Statement of Basis

For
Hanford Site Air Operating Permit No. 00-05-006
2006 Renewal
Attachment 1: Ecology Permits

State of Washington Department of Ecology

The Statement of Basis (Statement) is issued by the permitting agencies as a separate supporting reference document to the Hanford AOP. This Statement sets forth the legal and factual basis for the AOP conditions, and is not intended for enforcement purposes. The Statement includes references to the applicable statutory or regulatory provisions, technical supporting information on specific emission units, and clarifications of specific requirements. The Statement of Basis is non-enforceable, but is a supporting reference document that provides a rationale for the development of the permit and offers clarification where deemed necessary.
[Washington Administrative Code (WAC) 173-401-700(8)]

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1.0 EMISSION STANDARDS AND LIMITATIONS

The purpose of this section is to identify emission standards and limitations for all non-radioactive emission units, including insignificant emission units (IEUs) on the Hanford Site.

1.1 Insignificant Emission Units

A list of IEUs was submitted in the Hanford AOP renewal application. Compliance with the cited applicable requirements in Table 1.2 (Section 1.3 of AOP Attachment 1) is required; however, the periodic monitoring, testing, recordkeeping, or reporting requirements listed in Table 1.2 are not required. Also the semiannual reporting and annual compliance certification is not required for IEUs.

In the fall of 1993, Ecology developed Washington's original air operating permits regulation [WAC 173-401] to comply with federal regulation [40 CFR 70, or Title 5 of the Clean Air Act, as amended (CAA)]. At the same time, Ecology applied to the EPA for program approval. In November 1994, EPA granted Ecology interim approval for the air operating permits program. However, EPA also directed the state to correct several issues in order to be granted full approval for the program.

Ecology made the changes requested by EPA, with the exception of the change related to "IEUs." IEUs are small, minor pollution sources at industrial facilities that are subject to the operating permit regulation. They include such emissions as bathroom vents, lubricating-oil storage tanks, plastic pipe welding, and wet sand-and-gravel screening. Ecology disagreed with EPA about requiring IEUs to meet monitoring, record-keeping, and reporting (MRR) requirements of Title 5. Washington's state rule exempted IEUs from these requirements in order to focus on the larger sources of pollution, where the most important air quality gains can be made. Ecology believed that subjecting the insignificant units and activities to the same level of rigorous MRR would place more attention than necessary on small emissions.

As a result of the disagreement with EPA about IEUs, Ecology sued EPA in the 9th District Court of Appeals in the spring of 1995. The lawsuit had two main points. The first was that, since EPA's rules were silent on the issue of MRR for IEUs, Washington's approach should be acceptable to EPA. The second was that EPA was treating permitting authorities inconsistently by approving similar provisions in other states, while not approving the same kinds of provisions in Washington's program. In June 1996, the court ordered EPA to approve Washington's program with respect to IEUs.

In the meantime, EPA began revising the federal operating permit regulations. After a revision of this type takes place, states are required to revise their regulations to reflect the federal changes. Consequently, many states in the nation, including Washington, were faced with the prospect of revising their programs twice in a short period of time. To address this concern, EPA extended existing interim approvals of state programs for up to five years. However, because federal law expressly prohibits extending interim approvals, EPA was sued over this issue in the fall of 2000. The resulting settlement agreement provided that EPA would take comment on all

50 states' operating permit programs.

Just one commenter addressed Washington's operating permit program. One of the comments was that Washington's rules on IEUs did not meet requirements of the federal regulations. EPA agreed with this comment and issued a notice of deficiency (NOD) on December 14, 2001. Ecology then initiated a compromise with EPA over the issue of IEUs, which led to an agreement on new language for Ecology's regulation. Ecology proposed the new language in April 2002 for public participation and EPA review. As the result of the approval of this WAC 173-401-530 revision, full approval of the Washington operating program was granted on January 2, 2002.

WAC 173-401-530 establishes several criteria for determining if an emission unit is insignificant. The IEUs and activities must be listed in the permit application [WAC 173-401-530(1)(a)]. The applicant is required to amend their application if an IEU, based on actual emissions, subsequently will exceed an actual emission threshold. This requirement extends until the draft permit is issued. The AOP regulations do not require that each IEU be listed in the AOP. Following AOP issuance, no emission unit that qualifies as an IEU based on actual emissions can exceed the emission thresholds in WAC 173-401-530 and -531 without first obtaining a permit modification.

The IEU evaluation process and results supporting the Hanford Site AOP renewal application are documented below. The purpose of an IEU evaluation supplement for the Hanford Site Air Operating Permit (AOP) renewal application is to verify that:

- emission units and activities identified as insignificant in the initial AOP (i.e., DOE/RL 95-07) have remained insignificant, and

- emission units or activities not included in the initial application (because they commenced during the permit term) are appropriately permitted.

The IEU evaluation process focuses on criteria/hazardous air pollutant emission units or activities subject to regulation under the Federal Clean Air Act with a potential to emit, but where operations have not increased, consistent with the regulatory definition of modification. As referenced in the transmittal letter, by agreement with Ecology, the following areas/activities on the Hanford Site were excluded from the WAC 173-401-530 evaluation process effort:

- Areas regulated under the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*. This includes sources and activities at a CERCLA Operable Unit(s).

- Areas regulated by the *Resource Conservation and Recovery Act, Subparts AA, BB, and CC*.

- Emission units that have been closed (e.g., power plants or package boilers) since the original application. This exclusion category generally has closure documentation in previous years' annual submittal report, pursuant to WAC 173-400-105, and/or in a previously transmitted AOP modification(s).

- Emission units and activities in an active Ecology notice of construction (NOC) approval (i.e., approval order) and/or listed in AOP Attachment 1.

- Emission units, activities, or portions of the Hanford Site: (1) that were evaluated in the IEU effort included in the initial AOP application, as supplemented, **and** (2) where current operations of such units, activities, or portions results in no increased potential to emit criteria/hazardous air pollutants (e.g., Fuel and Materials Examination Facility).

- Emission units, activities, or portions of the Hanford Site that are in surveillance and maintenance modes of operation (e.g., S Plant, U Plant, PUREX, B Plant, etc.).

Emission units or activities remaining after applying the above exclusion criteria were then evaluated for IEU status per the below five categories, as agreed with Ecology. Regulatory citations are referenced for these categories, which include:

1. Emission units or activities listed as categorically exempt in WAC 173-401-532 (i.e., paragraph 1 states that, "…The activities listed in this section may be omitted from the permit application.")

2. Fugitive emission sources, pursuant to WAC 173-401-530(1)(d), that are subject to no applicable requirement other than generally applicable requirements of the state implementation plan. Sources under this area were discussed in Chapter 4, pages IV-12 through IV-16 of the initial AOP application, as supplemented. By agreement with Ecology, no further discussion of emission units or activities generating fugitive emissions was required. For Ecology's convenience, the discussion from the initial AOP application, as supplemented, has been extracted and is included as Appendix A to this enclosure. While the discussion is still accurate, a few items have been added to the listing of fugitive emissions in Appendix A.

3. Emission units or activities defined as insignificant based on size and production rates are listed in WAC 173-401-533. These units are required to be listed in the application pursuant to WAC 173-401-533(1). Appendix B provides a table of WAC 173-401-533(2)(a)-(bb) activities; a "yes" or "no" response, as agreed with Ecology, indicates whether or not that unit exists on the Hanford Site major stationary source.

4. Emission units or activities not addressed in items 1 through 3, above, and for which a chemical inventory is readily available, were screened against the criteria/hazardous air pollutant thresholds listed in WAC 173-401-530(4) and WAC 173-401-531. Candidates above these thresholds would be considered as significant for inclusion in AOP Attachment 1, Table 1.1, "List of Significant Emission Units." Emission units or activities below the listed thresholds are listed by emission unit type in Appendix C of this enclosure.

5. Any remaining emission units or activities not addressed in items 1 through 4, above, that are insignificant will be listed by category type under a second table in Appendix B of this enclosure.

As a result of the above process, the IEUs required for inclusion as a supplement to the AOP renewal application are provided in Appendix B through C of this enclosure. Appendix A, as discussed in item 2 above, is provided for Ecology's convenience in drafting the statement of basis.

1.2 Emission Units and Activities subject to Monitoring, Reporting, Recordkeeping, and Compliance Certification

Table 1.1 of AOP Attachment 1 identifies those significant emission units on the Hanford Site subject to the requirement to annually certify compliance with the terms and conditions of this Permit.

All Chapter 401 permits shall contain compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit. Any document, including reports, required by a Chapter 401 permit shall contain a certification by a responsible official that meets the requirements of WAC 173-401-520. (WAC 173-401-630)

Any application form, report, or compliance certification submitted pursuant to this chapter shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this chapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. (WAC 173-401-520)

1.3 General Standards for Maximum Emissions

WAC 173-401-605(1) requires each operating permit to comply with general emission standards and limitations. A set of general standards for maximum emissions for all sources and emission units are listed in WAC 173-400-040. The general standards for maximum emissions in Table 1.2 apply to all emission units on the Hanford Site.

Table 1.2 of AOP Attachment 1, "General Standards for Maximum Emissions," requires that the permittee use good practice and procedures to reduce odorous emissions to a reasonable minimum. Based on process knowledge and the lack of odor complaints filed with the regulatory agencies, Ecology has determined that the Hanford Site is not a source of odorous emissions to the surrounding public. For these reasons, the complaint response program for odor control described in Table 1.2 of AOP Attachment 1 is considered adequate to maintain odorous emissions at a reasonable minimum.

Table 1.2 also requires that the permittee use reasonable precautions to control fugitive emissions and fugitive dust. The Hanford Site generally is not a source of fugitive dust and emissions, except during construction and demolition activities. Most of the construction activities occur in

areas of the Hanford Site remote from the Hanford Site boundaries. The Hanford Site uses a system of pre-job planning and job safety analysis to reasonably control these emissions. Emissions that pass through a stack are not sources of fugitive emissions

WAC 173-401-605(3) requires each operating permit to consider reasonably available control technology (RACT). Per RCW 70.94.154 requirement, RACT is required for existing sources. In addition, source-specific RACT determinations may be performed when required by the Federal Clean Air Act. All limitations and conditions established within the Washington SIP (State Implementation Plan) are federally enforceable.
[WAC 173-400-030(32)] or fugitive dust [WAC 173-400-030(31)].

1.4 Emission Unit Specific Applicable Requirements

This section contains emission unit specific requirements in addition to general standards for maximum emissions. Specific permitting requirements are listed in subsection 1.4.1 for steam generating units (Table 1.3), subsection 1.4.2 for internal combustion units (Table 1.4), subsection 1.4.3 for emission units exceeding insignificant emission unit thresholds (Table 1.5), subsection 1.4.4 for individual NOC approval orders (Table 1.6), and subsection 1.4.5 for miscellaneous emission units (Table 1.7).

Attachment 1 of the AOP, Table 1.3 identifies emission limits for fuel oil fired and natural gas fired steam generating units >5mmBTU/hr. These emission limits are the manufacturer's guaranteed maximum emission levels when the boilers are operated according to good combustion practices. The installed boiler configuration, when operated using good combustion practices identified in Table 1.3, will not exceed the emission limits.

Acceptable source impact levels (ASILs) as defined in WAC 173-460, "Controls for New Sources of Toxic Air Pollutants," are not emission standards or limitations applicable to the Hanford Site. ASILs are a concentration of a toxic air pollutant in the outdoor atmosphere used to evaluate the air quality impact of a new or modified toxic air pollutant emission source for new source review purposes.

In Attachment 1 of the AOP, Table 1.6 is intended to capture the periodic monitoring, emission limit and other approval conditions for all emission units with NOC approval orders. However, Table 1.6 does not list all conditions included in the approval order as "Approval Conditions." Most of the excluded conditions have been captured elsewhere in the AOP as applicable requirements. The categories of excluded approval conditions include the following:

Conditions and requirements addressed in Section 3.0, Standard Terms and Conditions, of the Hanford Site AOP.

Conditions and requirements addressed in Section 4.0, General Conditions, of the Hanford Site AOP, such as the condition to send reports to the Ecology office or the requirement to allow access to the facility for inspection.

Conditions and requirements that re-state portions of applicable codified regulations.

The requirement to prepare and maintain an Operation and Maintenance Manual.

Table 1.6 includes only the emission limits and conditions identified in the "Approval Conditions" section of the regulatory orders. Information included in other sections of the orders, such as "Findings," "Background," "Description,", or similarly titled sections are not included in Table 1.6.

Certain approval orders become obsolete when the facilities cease to operate. Certain approval orders contain activities that will end at activity completion, as described in the notice of construction (NOC) application. The permittee is not required to continue to comply with approval order terms and conditions after these become irrelevant. For example, a number of approval orders for old coal-fired boilers at 200 Areas are irrelevant because the boilers were demolished. Many approval orders contain the requirement to conduct an initial, one time only, startup test. Once that initial startup test requirement has been completed satisfactorily, that condition is deemed irrelevant, and the permittee is no longer bound by that particular requirement.

An approval to construct the WSCF was submitted to Ecology. In a letter dated September 17, 1990, Ecology concurred with the determination that radioactive emissions from the proposed WSCF would be offset by decreased emissions from 200-C Plant, Strontium Semi-Works, which ceased operation in July of 1987. It further was determined that the proposed WSCF would not increase radionuclide emissions on the Hanford Site, and therefore was not subject to prevention of significant deterioration (PSD) review (40 CFR 52).

This approval to construct pre-dated the effective date of both WAC 173-460 ("Controls for New Sources of Toxic Air Pollutants," effective 06/18/91) and WAC 246-247 ("Radiation Protection - Air Emissions," effective 01/31/91), and imposed no terms or conditions. For this reason, the September 17, 1990, approval from Ecology is not considered an AOP applicable requirement and therefore is not listed in the AOP.

Subpart AA of 40 CFR Part 264 and 265 applies to process vents that treat organic waste using designated treatment technologies. Subpart AA requires organic emissions from all affected process vents on the Hanford Site be less than 1.4 kilograms per hour and 2.8 megagrams per year, or control devices must be installed to reduce organic emissions by 95%. Currently the 200 Area ETF and the 242-A Evaporator are operating treatment, storage, or disposal (TSD) units contributing to the Hanford Facility volatile organic emissions under 40 CFR 264 and 265, Subpart AA. For process vents emitting organic toxic air pollutants (TAPs) currently regulated under NOCs and RCRA Subpart AA, Ecology is deferring regulation of the organic emissions from process vents to RCRA, Subpart AA.

Hanford has a long operating history since 1943. Many processes and procedures are imbedded in the process knowledge. Process knowledge is knowledge of a particular process obtained from some documented source or sources. The documented source or sources can include a policy, operating procedure, manufacturer's recommendations or manuals, or other peer-reviewed documentation. Process knowledge also can include familiarity with analytical data.

2.0 COMPLIANCE AND PERIODIC MONITORING PROVISIONS

The permittee is authorized to operate the non-radioactive portion of the air emission units identified in this attachment and all insignificant emission units not specifically identified in this permit.

Compliance and periodic monitoring provisions are described in details in this section. Specific monitoring provisions include visible emission surveys (subsection 2.1), general standards complaint investigations (subsection 2.2), measures to control fugitive emissions and fugitive dust (subsection 2.3), RACT (subsection 2.4), recordkeeping for boilers (subsection 2.5), steam generating units source tests (subsection 2.6), SO_2 Emissions Compliance (subsection 2.7), visible emissions enforceability (subsection 2.8), and SO_2 enforceability (subsection 2.9).

The following sections identify opacity monitoring requirements.

2.1 Visible Emission Surveys

Three methods (Tier 1 through 3) are used for visible emission surveys at Hanford. Tier 1 applies primarily to fossil fuel combustion units and other emission units that might be a source of visible emissions. The method consists of requiring personnel observation and EPA Method 9, if visible emissions are observed.

Tier 2 applies to "normally clean" emission units which are unlikely sources of visible emissions. This category of emission sources on the Hanford Site have little or no ability to emit visible emissions. For example, boilers firing natural gas and sources where particulate matter or other condensables are not expected to be present. Such sources are candidates for less frequent visible emission surveys. Tier 2 provide progressive survey requirements, including EPA Method 9, if visible emission is observed or the event is likely to re-occur.

Tier 3 applies to emission units with abatement control technology, such as High Efficiency Particulate Air (HEPA) filters. Ecology acknowledges that the opacity monitoring requirements from mixed (radioactive and non-radioactive) airborne effluent streams are not necessary due to the presence of HEPA filtration abatement technology required by Health under WAC 246-247. HEPA filters control particulate emissions to less than visible levels. Because of the particulate control effectiveness provided by HEPA filters, no additional opacity monitoring is required for those emission units required to have HEPA filters that are listed in Attachment 2. Health imposes significant monitoring requirements on HEPA filters in Enclosure 1 of Attachment 2.

This monitoring provision is for Tables 1.2, 1.3, 1.4, 1.5, and 1.6.

2.2 General Standards Complaint Investigations

This subsection specifies the requirements for DOE and contractors to respond to a complaint investigation. Ecology shall first assess the validity of a complaint. Once the validity is established, Ecology will contact DOE for formal investigation.

This monitoring provision is for Table 1.2.

2.3 Measures to Control Fugitive Emissions and Fugitive Dust

This subsection lists specific measures to control fugitive emissions and fugitive dust through pre-job planning and job safety analysis.

This monitoring provision is for Table 1.2.

2.4 Reasonably Available Control Technology

The subsection on Reasonably Available Control Technology (RACT) compliance should be used in conjunction with agency issued policy and/or guidance.

This monitoring provision is for Table 1.2.

2.5 Recordkeeping for Boilers

The subsection on recordkeeping for boilers is self-explanatory.

This monitoring provision is for Table 1.3.

2.6 Steam Generating Units Source Tests

This subsection specifies all source tests for the boilers regulated by NOC 97NM-138. The removal of future 5-year follow-up AOP compliance testing and its justification is also included.

This monitoring provision is for Table 1.3.

2.7 SO_2 Emissions Compliance

There are two tiers of SO_2 emission compliance for Hanford emission units, fuel-oil fired combustion units (Tier 1) and other significant emission units (Tier 2). The calculation model for Tier 1 is described in Section 3.1 (i.e., Model 1).

This monitoring provision is for Tables 1.2, 1.3, 1.4, 1.5, 1.6, and 1.7.

2.8 Visible Emission Enforceability

This subsection is self-explanatory.

This monitoring provision is for Tables 1.2, 1.3, 1.4, and 1.5.

2.9 Sulfur Dioxide Enforceability

No person shall cause or permit the emission of a gas containing sulfur dioxide from any emissions unit in excess of 1,000 ppm of sulfur dioxide on a dry basis and based on the average of any period of sixty consecutive minutes, except for the limited conditions specified in WAC 173-400-40(6).

This monitoring provision is for Tables 1.2, 1.3, 1.4, and 1.5.

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3.0 RECORDKEEPING

WAC 173-401-615(2) requires that the Permittee maintain records of all required monitoring data and support information for 5 years from the date of the monitoring sample, measurement, report, or application. Section 3.1 documents approved emission calculation methods, which are self-explanatory. In addition to these emission calculation methods, calculations methods listed in NOC approval applications are acceptable to the agency for compliance demonstration. These NOC approval applications should be kept as records.

3.1 Emission Calculations

The following section contains emission calculations for SO_2, nitrogen oxides, volatile organic compounds, ammonia, gas cylinders, chemical inventory, air concentrations, and TAPs. In addition to these models the NOC approval applications contains the calculation methods used to estimate SO_2, nitrogen oxides, volatile organic compounds, ammonia, gas cylinders, chemical inventory, air concentrations, and TAPs, as required for the discharge point or project/process being permitted.

3.1.1 MODEL 1 Description: Compliance with 1000 ppm SO_2 @7% O2 Internal Combustion Engines >500 hp SO_2 Emission Calculations

Stoichiometric calculations were done to show emissions for a specific diesel engine (2200 HP, with fuel consumption rate of 99.4 gal/hr) were well below the 1000 ppm SO_2 standard.

theoretical air required (ft^3/lb) = 1710 * (C/12+ H/2 + S/32)

multiply this by fuel consumption rate * fuel density to get ft^3/min

Assumptions: diesel fuel is predominantly $C_{16}H_{24}$

Fuel density = 7.107 lb/gal

Heat content diesel = 140000 BTU/gal

Sulfur (S) concentration of 0.5% by weight

AP-42 emission factors for large Internal Combustion (IC) engines

CO = 0.81 lb/mmBTU

CO_2 = 165 lb/mmBTU

TOC (as CH_4) = 0.9 lb/mmBTU

NO_x (as NO_2) = 3.1 lb/mmBTU

Assuming complete combustion of the fuel, emissions were shown in the calculations below to be less than 250 ppm SO_2 at 7% O_2. Calculations were also done varying the fuel consumption rate. Since the theoretical air required was proportional to the fuel consumption rate, theoretical SO_2 emissions were independent of engine size or fuel consumption rate. Actual SO_2 emissions would be diluted by excess air.

Therefore, as a class, these engines cannot exceed the general standard when using fuel with S concentration < 0.5%.

Stoichiometric Calculations to Estimate SO2 Emissions Normalized to 7% O_2 From Combustion of Diesel #2 Fuel Oil using AP-42 Factors For Large Internal Combustion Engines (> 500 HP)

Assumptions: Diesel #2 Fuel Oil ($C_{16}H_{24}$), 0.5wt% Sulfur; Heat Content = 140000 BTU/gal; Case 1: 2200 HP IC Engine; Fuel consumption rate = 99.4 gal/hr.

$MW_C := 12.01115\frac{gm}{mole}$ $MW_O := 15.9994\frac{gm}{mole}$ $MW_H := 1.0079\frac{gm}{mole}$

$MW_S := 32.064\frac{gm}{mole}$ $MW_N := 14.0067\frac{gm}{mole}$ $P := 1\cdot atm$ $MM := 1\cdot 10^6$

$MW_{fuel} := 16\cdot MW_C + 24\cdot MW_H$ $MW_{fuel} = 216.36\frac{gm}{mole}$

$MW_{SO2} := MW_S + 2\cdot MW_O$ $MW_{SO2} = 64.063\frac{gm}{mole}$

$MW_{Air} := 2\cdot\left(.21\cdot MW_O + .79\cdot MW_N\right)$ $MW_{Air} = 28.85\frac{gm}{mole}$

$MW_{CO} := MW_C + MW_O$ $MW_{CO} = 28.011\frac{gm}{mole}$

$MW_{CO2} := MW_C + 2\cdot MW_O$ $MW_{CO2} = 44.01\frac{gm}{mole}$

$MW_{CH4} := MW_C + 4\cdot MW_H$ $MW_{CH4} = 16.043\frac{gm}{mole}$

$MW_{NO2} := MW_N + 2MW_O$ $MW_{NO2} = 44.013\frac{gm}{mole}$

$S_f := 0.005$ $C_f := 16\cdot\frac{MW_C}{MW_{fuel}}$ $H_f := 24\cdot\frac{MW_H}{MW_{fuel}}$

$V_{th\_air} := \left[1710\cdot\left(\frac{C_f}{12} + \frac{H_f}{2} + \frac{S_f}{32}\right)\right]\frac{ft^3}{lb}$ $V_{th\_air} = 222.424\frac{ft^3}{lb}$

$V_{fuel} := 99.4\cdot\frac{gal}{hr}$ $T_{SC} := 527.67\cdot R$ $T_{SC} = 293.15\,K$

$SO2_{conc} := \frac{71\cdot lb}{1000\cdot gal}$ $R_{gas} := \frac{P\cdot 22.4\cdot liter}{mole\cdot T_{SC}}$ $R_{gas} = 0.076\frac{liter\cdot atm}{mole\cdot K}$

$S_{fuel} := SO2_{conc}\cdot\frac{MW_S}{MW_{SO2}}$ $S_{fuel} = 0.036\frac{lb}{gal}$

$\rho_{fuel} := \frac{S_{fuel}}{.005}$ $\rho_{fuel} = 7.107 \cdot \frac{lb}{gal}$

$Fuel := \frac{V_{fuel} \cdot \rho_{fuel}}{MW_{fuel}}$ $Fuel = 1.481 \cdot 10^{3} \cdot \frac{mole}{hr}$

$S := \frac{V_{fuel} \cdot S_{fuel}}{MW_{S}}$ $S = 49.969 \cdot \frac{mole}{hr}$ $SO2 := S$ $SO2 = 49.969 \cdot \frac{mole}{hr}$

$V_{air} := V_{th\_air} \cdot \rho_{fuel} \cdot V_{fuel}$ $V_{air} = 2.619 \cdot 10^{3} \cdot \frac{ft^3}{min}$

Heat of combustion of fuel reported at 140,000 BTU/gal; however, based on AP-42 factors, results in using more fuel than what was supplied based on the stoichiometry for the combustion of fuel. By trial and error, adjusted the heat of combustion of the fuel so that the remaining amount of uncombusted carbon was essentially "zero."

$H_{c\_fuel} := 138903.34 \frac{BTU}{gal}$ $H_{c\_total} := H_{c\_fuel} \cdot V_{fuel}$ $H_{c\_total} = 1.381 \cdot 10^{7} \cdot \frac{BTU}{hr}$

$CO_{produced} := H_{c\_total} \cdot .81 \cdot \frac{lb}{MM \cdot BTU}$ $CO_{produced} = 11.184 \cdot \frac{lb}{hr}$

$CO := \frac{CO_{produced}}{MW_{CO}}$ $CO = 181.104 \cdot \frac{mole}{hr}$

$CO2_{produced} := H_{c\_total} \cdot 165 \cdot \frac{lb}{MM \cdot BTU}$ $CO2_{produced} = 2.278 \cdot 10^{3} \cdot \frac{lb}{hr}$

$CO2 := \frac{CO2_{produced}}{MW_{CO2}}$ $CO2 = 2.348 \cdot 10^{4} \cdot \frac{mole}{hr}$

$CH4_{produced} := H_{c\_total} \cdot .09 \cdot \frac{lb}{MM \cdot BTU}$ $CH4_{produced} = 1.243 \cdot \frac{lb}{hr}$

$CH4 := \frac{CH4_{produced}}{MW_{CH4}}$ $CH4 = 35.134 \cdot \frac{mole}{hr}$

$NO2_{produced} := H_{c\_total} \cdot 3.1 \cdot \frac{lb}{MM \cdot BTU}$ $NO2_{produced} = 42.802 \cdot \frac{lb}{hr}$

$NO2 := \frac{NO2_{produced}}{MW_{NO2}}$ $NO2 = 441.111 \circ \frac{mole}{hr}$

$H2O := \frac{24 \cdot Fuel - 4 \cdot CH4}{2}$ $H2O = 1.77 \cdot 10^{4} \circ \frac{mole}{hr}$

$Air_{actual} := \frac{P \cdot V_{air}}{R_{gas} \cdot T_{SC}}$ $Air_{actual} = 1.986 \cdot 10^{5} \circ \frac{mole}{hr}$

$O_{actual} := 2 \cdot .21 \cdot Air_{actual}$ $O_{actual} = 8.343 \cdot 10^{4} \circ \frac{mole}{hr}$

$N_{actual} := 2 \cdot .79 \cdot Air_{actual}$ $N_{actual} = 3.138 \cdot 10^{5} \circ \frac{mole}{hr}$

$O_{remaining} := O_{actual} - 2 \cdot SO2 - NO2 - 2 \cdot CO2 - CO - H2O$ $O_{remaining} = 1.804 \cdot 10^{4} \circ \frac{mole}{hr}$

$O_{2\_remaining} := \frac{O_{remaining}}{2}$ $O_{2\_remaining} = 9.022 \cdot 10^{3} \circ \frac{mole}{hr}$

$N_{remaining} := N_{actual} - NO2$ $N_{remaining} = 3.134 \cdot 10^{5} \circ \frac{mole}{hr}$

$N_{2\_remaining} := \frac{N_{remaining}}{2}$ $N_{2\_remaining} = 1.567 \cdot 10^{5} \circ \frac{mole}{hr}$

Verification that remaining carbon is essentially "zero".

$C_{remaining} := 16 \cdot Fuel - CO - CO2 - CH4$ $C_{remaining} = 3.781 \cdot 10^{-4} \circ \frac{mole}{hr}$

Recalling that Mole % = Volume % (for gasses only) one can easily calculate the volume % of the constituents in the exiting gas stream.

$Moles_{total} := O_{2\_remaining} + N_{2\_remaining} + CO + CO2 + SO2 + NO2 + CH4 + H2O$

$Moles_{total} = 2.076 \cdot 10^{5} \circ \frac{mole}{hr}$

Gas calculations are to be done on a dry basis; therefore, water contributions are subtracted.

$Moles_{total\_dry} := Moles_{total} - H2O$ $Moles_{total\_dry} = 1.899 \cdot 10^{5} \circ \frac{mole}{hr}$

$$O2\% := \frac{\left(O_{2\_remaining} \cdot 100\right)}{Moles_{total\_dry}} \qquad O2\% = 4.751$$

$$N2\% := \frac{\left(N_{2\_remaining} \cdot 100\right)}{Moles_{total\_dry}} \qquad N2\% = 82.513$$

$$CH4\% := \frac{CH4 \cdot 100}{Moles_{total\_dry}} \qquad CH4\% = 0.019$$

$$SO2\% := \frac{SO2 \cdot 100}{Moles_{total\_dry}} \qquad SO2\% = 0.026$$

$$NO2\% := \frac{NO2 \cdot 100}{Moles_{total\_dry}} \qquad NO2\% = 0.232$$

$$CO\% := \frac{CO \cdot 100}{Moles_{total\_dry}} \qquad CO\% = 0.095$$

$$CO2\% := \frac{CO2 \cdot 100}{Moles_{total\_dry}} \qquad CO2\% = 12.364$$

Check to see if sum equals 100%

$$SUM_{dry} := O2\% + N2\% + CH4\% + SO2\% + NO2\% + CO\% + CO2\% \qquad SUM_{dry} = 100$$

$$ppm := \frac{1}{1000000} \qquad SO2_{7\%O2} := SO2\% \cdot \left(\frac{14}{21 - O2\%}\right) \qquad SO2_{7\%O2} = 0.023$$

Since SO_2 concentration is already in % divide by 100 to express in ppm

$$SO2_{7\%O2} := \frac{SO2_{7\%O2}}{100} \qquad SO2_{7\%O2} = 226.694 \cdot ppm$$

3.1.2 MODEL 2 Nitrogen Oxides Emission Calculations

MODEL 2B (Engine W) Description: Compliance with 75.5 lbs/hr NO_x (Engine E) or 42 lbs/hr NO_x

$$ER = F * AP_{42} * CF$$

where:

ER = Emission rate for NO_x in lbs/hr

F = Diesel burn rate (gal/hr)

AP_{42} = AP-42 factor (3.1 lbs/mmBTU)

CF = 0.139 mmBTU/gal

Assumptions:

heat of combustion for diesel #2 oil = 140,000 BTU/gal
F = 104.7 gal/hr (Engine E, 2200 hp), manufacturer's specification
F = 90.8 gal/hr (Engine W, 1850 hp), manufacturer's specification
ER (Engine E) = 45.1 lbs/hr
ER (Engine W) = 39.1 lbs/hr

Fuel used divided by hours logged will demonstrate the average fuel consumption rate is below manufacturer's specification

Engine E will be in continuous compliance with the NO_x emission limit of 75.5 lbs/hr

Engine W will be in continuous compliance with the NO_x emission limit of 42 lbs/hr.

3.1.3 MODEL 4 Volatile Organic Compounds Emission Calculations

MODEL 4A Description: Compliance with 50 ppm and 500 ppm VOC

Assumptions: A Total Organic Carbon Analyzer or similar instrument will be used to determine VOC concentrations in the stack effluent using EPA method 25A or an approved alternative. The VOC concentration will be determined in accordance with the frequency identified in the tables.

MODEL 4B Description: Compliance with 0.8 lbs VOC emitted in any hour

VOC emission rate in lbs/hr $= 10 \times [\sum_{i=1 \text{ to } 3} (U_i * RF_i)]$

Where i=1 for organic gases
i=2 for volatile organic vapors/liquids
i=3 for organic liquids

U_i = Maximum Annual Average Hourly Usage Rate (lb/hr) =
(Maximum annual usage, lbs/yr)/(8760 hrs/yr)

RF_i = Release fractions
$RF_1 = 1$ for organic gases
$RF_2 = 0.1$ for volatile organic vapors/liquids
$RF_3 = 10^{-3}$ for organic liquids

Assumptions:

Maximum emission rate in any hour is 10 times the maximum annual average hourly emissions, as stated in NOC approval condition 2.
If usage is not available, U may be estimated by assuming the inventory is used in a year.

3.1.4 MODEL 5 Ammonia Emission Calculations

Description: Compliance with 0.05 lbs/hr NH_3

$$ER = C * S_f * CF$$

where: ER = Emission rate for NH_3 in lbs/hr

C = Concentration of NH_3 in ppm

S_f = Stack flow (Vent & Balance measurements) in cfm

CF = 2.20 E-6 * 1.70 * 0.71 = 2.66 E-6 lb /(ppm*cfm*hr)

Assumptions:

(1) Stack exhausts at ambient temperature
(2) Vent & Balance measurements for average stack flow
(3) Draeger tube measurement for NH_3 (minimum of one per year) during operations will demonstrate NH_3 levels are below the threshold which would be equal to 0.05 lbs/hr
(4) If measurements during peak activities are below threshold, continuous compliance is assumed. For example, at 800 cfm, the concentration of NH_3 must be below 23.5 ppm.

3.1.5 MODEL 6 Emissions from 331C Gas Cylinder Management Process (GCMP)

GCMP emissions will be determined by recording the daily volume and concentration emitted for each cylinder. The volumes and concentrations will be based on the known and recorded pressures and concentrations in the cylinders, or upper-bounding estimates if unknown.

3.1.6 MODEL 7A – Emissions from Use of Chemical Inventory

Emissions:

Emissions from the use of the chemical inventory in the building will be determined as follows:

Use rate x release fraction x (1 - control efficiency).

In addition to chemical use rate, chemical inventory data may be used to estimate emissions. If the inventory information is used, the annual ASILs will be determined assuming the entire inventory is released in a year, and the 24-hour ASILs will be determined assuming the entire inventory is released during 20 days. The above methods and assumptions may be modified with Ecology's concurrence.

3.1.7 MODEL 7B – Air Concentrations for Comparison to ASILs

Total Building Emissions:

Calculate a building's total emissions by summing those due to the use of chemical inventory from Model A and those from additional processes in the building whose emissions are not included in Model A.

Total Building Ambient Air Concentrations

Calculate the air concentrations at the nearest points of unrestricted or uncontrolled public access to the building using the EPA T-Screen or ISCST3 dispersion models and compare them to the ASILs.

3.1.8 MODEL 7C – Emission Calculations for LERF/ETF

Air Emission Concentrations for Comparison to ASILs and SQER

1. Emission concentrations (to compare to ASIL):

$$AC_i = TR_i * FC_i$$

AC_i : air concentration of species i, ug/m^3
TR_i : transfer rate of species i, unitless
FC_i : feed concentration of species i, μg/m^3

Transfer rates vary depending on the species. For acids, bases, and salts, a TR of 1E-12 is given in DOE/RL-92-69. For other species it can be calculated using a variation of Raoult's Law:

$$TR_I = \left[\frac{1/MW_I}{DENSITY_I/MW_I} \right] * \left(\frac{VP_I}{760} \right) * \left[\frac{273/(T + 273)}{22.4} \right] * MW_I$$

TR_i : transfer rate of species i, unitless
MW_i : molecular weight of species i, kg/kgmol
$DENSITY_i$: density of pure liquid species, kg/m^3
VP_i : vapor pressure of pure liquid species i at temperature T, mmHg
T : temperature, °C
Other values are conversion factors

Typical transfer rates: acetone = 1E-03
carbon tetrachloride = 1E-03
butanol = 1E-04
TBP = 1E-05

2. Hourly emission rate (to compare to SQER):

$$ERH_i = AC_i * FLOW * 0.02832 * 2.205 * 60 / 1{,}000{,}000$$

ERH_i : hourly emission rate of species i, lb/hr
AC_i : air concentration of species i, μg/m^3
FLOW : ETF vessel off-gas flowrate = 27,250 ft^3/min
Other values are conversion factors

3. Annual emission rate (to compare to SQER):

$$ERY_i = ERH_i * 24 * 365$$

ERY_i = annual emission rate of species i, lb/yr
Other values are conversion factors.

3.1.9 MODEL 10C Description: VOC Emissions on a Daily Average

Compliance with NSR VOC emission limit on a daily average:

[2 ton x (2000 lb/ton)]/365 = 24[(VOC mg/m^3) x (339.8 m^3/hr) x (lb / 453,593 mg) = VOC (lb/day)

Where:
2 tons/year = WAC 174-400-110 NSR threshold for VOCs
1 year = 365 days
1 day = 24 hours
339.8 m^3/hr = volumetric flow rate
1 lb = 453,593 mg
VOC mg/m^3 = vapor space sampling data from the TWINs database

APPENDIX A: Excerpts from DOE/RL-95-07 Initial AOP Application (as supplemented) Insignificant Emission Units Summary Discussion

Insignificant Emission Unit (IEU) General Requirements

The following limits or standards apply to insignificant emission units and activities on the Hanford Site. Compliance with the standards is required; however, no monitoring is required for IEUs. The applicable requirements are:

IEU Requirement	Standard	Limit	Monitoring/Compliance Method
WAC 173-400-040(1)	Opacity	20 %	None
WAC 173-400-040(2)	Fallout	[a]	None
WAC 173-400-040(3)	Fugitive Emissions	[a]	None
WAC 173-400-040(4)	Odor	[a]	None
WAC 173-400-040(5)	Emissions Detrimental to Persons or Property	[a]	None
WAC 173-400-040(6)	SO_2	1000 ppm[b]	None
WAC 173-400-040(7)	Concealment and Masking	[a]	None
WAC 173-400-040(8)	Fugitive Dust	[a]	None

[a] reasonable precautions and/or best management practices, as specified in the Hanford Site AOP

[b] for applicable sources; units in parts per million on a dry basis, corrected to seven percent oxygen

Facility-wide IEU Processes

There are numerous activities on the Hanford Site that may generate fugitive air emissions. These activities are often associated with construction or facility routine maintenance activities. Specific locations for sources in this category are not listed since these activities involve all areas and a majority of the facilities on the Hanford Site. The activities listed below may require operation of one or more point sources of regulated criteria/hazardous air pollutants in conjunction with the categories listed below. Projects utilizing the functions or categories listed below will be evaluated on a case-by-case basis to determine applicable general requirements, new source review, and the definition of a new source.

Functions or categories associated with fugitive emissions may include but are not limited to the following:

Site Preparation

- Vegetation clearing
- Land leveling, including preparing areas for foundations
- Excavation (e.g., power line trenching and plumbing trench activities)
- Dredging
- Water-truck dust suppression activities

Roofing

- Carpentry
- Concreting
- Coating
- Demolition and/or replacement
- Equipment and area cleaning
- Miscellaneous repair and/or activities

Concreting and Paving

- Construction of foundations, walls, floors, pads, and other structural elements
- Construction of parking areas, roads, and other vehicular areas

Structural Construction

- Building framing -- metal and/or wood
- Welding and cutting torch activities
- Interior construction and installations (e.g., walls, floors, ceilings, counters, and cabinets)
- Installation or removal of floor coverings

Electrical Work

- Interior lighting and power
- Exterior lighting and power, including excavation for wire trench
- Installation of temporary interior and exterior lighting
- Miscellaneous lighting and power activities

Plumbing

- Pipe threading
- Welding, brazing, soldering, or cutting torch activities supporting maintenance
- Acid etching
- Application of protective coatings
- Equipment and area cleaning

Metal Working Activities

- Cutting, grinding, finishing, welding, drilling, machining, and other maintenance activities
- Sheet metal application and/or repair

Heavy Equipment Usage

- Scrapers, bulldozers, snow plows, dump trucks, front end loaders, track hoes, backhoes, graders, cranes, pavers, water trucks, sweepers, rollers, water wagons, rock hauling and processing equipment, cement trucks, and support equipment

Agricultural and Landscaping Activities

- Site preparation
- Revegetation activities
- Application of agricultural and landscaping chemicals
- Application of surface coatings (e.g., rock, gravel, plastics, bark)

Miscellaneous Construction Activities

- Installation of miscellaneous systems or equipment
- Installation and use of portable sanitation facilities
- Equipment and area cleaning
- Fuel trucks and fuel filling operations

Abatement Activities

- Lead abatement positioning/repositioning
- PCB equipment management, abatement, and relocation
- Radiological contamination abatement
- Chemical contamination abatement
- Asbestos abatement methods
- Herbicide/pesticide abatement application

Demolition Activities

- Standard demolition practices and/or equipment

The activities listed above may be conducted in radiological and/or chemically contaminated areas and may be conducted in exhausted greenhouses. Activities conducted in contaminated areas are assessed to determine regulatory agency approvals that may be required prior to commencement or construction of activities. Certain activities conducted in exhausted greenhouses may also be permitted under notice of construction approvals with the State of Washington, Department of Health (WDOH).

The activities or equipment listed above may include the use of fuels for propelling or powering equipment or the use of gasses (e.g., acetylene and oxygen for welding or cutting activities).

Diffuse and Fugitive Radioactive Emission Sources

In accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAP), regulated under 40 Code of Federal Regulations (CFR) 61, Subparts A and H, and WAC 246-247, diffuse and fugitive radioactive emission sources were provided to WDOH in support of the FF-01 license for radioactive air emissions. Diffuse and fugitive sources include radioactive emission sources that are not actively ventilated or are not routinely sampled (e.g., passively ventilated tank vents, vented containers, outdoor surface contamination areas, cracks between cover blocks, etc.). Passively ventilated emissions are considered diffuse in nature because they lack a measurable flow. Diffuse and fugitive emission sources are monitored by the Hanford Site Surface Environmental Surveillance Program and the Near-Facility Monitoring Program, as described in Section 4 of the annual Radionuclide Air Emissions Report. Numerous types of sources of diffuse and fugitive emissions are in and around Hanford Site facilities.

Included in the diffuse and fugitive supplement to the AOP renewal was a list of buildings and structures without filtered ventilation systems and registered stacks and from which radioactive material might enter the ambient air by way of resuspension. The list also includes outdoor sites with dispersible radioactive material. The diffuse and fugitive package was recommended for WDOH inclusion in the AOP renewal statement of basis, consistent with the IEUs provided herein.

Other potential sources of fugitive emissions not specifically identified in the list provided to WDOH are operations and maintenance activities performed at waste tanks in the 200 East and 200 West areas. The WDOH agreed to represent large complexes with multiple diffuse and fugitive sources contained within a fenced boundary as a single consolidated source. The Tank Farms facilities operating on the Hanford Site utilized this agreement and categorized the tank farms as single diffuse and fugitive source.

APPENDIX B: Size/Production Rate/Miscellaneous IEUs

APPENDIX B1

Facility/Facilities: Hanford Site Major Stationary Source

Insignificant Emission Units Based on Size or Production Rate. WAC 173-401-533(2)			
Regulatory Citation WAC 173-401-533	**Description**	**IEU Present? Yes**	**No**
(2)(a)	Operation, loading and unloading of storage tanks and storage vessels, with lids or other appropriate closure and less than two hundred sixty gallon capacity (35 cft), heated only to the minimum extent to avoid solidification if necessary.	x	
(2)(b)	Operation, loading and unloading of storage tanks, not greater than one thousand one hundred gallon capacity, with lids or other appropriate closure, not for use with hazardous air pollutants (HAPs), maximum (max.) vp 550mm Hg.	x	
(2)(c)	Operation, loading and unloading of VOC storage tanks (including gasoline storage tanks), ten thousand gallons capacity or less, with lids or other appropriate closure, vp not greater than 80mm Hg at 21°C.	x	
(2)(d)	Operation, loading and unloading storage of butane, propane, or liquefied petroleum gas (LPG), storage tanks, vessel capacity under forty thousand gallons.	x	
(2)(e)	Combustion source less than five million Btu/hr. (~1965 HP) exclusively using natural gas, butane, propane, and/or LPG.	x	
(2)(f)	Combustion source, less than five hundred thousand Btu/hr. (~196 HP), using any commercial fuel containing less than 0.4% by weight sulfur for coal or less than 1% by weight sulfur for other fuels.	x	
(2)(g)	Combustion source, of less than one million Btu/hr. (~393 HP) if using kerosene, No. 1 or No. 2 fuel oil.	x	
(2)(h)	Combustion source, not greater than five hundred thousand Btu/hr. (~196 Hp) if burning used oil and not greater than four hundred thousand Btu/hr. (~157 HP) if burning waste wood or waste paper.		x
(2)(i)	Welding using not more than one ton per day of welding rod.	x	
(2)(j)	Foundry sand molds, unheated and using binders with less than 0.25% free phenol by sand weight.		x
(2)(k)	"Parylene" coaters using less than five hundred gallons of coating per year.		x

Insignificant Emission Units Based on Size or Production Rate. WAC 173-401-533(2) -- Continued (page 2 of 3)			
(2)(l)	Printing and silk-screening, using less than two gallons/day of any combination of the following: inks, coatings, adhesives, fountain solutions, thinners, retarders, or non-aqueous cleaning solutions.	x	
(2)(m)	Water cooling towers and ponds, not using chromium-based corrosion inhibitors, not used with barometric jets or condensers, not greater than ten thousand gpm, not in direct contact w/ gaseous or liquid process streams containing regulated air pollutants.	x	
(2)(n)	Combustion turbines, of less than 500 HP.	x	
(2)(o)	Batch solvent distillation, not greater than fifty-five gallons batch capacity.		x
(2)(p)	Municipal and industrial water chlorination facilities of not greater than twenty million gallons per day capacity. The exemption does not apply to waste water treatment.	x	
(2)(q)	Surface coating, using less than two gallons per day.	x	
(2)(r)	Space heaters and hot water heaters using natural gas, propane or kerosene and generating less than five million Btu/hr.	x	
(2)(s)(i)	Tanks, vessels, and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids excluding 99% or greater H_2SO_4 or H_3PO_4.	x	
(2)(s)(ii)	Tanks, vessels, and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids excluding 70% or greater HNO_3.	x	
(2)(s)(iii)	Tanks, vessels, and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids excluding 30% or greater HCl.	x	
(2)(s)(iv)	Tanks, vessels, and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids excluding more than one liquid phase where the top phase is more than one percent VOCs.	x	
(2)(t)	Equipment used exclusively to pump, load, unload or store high boiling organic material, material with initial boiling point (IBP) not less than 150°C or vapor pressure (vp) not more than 5mm Hg at 21°C with lids or other appropriate closure.		x
(2)(u)	Smokehouses under twenty square feet.		x
(2)(v)	Milling and grinding activities, using paste-form compounds with less than one percent VOCs.	x	

Insignificant Emission Units Based on Size or Production Rate. WAC 173-401-533(2) -- Continued (page 3 of 3)			
(2)(w)	Rolling, forging, drawing, stamping, shearing, or spinning hot or cold metals.	x	
(2)(x)	Dip coating operations, using materials with less than one percent VOCs.		x
(2)(y)	Surface coating, aqueous solution or suspension containing less than one percent VOCs.	x	
(2)(z)	Cleaning and stripping activities and equipment, using solutions having less than one percent VOCs by weight. On metallic substrates, acid solutions are not considered for listing as insignificant.	x	
(2)(aa)	Storage and handling of water based lubricants for metal working where the organic content of the lubricant is less than ten percent.	x	
(2)(bb)	Municipal and industrial waste water chlorination facilities of not greater than one million gallons per day capacity.		x

Appendix B2 – Miscellaneous IEUs List (Item # 5 of 06-ESD-0029, Hanford Site Insignificant Emission Unit Sources, 12/20/2005)

Miscellaneous Emission Units and Activities Listing (Process Item # 5)
• Chemical or physical analytical laboratory operations or equipment including fume hoods and vacuum pumps regulated as insignificant per WAC 173-401-533(3)(c) (e.g., 338 Building Prototype Engineering Laboratory). • Insecticide, pesticide, or fertilizer spray or broadcast equipment. • Internal combustion engines less than the affected source size threshold (i.e., <= 500 brake horsepower) for the United States Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63 Subpart ZZZZ. This includes attached fuel tanks. • Laboratory testing and quality assurance/control testing equipment used exclusively for chemical or physical analysis, teaching, or experimentation, including non-production bench scale research equipment. • Storage tanks: (A) that do not store substances capable of emitting air contaminants; or (B) with a rated capacity of 1,000 gallons (3,780 liters) or less used for storage of gasoline or diesel fuel; or (C) with a rated capacity of less than 10,000 gallons (38,000 liters) used for storage of volatile organic compounds; or (D) with a rated capacity of less than 40,000 gallons (150,000 liters) used for storage of volatile organic compounds with a true vapor pressure less than 0.01 kPa (0.002 psia). • Storage tanks not regulated under 40 CFR Part 60 Subpart K, Ka, or Kb. • Wipe solvent cleaning. • Equipment maintenance and repair, including off-road equipment. • Instrument functional checks/calibration, maintenance, and repair; including the use of alcohol, gases, or other solvents and fluids. • Groundwater remediation operations. • Solvent cleaning of non-motor vehicle parts • Small industrial vacuum systems that vent outside. • Miscellaneous abrasive blast units not requiring an Order of Approval. • Liquid storage and transfer operations not requiring an NOC. • Firearm training, maintenance, and cleaning. • Hazardous waste worker training and training equipment. • Any source emitting minimal amounts of criteria/hazardous air pollutants, but determined through evaluation not to trigger new source review applicability or portable/temporary notification pursuant to WAC 173-400-110, WAC 173-460-030, or WAC 173-400-035, respectively.

APPENDIX C: Below IEU Threshold -Emission Unit Types

Process Item # 4 Pursuant to WAC 173-401-530(4) and WAC 173-401-53**1**

Structure Identification	Title	Emission Unit Type
350 Building	350 Plant Operations and Maintenance Facility	R&D facilities maintenance and fabrication shop
350-D Building	350-D Oil Storage Facility	Oil storage and waste minimization