Technical Support Document
for Data Center General Order

Preliminary Determination
Quincy, East Wenatchee, and Malaga, WA

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1. Project Summary

General Orders are a subset of Ecology's Notice of Construction (NOC) permitting under the minor New Source Review program. This review is for a general order for a data center facility with up to 21, 4,423 bhp emergency engines. This source will be classified as a synthetic minor source for Nitrogen Oxides (NO_X). Sources must be located near Quincy, East Wenatchee, or Malaga, Washington. Sources will be determined to meet the location requirements if the same meteorological data used for this General Order would be used when modeling emissions for their sites.

The Permittee may generally be classified as any type of minor source. The terms of WAC 173-400-560 limit the ability to use a general order for equipment if it is located at a facility that has a Title V permit. This general order has limited use at a Title V source; it may only be used for less than 365 days.

This General Order is intended for emergency generators that have internal combustion engines. These engines are subject to NSPS Subpart IIII and NESHAP Subpart ZZZZ. Certain parts of Subpart IIII are included within this general order. However, all the applicable requirements of NSPS Subpart IIII and NESHAP Subpart ZZZZ are enforceable independent of this General Order even if they are not listed in this General Order.

2. Application Processing

a. General Order application process options

Based on WAC 173-400-560(5), "each general order of approval shall include a section on how an applicant is to request coverage and how the permitting authority will grant coverage. The section of the general order of approval will include either the method in (a) or (b) of this subsection to describe the process for the applicant to be granted coverage."

i. "(a) Within thirty days of receipt of an application for coverage under a general order of approval, the permitting authority shall notify an applicant in writing that the application is incomplete, approved, or denied. If an application is incomplete, the permitting authority shall notify an applicant of the information needed to complete the application. If an application is denied, the permitting authority shall notify an applicant of the reasons why the application is denied. Coverage under a general order of approval is effective as of the date of issuance of approval by the permitting authority."

ii. "(b) The applicant is approved for coverage under the general order of approval thirty-one days after an application for coverage is received by the permitting authority, unless the owner or operator receives a letter from the permitting authority, postmarked within thirty days of when the application for coverage was received by the permitting authority, notifying the owner or operator that the emissions unit or source does not qualify for coverage under the general order of approval. The letter denying coverage shall notify the applicant of the disqualification and the reasons why coverage is denied."

Ecology has chosen option (a) for this data center general order and these steps are listed in the general order.

b. Public Notice

This General Order is subject to a mandatory 30-day public comment period per WAC 173-400-171(3)(b) and (k) for a project that emits a toxic air pollutant over acceptable source impact levels and for an order issued under WAC 173-400-091 that establishes limitations on a source's potential to emit. The comment period was held August 21, 2025, through September 26, 2025. Legal notices were posted in English and Spanish in newspapers of general circulation in the areas near Quincy, East Wenatchee, and Malaga, Washington. Public notices were also posted on Ecology's website in both English and Spanish. Responses to comments are attached in appendix C.

Resources used to determine outreach:

Department Of Health Disparities map:
Information by Location | Washington Tracking Network (WTN)

Washington GIS map:
Limited English Proficiency Application (arcgis.com)

c. State Environmental Policy Act (SEPA)

Washington State Department of Ecology (Ecology) issued a Determination of Nonsignificance for this General Order on August 21, 2025.

Additionally, any potential data center that seeks coverage under this general order will require the SEPA process to be completed for the project at the site location before a Coverage Order will be issued. A completed environmental checklist and SEPA determination issued by City of Quincy, Douglas County, or Chelan County will be required with the data center general order application.

3. Applicable Regulations

a. State Regulations

i. Minor New Source Review Applicability

Per WAC 173-400-110, an NOC application and an order of approval must be issued by the permitting authority prior to the establishment of a new source or modification.

As stated in the NOC application and consistent with Ecology's review, the emergency generators are being constructed by this project and therefore are subject to minor new source review (NSR).

A. Potential to Emit (Potential Emissions)

The potential emissions from the project are based on 500 hours of uncontrolled operations and are greater than the exemption levels listed under WAC 173-400-110(5) as shown below in Tables 1 and 2 (in bold).

Table 1. Potential emissions for pollutants listed under WAC 173-400-110(5), versus the Minor NSR Exemption Levels

Pollutant	New Units (tons/year)	Minor NSR Exemption (tons/year)
Carbon Monoxide (CO)	**23.7**	5.0
Lead (Pb)	**0.0095**	0.005
Nitrogen Oxides (NO_X)	**367**	2.0
PM_{10}	**53.6**	0.75
$PM_{2.5}$	**53.6**	0.5
Total Suspended Particulates (TSP)	**53.6**	1.25
Sulfur Dioxide (SO_2)	0.24	2.0
Volatile Organic Compounds, total (VOC)	**8.34**	2.0
Greenhouse Gases (GHG)	26,900	N/A

Table 2. Potential Toxic Air Pollutant (TAP) emissions increase and de minimis emission values

Pollutant	Potential Emissions Increase from Project (lb/averaging period)	De Minimis Emission Values (lb/averaging period)	Averaging Period
Nitrogen Dioxide (NO_2)	**150**	0.46	1-hour
Diesel Engine Exhaust Particulate (DEEP)	**11,000**	0.027	Year
CO	**95**	1.1	1-hour
SO_2	**0.93**	0.46	1-hour
Ammonia	**15**	1.9	24-hour
1,3-Butadiene	**500**	0.27	Year

Pollutant	Potential Emissions Increase from Project (lb/averaging period)	De Minimis Emission Values (lb/averaging period)	Averaging Period
Acetaldehyde	**1,800**	3	Year
Acrolein	**3.7**	0.0013	24-hour
Benzene	**430**	1	Year
Benz(a)anthracene	**2.5**	0.045	Year
Benzo(a)pyrene	**2.0**	0.0082	Year
Benzo(b)fluoranthene	**4.0**	0.045	Year
Benzo(k)fluoranthene	**3.9**	0.045	Year
Chlorobenzene	0.022	3.7	24-hour
Chrysene	**2.2**	0.45	Year
Dibenz(a,h)anthracene	**2.1**	0.0041	Year
Ethylbenzene	**25**	3.2	Year
Formaldehyde	**4000**	1.4	Year
n-Hexane	**3.0**	2.6	24-hour
Hydrogen Chloride	**21**	0.033	24-hour
Indeno(1,2,3-cd)pyrene	**2.1**	0.045	Year
Naphthalene	**82**	0.24	Year
Propylene	**51**	11	24-hour
Toluene	12	19	24-hour
m-Xylene	**2.4**	0.82	24-hour
o-Xylene	**2.3**	0.82	24-hour
Xylenes	**4.7**	0.82	24-hour
Arsenic	**3.7**	0.0025	Year
Cadmium	**3.4**	0.0019	Year
Copper	**0.020**	0.0093	1-hour
Hexavalent chromium	**0.23**	0.000033	Year
Lead	**19**	10	Year
Manganese	**0.34**	0.0011	24-hour
Mercury	**0.22**	0.00011	24-hour
Nickel	**8.9**	0.031	Year
Selenium	**0.24**	0.074	24-hour
Total Chromium	**0.07**	0.00037	24-hour

ii. Prevention of Significant Deterioration (PSD)

PSD does not apply to this project, based on allowable emissions.

iii. Other Applicable Requirements

In accordance with WAC 173-400-113, the proposed new units must comply with all applicable emission standards adopted under Chapter 70A.15 RCW. The following applicable emission standards are associated with the proposed project:

A. WAC 173-400-040 General standards for maximum emissions: limits visible emissions from all sources to no more than three minutes of 20 percent opacity, in any hour, of an air contaminant from any emission unit.

B. WAC 173-400-050 and 060 Emission standards for combustion and incineration units and general process units: limits emissions of particulate matter from combustion and general process units to 0.23 gram per dry cubic meter at standard conditions (0.10 grains per dry standard cubic foot) of exhaust gas.

C. WAC 173-400-115 Standards of performance for new sources: adopts by reference 40 C.F.R. Part 60, Subpart IIII. See more below.

b. Federal Regulations

In accordance with WAC 173-400-113, the proposed new sources must comply with all applicable new source performance standards (NSPS) included in 40 C.F.R. Part 60, national emission standards for hazardous air pollutants (NESHAPs) included in 40 C.F.R. Part 61, and NESHAPs for source categories included in 40 C.F.R. Part 63. The following applicable emission standards are associated with the proposed project:

i. Standards of Performance for New Stationary Sources

The ICE NSPS (40 C.F.R. Part 60, Subpart IIII) applies to each emergency generator. The regulation specifies: criteria for classification as emergency engines; Tier-2 or Tier-3 emission standards for the engines (depending on the power rating); and fuel, monitoring, compliance, and notification requirements for the Permittee.

ii. National Emission Standards for Hazardous Air Pollutants for Source Categories

The RICE NESHAP applies to each engine. However, each engine is also subject to the ICE NSPS (see above). At 40 C.F.R. 63.6590(c), the NESHAP specifies that compliance must be met by meeting the requirements of the NSPS; therefore, no further requirements apply to the engines.

4. Emissions

a. Emission Factors and Calculations

Emission factors for the emergency generator engines were provided in previous applications as not-to-exceed-limits by the manufacturers Caterpillar and Cummins for NO_X, CO, PM, hydrocarbons (HC), and ammonia. The following was assumed for the emergency generators:

i. DEEP is assumed to be manufacturer-measured PM.

ii. HCs were assumed to be equivalent to VOC and non-methane HC.

iii. The sum of PM and HC (assumed to all condense) and be equivalent PM_{10} and $PM_{2.5}$ for the engines.

The emission factor for SO_2 was calculated based on sulfur content of the ultra-low sulfur fuel and an average heating value of diesel fuel. All sulfur was assumed to convert to SO_2.

An additional factor was added for cold-start emissions (PM, CO, total VOC, and volatile TAPs). These factors are based on short-term concentration trends for VOC and CO emissions observed immediately after startup of a large diesel backup generator. These observations were documented in the California Energy Commission's report "Air Quality Implications of Backup Generators in California" (Lents et al. 2005).

There is assumed to be a 15-minute start up time before the selective catalytic reduction control reaches sufficient temperature to reduce NOx emissions by 90 percent for loads greater than 25 percent. The diesel oxidation catalyst is also assumed to only operate at higher loads of 75 and 100 percent per Cummins manufacturer estimates. The catalyzed diesel particulate filter efficiencies are assumed to be 85 percent for PM, 80 percent for CO, 80 percent for VOC at loads higher than 50 percent.

Operations at low loads, 10 percent load or lower were assumed to be for 30 minutes or less.

Flows and temperature provided by the manufacturers were reduced by 50 percent and 30 percent for 10 and 25 percent loads. For loads 50, 75, and 100 percent both flow and temperatures were reduced by 25 percent to account add on controls and for in field variability.

All the remaining emission rates for toxic air pollutants from the generators were calculated using emission factors from the most conservative of Ventura County Air Pollution Control District AB 2588 Diesel Internal Combustion Factors and California Air Toxics Emission Factor (CATEF) database for ICE, diesel engines.

Potential to Emit calculations were based on uncontrolled emergency generators running 500 hours per year each. **Allowable emissions** are based on the emergency generators using controls and limited to 100 hours of operation per engine.

See manufacturer specifications used for this General Order from previous applications on our data center website, more specifically here:

Notice of Construction Application

b. Best Available Control Technology (BACT)| Best Available Control Technology for Toxics (tBACT)

BACT is defined in Washington Administrative Code (WAC) 173-400-030(13) as "an emission limitation based on the maximum degree of reduction....from any new or modified stationary source...which the permitting authority, on a case-by-case basis...taking into account energy, environmental, and economic impacts and other costs ..." Therefore, in Washington State, BACT is required not only for major new source review but also for minor new source review.

Ecology's preferred first option for BACT is to implement a presumed or presumptive BACT. The term presumptive BACT is used to convey situations where BACT is determined without explicitly going through (or repeating) the full 5-step top-down approach as listed in the October 1990 EPA Draft New Source Review Workshop Manual (or Puzzlebook). It conveys the intent of implementing a review of what similar sources have achieved in practice.

For 21 emergency engines, the proposed facility will use EPA Tier-4 compliant engines, historically these controls have been cost prohibitive. Therefore, uncontrolled Tier-2 and Tier-3 engines are presumed by Ecology to be BACT and tBACT. BACT for emissions of NO_X, CO, VOC, and PM; and tBACT for emissions of toxic air pollutants listed in Tables 1 and 2.

c. Additional Voluntary Emission Controls

The Permittee and applicant for this general order is agreeing to voluntary installation of up to 21 emergency engines with selective catalytic reduction to control NO_X and catalyzed diesel particulate filters to control PM, CO, and VOC.

d. Allowable Emissions

The allowable emissions from the project, considering all emission controls and operational limits specified by the approval order, are shown in the tables below.

Table 3. Allowable emissions for pollutants listed under WAC 173-400-110(5)

Pollutant	(tons/year)
Carbon Monoxide (CO)	2.04
Lead (Pb)	0.0003
Nitrogen Oxides (NO_X)	23.9
PM_{10}	1.61
$PM_{2.5}$	1.61
Total Suspended Particulates (TSP)	1.61
Sulfur Dioxide (SO_2)	0.05
Volatile Organic Compounds, total (VOC)	1.44
Greenhouse Gases (GHG)	5,387

Table 4. Allowable TAP emissions

Pollutant	MWH08 (pounds/year)	Averaging Period
NO_2	4,771	1-hour
DEEP	334.6	Year
CO	4,074	1-hour
SO_2	93.2	1-hour
Ammonia	512.4	24-hour
1,3-Butadiene	49.8	Year
Acetaldehyde	179.3	Year
Acrolein	7.76	24-hour
Benzene	42.6	Year
Benz(a)anthracene	0.25	Year
Benzo(a)pyrene	0.20	Year
Benzo(b)fluoranthene	0.40	Year
Benzo(k)fluoranthene	0.39	Year
Chrysene	0.22	Year
Dibenz(a,h)anthracene	0.21	Year
Ethylbenzene	2.49	Year
Formaldehyde	395	Year
n-Hexane	6.16	24-hour
Hydrogen chloride	42.6	24-hour
Indeno(1,2,3-cd)pyrene	0.21	Year
Naphthalene	8.17	Year
Propylene	106.9	24-hour
m-Xylene	4.94	24-hour
o-Xylene	4.78	24-hour
Xylenes	9.70	24-hour
Arsenic	0.11	Year
Cadmium	0.10	Year
Copper	0.28	1-hour
Hexavalent Chromium	0.01	Year
Lead	0.57	Year
Manganese	0.21	24-hour
Mercury	0.14	24-hour
Nickel	0.27	Year
Total Chromium	0.04	24-hour

The table below presents the allowable emissions for Data Center with the emissions from the project included. The facility is a synthetic minor for nitrogen oxides.

Table 5. Potential and Allowable Emissions for Total Source

Pollutant	Total Source Potential Emissions (tons/year)	Total Source Allowable Emissions (tons/year)
Carbon Monoxide (CO)	23.7	2.04
Lead (Pb)	0.0095	0.000285
Nitrogen Oxides (NO_X)	367	23.9
PM_{10}	53.6	1.61
$PM_{2.5}$	53.6	1.61
Total Suspended Particulates (TSP)	53.6	1.61
Sulfur Dioxide (SO_2)	0.24	0.05
Volatile Organic Compounds, total (VOC)	8.34	1.44
Greenhouse Gases (GHGs)	26,936	5,387

5. Ambient Air Quality Standards

As specified in WAC 173-400-113, the proposed new or modified source(s) must not cause or contribute to a violation of any ambient air quality standard. This includes the ambient air quality standards for both criteria and toxic air pollutants.

a. Pollutants Listed Under WAC 173-400-110 (Except TAPs)

For CO, SO_2, PM_{10}, $PM_{2.5}$, and NO_2, modeling was performed to satisfy the requirements of Chapter 173-400-113(3) WAC. The modeling demonstrates that the emissions increase as a result of the project will not exceed the ambient air quality standards. The modeling results are included in the table below.

Table 6a. Criteria Pollutant Modeling Results - Quincy, WA

Criteria Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m³) (viii)	Impacts + Background (µg/m³) (i)	Ambient Air Quality Standard (µg/m³)
CO	8-hour	212.7	1140.1	10,800
CO	1-hour	352.9	1657.6	40,000
SO_2	3-hour	7.1	21.2	1,308
SO_2	1-hour	8.2	14.7 (ii)	196
PM_{10}	24-hour	29.7	106.7 (iii)	150
$PM_{2.5}$	Annual	0.89	6.69 (vi, ix)	9
$PM_{2.5}$	24-hour	9.88	28.9 (iv, ix)	35
NO_2	Annual	2.94	9.52 (vi)	100
NO_2	1-hour	122.6	181.8 (v, vii)	188

Table 6b. Criteria Pollutant Modeling Results – East Wenatchee, WA

Criteria Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$) (viii)	Impacts + Background ($\mu g/m^3$) (i)	Ambient Air Quality Standard ($\mu g/m^3$)
CO	8-hour	181.4	1097.9	10,800
CO	1-hour	328.2	1657.1	40,000
SO_2	3-hour	5.4	17.7	1,308
SO_2	1-hour	7.6	17.6 (ii)	196
PM_{10}	24-hour	22.8	95.8(iii)	150
$PM_{2.5}$	Annual	0.78	7.58(vi. ix)	9
$PM_{2.5}$	24-hour	7.58	30.6 (iv, ix)	35
NO_2	Annual	2.61	11.64 (vi)	100
NO_2	1-hour	108.8	165.2 (v, vii)	188

Notes:

i. Regional background level obtained from Idaho Department of Environmental Quality for model and monitoring data from July 2014 through June 2017 (IDEQ; accessed April 26, 2024).

ii. Reported values represent the 1st-highest modeled impacts.

iii. Assuming all 21 engines running for three hours in one day for emergency use. The evaluated results correspond to the 1st – highest impact.

iv. Modeled operating scenario for 8th-highest ranked PM emitting day. The evaluated results correspond to the 1st-highest impact.

v. NO_2 models include hyper-local 1-hr NO_2 background. For Quincy, this was determined from the Cumulative Health Risks Assessment. For East Wenatchee, this was obtained from recent project air modeling results that included emissions from generators at multiple sources in the area as well as monitoring background data.

vi. The evaluated results correspond to the 1st – highest impact.

vii. Cumulative concentrations at the maximum project only receptor location.

b. Toxic Air Pollutants (TAPs)

In accordance with WAC 173-460-040, new TAP sources must meet the requirements of Chapter 173-460 WAC, unless they are exempt by WAC 173-400-110(5).

As shown in Table 2, minor NSR is required for the emergency engines. As such, the new emission units must comply with WAC 173-460-070 (ambient impact requirement). The source may demonstrate compliance with the ambient impact requirement by either showing that the emissions increase is less than the small quantity emissions rates

(SQER) or through dispersion modeling. The table below includes the estimated emissions increases associated with the project and the applicable SQER.

Table 8. TAP Analysis

TAP	Estimated Increase (lb/averaging period)	SQER (lb/averaging period)	Modeling Required?
NO_2	48	0.87	Yes
DEEP	330	0.54	Yes
CO	41	43	No
SO_2	0.93	1.2	No
Ammonia	15	37	No
1,3-Butadiene	50	5.4	Yes
Acetaldehyde	180	60	Yes
Acrolein	0.23	0.026	Yes
Benzene	43	21	Yes
Benz(a)anthracene	0.25	0.89	No
Benzo(a)pyrene	0.20	0.16	Yes
Benzo(b)fluoranthene	0.40	0.89	No
Benzo(k)fluoranthene	0.39	0.89	No
Chrysene	0.22	8.9	No
Dibenz(a,h)anthracene	0.21	0.082	Yes
Ethylbenzene	2.5	65	No
Formaldehyde	400	27	Yes
Hydrogen Chloride	1.3	0.67	Yes
Indeno(1,2,3-cd)pyrene	0.21	0.89	No
Naphthalene	8.2	4.8	No
Propylene	3.1	220	No
m-Xylene	0.15	16	No
o-Xylene	0.14	16	No
Xylenes	0.28	16	No
Arsenic	0.11	0.049	Yes
Cadmium	0.10	0.039	Yes
Copper	0.0029	0.19	No
Hexavalent Chromium	0.01	0.00065	Yes
Lead	0.57	14	No
Manganese	0.0062	0.022	No
Mercury	0.0040	0.0022	Yes
Nickel	0.27	0.62	No
Total Chromium	0.0012	0.0074	No

For the TAPs that require modeling, modeling was performed to satisfy the requirements of Washington's state toxics rule in Chapter 173-460 WAC. The modeling demonstrates that the emission increases as a result of the project will not exceed the acceptable source impact level (ASIL) screening thresholds, with the exception of NO_2 and DEEP. The modeling results are included in the table below.

Table 9. TAP Modeling Results – Worst Case of Quincy and Wenatchee

TAP	Averaging Period	Maximum Modeled Concentration (µg/m^3)	ASIL (µg/m^3)	Percent of ASIL
NO_2	1-hour	---	470	--
DEEP*	Year	0.093	0.0033	2,818%
CO	1-hour	352.9	23,000	1.5%
SO_2	1-hour	8.2	660	1.3%
1,3-Butadiene	Year	0.00645	0.033	20%
Acetaldehyde	Year	0.0233	0.37	6%
Acrolein	24-hour	0.0338	0.35	10%
Benzene	Year	0.00553	0.13	4%
Benzo(a)pyrene	Year	0.0000262	0.001	3%
Dibenz(a,h)anthracene	Year	0.0000300	0.0005	6%
Formaldehyde	Year	0.0512	0.17	30%
Hydrogen Chloride	24-hour	0.186	9	2%
Naphthalene	Year	0.00106	0.029	4%
Arsenic	Year	0.0000142	0.0003	5%
Cadmium	Year	0.0000134	0.00024	6%
Hexavalent Chromium	Year	8.9E-07	0.000004	22%
Mercury	24-hour	0.003	0.03	2%

As shown in the table above, all TAPs except NO_2 and DEEP are below the associated ASIL. A Second Tier Health Impact Assessment (HIA) was conducted for DEEP, Policy on second tier review health impact assessment for Emergency Generators (>2000 bhp) covers NO_2 per WAC 173-460-090. Ecology reviewed the assessment and recommended approval of the project because, "the health hazards are considered to be acceptable." Ecology's analysis and recommendations are included in the document, "Health Impact Assessment Data Center General Order", August 2025.

Appendix A – Federal Rule Applicability

1. 40 C.F.R. Part 60, Subpart IIII

The ICE NSPS (40 C.F.R. Part 60, Subpart IIII) applies to each engine. The applicable portions the rule appear to be:

Citation	Subject	Notes
60.4202(a)(2)	Manufacturer emission standards	Specifies that 2007 model year and later emergency stationary CI ICE with a maximum engine power ≥37 kW and ≤2,237 KW be certified to the emission standards specified in 40 C.F.R. 1039, Appendix I.
60.4205(b)	Owner/Operator emission standards	Directs owners and operators of 2007 model year and later emergency stationary CI ICE to comply with the emission standards for new nonroad CI engines in §60.4202.
60.4209(a)	Owner/Operator monitoring requirements	Requires installation install a non-resettable hour meter prior to startup of each engine, since the engines do not meet the standards applicable to non-emergency engines.
Table 8 to Subpart IIII of Part 60	Applicability of General Provisions to Subpart IIII	The table lists what portions of 40 C.F.R. 60 Subpart I are applicable, including notification and recordkeeping requirements.

Note: While the engines are equipped with catalyzed diesel particulate filters, 40 C.F.R. 60.4209(b) is not applicable to the engines because the filters are not required for compliance with the emission standards in 40 C.F.R. 60.4204.

60.4211(f) Emergency engine requirements: with sections omitted that are not allowed in this General Order.

If you own or operate an emergency ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) and (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3), is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3), the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) … the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for the purposes specified in paragraph (f)(2)(i) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph (f)(2) of this section. ….the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

2. 40 C.F.R. Part 63, Subpart ZZZZ

The RICE NESHAP applies to each engine. Condition 1 of the Order requires general compliance with this regulation. However, each engine is also subject to the ICE NSPS (see above). At 40 C.F.R. 63.6590(c), the NESHAP specifies that compliance must be met by meeting the requirements of the NSPS; therefore, no further requirements apply to the engines.

Appendix B – Air Dispersion Modeling

a. Air dispersion modeling to support development of a data center general order

June 3, 2025

Ecology conducted air dispersion modeling to estimate impacts of criteria and toxic air pollutants emitted from diesel-fired emergency generators at data centers. Emissions were modeled at two locations in Washington in order to simulate areas where data center activity is highest. Modeling scenarios were based on a hypothetical worst-case engine, two different building heights, and multiple stack heights. In total, 21 engines were modeled, consisting of twenty 3.0 MWe generators and an additional 3.0 MWe administrative generator. Tier 4 equivalent engines were also assumed.

Modeling was conducted following internal guidance. Ambient impacts were estimated relative to National Ambient Air Quality Standards (NAAQS) and acceptable source impact levels (ASILs). The modeling results were used to determine a range of parameters for the general order.

In summary, modeling results indicate the following for NAAQS compliance of 21 Tier 4 equivalent 3.0 MWe engines:

i. For short buildings (approximately 8-9 m tall), stack heights need to be at least 10 m above the building height. For taller buildings (approximately 18 m tall), stack heights need to be at least 3 m above the building height.

ii. Sources require an ambient air boundary of at least 100 m if oriented around a short building (approximately 8-9 m tall).

iii. Engines may only operate between 7am-7pm for maintenance and testing scenarios.

1. Pollutants and relevant standards

Table 1. Pollutants considered in this analysis.

Pollutant	Averaging Time	NAAQS (mg/m3)	ASIL (mg/m3)
PM2.5	Annual	9.0	NA
PM2.5	24-hr	35	NA
PM10	24-hr	150	NA
NO2	1-hr	188	NA
SO2	1-hr	196	NA
SO2	3-hr	1300	NA
CO	1-hr	40000	NA

Pollutant	Averaging Time	NAAQS (mg/m3)	ASIL (mg/m3)
CO	8-hr	10000	NA
Diesel engine exhaust, particulate (DEEP)	Annual	NA	0.0033
Other toxic air pollutants listed in WAC 173-460-150	1-hr, 24-hr, annual	NA	various

Ecology considered emissions of criteria pollutants and toxic air pollutants to estimate ambient impacts. Total impacts were estimated by including relevant background concentrations for criteria pollutants.

2. Emissions Estimates

Emissions from a hypothetical worst-case engine were estimated based on maintenance and testing scenarios from Tier 4 equivalent engines gathered from previous projects. Given that pollutant emissions vary based on engine load, all engine loads were considered when determining the applicable emission rate for each pollutant. Emission rates and associated engine loads are listed in Table 1.

Table 2. Modeled emission rates and associated engine loads for each considered pollutant.

	Emission Rate (g/s)	Assumed engine load
PM2.5 (annual and 24-hr)	0.193	25%
PM10	0.193	25%
CO (1-hr and 8-hr)	0.244	100%
SO2 (1-hr and 3-hr)	0.0567	100%
NO2	3.52	100%
DPM	0.0202	25%
Toxic air pollutants	1.00	100%

3. Modeling Methods and Assumptions

The most recent versions of AERMOD and preprocessors were used to model ambient air impacts. Specifically, Lakes AERMOD version 13.0.0 incorporates AERMOD v24142, AERMET v24142, AERSURFACE v24142, AERMINUTE v15272, AERMAP v24142, and BPIPPRM v04274. Unless noted, assumptions followed internal Ecology guidance for air quality dispersion modeling. Aside from 1-hour NO2 simulations, each modeling scenario assumed each source was operating 24 hours per day, 7 days per week. For one hour NO2 modeling scenarios, sources were assumed to operate from 7am-7pm and modeling was conducted assuming one engine was operating at a time each hour.

a. Locations

Modeling scenarios were conducted at two locations in Washington State—Quincy and East Wenatchee. These locations were chosen based on previous data center permitting projects.

b. Buildings

Modeled building dimensions are shown in the table below. Buildings were based on previous projects and assumed to simulate both a one-story and a two-story building. Buildings were oriented east to west and twenty engines were spaced equally on the north and south sides of the building at a distance eight meters away from the building. An additional engine simulating the presence of an administrative engine was conservatively placed on the southeast corner of the building where potential impacts from that engine would be highest given the predominant wind conditions in both Quincy and East Wenatchee. Building downwash was processed using BPIPPRM. Building layout and engine placement is shown in Figure 1.

Table 3. Building parameters.

Location	Building Length (m)	Building Width (m)	Building Height (m)
Quincy	365	58	18.29
Quincy	365	58	8
East Wenatchee	365	58	18.29
East Wenatchee	365	58	8.5

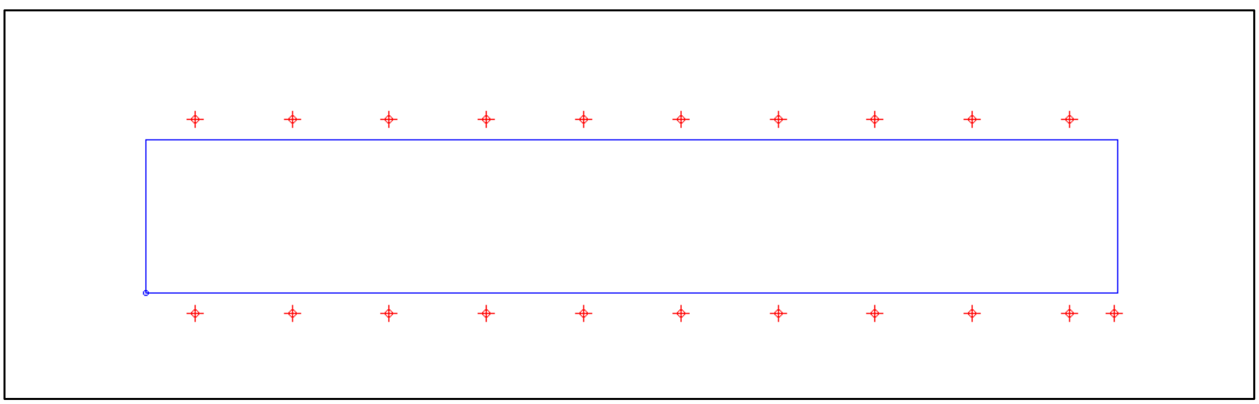

Figure 1. Building layout and engine placement.

c. Stack Parameters

Stack parameters for each pollutant are shown in Table 4. Hypothetical stack parameters were based on an assessment of the worst-case conditions from 3.0 MWe Tier 4 equivalent engines used in previous projects.

Table 4. Stack parameters used in modeling scenarios.

Pollutant	Temp (°F)	Velocity (m/s)	Diameter (m)
NO2	623	37.24	0.73
DPM	441	10.66	0.73
PM2.5	441	10.66	0.73
PM10	441	10.66	0.73
CO	623	37.24	0.73
SO2	623	37.24	0.73

d. Receptor Grid

Multi-tiered receptor grids were generated following Ecology guidance with the exception of increased density within the tier closest to the source. Flagpole height was set to 1.5 meters.

Table 5. Multi-tiered receptor grid.

Distance from center (m)	Grid spacing (m)
0-300	12.5
300-400	25
400-900	50
900-2000	100
2000-4500	300
4500-10000	600

e. Terrain

AERMAP version 24142 was used to process terrain and estimate surface elevations of sources and receptors.

f. Meteorology

AERMOD-ready meteorological files were processed with AERMET version 24142. Meteorological data processed by AERMET for Quincy utilized hourly temperature, wind speed, and wind direction observations from Ecology's Quincy air monitoring site (330 3rd Avenue NE, approximately 1.5 miles from the hypothetical source). Five years of data (2019-2023) were processed. In addition, 2019-2023 National Weather Service (NWS) hourly surface observations from Grant County International Airport (Moses Lake, 26 miles from hypothetical site) were processed in AERMET. One-minute data from Grant County International Airport was processed by AERMINUTE to reduce the number of calm hours.

East Wenatchee meteorology utilized 2019-2023 NWS hourly surface observations from Pangborn Memorial Airport (EAT), located about 0.8 miles from the hypothetical facility. AERMINUTE processed one-minute data to reduce the number of calm hours.

For both locations, upper air data utilized five years (2019-2023) of twice-daily NWS upper air soundings from Spokane, WA. The ADJ_U* processing option was also utilized for both sites, following Ecology's guidance.

Surface characteristics were determined by AERSURFACE. Default seasonal categories were assigned. Winter months with continuous snow were determined by calculating the percentage of hours with snow depth greater than 0 inches. If a month observed greater than 50 percent snow cover then it was designated as a winter month with continuous snow. For Quincy, this designation applied to December and January. For East Wenatchee, this designation applied to December, January, and February. Precipitation data for each location utilized in assigning annual surface moisture conditions. The most recent 30 years of annual precipitation totals were obtained from the Western Regional Climate Center database and annual precipitation from 2019-2023 was compared to the historical values from the past 30 years. For Quincy, 2019 and 2020 were considered average, 2021 was considered dry, and 2022 and 2023 were considered wet. For East Wenatchee, 2019 and 2023 were determined to be average, 2020 and 2021 were determined to be dry, and 2022 was determined to be wet. East Wenatchee was also designated an airport site by AERSURFACE in sectors 6-11.

Windroses for each site are shown in Figures 2 and 3 below

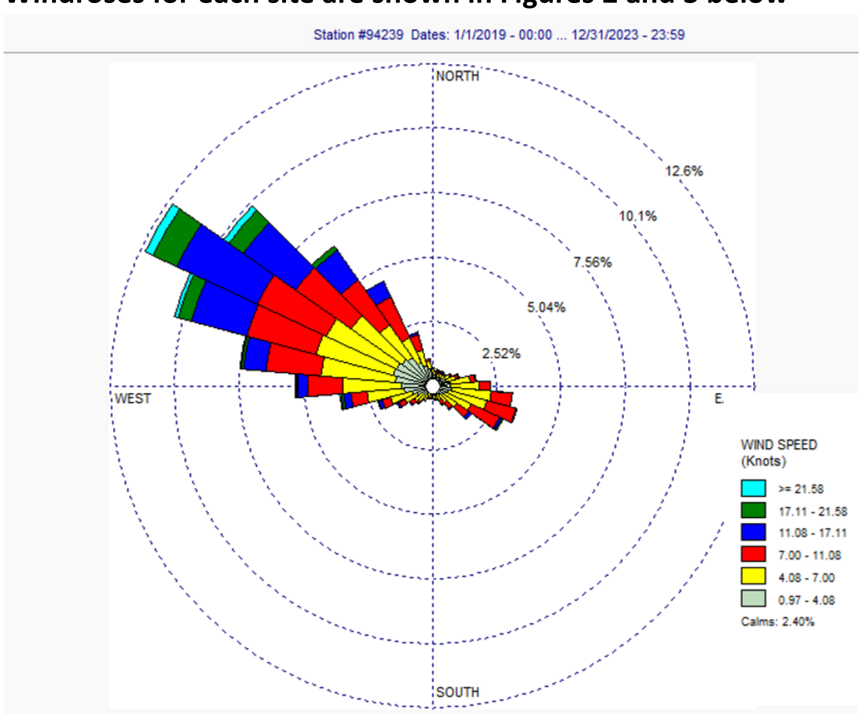

Figure 2. East Wenatchee windrose.

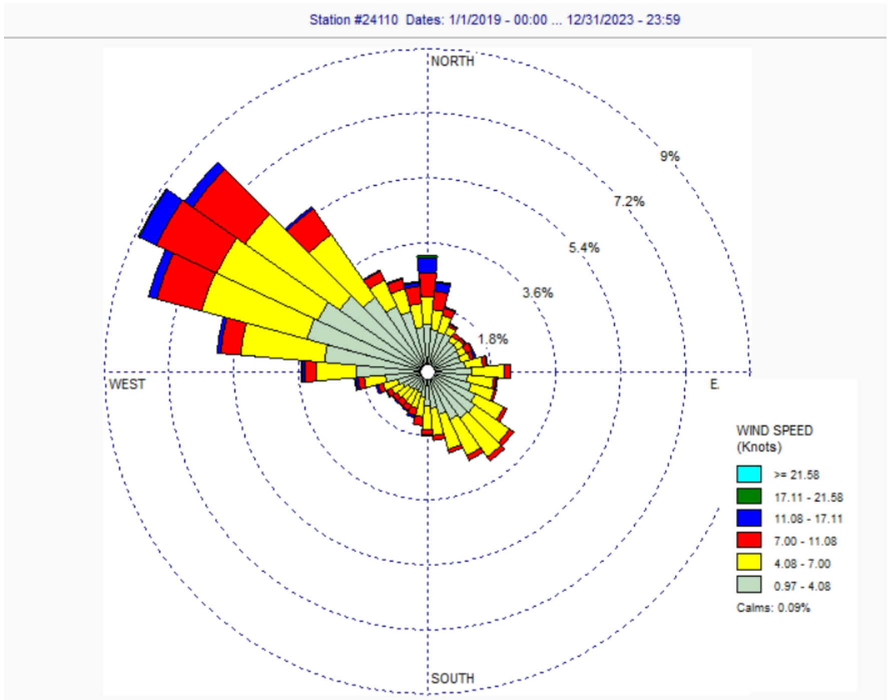

Figure 3. Quincy windrose.

g. NOx to NO2 conversion

Ambient NO2 concentrations were calculated using the Plume Volume Molar Ratio Method (PVMRM) with the following parameters:

i. Default NO2/NOx equilibrium ratio of 0.9

ii. NO2/NOx in-stack ratio of 0.1

iii. Ambient ozone concentration of 40 ppb

h. Background concentrations

With the exception of one hour NO2, regional background concentrations were obtained from from the NW-Airquest Background Concentration lookup tool. Hyper-local 1-hr NO2 background for Quincy was determined from the Cumulative Health Risks Assessment. A representative NO2 background was obtained by selecting a 3-receptor buffer around the hypothetical source and averaging the results. A representative 1-hour NO2 background for East Wenatchee was obtained from the median value of the 1-hour NO2 98th percentiles within 300m of the hypothetical source location, based on recent project air modeling results that included emissions from generators at multiple sources in the area as well as monitoring background data (reference: EAT06-09 project).

Table 6. Background concentrations.

Pollutant	Averaging Time	Quincy background (mg/m3)	East Wenatchee background (mg/m3)
CO	1-hr	1317.4	1328.9
CO	8-hr	927.9	916.5
SO2	1-hr	6.5	10
SO2	3-hr	14.1	12.3
PM2.5	24-hr	19	23
PM2.5	Annual	5.8	6.8
PM10	24-hr	77	73
NO2	1-hr	59.2	56.4

4. Modeling Results

The maximum concentration of each scenario was compared to the applicable NAAQS or ASIL. Criteria air pollutant results are shown in Tables 7-12.

a. CO and SO2

Modeling scenarios for CO and SO2 considered engines operating continuously. Each scenario demonstrated compliance with the NAAQS.

Table 7. Summary of modeled CO concentrations for each modeling scenario and location.

Location	Building type	Stack height above building (m)	Averaging time	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Percent of NAAQS
Quincy	Short	10	1-hr	214.5	1531.5	40000	4%
			8-hr	172.9	1100.5	10000	11%
	Tall	0	1-hr	352.9	1657.6	40000	4%
			8-hr	212.7	1140.1	10000	11%
East Wenatchee	Short	10	1-hr	210.6	1539.5	40000	4%
			8-hr	158.3	1074.8	10000	11%
	Tall	0	1-hr	328.2	1657.1	40000	4%
			8-hr	181.4	1097.9	10000	11%

Table 8. Summary of modeled SO_2 concentrations for each modeling scenario and location.

Location	Building type	Stack height above building (m)	Averaging time	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Percent of NAAQS
Quincy	Short	10	1-hr	49.7	56.2	196	29%
			3-hr	45.5	59.6	1300	5%
	Tall	0	1-hr	81.9	88.4	196	45%
			3-hr	71.0	85.1	1300	7%
East Wenatchee	Short	10	1-hr	48.9	58.9	196	30%
			3-hr	43.2	55.5	1300	4%
	Tall	0	1-hr	76.1	86.1	196	44%
			3-hr	53.6	65.9	1300	5%

b. PM10

Assuming that two engines are operating at a time each hour, every PM10 modeling scenario demonstrated compliance with the NAAQS.

Table 9. Summary of daily PM10 results for each modeling scenario and location.

Location	Building type	Stack height above building (m)	Maximum concentration (mg/m3); 2 engines at a time	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Percent of NAAQS
Quincy	Short	10	17.2	94.2	150	63%
		13.95	14.8	91.8	150	61%
	Tall	0	13.5	90.5	150	60%
		3	12.6	89.6	150	60%
East Wenatchee	Short	10	13.2	86.2	150	57%
		13.95	11.9	84.9	150	57%
	Tall	0	11.5	84.5	150	56%
		3	10.8	83.8	150	56%

c. PM2.5

Annual PM2.5 results assume all 21 engines are operating for 100 hours. Reverse calculations determined that engines will demonstrate compliance with the NAAQS even if the number of operating hours increases to 280 hours. Depending on the modeling scenario, operating hours could be increased up to 420 hours to still comply with the NAAQS.

Table 10. Summary of annual PM2.5 concentrations for each modeling scenario and location. Results are scaled assuming 100 hours of operation per year.

Location	Building type	Stack height above building (m)	Maximum concentration (mg/m3) assuming 100 hours of operation per year	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Maximum hours allowed annually to be below the standard
Quincy	Short	10	0.89	6.69	9	360
		13.95	0.76	6.56	9	420
	Tall	0	0.81	6.61	9	395
		3	0.77	6.57	9	420
East Wenatchee	Short	10	0.78	7.58	9	280
		13.95	0.71	7.51	9	310
	Tall	0	0.68	7.48	9	320
		3	0.66	7.46	9	330

Daily PM2.5 results assumed one engine operating at a time per hour to meet compliance with the NAAQS. Two engines operating per hour resulted in violations for the shorter stack height at the shorter building at both locations.

Table 11. Summary of daily PM2.5 concentrations for each modeling scenario and location. Modeling was based on 21 engines running 24/7.

Location	Building type	Stack height above building (m)	Number of engines per hour	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)
Quincy	Short	10	1	9.88	28.9	35
			2	19.8	38.8	35
		13.95	1	8.70	27.7	35
			2	17.4	36.4	35
	Tall	0	1	7.99	27.0	35
			2	16.0	35.0	35
		3	1	7.47	26.5	35
			2	14.9	33.9	35
East Wenatchee	Short	10	1	7.58	30.6	35
			2	15.2	38.2	35
		13.95	1	6.90	29.4	35
			2	13.8	36.8	35

Location	Building type	Stack height above building (m)	Number of engines per hour	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)
	Tall	0	1	5.95	29.4	35
			2	12.8	35.8	35
		3	1	5.95	29.0	35
			2	11.9	34.9	35

d. 1-hr NO_2

i. One engine

Scenarios were run assuming one engine was operating at a time per hour. Each engine was run individually, resulting in 20 modeling runs for each building and stack height scenario. Engines were further assumed to only be operating between 7am-7pm with the assumption that SCR control takes 20 minutes to warm up before reaching 90% control.

The maximum 1-hour NO_2 concentration for each modeling scenario are shown in Table 12. In general, the maximum scenarios were from engines located on the northeast and southeast sides of the building. NAAQS compliance is met in Quincy for a tall building with a stack height 3 m above the height of the building and in East Wenatchee for both tall building scenarios. For the modeling scenarios that did not demonstrate NAAQS compliance (Figures 4-8), violating receptors are located within 180 meters of the hypothetical facility. These results indicate that the ambient air boundary needs to be at least 180 m from sources, especially for a shorter building (8-9 meter height). For a taller building (approximately 18 meter tall), the ambient air boundary could be reduced to 140 meter if the stack height is conservatively assumed to be the same as the building height.

Table 12. 1-hr NO2 modeling results assuming 1 engine running at a time per hour. Distances are measured as the distance from the furthest away violating receptor to the worst-case engine.

Location	Building type	Stack height above building (m)	Engine of maximum concentration	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Distance to NAAQS-bkgd (m)	Number of violating receptors
Quincy	Short	10	8	212.6	271.8	188	180	34
		13.95	8	178.3	237.5	188	115	9

Location	Building type	Stack height above building (m)	Engine of maximum concentration	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Distance to NAAQS-bkgd (m)	Number of violating receptors
	Tall	0	9	142.8	202.0	188	140	4
		3	8	128.6	187.8	188	-	-
East Wenatchee	Short	10	17	152.8	209.2	188	110	2
		13.95	17	136.4	192.8	188	110	1
	Tall	0	9	112.9	169.3	188	-	-
		3	9	101.6	158.0	188	-	-

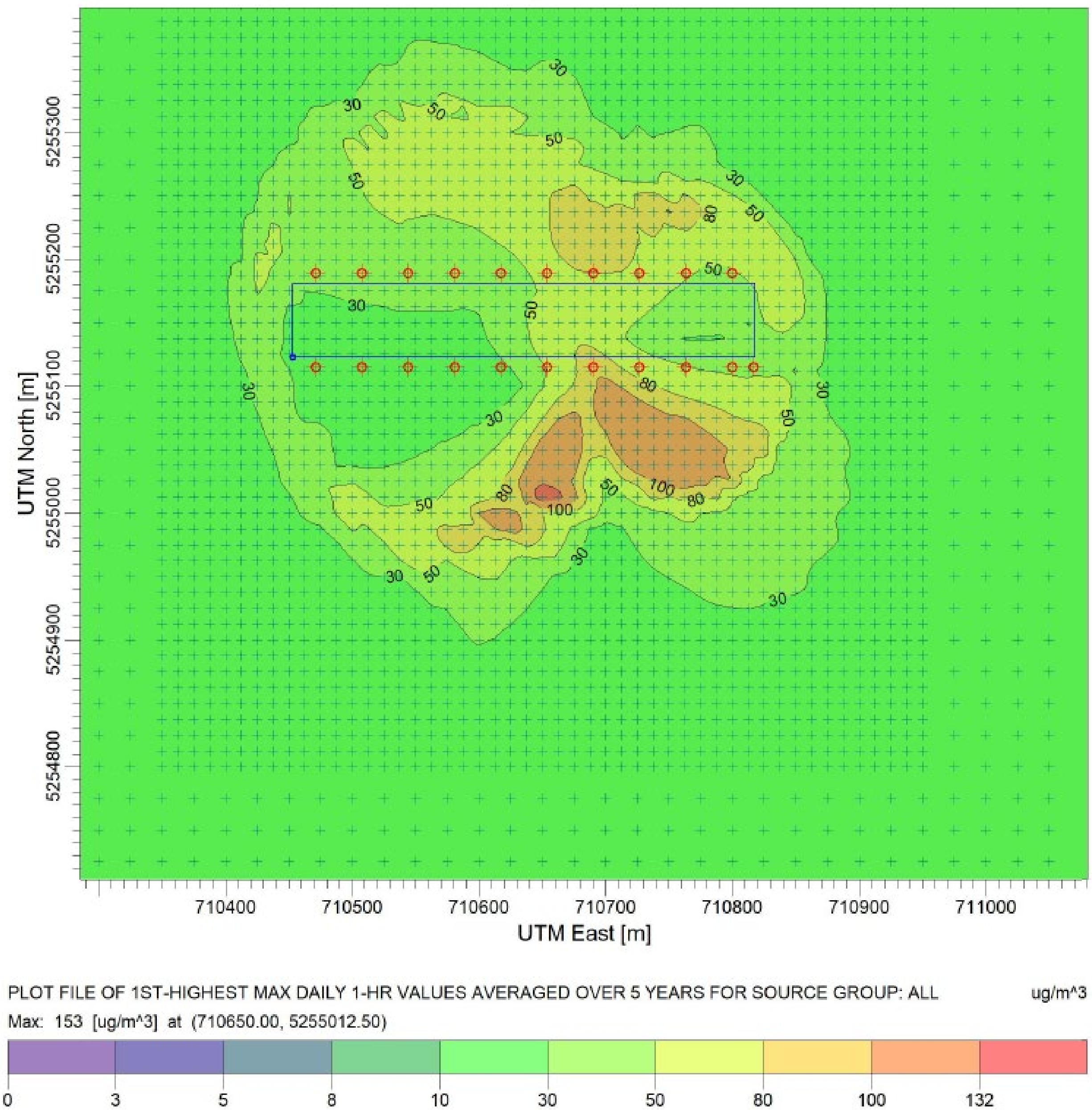

Figure 4. Location of violating receptors (red contour) for East Wenatchee short building with a stack height 10 m above the building.

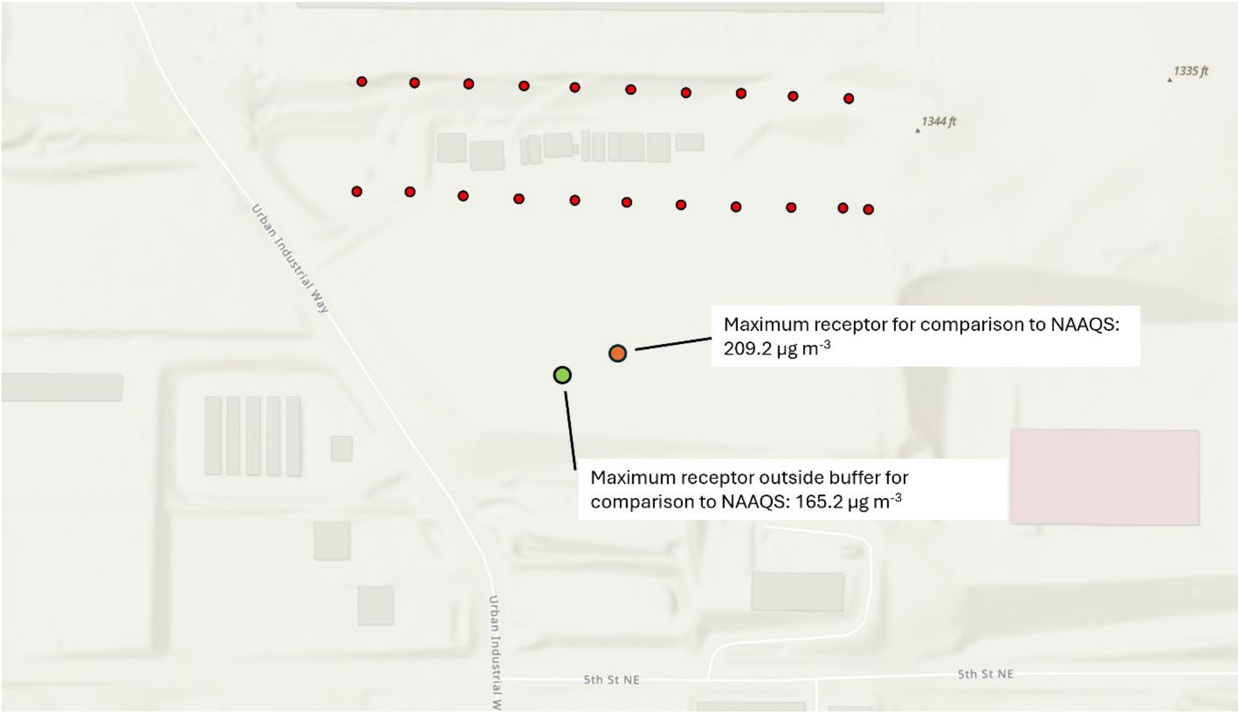

Figure 5. Location of furthest away violating receptor and maximum receptor outside the 110 m buffer for comparison to the NAAQS for East Wenatchee short building with a stack height 10 m above the building.

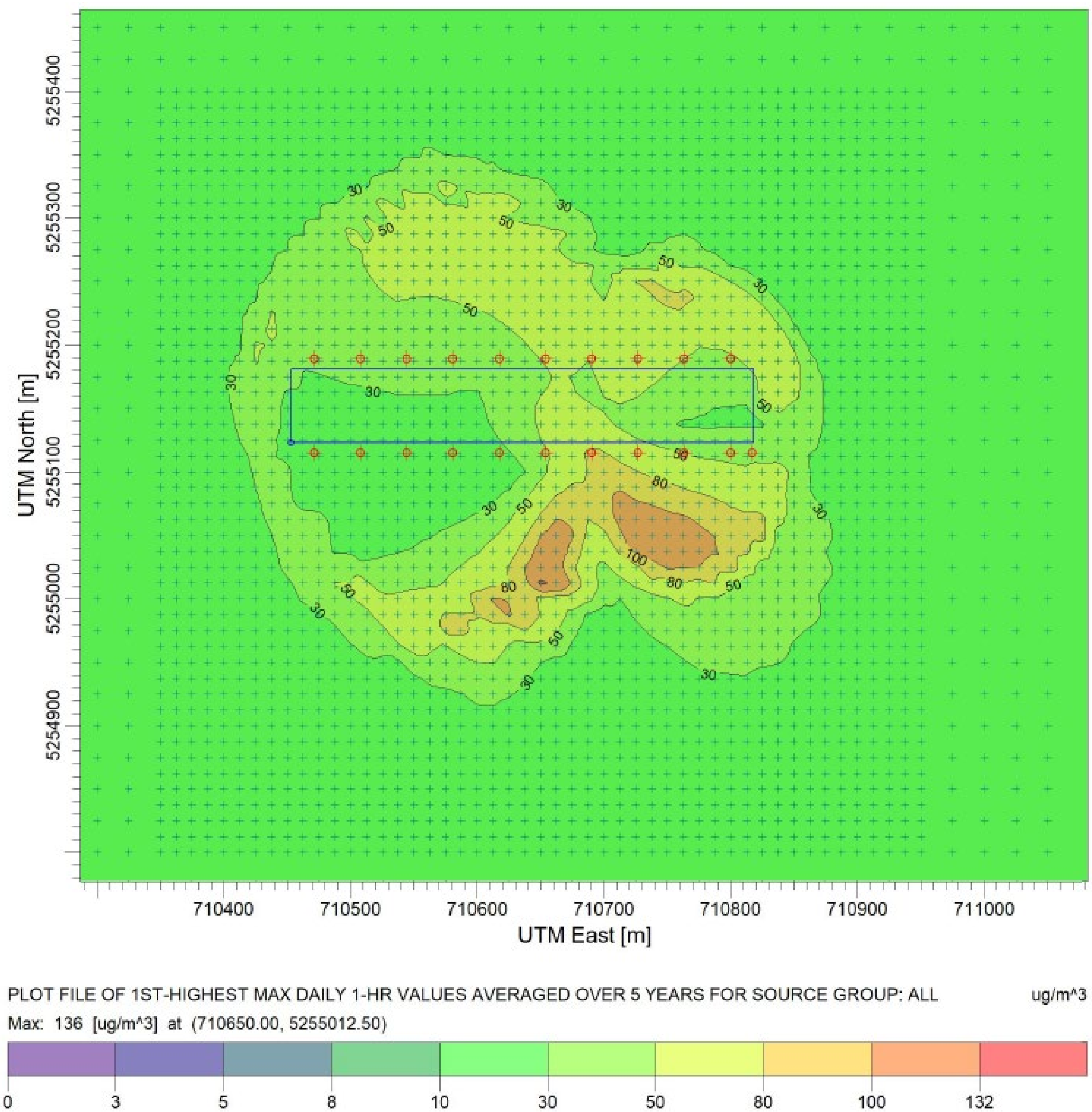

Figure 6. Location of violating receptors (red contour) for East Wenatchee short building with a stack height 13 meters above the building.

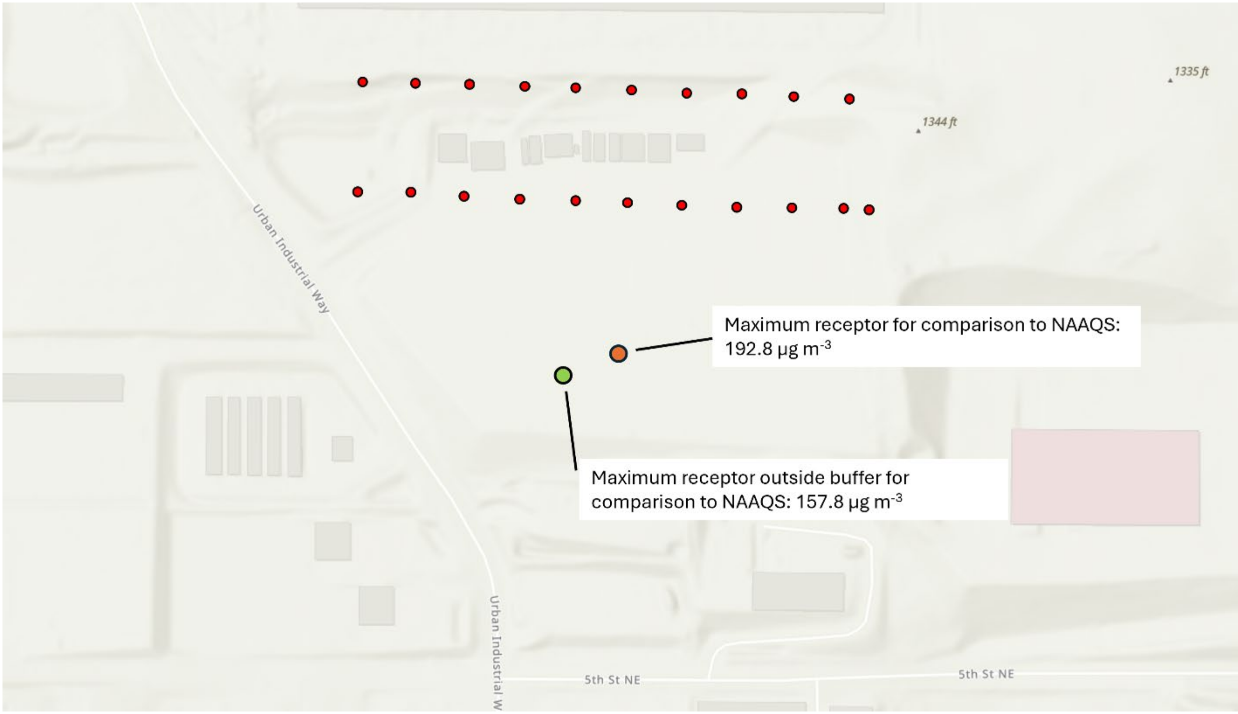

Figure 7. Location of furthest away violating receptor and maximum receptor outside the 110 m buffer for comparison to the NAAQS for East Wenatchee short building with a stack height 13 m above the building.

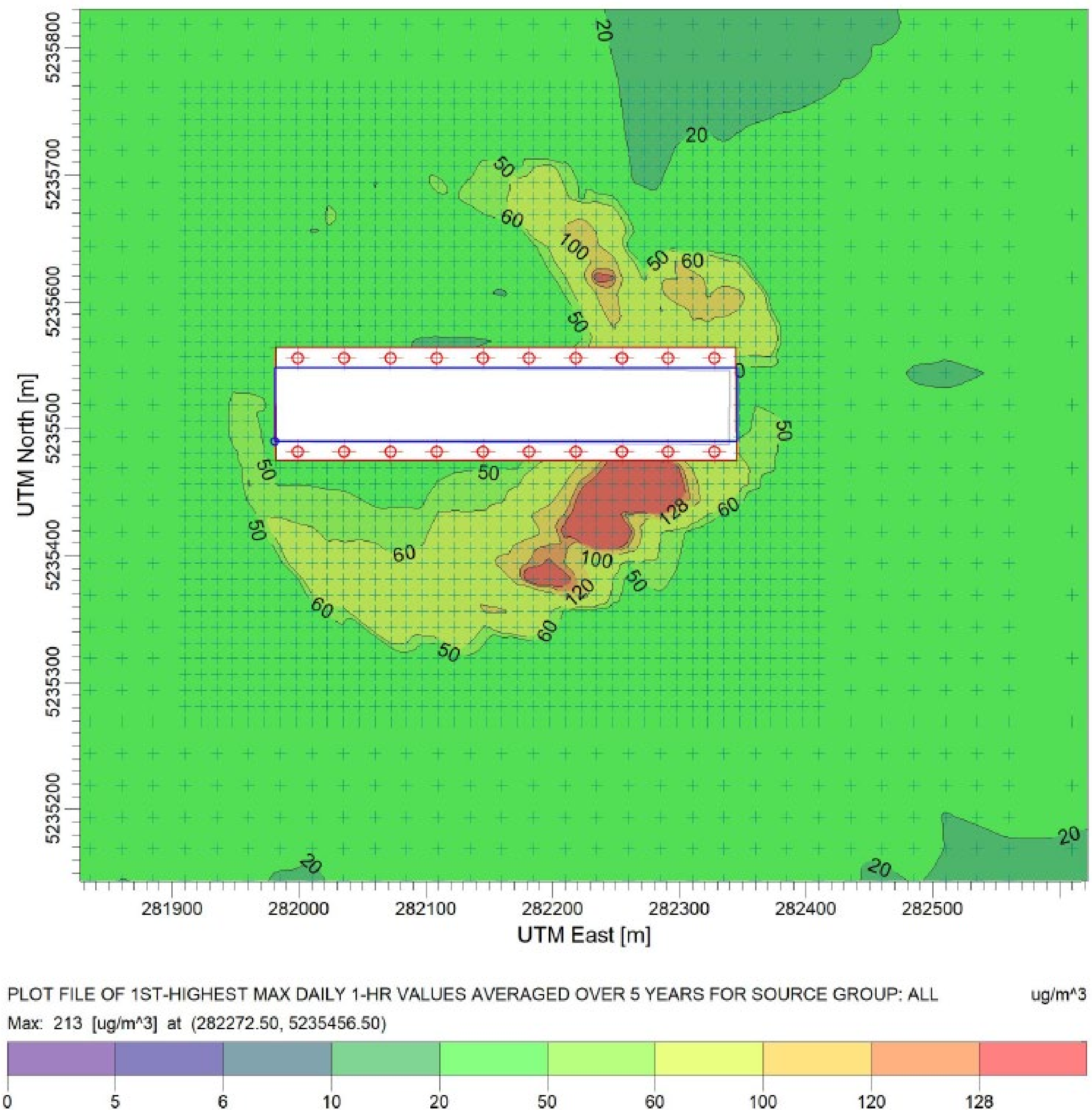

Figure 8 Location of violating receptors (red contour) for Quincy short building with a stack height 10 m above the building.

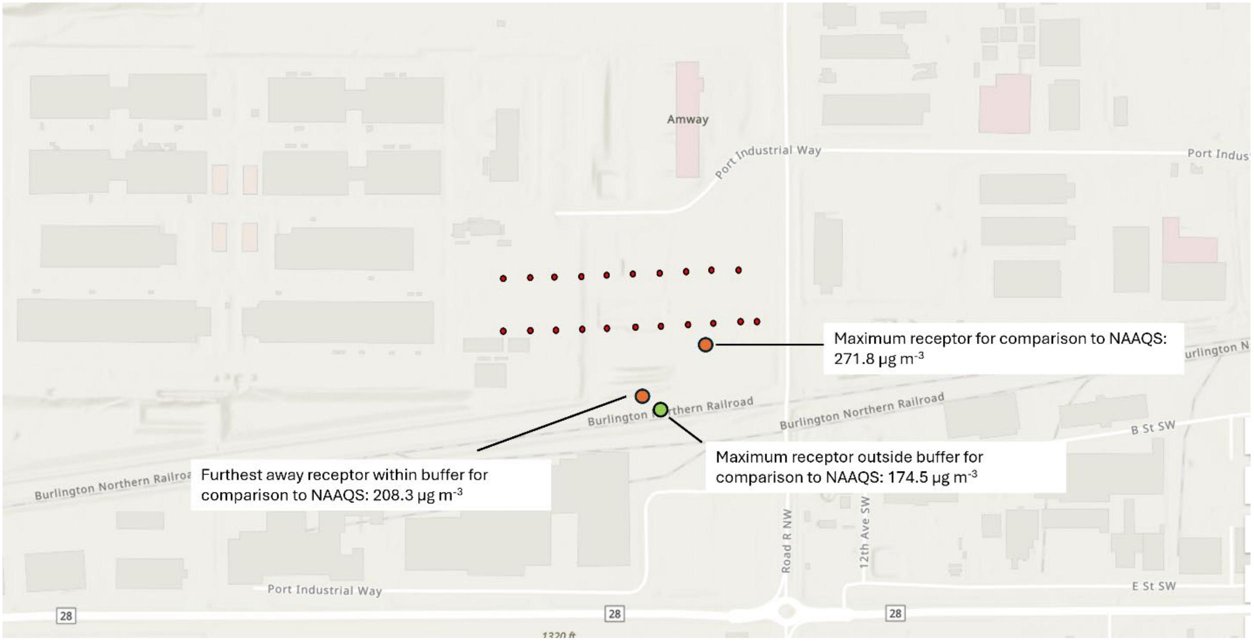

Figure 9. Location of furthest away violating receptor and maximum receptor outside the 180 m buffer for comparison to the NAAQS for Quincy short building with a stack height 10 m above the building. The maximum receptor within the buffer is also shown.

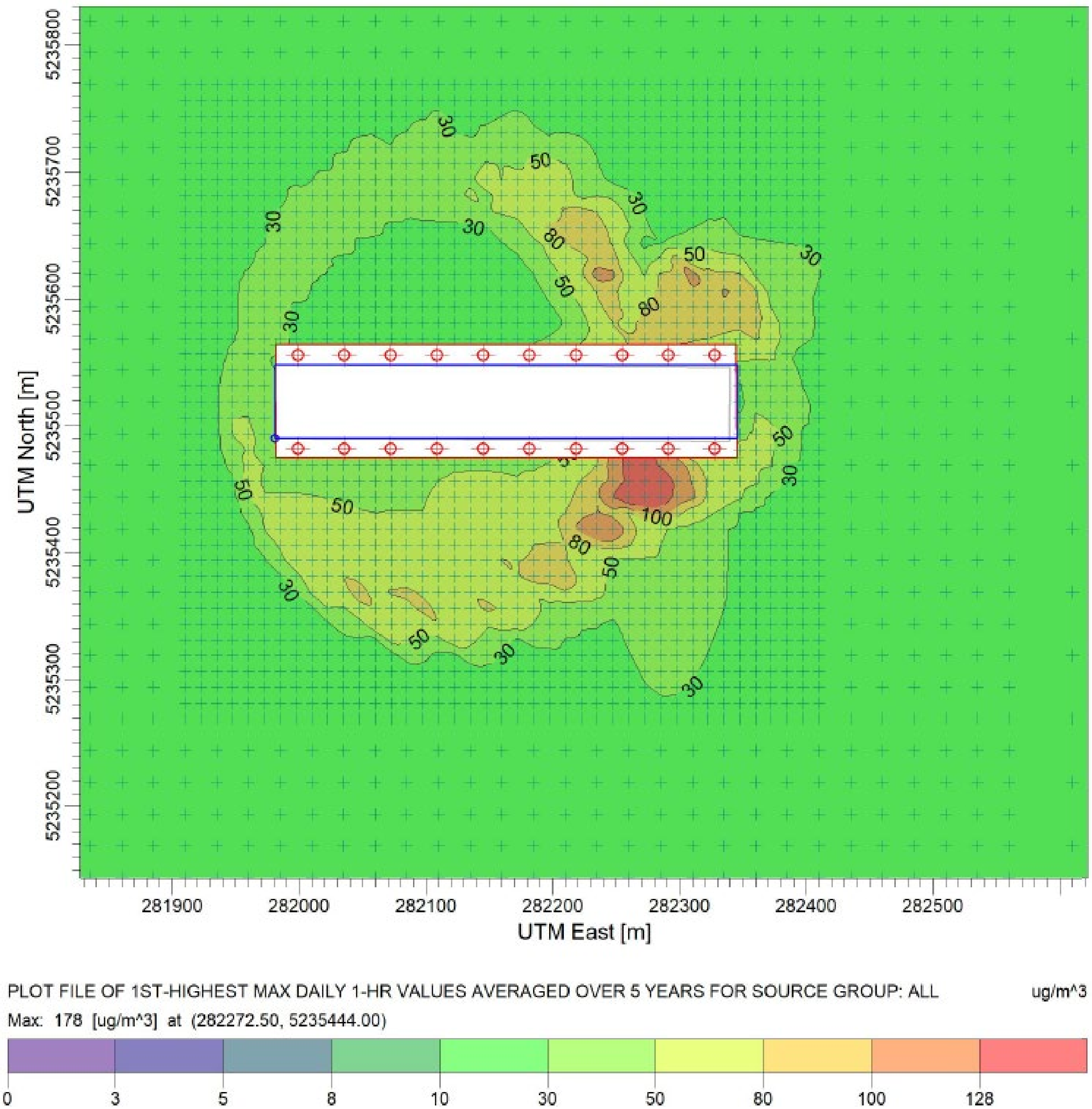

Figure 10. Location of violating receptors (red contour) for Quincy short building with a stack height 13 m above the building.

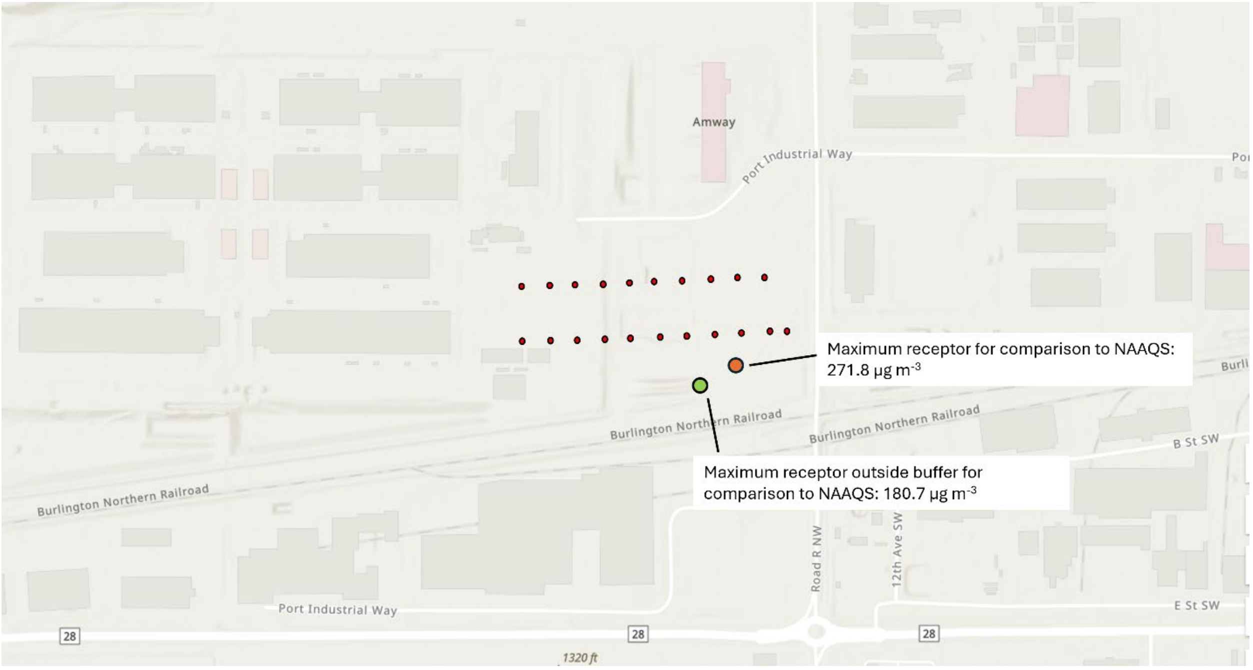

Figure 11. Location of furthest away violating receptor and maximum receptor outside the 115 m buffer for comparison to the NAAQS for Quincy short building with a stack height 13 m above the building.

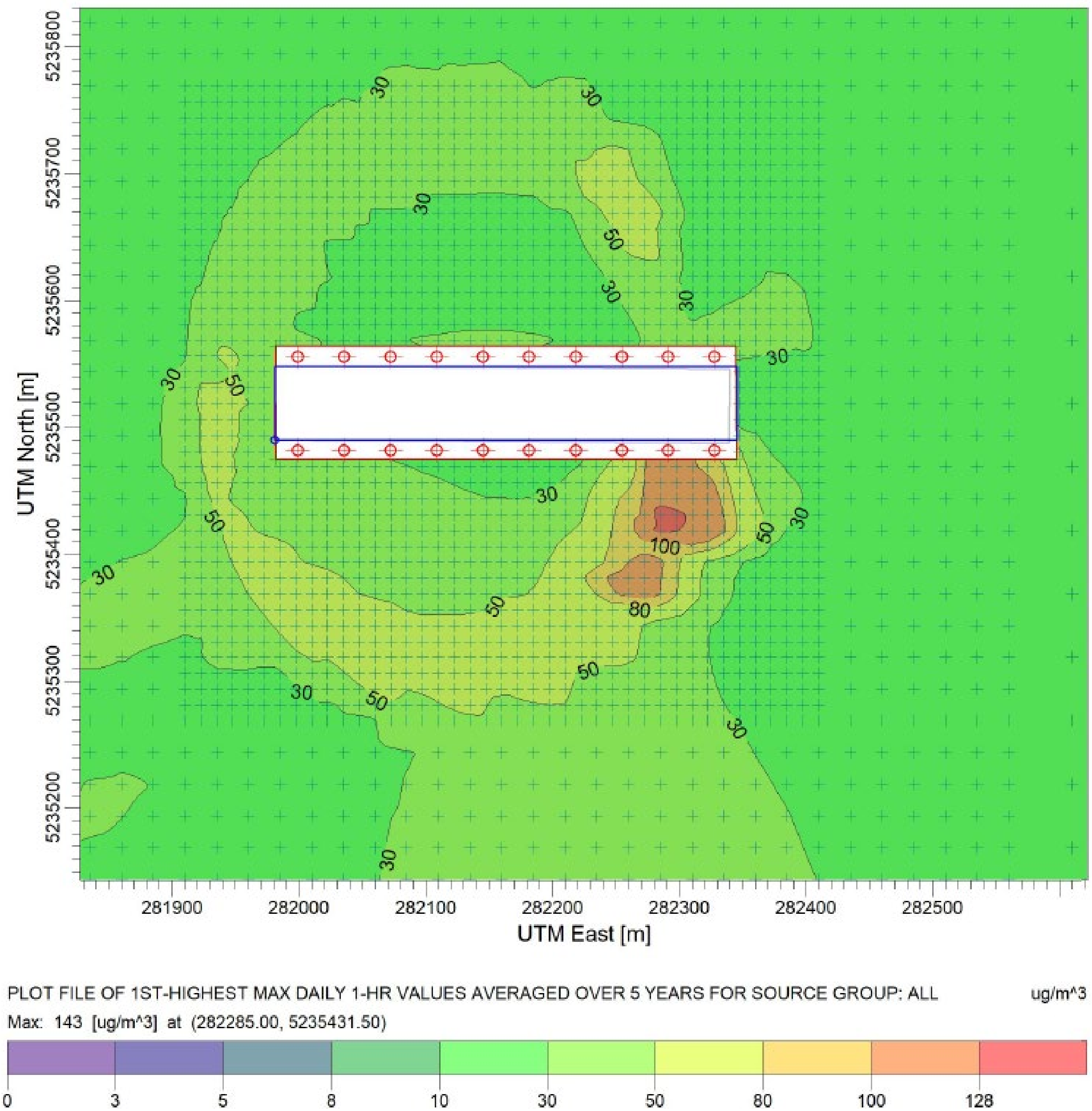

Figure 12. Location of violating receptors (red contour) for Quincy tall building with a stack height 0 m above the building.

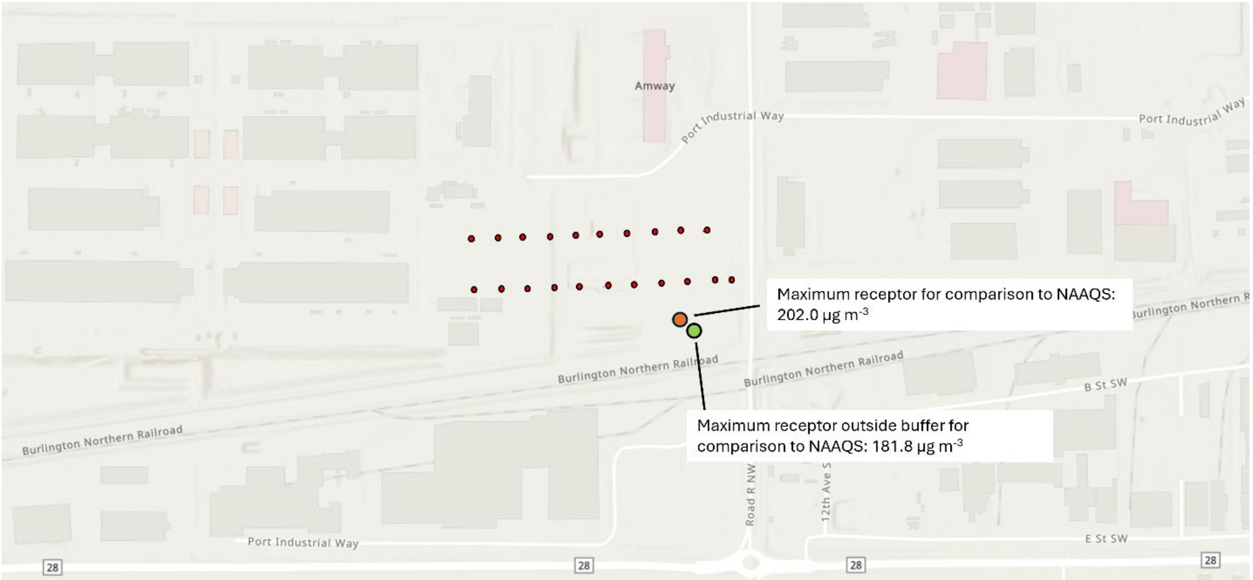

Figure 13. Location of furthest away violating receptor and maximum receptor outside the 140 m buffer for comparison to the NAAQS for Quincy tall building with a stack height 0 m above the building.

ii. Two engines

Additional NO_2 scenarios were modeled assuming two engines operating at a time to represent testing and maintenance scenarios conducted every five years. Similar to the one engine scenarios, engines were assumed to be operating 7am-7pm. Engines were run in adjacent pairs assuming both 15 and 20 minute warm up periods for SCR control to reach 90 percent. Results are shown in Table 13. Distances from the source to concentrations that comply with the NAAQS vary from 130-160 m.

Table 13. Results for modeling scenarios with two engines operating at a time.

Location	Building type	Stack height above building (m)	Assumed SCR warmup time (minutes)	Engines of maximum concentration	Maximum concentration (mg/m3)	Total concentration (including background, mg/m3)	NAAQS (mg/m3)	Distance to NAAQS-bkgd (m)
Quincy	Short	13.95	20	7, 8	286.8	346	188	130
			15	7, 8	275.3	334.5	188	130
	Tall	3	20	7, 8	209.5	268.7	188	130
			15	7, 8	201.1	260.3	188	130
East Wenatchee	Short	10	20	17, 18	239.1	295.5	188	140
	Tall	0	20	3, 4	160.2	216.6	188	160

e. Toxic Air Pollutants

iii. Diesel Particulate Matter (DPM)

All 21 sources assumed to be operating simultaneously 24 hours per day, 365 days per year. Results from each modeling scenario were assessed by the distance from the source to a threshold of five times the ASIL.

Table 14. DPM modeling results.

Location	Building type	Stack height above building (m)	Maximum concentration (mg/m3) assuming 100 hours	ASIL (mg/m3)	Distance to 5*ASIL (m)
Quincy	Short	10	0.093	0.0033	380
		13.95	0.079	0.0033	320
	Tall	0	0.084	0.0033	390
		3	0.080	0.0033	350
East Wenatchee	Short	10	0.081	0.0033	400
		13.95	0.074	0.0033	350
	Tall	0	0.071	0.0033	350
		3	0.069	0.0033	330

iv. Other toxic air pollutants

Modeling scenarios were conducted assuming a unit emission rate (1 g/s) to determine dispersion factors for averaging times relevant to toxic air pollutants listed in WAC 173-460-150. All 21 sources were assumed to be operating continuously and simultaneously.

Table 15. Dispersion factors for each modeling scenario based on a unit emission rate.

Location	Building type	Stack height above building (m)	1-hr (mg/m3 per g/s)	24-hr (mg/m3 per g/s)	Annual (mg/m3 per g/s)
Quincy	Short	10	877.4	587.5	141.0
		13.95	744.9	498.5	120.5
	Tall	0	1444	595.2	189.4
		3	1321	552.1	177.4
East Wenatchee	Short	10	863.1	486.0	186.2
		13.95	711.0	421.1	167.2
	Tall	0	1343	475.3	175.6
		3	1218	437.3	168.5

Table 16. Emission rates for applicable toxic air pollutants compared to De Minimis and SQER values.

Toxic Air Pollutants (TAPs)

Pollutant	Averaging Time	Source emissions (lb/averaging time)	De Minimis	SQER	Action Required
DEEP	Year	334.57	0.027	0.54	Model
SO2	1-hr	0.93	0.46	1.2	NSR
Ammonia (slip)	24-hr	15.37	1.9	37	NSR
1,3-Butadiene	Year	49.75	0.27	5.4	Model
Acetaldehyde	Year	179.25	3	60	Model
Acrolein	24-hr	0.227	0.0013	0.026	Model
Benzene	Year	42.63	1	21	Model
Benz(a)anthracene	Year	0.25	0.045	0.89	NSR
Benzo(a)pyrene	Year	0.20	0.0082	0.16	Model
Benzo(b)fluoranthene	Year	0.40	0.045	0.89	NSR
Benzo(k)fluoranthene	Year	0.39	0.045	0.89	NSR
Chlorobenzene	24-hr	0.0013	3.7	74	-
Chrysene	Year	0.22	0.45	8.9	-
Dibenz(a,h)anthracene	Year	0.21	0.0041	0.082	Model
Ethyl benzene	Year	2.49	3.2	65	-
Formaldehyde	Year	395	1.4	27	Model
n-Hexane	24-hr	0.180	2.6	52	-
Hydrogen chloride	24-hr	1.25	0.033	0.67	Model
Indeno(1,2,3-cd)pyrene	Year	0.21	0.045	0.89	NSR
Naphthalene	Year	8.17	0.24	4.8	Model
Propylene	24-hr	3.130	11	220	-
Toluene	24-hr	0.706	19	370	-
m-Xylene	24-hr	0.145	0.82	16	-
o-Xylene	24-hr	0.140	0.82	16	-
Xylenes	24-hr	0.284	0.82	16	-

Metals

Pollutant	Averaging Time	Source emissions (lb/averaging time)	De Minimis	SQER	Action Required
Arsenic	Year	0.110	0.0025	0.049	Model
Cadmium	Year	0.103	0.0019	0.039	Model
Copper	1-hr	0.0028	0.0093	0.19	-
Hexavalent chromium	Year	0.00687	0.000033	0.00065	Model
Lead	Year	0.57	10	14	-
Manganese	24-hr	0.0062	0.0011	0.022	NSR
Mercury	24-hr	0.0040	0.00011	0.0022	Model
Nickel	Year	0.27	0.031	0.62	NSR
Selenium	24-hr	0.0044	0.074	1.5	-
Total chromium	24-hr	0.0012	0.00037	0.0074	NSR

Worst-case emissions for toxic air pollutants were calculated and compared to their respective de minimis and SQER values listed in WAC 173-460-150 (Table 16). For toxic air pollutants with emission rates greater than their respective SQER values, the dispersion factors listed in Table 15 for each modeling scenario were used to calculate concentrations to compare to each ASIL. The maximum concentrations for each toxic air pollutant out of all possible modeling scenarios are listed in Table 16. Concentrations from each specific modeling scenario are shown in Tables 17 and 18. With the exception of DEEP, all TAPs are below their respective ASIL.

Table 17. Concentrations for each toxic air pollutant compared to their respective ASIL. Maximum concentrations for each TAP were taken from the maximum of the modeling scenarios at both locations. DEEP results are described in the DPM section above.

Pollutant	Averaging Time	ASIL	Maximum Concentration	Percent of ASIL
DEEP	Year	0.0033	*	*
1,3-Butadiene	Year	0.033	0.00645	20%
Acetaldehyde	Year	0.37	0.0233	6%
Acrolein	24-hr	0.35	0.0338	10%
Benzene	Year	0.13	0.00553	4%
Benzo(a)pyrene	Year	0.001	0.0.0000262	3%
Dibenz(a,h)anthracene	Year	0.0005	0.0000300	6%
Formaldehyde	Year	0.17	0.0512	30%
Hydrogen chloride	24-hr	9.00	0.186	2%
Naphthalene	Year	0.029	0.00106	4%

Pollutant	Averaging Time	ASIL	Maximum Concentration	Percent of ASIL
Arsenic	Year	0.0003	0.0000142	5%
Cadmium	Year	0.00024	0.0000134	6%
Hexavalent chromium	Year	0.00004	8.90E-7	22%
Mercury	24-hr	0.030	0.000598	2%

Table 18. Concentrations from each modeling scenario for Quincy.

Pollutant	Averaging Time	Short building	Short building	Tall building	Tall building
		10 m	13.95 m	0 m	3 m
DEEP	Year	*	*	*	*
1,3-Butadiene	Year	0.00480	0.0.00411	0.00645	0.00634
Acetaldehyde	Year	0.0173	0.0148	0.0233	0.0218
Acrolein	24-hr	0.0333	0.0283	0.0338	0.0313
Benzene	Year	0.00412	0.00352	0.00553	0.00518
Benzo(a)pyrene	Year	1.95E-5	1.67E-5	2.62E-5	2.57E-5
Dibenz(a,h)anthracene	Year	2.05E-5	1.75E-5	2.75E-5	2.58E-5
Formaldehyde	Year	0.0381	0.0326	0.0512	0.0480
Hydrogen chloride	24-hr	0.183	0.156	0.186	0.172
Naphthalene	Year	0.000789	0.000674	0.00106	0.00104
Arsenic	Year	1.06E-5	9.10E-6	1.42E-5	1.33E-5
Cadmium	Year	9.90E-6	8.50E-6	1.34E-5	1.25E-5
Hexavalent chromium	Year	6.63E-7	5.67E-7	8.90E-7	8.34E-7
Mercury	24-hr	0.000590	0.000501	0.000598	0.000554

Table 19. Concentrations from each modeling scenario for East Wenatchee.

Pollutant	Averaging Time	Short building	Short building	Tall building	Tall building
		10 m	13.95 m	0 m	3 m
DEEP	Year	*	*	*	*
1,3-Butadiene	Year	0.0063440	0.00570	0.00598	0.00574
Acetaldehyde	Year	0.0229	0.0205	0.0216	0.0207
Acrolein	24-hr	0.0276	0.0239	0.0270	0.0248
Benzene	Year	0.00544	0.00488	0.00513	0.00492
Benzo(a)pyrene	Year	2.57E-5	2.31E-5	2.43E-5	2.33E-5
Dibenz(a,h)anthracene	Year	2.71E-5	2.43E-5	2.55E-5	2.45E-5
Formaldehyde	Year	0.0504	0.0452	0.0475	0.0456

Hydrogen chloride	24-hr	0.152	0.131	0.148	0.136
Naphthalene	Year	0.00104	0.000935	0.000982	0.000943
Arsenic	Year	1.40E-5	1.26E-5	1.32E-5	1.27E-5
Cadmium	Year	1.31E-5	1.18E-5	1.24E-5	1.19E-5
Hexavalent chromium	Year	8.75E-7	7.86E-7	8.26E-7	7.92E-7
Mercury	24-hr	0.000488	0.000423	0.000477	0.000439

Appendix C – Response to Comments

This section will be updated following the public comment period.