NON-RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION APPROVAL ORDER
CONDITIONS AND RESTRICTIONS
DE11NWP-001, REVISION 4

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REGULATORY AUTHORITY

Pursuant to the Washington State Department of Ecology (Ecology) General Regulations for Air Pollution Sources, Chapter 173-400 Washington Administrative Code (WAC), and Controls for New Sources of Toxic Air Pollutants, Chapter 173-460 WAC, Ecology now finds the following:

FINDINGS:

1. The United States Department of Energy proposes to modify their existing facility (Hanford) located in Richland, Washington.
2. A Notice of Construction (NOC) application was submitted on January 7, 2016. The application was found complete on January 15, 2016.
3. Existent operations of 241-AY and 241-AZ Tank Farms ventilation associated with the NOC application are permitted under NOC Order DE11NWP-001, Revision 3, dated January 5, 2016.
4. Hanford is an existing major stationary source.
5. The original proposed project consisted of replacement of primary tank ventilation exhaust systems (ventilation systems) for each of the 241-AP and 241-SY tank farms, and component upgrades or modifications to the existing ventilation system for 241-AY/AZ tank farm. Activities included installation of two mixer pumps per tank farm during Waste Feed Delivery operations. The tank farm ventilation systems will be constructed, installed, tested, and fully operational in three phases, beginning with 241-AP, to be followed by 241-SY and 241-AY/AZ, respectively. The 241-AY/AZ phase was completed under NOC Order DE11NWP-001, Revision 2.
6. Emissions of criteria pollutants from the proposed project are below the Prevention of Significant Deterioration Significant Emission Rates.
7. Hanford is located in a Class II Area designated as “attainment” for the purpose of NOC permitting for all pollutants.
8. Criteria air pollutant emission increases from the proposed project are below the *de minimis* levels in WAC 173-400-110(5)(d) with the exception of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) and identified Toxic Air Pollutants (TAPs).
9. The proposed project anticipates emission of dimethyl mercury (Chemical Abstract Services [CAS] # 593-74-8), resulting in an ambient consequence above its Acceptable Source Impact Levels (ASIL) of WAC 173-460-150. Emissions of a TAP with ambient consequences above its ASIL require approval of a Second Tier Petition [WAC 173-460-090]. Second Tier analysis indicated exhauster emissions are permissible as they fall within the risk limits defined in WAC 173-460-090(7).
10. The proposed project anticipates an unabated emission of chromium hexavalent: soluble, except chromic trioxide (CAS # 7440-47-3), resulting in an ambient consequence above

its ASIL of WAC 173-460-150. The abated concentration is below the ASIL and does not need further evaluation as required by WAC 173-460-150.

11. As proposed, the project would emit 31 TAPs exceeding small quantity emission rates (SQERs) of WAC 173-460-150. All TAPs met the unabated ASILs except for dimethyl mercury (see finding 9, above) and chromium hexavalent: soluble, except chromic trioxide (see finding 10, above). Chromium hexavalent: soluble, except chromic trioxide meets the abated ASIL.
12. With the leak from the main AY-102 tank in the annulus space between the main tank and the secondary containment system, the emissions from the 241-AY/AZ ventilation system and the annulus ventilation system are from the same source term. The annulus emission rate represents a small fraction of the total AY-102 tank emission rate due to the annulus containing only a small fraction of the waste (the portion coming from the leak in the main tank).
13. Tank AY-102 will have active ventilation from either the 241-AY/AZ existing exhauster system or from the AY-102 portable exhauster. When the AY-102 portable exhauster is providing ventilation of the AY-102 Tank, the tank will be isolated from the existing 241-AY/AZ exhauster system.
14. Best Available Control Technology (BACT) and Toxics Best Available Control Technology (tBACT) for:
    a. The 241-SY and 241-AP tank ventilation systems have each been determined to be the operating primary tank ventilation exhauster system for SY and AP tank farms, respectively, not exceeding the maximum ventilation rates in Table 5each with a moisture de-entrainer, heater, pre-filters, and a two-stage High Efficiency Particulate Air (HEPA) filtration system in service in each treatment train.
    b. The 241-AY/AZ ventilation system has been determined to be the operating tank ventilation system not exceeding the maximum ventilation rate in Table 5 with a condenser, heater, and two-stage HEPA filtration system in service of the treatment train.
    c. The AY-102 annulus ventilation system has been determined to be the operating annulus ventilation system not exceeding the maximum ventilation rate in Table 5 with a two stage HEPA filtration system in service in the treatment train.
    d. The AY-102 portable ventilation system has been determined to be the operating exhauster system not exceeding the maximum ventilation rate in Table 5 with a moisture de-entrainer, heater, pre-filter, and a two-stage HEPA filtration system in service.
15. The proposed project, if constructed and operated as herein required, will provide BACT and tBACT.
16. The proposed project, if operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC and Chapter 173-460 WAC, and the operation thereof will not result in ambient air quality standards being exceeded.
17. The proposed project will allow for the operation of a portable exhauster to support retrieval operations of Tank AY-102.
18. The project will have no significant impact on air quality.

THEREFORE, IT IS ORDERED that the project as described in said Notice of Construction application, and as detailed in emissions estimates and impact and control technology assessments submitted to the Washington State Department of Ecology in reference thereto, is approved for construction, installation, and operation, provided compliance with the conditions and restrictions described below. This Order shall be identified as NOC ORDER **DE11NWP-001, Rev 4**.

1.0 APPROVAL CONDITIONS

1.1 Emission Limits

1.1.1 Visible emissions from each stack shall not exceed five (5) percent opacity.

1.1.2 Volatile organic compound emissions shall not exceed the amounts listed in Table 1 from the 241-AP, 241-SY, and 241-AY/AZ ventilations systems. As the ventilation systems become fully operational, the volatile organic emissions shall not be exceeded from the respective exhauster systems.

Table 1: Volatile Organic Compound Emissions

Tank Farm(s)	Maximum Amount (tons per year)
Total for the 241-AP, 241-SY and 241-AY/AZ ventilations systems	10.1
241-SY	3.2
241-AP	3.6
241-AY/AZ combined ventilation system (the 241-AY/AZ combined ventilation system is comprised of the initial AY/AZ exhauster system and the AY-102 annulus system)	3.3

1.1.3 All TAPs, as submitted in the Permittee's Notice of Construction Application, as found in Table 6 of this Order, shall be below their respective ASIL or approved through a Second Tier review.

1.1.4 Ammonia emissions shall not exceed the amounts listed in Table 2 from the 241-AP, 241-SY, and 241-AY/AZ ventilation systems. As the ventilation systems become fully operational, the ammonia emissions shall not be exceeded from the respective exhauster

systems. Emissions of ammonia are based upon the operation of two tanks being mixed per tank farm.

Table 2: Ammonia Emissions

Tank Farm(s)	Maximum Amount (pounds per 24 hours)
Total for the 241-AP, 241-SY and 241-AY/AZ ventilations systems	59.9
241-SY	19.2
241-AP	21.1
241-AY/AZ combined ventilation system (the 241-AY/AZ combined ventilation system is comprised of the initial AY/AZ exhauster system and the AY-102 annulus system)	19.6

1.1.5 Dimethyl mercury emissions shall not exceed the amounts listed in Table 3 from the 241-AP, 241-SY, and 241-AY/AZ ventilation systems. As the ventilation systems become fully operational, the dimethyl mercury emissions shall not be exceeded from the respective exhauster systems.

Table 3: Dimethyl Mercury Emissions

Tank Farm(s)	Maximum Amount (pounds per 24 hours)
Total for the 241-AP, 241-SY and 241-AY/AZ ventilations systems	3.23E-3
241-SY	1.04E-3
241-AP	1.14E-3
241-AY/AZ combined ventilation system (the 241-AY/AZ combined ventilation system is comprised of the initial AY/AZ exhauster system and the AY-102 annulus system)	1.06E-3

1.1.6 N-Nitrosodimethylamine emissions shall not exceed the amounts listed in Table 4 from the 241-AP, 241-SY, and 241-AY/AZ ventilation systems. As the ventilation systems

become fully operational, the n-Nitrosodimethylamine emissions shall not be exceeded from the respective exhauster systems.

Table 4: n-Nitrosodimethylamine Emissions

Tank Farm(s)	Maximum Amount (pounds per year)
Total for the 241-AP, 241-SY and 241-AY/AZ ventilations systems	199.9
241-SY	61.3
241-AP	74.6
241-AY/AZ combined ventilation system (the 241-AY/AZ combined ventilation system is comprised of the initial AY/AZ exhauster system and the AY-102 annulus system)	64

1.2 Operational Limits

1.2.1 Normal Double-Shell Tank (DST) primary tank ventilation system flow rates during Normal Operations (e.g. storage, retrieval, and sampling) are shown in Table 5. The maximum flow rates for the DST ventilation systems covered by this Order shall not exceed ventilation rates for Maximum Operations (Table 5).

Table 5: Ventilation Rates

Tank Farm(s)	Normal Operations (scfm)	Maximum Operations (scfm)
241-SY	1,360	2,500
241-AP (Upgraded System)	1,500	3,000
241-AP (Existing System)	850	1,000
241-AY/AZ	850	1,000
AY-102 Annulus	1,000	3,800
AY-102 Portable	1,600	3,000

scfm = standard cubic foot per minute, 1 atmosphere pressure at 20°C

1.2.2 At no time shall more than two of the three tanks in the 241-SY tank farm (241-SY-101 through 241-SY-103) be under active mixing and Waste Feed Delivery operations. Waste Feed Delivery operations are defined as those which mix and transfer waste.

1.2.3 At no time shall more than two of the eight tanks in the 241-AP Tank Farm (241-AP-101 through 241-AP-108) be under active mixing and Waste Feed Delivery operations.

1.2.4 At no time shall more than two of the four tanks within the 241-AY and 241-AZ Tank Farms [241-AY-101, 241-AY-102, 241-AZ-101, and 241-AZ-102] be under active mixing and Waste Feed Delivery operations.

1.2.5 The ventilation systems shall be operated in compliance with tBACT controls in Finding 14 and 15.

1.3 Compliance Demonstration

1.3.1 Compliance with Approval Condition 1.1.1 shall be met by Tier 3 Visible Emissions Survey requirements of the Hanford Air Operating Permit.

1.3.2 Should visible emissions be observed which are not solely attributable to water condensation, compliance with Approval Condition 1.1.1 shall be met by performing an opacity determination utilizing 40 Code of Federal Regulations (CFR) Part 60, Appendix A, Method 9, providing that such determination shall not place the visible emission observer in hazard greater than that identified for the general worker.

1.3.3 During all activities, ***EXCEPT***, solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations to the Hanford Waste Treatment and Immobilization Plant (WTP).

1.3.3.1 Compliance with Approval Condition 1.1.2 shall be demonstrated by VOC stack sampling as described in Section 3.0, and applying these concentration readings with contemporaneous stack flow rate and temperatures to determine mass release rate of VOCs in pounds per year.

1.3.3.2 Compliance with Approval Condition 1.1.3 shall be demonstrated by stack sampling as described in Section 3.0 for TAPs, and applying these concentration readings with contemporaneous stack flow rate and temperatures to determine the mass release rate of these TAPs in pounds and their respective release rate averaging times in WAC 173-460-150.

1.3.3.3 Compliance with Approval Condition 1.1.4 shall be demonstrated by stack sampling as described in Section 3.0 for ammonia, and applying these concentration readings with contemporaneous stack flow rate and temperatures to determine daily release rate of ammonia.

1.3.4 During solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations to the Hanford Waste Treatment and Immobilization Plant (WTP) operations compliance with Approval Conditions, 1.1.2, 1.1.3, 1.1.4, 1.1.5, and 1.1.6 shall be demonstrated by monitoring emissions of all TAP emission limits as described in Section 3.5.

1.3.5 Compliance with Approval Condition 1.2.1 shall be demonstrated by stack gas flow and temperature measurement annually.

1.3.6 Compliance with Approval Conditions 1.2.2, 1.2.3 and 1.2.4 shall each be demonstrated through operational record keeping provisions of Section 2.4.4.

1.3.7 Compliance with Approval Condition 1.2.5 shall be met by operating the exhauster systems in accordance with tBACT emission controls found for this project.

2.0 NOTIFICATIONS AND SUBMITTALS

2.1 Addressing

Any required notifications and submittals required under these Approval Conditions shall be sent to:

Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354

2.2 Schedule

A schedule of installation and operation activities for these exhauster systems shall be submitted within thirty (30) days of issuance of this order. Ecology shall be notified 30 days prior to the starting of construction of each tank farm ventilation system, unless construction starts within 30-days of the effective date of Approval Order, in which case notification will be accomplished as soon as possible, but before actual construction starts. This notification can be performed electronically (e.g. email).

2.3 Operational Notice

Notification will be made at least ten (10) days prior to initial testing. The initial testing period may include periodic alternate operation of either the old exhauster or the new exhausters covered by this order. Notification will be made at least ten (10) days prior to the new ventilations systems becoming fully operational.

2.4 Recordkeeping

Specific records shall be kept on the Hanford Site by the Permittee and made available for inspection by Ecology upon request. The records shall be organized in a readily accessible manner and cover a minimum of the most recent sixty (60) month period. The records to be kept shall include the following:

1. Records of calibration of stack gas flow rate and temperature measurement devices.
2. Exhauster system stack flow rates and temperatures records.
3. Emission monitoring results required in Section 3.0.
4. Supporting data and calculations to demonstrate compliance as detailed in Approval Conditions 1.3.3, 1.3.4, 1.3.5, and 1.3.6.
5. All monitoring and operations records required to operate and maintain the emission control equipment which implements tBACT as described in Section 1.0.

6. Laboratory analysis result summaries taken in accordance with these approval conditions of any samples undertaken after the effective date of this ORDER from 241-AP, 241-SY or 241-AY/AZ tank farm tank headspaces or primary tank ventilation system exhaust which are examined for organic species or other TAPS.
7. Waste Feed Delivery operations will be recorded into operational records sufficient to determine the onset and cessation of such operations for each tank subject to this Order.

2.5 Reporting

Results of baseline emission assessments conducted pursuant to Section 3.1 shall be submitted to Ecology within ninety (90) days of completion of such assessment.

Identification of any TAP not previously identified within the Notice of Construction Application emissions estimate shall be submitted to Ecology within ninety (90) days of completion of laboratory analyses which verify emissions of that toxic air pollutant from the project.

Identification of any exceedance of Condition 1.1 Emission Limits shall be submitted to Ecology within ninety (90) days of identification.

Visible emission surveys, conducted pursuant to Compliance Demonstration requirement 1.3.2, shall be submitted to Ecology within thirty (30) days of completion of the survey with an assessment of the cause of visible emissions and a report of the maintenance conducted to maintain the subject exhaust system's tBACT operations.

3.0 EMISSION MONITORING

The following sampling and monitoring are required in order to verify emissions estimates and compliance with Section 1.3, above. The term 'each exhauster system,' herein, shall mean each primary tank ventilation exhauster system within the 241-AP Tank Farm, 241-SY Tank Farm, and 241-AY/AZ Tank Farms.

3.1 Baseline Assessment

All baseline assessments shall be conducted within ninety (90) days after commencement of operations of each exhauster system.

3.1.1 Ammonia Baseline

Ammonia stack concentrations shall be sampled or measured a minimum of three times. Ammonia sampling and analysis will be in accord with approved alternative sampling procedures including the use of Draeger tubes or direct reading instruments to measure stack gas concentration of ammonia providing such devices are spanned to appropriately measure the stack gas ammonia concentration. Stack flow rate and temperature will be applied with the ammonia stack gas concentration to report ammonia emission in terms of pounds per day.

3.1.2 Dimethyl Mercury Baseline

Dimethyl mercury sampling and analysis will be in accord with the United States Environmental Protection Agency (EPA) approved procedures for each exhauster system.

3.2 VOC Emission Assessment

VOC emissions shall be assessed annually in accord with EPA approved procedures for each exhauster system.

3.3 TAPs Emission Assessment

Permittee will develop and implement an annual sampling and analysis plan (SAP) for each exhauster system. Each SAP shall address the emission of a minimum of the three TAPs with the highest potential ambient concentration relative to their ASILs of WAC 173-460-150 in addition to dimethyl mercury. The TAPs addressed in the SAP shall be identified from Table 6 and based upon best engineering judgment and most current tank content data. Analytical methods for the analyses shall be the EPA, Occupational Safety and Health Administration (OSHA), or National Institute for Occupational Safety and Health (NIOSH) approved, or by approved equivalent method.

3.4 Ammonia Emission Assessment

In order to maintain reasonable assurance of continued compliance with emission limitations from these exhauster systems, quarterly assessment of ammonia stack emissions will be conducted according to Section 3.1.1. A minimum of three samples or measurements shall be taken each quarter to assess these emissions.

3.5 Ammonia Monitoring as Indicator Compound for TAPs During Solids Mixing, Disturbing Bulk Tank Solids, Removal of Enough Supernatant to Potentially Create a Gas Release Event, or Waste Feed Delivery Operations to the WTP

Ammonia shall be monitored as an indicator for compliance with TAP emission limits during solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations to the WTP as it can be measured near real time, is readily emitted by all tank farm exhausters and the rate of ammonia release is expected to change (increase) with tank waste solids disturbances. A maximum concentration of ammonia in part per million (ppm) by volume of ammonia emitted will be used as an indicator for compliance with release rates of TAPs. The ppm value was calculated for each exhauster from the release rate of ammonia in the application. Table 6 lists the maximum allowable ammonia reading in ppm for the exhausters in the AY/AZ and AP tank farms during solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations.

Ecology must be notified within 24 hours of any reading exceeding Table 6 values. This notification can be performed electronically (e.g. email) and shall include, at a minimum, the reading(s) in exceedance, the exhauster system involved, and the elapsed time between compliant readings as discussed in Section 3.5.1.

3.5.1 Exceedance of Table 6 Values

If stack effluent readings exceed Table 6 values, tank operations (not ventilation) shall cease in a safe controlled manner. Tank operations may resume when stack effluent readings confirm that cumulative emissions will not exceed time weighted average emissions identified in Table 6. The initial start time in calculating the cumulative time weighted average emissions shall be the time of collection of the effluent reading that exceeded Table 6 values.

3.5.2 Adjustment of Ammonia Emission Limits

The establishment of the ammonia concentration limit in Table 6 was calculated from the best currently available data on tank waste characteristics and engineering judgment on actual tank emission activity compared to theoretical tank emission activity. To confirm and then adjust the emission limits as actual performance data is collected during solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations, a method of updating the limits is established in the following sections.

3.5.2.1 During the start of tank activities that include solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations; the exhauster shall be sampled for, at a minimum, dimethyl mercury, n-Nitrosodimethylamine, and ammonia. All samples collection activities will follow EPA approved procedures for each exhauster system or submission with subsequent approval by Ecology of an alternative procedure

3.5.2.1.1 Ammonia samples, at a minimum, will be collected at the start of the dimethyl mercury sample collection, mid-way through the dimethyl mercury sample collection, and at the end of the dimethyl mercury sample collection.

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

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

3.5.2.2 The permittee will evaluate the data to determine

3.5.2.2.1 If ammonia, dimethylmercury and n-Nitrosodimethlyamine have remained below permit conditions and

3.5.2.2.2 If ammonia limits provided sufficient indicator for emissions of other toxic air pollutants.

3.5.2.3 If the sampled ratio would result in an increased emission limit in Table 6, the permittee will need to specifically request for the increased emission limit to be entered into Table 6 (informal request is acceptable). The new emission limit will be effective on the date entered in Table 6 in the ‘Update Date’ column.

3.5.2.4 If the sampled ratio results in a decrease emission limit in Table 6, the new limit will automatically be entered into Table 6. The new emission limit will be effective on the date entered in Table 6 in the ‘Update Date’ column.

3.5.2.5 The permittee will be notified of the new emission limit and sent an electronic copy of the permit. Ecology will also post on the Nuclear Waste Programs web page a copy of the permit with the latest updated Table 6.

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Table 6: Ammonia Concentration Limits (ppm)					
Update Date	241-AY/AZ Exhauster (1,000 scfm)	241-AY-102 Portable Exhauster (3,000 scfm)	241-AP Exhauster Existing System (1,000 scfm)	241-AP Exhauster Upgraded System (3,000 scfm)	241-SY Exhauster (2,500 scfm)
Effective Date	285	95	285	100	110

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3.5.3 Reading Collection Frequency in Tanks Undergoing Solids Mixing, Disturbing Bulk Tank Solids, Removal of Enough Supernatant to Potentially Create a Gas Release Event, or Waste Feed Delivery Operations to the WTP

Stack effluent readings of ammonia (as a surrogate compound) in ppm will be collected at least hourly during solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations to the WTP. The collected ppm reading will be recorded along with, at a minimum, the date and time of reading collection and activity type occurring in the tank during reading collection (e.g., pumping, sluicing, etc.).

3.5.3.1 A reduction in frequency of ammonia readings is allowed when the conditions below are met. Any frequency reduction will be reset to one hour reading collection when the tank activities change (e.g. from pumping to sluicing, or sluicing to pumping, sluicing to extended reach sluicing, etc…) or a reading above Table 6 values is recorded.

3.5.3.2 Upon collection of 100 representative readings (readings collected must have occurred during the activity being evaluated in for reading frequency reduction) and at least five (5) working days of reading collection.

3.5.3.3 The permittee can request a reading frequency reduction by submitting to Ecology (electronic submittal is acceptable) all of the readings and calculations used. Ecology will review the submission and electronically notify the permittee of their decision within five (5) working days, unless Ecology notifies the permittee of additional time needed to complete the review. The permittee must have Ecology's approval before reducing reading frequency.

3.5.3.4 Reading frequency relief will occur in two steps. The first step is reducing reading collection from one hour to four hours. The second step is reducing reading collection from four hours to eight hours. Each relief step must independently meet condition 3.5.3.2 and 3.5.3.3.

3.5.4 Reading Collection Frequency in Receiver Tanks

When tanks are acting as receiver tanks for solids mixing, disturbing bulk tank solids, removal of enough supernatant to potentially create a gas release event, or Waste Feed Delivery operations or providing supernatant for sluicing activities in other tanks, the reading frequency will start at 4 hours. Relief to 8 hour reading frequency following the requirements of 3.5.3.2 and 3.5.3.3 is allowed.

3.5.4.1 Changes in active mixing, retrieval, or Waste Feed Delivery operations in Tanks sending to the AP Farm will cause the reading frequency to reset to 4 hour intervals.

3.5.4.2 The permittee can request from Ecology relief of the AP Farm reading frequency reset when enough data exists to support exhauster emissions remain consistent regardless of the activities in active mixing, retrieval, or Waste Feed Delivery operations from the feed tanks.

4.0 APPROVAL ORDER AND RESTRICTIONS

Operation of the subject primary tank ventilation systems is intended for the storage, treatment, sampling, and Waste Feed Delivery of waste contained in the tanks as described in the NOC application. For the purposes of this Authorization, "Waste Feed Delivery" includes mixing and pumping as necessary and sufficient for transfer of wastes to or from the subject tank. Waste Feed Delivery operations may encompass waste sampling activity but such sampling shall not, in and of itself, be deemed the basis for identifying operations as Waste Feed Delivery operations.

Approved TAP emissions per ventilation system are detailed in Table 7 for the 241-SY ventilation system, Table 8 for the 241-AP ventilation system, and Table 9 for the 241-AY/AZ ventilation system.

5.0 GENERAL CONDITIONS

All plans, specifications, and other information submitted to the Department of Ecology relative to this project and any authorizations or approvals or denials in relation thereto shall be incorporated herein and made a part thereof.

5.1 Availability of Order and O&M Manual

Legible copies of this Order and the O&M manual shall be available to employees in direct operation of the tank farm exhaust systems, and be available for review upon request by Ecology.

5.2 Registration Fees

The applicant will pay the required registration fees within the deadline date specified on the invoice from Ecology.

5.3 Discontinuing Construction and/or Operations

It shall be grounds for rescission of this approval if physical construction and/or operation is discontinued for a period of eighteen (18) months or more. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.

5.4 Compliance Assurance Access

Access to the source by representatives of Ecology or the EPA shall be permitted upon request. Failure to allow such 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 Approval Order.

5.5 Equipment Operation

Operation of the tank farm ventilation system and related equipment shall be conducted in compliance with all data and specifications submitted as part of the NOC application and in accordance with the O&M manual, unless otherwise approved in writing by Ecology.

5.6 Activities Inconsistent with the NOC Application and this Approval Order

Any activity undertaken by the permittee or others, in a manner that is inconsistent with the NOC application and this determination, shall be subject to Ecology enforcement under applicable regulations.

5.7 Obligations Under Other Laws or Regulations

Nothing in this Approval Order shall be construed to relieve the permittee of its obligations under any local, state, or federal laws or regulations.

5.8 Modifications

Any modifications to the tank farm ventilation system's operating and maintenance procedures, contrary to information in the NOC application, shall be reported to Ecology at least 60 days before such modification. Such modification may require a new or amended NOC Approval Order.

YOUR RIGHT TO APPEAL

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

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

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

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

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

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

1. Violation of any terms or conditions of this authorization.
2. Obtaining this authorization by misrepresentation, or failure to fully disclose all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provisions of this authorization to any circumstance, is held invalid, the

application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

The New Source Review Fee has been assessed according to WAC 173-455. No approval of a permit or service for any activity covered in this Order will be valid until the required fee is paid in full.

The effective date of this authorization shall be the signature date of the ORDER. All references to procedures or test methods shall be to those in effect as of the effective date of this ORDER.

DATED at Richland, Washington, this XXst day of December, 201X.

REVIEWED AND PREPARED BY:

Philip M. Gent, PE

APPROVED BY:

TBD

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2 **Table 7: Toxic Air Pollutants from the 241-SY Ventilation System**
3 **(DE11NWP-001, Rev. 4)**

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	SY Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
71-55-6	1,1,1-Trichloroethane	24-hr	9.77E-07	4.98E-05	9.49E-03	7.28E-05
79-34-5	1,1,2,2-Tetrachloroethane	Year	1.08E-05	5.50E-04	3.83E+01	4.15E-05
79-00-5	1,1,2-Trichloroethane	Year	8.57E-06	4.37E-04	3.04E+01	3.30E-05
75-34-3	1,1-Dichloroethane	Year	3.94E-07	2.01E-05	1.40E+00	1.52E-06
75-35-4	1,1-Dichloroethylene	24-hr	4.53E-05	2.31E-03	4.40E-01	3.37E-03
57-14-7	1,1-Dimethylhydrazine	24-hr	2.52E-08	1.29E-06	2.45E-04	1.88E-06
106-93-4	1,2-Dibromoethane	Year	1.15E-06	5.89E-05	4.09E+00	4.44E-06
107-06-2	1,2-Dichloroethane	Year	2.36E-05	1.20E-03	8.37E+01	9.08E-05
78-87-5	1,2-Dichloropropane	Year	6.93E-07	3.53E-05	2.46E+00	2.66E-06
106-88-7	1,2-Epoxybutane	24-hr	5.85E-07	2.98E-05	5.69E-03	4.36E-05
106-99-0	1,3-Butadiene	Year	2.89E-06	1.47E-04	1.02E+01	1.11E-05
106-46-7	1,4-Dichlorobenzene	Year	9.00E-07	4.59E-05	3.19E+00	3.46E-06
123-91-1	1,4-Dioxane	Year	1.02E-05	5.19E-04	3.61E+01	3.92E-05
75-68-3	1-Chloro-1,1-difluoroethane	24-hr	1.57E-05	8.00E-04	1.52E-01	1.17E-03
95-48-7M	2-Methylphenol	24-hr	4.12E-07	2.10E-05	4.01E-03	3.07E-05
79-46-9M	2-Nitropropane	24-hr	2.77E-06	1.42E-04	2.70E-02	2.07E-04
108-39-4	3-Methylphenol	24-hr	6.87E-08	3.50E-06	6.67E-04	5.11E-06
75-07-0	Acetaldehyde	Year	5.95E-05	3.03E-03	2.11E+02	2.29E-04
60-35-5	Acetamide	Year	8.77E-08	4.47E-06	3.11E-01	3.37E-07
75-05-8	Acetonitrile	Year	5.55E-05	2.83E-03	1.97E+02	2.13E-04
107-02-8	Acrolein	24-hr	4.32E-08	2.20E-06	4.20E-04	3.22E-06
79-10-7	Acrylic Acid	24-hr	9.44E-06	4.81E-04	9.17E-02	7.03E-04
107-13-1M	Acrylonitrile	Year	1.78E-07	9.10E-06	6.33E-01	6.86E-07

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	SY Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
107-05-1	Allyl Chloride	Year	1.48E-07	7.53E-06	5.24E-01	5.68E-07
7664-41-7	Ammonia	24-hr	1.98E-03	1.01E-01	1.92E+01	1.47E-01
7440-38-2	Arsenic & Inorganic Arsenic Compounds	Year	4.75E-10	2.42E-08	1.68E-03	1.83E-09
71-43-2	Benzene	Year	2.36E-05	1.20E-03	8.37E+01	9.08E-05
100-44-7	Benzyl Chloride	Year	1.94E-07	9.91E-06	6.89E-01	7.47E-07
7440-41-7	Beryllium & Compounds (NOS)	Year	4.76E-08	2.43E-06	1.69E-01	1.83E-07
75-25-2	Bromoform	Year	1.27E-07	6.47E-06	4.50E-01	4.88E-07
25013-16-5	Butylated hydroxyanisole	Year	2.06E-08	1.05E-06	7.31E-02	7.93E-08
7440-43-9	Cadmium & Compounds	Year	2.38E-10	1.21E-08	8.44E-04	9.15E-10
75-15-0	Carbon disulfide	24-hr	5.80E-06	2.96E-04	5.64E-02	4.32E-04
630-08-0	Carbon monoxide	1-hr	5.40E-04	2.76E-02	2.19E-01	5.15E-01
56-23-5	Carbon Tetrachloride	Year	2.38E-05	1.21E-03	8.42E+01	9.14E-05
108-90-7	Chlorobenzene	24-hr	7.24E-06	3.69E-04	7.03E-02	5.39E-04
75-45-6	Chlorodifluoromethane	24-hr	1.45E-05	7.38E-04	1.41E-01	1.08E-03
67-66-3	Chloroform	Year	2.38E-05	1.21E-03	8.42E+01	9.14E-05
7440-47-3	Chromium Hexavalent: Soluble, except Chromic Trioxide	Year	7.28E-10	3.71E-08	2.58E-03	2.80E-09
7440-48-4	Cobalt	24-hr	9.50E-07	4.84E-05	9.23E-03	7.07E-05
7440-50-8	Copper & Compounds	1-hr	4.76E-07	2.43E-05	1.93E-04	4.54E-04
98-82-8	Cumene	24-hr	1.02E-06	5.20E-05	9.90E-03	7.59E-05
110-82-7	Cyclohexane	24-hr	2.29E-05	1.17E-03	2.23E-01	1.71E-03
117-81-7	Di(2-ethylhexyl)phthalate	Year	1.08E-08	5.51E-07	3.83E-02	4.16E-08
75-09-2	Dichloromethane	Year	1.61E-04	8.22E-03	5.72E+02	6.20E-04

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	SY Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
593-74-8	Dimethyl Mercury	24-hr	1.07E-07	5.44E-06	1.04E-03	7.94E-06
75-00-3	Ethyl Chloride	24-hr	4.15E-06	2.12E-04	4.03E-02	3.09E-04
100-41-4	Ethylbenzene	Year	2.05E-05	1.04E-03	7.25E+01	7.87E-05
111-15-9	Ethylene glycol monoethyl ether acetate	24-hr	2.20E-06	1.12E-04	2.13E-02	1.64E-04
75-21-8	Ethylene oxide	Year	1.12E-07	5.72E-06	3.97E-01	4.31E-07
50-00-0	Formaldehyde	Year	3.41E-07	1.74E-05	1.21E+00	1.31E-06
87-68-3	Hexachlorobutadiene	Year	1.68E-05	8.58E-04	5.97E+01	6.47E-05
67-72-1	Hexachloroethane	Year	2.44E-05	1.24E-03	8.65E+01	9.38E-05
74-90-8	Hydrogen Cyanide	24-hr	8.25E-08	4.21E-06	8.01E-04	6.14E-06
67-63-0	Isopropyl Alcohol	1-hr	4.89E-05	2.49E-03	1.98E-02	4.66E-02
7439-92-1	Lead and compounds (NOS)	Year	4.75E-10	2.42E-08	1.68E-03	1.83E-09
7439-96-5	Manganese & Compounds	24-hr	4.75E-10	2.42E-08	4.61E-06	3.54E-08
7439-97-6	Mercury, Elemental	24-hr	2.88E-07	1.47E-05	2.80E-03	2.14E-05
67-56-1	Methyl Alcohol	24-hr	1.03E-03	5.26E-02	1.00E+01	7.67E-02
74-83-9	Methyl Bromide	24-hr	9.30E-07	4.74E-05	9.03E-03	6.92E-05
74-87-3	Methyl Chloride	24-hr	3.24E-06	1.65E-04	3.15E-02	2.41E-04
78-93-3	Methyl Ethyl Ketone	24-hr	1.39E-04	7.09E-03	1.35E+00	1.03E-02
108-10-1	Methyl Isobutyl Ketone	24-hr	4.01E-05	2.05E-03	3.90E-01	2.99E-03
624-83-9	Methyl Isocyanate	24-hr	2.56E-08	1.31E-06	2.49E-04	1.91E-06
108-38-3M	m-Xylene	24-hr	1.37E-05	6.96E-04	1.33E-01	1.02E-03
91-20-3M	Naphthalene	Year	1.88E-07	9.60E-06	6.68E-01	7.24E-07
110-54-3	n-Hexane	24-hr	7.48E-05	3.81E-03	7.27E-01	5.57E-03
10102-44-0	Nitrogen dioxide	1-hr	7.99E-04	4.08E-02	3.23E-01	7.61E-01
55-18-5	n-Nitrosodiethylamine	Year	2.81E-08	1.43E-06	9.96E-02	1.08E-07

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	SY Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
62-75-9	n-Nitrosodimethylamine	Year	3.83457E-05	8.82E-04	6.13E+01	6.65E-05
924-16-3	n-Nitroso-di-n-butylamine	Year	2.81E-08	1.43E-06	9.96E-02	1.08E-07
621-64-7	n-Nitrosodi-n-propylamine	Year	2.81E-08	1.43E-06	9.96E-02	1.08E-07
59-89-2	n-Nitrosomorpholine	Year	1.30E-07	6.62E-06	4.60E-01	4.99E-07
10595-95-6	n-Nitroso-n-methylethylamine	Year	2.81E-08	1.43E-06	9.96E-02	1.08E-07
930-55-2	n-Nitrosopyrrolidine	Year	2.81E-08	1.43E-06	9.96E-02	1.08E-07
95-47-6	o-Xylene	24-hr	2.33E-05	1.19E-03	2.26E-01	1.73E-03
127-18-4	Perchloroethylene	Year	2.34E-05	1.20E-03	8.31E+01	9.01E-05
108-95-2	Phenol	24-hr	1.18E-04	6.02E-03	1.15E+00	8.79E-03
1336-36-3	Polychlorinated Biphenyls (PCBs)	Year	2.95E-07	1.50E-05	1.05E+00	1.13E-06
57-55-6	Propylene Glycol	24-hr	3.26E-06	1.66E-04	3.17E-02	2.43E-04
115-07-1	Propylene	24-hr	5.69E-05	2.90E-03	5.53E-01	4.24E-03
106-42-3	p-Xylene	24-hr	2.36E-05	1.20E-03	2.29E-01	1.76E-03
7782-49-2	Selenium & Selenium Compounds (other than Hydrogen Selenide)	24-hr	8.26E-08	4.21E-06	8.02E-04	6.15E-06
100-42-5	Styrene	24-hr	6.70E-06	3.42E-04	6.51E-02	4.99E-04
7446-09-05	Sulfur dioxide	1-hr	3.52E-06	1.79E-04	1.42E-03	3.35E-03
108-88-3	Toluene	24-hr	5.92E-04	3.02E-02	5.75E+00	4.41E-02
156-60-5	Trans-1,2-dichloroethene	24-hr	1.73E-09	8.82E-08	1.68E-05	1.29E-07
79-01-6	Trichloroethylene	Year	2.36E-05	1.20E-03	8.37E+01	9.08E-05
1314-62-1	Vanadium Pentoxide	1-hr	1.70E-06	8.66E-05	6.88E-04	1.62E-03
108-05-4	Vinyl acetate	24-hr	6.49E-09	3.31E-07	6.30E-05	4.83E-07
75-01-4	Vinyl Chloride	Year	2.38E-05	1.21E-03	8.42E+01	9.14E-05

Table 8: Toxic Air Pollutants from the 241-AP Ventilation System (DE11NWP-001, Rev. 4)

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AP Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
71-55-6	1,1,1-Trichloroethane	24-hr	9.77E-07	5.47E-05	1.04E-02	7.99E-05
79-34-5	1,1,2,2-Tetrachloroethane	Year	1.08E-05	6.04E-04	4.20E+01	4.56E-05
79-00-5	1,1,2-Trichloroethane	Year	8.57E-06	4.80E-04	3.34E+01	3.62E-05
75-34-3	1,1-Dichloroethane	Year	3.94E-07	2.21E-05	1.54E+00	1.67E-06
75-35-4	1,1-Dichloroethylene	24-hr	4.53E-05	2.54E-03	4.83E-01	3.70E-03
57-14-7	1,1-Dimethylhydrazine	24-hr	2.52E-08	1.41E-06	2.69E-04	2.06E-06
106-93-4	1,2-Dibromoethane	Year	1.15E-06	6.47E-05	4.50E+00	4.88E-06
107-06-2	1,2-Dichloroethane	Year	2.36E-05	1.32E-03	9.19E+01	9.97E-05
78-87-5	1,2-Dichloropropane	Year	6.93E-07	3.88E-05	2.70E+00	2.93E-06
106-88-7	1,2-Epoxybutane	24-hr	5.85E-07	3.28E-05	6.24E-03	4.78E-05
106-99-0	1,3-Butadiene	Year	2.89E-06	1.62E-04	1.12E+01	1.22E-05
106-46-7	1,4-Dichlorobenzene	Year	9.00E-07	5.04E-05	3.50E+00	3.80E-06
123-91-1	1,4-Dioxane	Year	1.02E-05	5.70E-04	3.96E+01	4.30E-05
75-68-3	1-Chloro-1,1-difluoroethane	24-hr	1.57E-05	8.79E-04	1.67E-01	1.28E-03
95-48-7M	2-Methylphenol	24-hr	4.12E-07	2.31E-05	4.40E-03	3.37E-05
79-46-9M	2-Nitropropane	24-hr	2.77E-06	1.55E-04	2.96E-02	2.27E-04
108-39-4	3-Methylphenol	24-hr	6.87E-08	3.85E-06	7.33E-04	5.62E-06
75-07-0	Acetaldehyde	Year	5.95E-05	3.33E-03	2.32E+02	2.51E-04
60-35-5	Acetamide	Year	8.77E-08	4.91E-06	3.42E-01	3.71E-07
75-05-8	Acetonitrile	Year	5.55E-05	3.11E-03	2.16E+02	2.34E-04
107-02-8	Acrolein	24-hr	4.32E-08	2.42E-06	4.61E-04	3.53E-06
79-10-7	Acrylic Acid	24-hr	9.44E-06	5.29E-04	1.01E-01	7.72E-04
107-13-1M	Acrylonitrile	Year	1.78E-07	9.99E-06	6.95E-01	7.54E-07
107-05-1	Allyl Chloride	Year	1.48E-07	8.27E-06	5.75E-01	6.24E-07

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AP Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
7664-41-7	Ammonia	24-hr	1.98E-03	1.11E-01	2.11E+01	1.62E-01
7440-38-2	Arsenic & Inorganic Arsenic Compounds	Year	4.75E-10	2.66E-08	1.85E-03	2.01E-09
71-43-2	Benzene	Year	2.36E-05	1.32E-03	9.19E+01	9.97E-05
100-44-7	Benzyl Chloride	Year	1.94E-07	1.09E-05	7.56E-01	8.20E-07
7440-41-7	Beryllium & Compounds (NOS)	Year	4.76E-08	2.67E-06	1.85E-01	2.01E-07
75-25-2	Bromoform	Year	1.27E-07	7.11E-06	4.94E-01	5.36E-07
25013-16-5	Butylated hydroxyanisole	Year	2.06E-08	1.15E-06	8.03E-02	8.71E-08
7440-43-9	Cadmium & Compounds	Year	2.38E-10	1.33E-08	9.27E-04	1.01E-09
75-15-0	Carbon disulfide	24-hr	5.80E-06	3.25E-04	6.19E-02	4.75E-04
630-08-0	Carbon monoxide	1-hr	5.40E-04	3.03E-02	2.40E-01	5.65E-01
56-23-5	Carbon Tetrachloride	Year	2.38E-05	1.33E-03	9.25E+01	1.00E-04
108-90-7	Chlorobenzene	24-hr	7.24E-06	4.05E-04	7.72E-02	5.92E-04
75-45-6	Chlorodifluoromethane	24-hr	1.45E-05	8.10E-04	1.54E-01	1.18E-03
67-66-3	Chloroform	Year	2.38E-05	1.33E-03	9.25E+01	1.00E-04
7440-47-3	Chromium Hexavalent: Soluble, except Chromic Trioxide	Year	7.28E-10	4.08E-08	2.83E-03	3.07E-09
7440-48-4	Cobalt	24-hr	9.50E-07	5.32E-05	1.01E-02	7.77E-05
7440-50-8	Copper & Compounds	1-hr	4.76E-07	2.67E-05	2.12E-04	4.98E-04
98-82-8	Cumene	24-hr	1.02E-06	5.71E-05	1.09E-02	8.33E-05
110-82-7	Cyclohexane	24-hr	2.29E-05	1.28E-03	2.45E-01	1.87E-03
117-81-7	Di(2-ethylhexyl)phthalate	Year	1.08E-08	6.05E-07	4.21E-02	4.56E-08
75-09-2	Dichloromethane	Year	1.61E-04	9.03E-03	6.28E+02	6.81E-04
593-74-8	Dimethyl Mercury	24-hr	1.07E-07	5.97E-06	1.14E-03	8.72E-06
75-00-3	Ethyl Chloride	24-hr	4.15E-06	2.33E-04	4.43E-02	3.40E-04

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AP Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
100-41-4	Ethylbenzene	Year	2.05E-05	1.15E-03	7.96E+01	8.64E-05
111-15-9	Ethylene glycol monoethyl ether acetate	24-hr	2.20E-06	1.23E-04	2.34E-02	1.80E-04
75-21-8	Ethylene oxide	Year	1.12E-07	6.28E-06	4.36E-01	4.73E-07
50-00-0	Formaldehyde	Year	3.41E-07	1.91E-05	1.33E+00	1.44E-06
87-68-3	Hexachlorobutadiene	Year	1.68E-05	9.43E-04	6.55E+01	7.11E-05
67-72-1	Hexachloroethane	Year	2.44E-05	1.37E-03	9.49E+01	1.03E-04
74-90-8	Hydrogen Cyanide	24-hr	8.25E-08	4.62E-06	8.80E-04	6.74E-06
67-63-0	Isopropyl Alcohol	1-hr	4.89E-05	2.74E-03	2.17E-02	5.11E-02
7439-92-1	Lead and compounds (NOS)	Year	4.75E-10	2.66E-08	1.85E-03	2.01E-09
7439-96-5	Manganese & Compounds	24-hr	4.75E-10	2.66E-08	5.07E-06	3.88E-08
7439-97-6	Mercury, Elemental	24-hr	2.88E-07	1.61E-05	3.07E-03	2.35E-05
67-56-1	Methyl Alcohol	24-hr	1.03E-03	5.77E-02	1.10E+01	8.42E-02
74-83-9	Methyl Bromide	24-hr	9.30E-07	5.21E-05	9.92E-03	7.60E-05
74-87-3	Methyl Chloride	24-hr	3.24E-06	1.81E-04	3.46E-02	2.65E-04
78-93-3	Methyl Ethyl Ketone	24-hr	1.39E-04	7.78E-03	1.48E+00	1.14E-02
108-10-1	Methyl Isobutyl Ketone	24-hr	4.01E-05	2.25E-03	4.28E-01	3.28E-03
624-83-9	Methyl Isocyanate	24-hr	2.56E-08	1.44E-06	2.73E-04	2.10E-06
108-38-3M	m-Xylene	24-hr	1.37E-05	7.65E-04	1.46E-01	1.12E-03
91-20-3M	Naphthalene	Year	1.88E-07	1.05E-05	7.33E-01	7.95E-07
110-54-3	n-Hexane	24-hr	7.48E-05	4.19E-03	7.98E-01	6.12E-03
10102-44-0	Nitrogen dioxide	1-hr	7.99E-04	4.48E-02	3.55E-01	8.36E-01
55-18-5	n-Nitrosodiethylamine	Year	2.81E-08	1.57E-06	1.09E-01	1.19E-07
62-75-9	n-Nitrosodimethylamine	Year	3.83457E-05	1.07E-03	7.46E+01	8.10E-05
924-16-3	n-Nitroso-di-n-butylamine	Year	2.81E-08	1.57E-06	1.09E-01	1.19E-07

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AP Tank Farm (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
621-64-7	n-Nitrosodi-n-propylamine	Year	2.81E-08	1.57E-06	1.09E-01	1.19E-07
59-89-2	n-Nitrosomorpholine	Year	1.30E-07	7.27E-06	5.05E-01	5.48E-07
10595-95-6	n-Nitroso-n-methylethylamine	Year	2.81E-08	1.57E-06	1.09E-01	1.19E-07
930-55-2	n-Nitrosopyrrolidine	Year	2.81E-08	1.57E-06	1.09E-01	1.19E-07
95-47-6	o-Xylene	24-hr	2.33E-05	1.30E-03	2.48E-01	1.90E-03
127-18-4	Perchloroethylene	Year	2.34E-05	1.31E-03	9.13E+01	9.90E-05
108-95-2	Phenol	24-hr	1.18E-04	6.61E-03	1.26E+00	9.65E-03
1336-36-3	Polychlorinated Biphenyls (PCBs)	Year	2.95E-07	1.65E-05	1.15E+00	1.25E-06
57-55-6	Propylene Glycol	24-hr	3.26E-06	1.83E-04	3.48E-02	2.67E-04
115-07-1	Propylene	24-hr	5.69E-05	3.19E-03	6.07E-01	4.65E-03
106-42-3	p-Xylene	24-hr	2.36E-05	1.32E-03	2.52E-01	1.93E-03
7782-49-2	Selenium & Selenium Compounds (other than Hydrogen Selenide)	24-hr	8.26E-08	4.63E-06	8.81E-04	6.75E-06
100-42-5	Styrene	24-hr	6.70E-06	3.75E-04	7.15E-02	5.48E-04
7446-09-05	Sulfur dioxide	1-hr	3.52E-06	1.97E-04	1.56E-03	3.68E-03
108-88-3	Toluene	24-hr	5.92E-04	3.32E-02	6.32E+00	4.84E-02
156-60-5	Trans-1,2-dichloroethene	24-hr	1.73E-09	9.69E-08	1.85E-05	1.41E-07
79-01-6	Trichloroethylene	Year	2.36E-05	1.32E-03	9.19E+01	9.97E-05
1314-62-1	Vanadium Pentoxide	1-hr	1.70E-06	9.51E-05	7.55E-04	1.78E-03
108-05-4	Vinyl acetate	24-hr	6.49E-09	3.63E-07	6.92E-05	5.31E-07
75-01-4	Vinyl Chloride	Year	2.38E-05	1.33E-03	9.25E+01	1.00E-04

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Table 9 Toxic Air Pollutants from the 241-AY/AZ Ventilation System (DE11NWP-001, Rev. 4)

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AY/AZ Stack Emission Rate (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
71-55-6	1,1,1-Trichloroethane	24-hr	9.77E-07	5.08E-05	9.68E-03	7.42E-05
79-34-5	1,1,2,2-Tetrachloroethane	Year	1.08E-05	5.61E-04	3.90E+01	4.23E-05
79-00-5	1,1,2-Trichloroethane	Year	8.57E-06	4.46E-04	3.10E+01	3.36E-05
75-34-3	1,1-Dichloroethane	Year	3.94E-07	2.05E-05	1.43E+00	1.55E-06
75-35-4	1,1-Dichloroethylene	24-hr	4.53E-05	2.36E-03	4.49E-01	3.44E-03
57-14-7	1,1-Dimethylhydrazine	24-hr	2.52E-08	1.31E-06	2.50E-04	1.92E-06
106-93-4	1,2-Dibromoethane	Year	1.15E-06	6.01E-05	4.18E+00	4.53E-06
107-06-2	1,2-Dichloroethane	Year	2.36E-05	1.23E-03	8.53E+01	9.25E-05
78-87-5	1,2-Dichloropropane	Year	6.93E-07	3.60E-05	2.51E+00	2.72E-06
106-88-7	1,2-Epoxybutane	24-hr	5.85E-07	3.04E-05	5.80E-03	4.44E-05
106-99-0	1,3-Butadiene	Year	2.89E-06	1.50E-04	1.04E+01	1.13E-05
106-46-7	1,4-Dichlorobenzene	Year	9.00E-07	4.68E-05	3.25E+00	3.53E-06
123-91-1	1,4-Dioxane	Year	1.02E-05	5.29E-04	3.68E+01	3.99E-05
75-68-3	1-Chloro-1,1-difluoroethane	24-hr	1.57E-05	8.16E-04	1.55E-01	1.19E-03
95-48-7M	2-Methylphenol	24-hr	4.12E-07	2.14E-05	4.09E-03	3.13E-05
79-46-9M	2-Nitropropane	24-hr	2.77E-06	1.44E-04	2.75E-02	2.11E-04
108-39-4	3-Methylphenol	24-hr	6.87E-08	3.57E-06	6.80E-04	5.22E-06
75-07-0	Acetaldehyde	Year	5.95E-05	3.09E-03	2.15E+02	2.33E-04
60-35-5	Acetamide	Year	8.77E-08	4.56E-06	3.17E-01	3.44E-07
75-05-8	Acetonitrile	Year	5.55E-05	2.88E-03	2.00E+02	2.17E-04
107-02-8	Acrolein	24-hr	4.32E-08	2.25E-06	4.28E-04	3.28E-06
79-10-7	Acrylic Acid	24-hr	9.44E-06	4.91E-04	9.35E-02	7.17E-04
107-13-1M	Acrylonitrile	Year	1.78E-07	9.28E-06	6.45E-01	7.00E-07

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AY/AZ Stack Emission Rate (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
107-05-1	Allyl Chloride	Year	1.48E-07	7.68E-06	5.34E-01	5.79E-07
7664-41-7	Ammonia	24-hr	1.98E-03	1.03E-01	1.96E+01	1.50E-01
7440-38-2	Arsenic & Inorganic Arsenic Compounds	Year	4.75E-10	2.47E-08	1.72E-03	1.86E-09
71-43-2	Benzene	Year	2.36E-05	1.23E-03	8.53E+01	9.25E-05
100-44-7	Benzyl Chloride	Year	1.94E-07	1.01E-05	7.02E-01	7.62E-07
7440-41-7	Beryllium & Compounds (NOS)	Year	4.76E-08	2.48E-06	1.72E-01	1.87E-07
75-25-2	Bromoform	Year	1.27E-07	6.60E-06	4.59E-01	4.98E-07
25013-16-5	Butylated hydroxyanisole	Year	2.06E-08	1.07E-06	7.46E-02	8.09E-08
7440-43-9	Cadmium & Compounds	Year	2.38E-10	1.24E-08	8.61E-04	9.33E-10
75-15-0	Carbon disulfide	24-hr	5.80E-06	3.02E-04	5.75E-02	4.41E-04
630-08-0	Carbon monoxide	1-hr	5.40E-04	2.81E-02	2.23E-01	5.25E-01
56-23-5	Carbon Tetrachloride	Year	2.38E-05	1.24E-03	8.59E+01	9.31E-05
108-90-7	Chlorobenzene	24-hr	7.24E-06	3.76E-04	7.17E-02	5.49E-04
75-45-6	Chlorodifluoromethane	24-hr	1.45E-05	7.52E-04	1.43E-01	1.10E-03
67-66-3	Chloroform	Year	2.38E-05	1.24E-03	8.59E+01	9.31E-05
7440-47-3	Chromium Hexavalent: Soluble, except Chromic Trioxide	Year	7.28E-10	3.79E-08	2.63E-03	2.85E-09
7440-48-4	Cobalt	24-hr	9.50E-07	4.94E-05	9.41E-03	7.21E-05
7440-50-8	Copper & Compounds	1-hr	4.76E-07	2.48E-05	1.96E-04	4.62E-04
98-82-8	Cumene	24-hr	1.02E-06	5.30E-05	1.01E-02	7.74E-05
110-82-7	Cyclohexane	24-hr	2.29E-05	1.19E-03	2.27E-01	1.74E-03
117-81-7	Di(2-ethylhexyl)phthalate	Year	1.08E-08	5.62E-07	3.91E-02	4.24E-08
75-09-2	Dichloromethane	Year	1.61E-04	8.38E-03	5.83E+02	6.32E-04

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AY/AZ Stack Emission Rate (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
593-74-8	Dimethyl Mercury	24-hr	1.07E-07	5.54E-06	1.06E-03	8.09E-06
75-00-3	Ethyl Chloride	24-hr	4.15E-06	2.16E-04	4.11E-02	3.15E-04
100-41-4	Ethylbenzene	Year	2.05E-05	1.06E-03	7.39E+01	8.02E-05
111-15-9	Ethylene glycol monoethyl ether acetate	24-hr	2.20E-06	1.14E-04	2.18E-02	1.67E-04
75-21-8	Ethylene oxide	Year	1.12E-07	5.83E-06	4.05E-01	4.40E-07
50-00-0	Formaldehyde	Year	3.41E-07	1.77E-05	1.23E+00	1.34E-06
87-68-3	Hexachlorobutadiene	Year	1.68E-05	8.75E-04	6.09E+01	6.60E-05
67-72-1	Hexachloroethane	Year	2.44E-05	1.27E-03	8.82E+01	9.56E-05
74-90-8	Hydrogen Cyanide	24-hr	8.25E-08	4.29E-06	8.17E-04	6.26E-06
67-63-0	Isopropyl Alcohol	1-hr	4.89E-05	2.54E-03	2.02E-02	4.75E-02
7439-92-1	Lead and compounds (NOS)	Year	4.75E-10	2.47E-08	1.72E-03	1.86E-09
7439-96-5	Manganese & Compounds	24-hr	4.75E-10	2.47E-08	4.70E-06	3.61E-08
7439-97-6	Mercury, Elemental	24-hr	2.88E-07	1.50E-05	2.85E-03	2.19E-05
67-56-1	Methyl Alcohol	24-hr	1.03E-03	5.36E-02	1.02E+01	7.82E-02
74-83-9	Methyl Bromide	24-hr	9.30E-07	4.84E-05	9.21E-03	7.06E-05
74-87-3	Methyl Chloride	24-hr	3.24E-06	1.69E-04	3.21E-02	2.46E-04
78-93-3	Methyl Ethyl Ketone	24-hr	1.39E-04	7.23E-03	1.38E+00	1.06E-02
108-10-1	Methyl Isobutyl Ketone	24-hr	4.01E-05	2.09E-03	3.97E-01	3.05E-03
624-83-9	Methyl Isocyanate	24-hr	2.56E-08	1.33E-06	2.54E-04	1.95E-06
108-38-3M	m-Xylene	24-hr	1.37E-05	7.10E-04	1.35E-01	1.04E-03
91-20-3M	Naphthalene	Year	1.88E-07	9.79E-06	6.81E-01	7.38E-07
110-54-3	n-Hexane	24-hr	7.48E-05	3.89E-03	7.41E-01	5.68E-03
10102-44-0	Nitrogen dioxide	1-hr	7.99E-04	4.16E-02	3.30E-01	7.76E-01
55-18-5	n-Nitrosodiethylamine	Year	2.81E-08	1.46E-06	1.02E-01	1.10E-07

CAS #	Compound	Ave. Period	Emission Rate per Tank (g/s)	AY/AZ Stack Emission Rate (g/s)	Emissions Total (lbs/averaging period)	Modeled Dispersed Concentration (ug/m3)
62-75-9	n-Nitrosodimethylamine	Year	3.83457E-05	9.20E-04	6.40E+01	6.94E-05
924-16-3	n-Nitroso-di-n-butylamine	Year	2.81E-08	1.46E-06	1.02E-01	1.10E-07
621-64-7	n-Nitrosodi-n-propylamine	Year	2.81E-08	1.46E-06	1.02E-01	1.10E-07
59-89-2	n-Nitrosomorpholine	Year	1.30E-07	6.75E-06	4.69E-01	5.09E-07
10595-95-6	n-Nitroso-n-methylethylamine	Year	2.81E-08	1.46E-06	1.02E-01	1.10E-07
930-55-2	n-Nitrosopyrrolidine	Year	2.81E-08	1.46E-06	1.02E-01	1.10E-07
95-47-6	o-Xylene	24-hr	2.33E-05	1.21E-03	2.31E-01	1.77E-03
127-18-4	Perchloroethylene	Year	2.34E-05	1.22E-03	8.47E+01	9.19E-05
108-95-2	Phenol	24-hr	1.18E-04	6.14E-03	1.17E+00	8.96E-03
1336-36-3	Polychlorinated Biphenyls (PCBs)	Year	2.95E-07	1.53E-05	1.07E+00	1.16E-06
57-55-6	Propylene Glycol	24-hr	3.26E-06	1.70E-04	3.23E-02	2.48E-04
115-07-1	Propylene	24-hr	5.69E-05	2.96E-03	5.64E-01	4.32E-03
106-42-3	p-Xylene	24-hr	2.36E-05	1.23E-03	2.34E-01	1.79E-03
7782-49-2	Selenium & Selenium Compounds (other than Hydrogen Selenide)	24-hr	8.26E-08	4.29E-06	8.18E-04	6.27E-06
100-42-5	Styrene	24-hr	6.70E-06	3.48E-04	6.64E-02	5.09E-04
7446-09-05	Sulfur dioxide	1-hr	3.52E-06	1.83E-04	1.45E-03	3.42E-03
108-88-3	Toluene	24-hr	5.92E-04	3.08E-02	5.87E+00	4.50E-02
156-60-5	Trans-1,2-dichloroethene	24-hr	1.73E-09	8.99E-08	1.71E-05	1.31E-07
79-01-6	Trichloroethylene	Year	2.36E-05	1.23E-03	8.53E+01	9.25E-05
1314-62-1	Vanadium Pentoxide	1-hr	1.70E-06	8.83E-05	7.01E-04	1.65E-03
108-05-4	Vinyl acetate	24-hr	6.49E-09	3.37E-07	6.43E-05	4.93E-07
75-01-4	Vinyl Chloride	Year	2.38E-05	1.24E-03	8.59E+01	9.31E-05

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