: Individual LAW Melter Exhaust Control Train



Note: Second Melter, Film Cooler, SBS, and WESP in parallel are not shown on figure.

Figure B-2: LAB Exhaust Control Train

