

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING AN ) Preliminary Determination  
AIR CONTAMINANT SOURCE FOR ) AQPID No. A0250282  
**H5 DATA CENTER - QUINCY )**

**Project Summary**

H5 Data Center – Quincy (H5), herein referred to as the Permittee, is an existing data center located at 1711 M Street NE, Quincy, Washington in Grant County.

**Equipment**

H5 installed six MTU Detroit Diesel Model 16V4000 emergency generators, and four Evapco USS 312-454 cooling towers in 2007. An additional 12 emergency generators, either MTU Detroit Diesel Model 16V4000DS2250 or Kohler KD Model 2250, and eight Evapco AT 312-454 cooling towers are included in this Approval Order. All generators are rated at 2.5 MWm (3353 BHP) and are EPA Tier II certified.

**Table 1: Emergency Engine and Generator Serial Numbers**

Unit ID	Manufacturer & Model No.	Capacity MWm (BHP)	Engine SN	Generator SN	Engine date
1	MTU – 16V4000	2.5 (3353)	527 105 153	150786-2-0208	2007
2	MTU – 16V4000	2.5 (3353)	527 200 2979	150679-2-0208	2007
3	MTU – 16V4000	2.5 (3353)	527 105 111	150679-1-0208	2007
4	MTU – 16V4000	2.5 (3353)	527 105 108	150787-2-0308	2007
5	MTU – 16V4000	2.5 (3353)	527 105 154	150786-1-0208	2007
6	MTU – 16V4000	2.5 (3353)	527 105 110	150787-1-0308	2007
7	MTU or Kohler	2.5 (3353)			
8	MTU or Kohler	2.5 (3353)			
9	MTU or Kohler	2.5 (3353)			
10	MTU or Kohler	2.5 (3353)			
11	MTU or Kohler	2.5 (3353)			
12	MTU or Kohler	2.5 (3353)			
13	MTU or Kohler	2.5 (3353)			
14	MTU or Kohler	2.5 (3353)			
15	MTU or Kohler	2.5 (3353)			
16	MTU or Kohler	2.5 (3353)			
17	MTU or Kohler	2.5 (3353)			
18	MTU or Kohler	2.5 (3353)			

**Table 2: Cooling Towers**

Quantity	Make and Model	Cells
4	Evapco Model USS 312-454	3
8	Evapco Model AT 312-454	3

### **Legal Authority**

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

This Notice of Construction (NOC) Approval Order rescinds and replaces NOC Approval Order No. 18AQ-E044, NOC Approval Order No. 18AQ-E044 is no longer in effect.

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

### **APPROVAL CONDITIONS**

#### **1. EQUIPMENT RESTRICTIONS**

- a. Any engine used to power the electrical generators must be operated in accordance with applicable 40 C.F.R. Part 60, Subpart IIII requirements including but not limited to: certification by the manufacturer to meet the 40 C.F.R. Part 89 EPA Tier 2 emissions levels as required by 40 C.F.R. 60.4202; and installed and operated as emergency engines, as defined in 40 C.F.R. 60.4219.
  - i. At the time of the effective date of this permit, Tier 4 interim and Tier 4 final certified engines (as specified in 40 C.F.R. 1039.102 Table 7 and 40 C.F.R. 1039.101 Table 1, respectively), are not required for 2.5 MWm electrical generators used for emergency purposes as defined in 40 C.F.R. 60.4219 in attainment areas in Washington State. However, any engines installed at H5 Data Center after Tier 4 or other limits are implemented by EPA for emergency generators, must meet the applicable specifications as required by EPA at the time the emergency engines are installed.
- b. The only engines and electrical generating units approved for operation at H5 Data Center are those listed by serial number in Table 1 of this Approval Order, which must have equal or less emissions than the engine/generator models specified in the equipment section of this Approval Order.
- c. The installation of any new or replacement engines 18 months after issuance of this Approval Order, will require notification to Ecology that includes engine manufacturer's specification sheets. Ecology will decide whether new source review is required based on various factors including whether the new engines will have either an increased

emission rate, or result in an emission concentration that may increase community impacts over those evaluated for this Approval Order, or if an update to Best Available Control Technology analysis is necessary.

- d. In addition to meeting EPA Tier 2 certification requirements, the source must have written verification from the engine manufacturer that each engine of the same make, model, and rated capacity installed at the facility uses the same electronic Programmable System Parameters, i.e., configuration parameters, in the electronic engine control unit.
- e. The 18 facility engines must meet the stack dimensions in Table 3.

**Table 3: Engine Exhaust Stack Dimension Requirements**

Quantity	Engine Year	Minimum Stack Height (feet)	Maximum Stack Diameter (engine – inches)
6	2007	40'	24"
12	2021- 2023	43'	24"
12	Cooling Tower	20'	11.68 feet

**2. OPERATING LIMITATIONS**

- a. The fuel consumption by all the engines that power the emergency backup generators will be limited to 443,335 gallons per year and 31,493 gallons per day of on-road specification No. 2 distillate fuel oil (less than 0.00150 weight percent sulfur). Total annual fuel consumption by the facility must be averaged over a 12-month period using monthly rolling totals.
  - i. While commissioning the 12 new generator engines, the fuel consumption by the engines will be limited to 108,281 gallons per year. Annual fuel consumption must be averaged over a 12-month period using monthly rolling totals.
- b. The six generators installed in 2007, must not be operated more than 400 hours per year each, including testing for reliability or maintenance and emergency operation. Fewer units may be operated longer than 400 hours a year as long as total engine fuel consumption remains in compliance with Approval Condition 3.e.
- c. The 12 generators installed in 2021 and after, must not be operated more than 18 hours per year each, including testing for reliability or maintenance operation. The 18 hours of operation per engine may be averaged over the 12 generators. Total hours of operation must be averaged over a 12-month period using monthly rolling totals.
  - i. While commissioning the 12 new generators, each engine must not be operated more than 54 hours per year.
- d. Operation of more than six generator-hours (combined) in any 24-hour period must not occur more than 15 times in any three calendar-year period.

- e. The generators must only be operated for reliability or maintenance testing and to provide emergency backup electrical power to the H5 Data Center in the case of failure of Grant Co. PUD hydroelectric power. Under no circumstances will the generators be utilized to satisfy a financial arrangement with Grant County PUD or any other entity (e.g. curtailment rate structures, load shedding, distributed power generation), or to provide electrical power to the Grant County PUD or any other electric power provider or user without first submitting a Notice of Construction application and receiving prior approval from Ecology.
- f. Cooling towers must comply with the following droplet drift rate percentage and recirculation rate in Table 4.

**Table 4: Cooling Tower Requirements**

<b>Cooling Tower Make and Model</b>	<b>Droplet Drift rate percentage</b>	<b>Maximum Cell recirculation rate (gallons/minute)</b>
Evapco USS 312-454	0.001	2,410
Evapco AT 312-454	0.0005	7,352

- g. Any biocide or other cooling tower water additives must contain no HAPs or TAPs.

**3. GENERAL TESTING AND MAINTENANCE REQUIREMENTS**

- a. H5 must follow engine-manufacturer’s recommended diagnostic testing and maintenance procedures to ensure that each individual engine will conform to 40 CFR 89 Tier II emission specifications throughout the life of each engine.
- b. H5 must measure emissions of particulate matter (PM), volatile organic compounds (VOC), nitric oxide (NO), nitrogen dioxide (NO<sub>2</sub>), and carbon monoxide (CO) from engine exhaust stacks in accordance with Approval Condition 3.c. This testing will serve to demonstrate compliance with the g/kWm-hr EPA Tier 2 average emission limits contained in Section 4, and as an indicator of proper operation of the engines. The selection of the engines(s) to be tested must be in accordance with Conditions 3.b.i, 3.b.ii and 3.b.iii and must be defined in a source test protocol submitted to Ecology no less than 30 days in advance of any compliance-related stack sampling conducted by H5. Additional testing as described in 40 C.F.R. 60.8 (g) may be required by Ecology at their discretion.
  - i. For new engines, at least one representative engine from each manufacturer must be tested as soon as possible after commissioning and before it becomes operational.
  - ii. Every 60 months after the first testing performed in Condition 3.b.i, H5 must test at least one engine from each manufacturer, including the engine with the most operating hours as long as it is a different engine from that which was tested during the previous 60 month interval testing.
    - A. For the six engines installed in 2007, after the emission control warranty is expired, testing must be done for at least one engine from the batch of engines,

and every 60 months thereafter one engine from the batch of engines must be tested as long as it is a different engine from that which was tested previously.

- iii. The testing protocol must include the following information:
  - A. The location and unit ID of the equipment proposed to be tested.
  - B. The operating parameters to be monitored during the test.
  - C. A description of the source including manufacturer, model number, design capacity of the equipment and the location of the sample ports or test locations.
  - D. Time and date of the test and identification and qualifications of the personnel involved.
  - E. A description of the test methods or procedures to be used.
- c. The following procedure must be used for each test for the engines as required by Condition 3.b unless an alternate method is proposed by H5 and approved in writing by Ecology prior to the test.
  - i. Periodic emissions testing should be combined with other pre-scheduled maintenance testing.
  - ii. PM (filterable fraction only), VOC, NO, NO<sub>2</sub>, and CO emissions measurement must be conducted at five individual generator electrical loads of 100 percent, 75 percent, 50 percent, 25 percent, and 10 percent using weighting factor averaging according to Table 2 of Appendix B to Subpart E of 40 C.F.R. Part 89.
  - iii. EPA Reference Methods and test procedures from 40 C.F.R. Part 60, 40 C.F.R. Part 51, and/or 40 C.F.R. Part 89 as appropriate for each pollutant must be used including Method 5 or 40 C.F.R. Part 1065 for PM. A test plan will be submitted for Ecology approval at least 30 days before any testing is conducted and must include the criteria used to select the engine for testing, as well as any modifications to the standard test procedure contained in the above references.
  - iv. The F-factor method, as described in EPA Method 19, may be used to calculate exhaust flow rate through the exhaust stack. The fuel meter data, as measured according to Condition 3.e, must be included in the test report, along with the emissions calculations.
  - v. In the event that any source test shows non-compliance with the emission limits in Condition 4, H5 must repair or replace the engine and repeat the test on the same engine plus two additional engines of the same make and model as the engine showing non-compliance. Test reports must be submitted to Ecology as provided in Condition 8.e of this Order.
- d. Each engine must be equipped with a properly installed and maintained non-resettable meter that records total operating hours.
- e. Each engine (or the central fuel supply line if so equipped) must be equipped with a properly installed and maintained fuel flow monitoring system (either certified physical or generator manufacturer provided software) that records the amount of fuel consumed by that engine during operation.

#### 4. EMISSION LIMITS

- a. Engines must meet the emission rate limitations contained in Table 5. Unless otherwise approved by Ecology in writing, compliance with emission limits for those pollutants that are required to be tested under Conditions 3.b and 3.c must be based on emissions test data as determined according to those approval conditions.
- b. To demonstrate compliance with 40 C.F.R. 89.112 and 89.113 g/kWm-hr EPA Tier 2 weighted average emission limits through stack testing, H5 must conduct exhaust stack testing as described in Conditions 3.b and 3.c according to Table 2 of Appendix B to Subpart E of 40 C.F.R. Part 89, or any other applicable EPA requirement in effect at the time the engines are installed.

**Table 5: Emission Limits and Testing Requirements**

Pollutant	Load Test	Test Method <sup>(a)</sup>	Emission Limits <sup>(b)</sup>
PM	Five-load weighted avg.	EPA Method 5 or 40 C.F.R. Part 1065	0.2 g/kW-hr
NO <sub>x</sub> + NMHC/VOC	Five-load weighted avg.	EPA Method 7E, or 40 C.F.R. Part 1065	6.4 g/kW-hr
CO	Five-load weighted avg.	EPA Method 10, or 40 C.F.R. Part 1065	3.5 g/kW-hr

(a) In lieu of these requirements, H5 may propose an alternative test protocol to Ecology in writing for approval.

(b) For Compliance Test Frequency, See Approval Conditions 3.b.i and 3.b.ii.

- c. Total annual facility-wide emissions must not exceed the 12-month rolling average emissions for PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>x</sub>, VOC, SO<sub>2</sub>, DEEP, and NO<sub>2</sub> as listed in Table 6.

**Table 6: Criteria Pollutant and Toxic Air Pollutant Emission Limits for the Total Facility H5 Data Center – Quincy (Tons/Year)**

Pollutant	Annual Emissions	Maximum Year
PM smaller than 10 microns in diameter (PM <sub>10</sub> )	2.3	3.0
PM smaller than 2.5 microns in diameter (PM <sub>2.5</sub> ) <sup>(a)</sup>	2.1	2.8
Carbon monoxide (CO)	9.1	11.0
Nitrogen oxides (NO <sub>x</sub> )	57.0	65.0
Volatile organic compound (VOC)	0.66	1.1
Sulfur dioxide (SO <sub>2</sub> )	0.051	0.057
Diesel Engine Exhaust Particulate (DEEP) <sup>(a)</sup>	0.68	1.0
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>(b)</sup>	5.7	6.5

(a) All PM emissions from the generator engines are PM<sub>2.5</sub>, and all filterable PM<sub>2.5</sub> from the generator engines is considered Diesel Engine Exhaust Particulate (DEEP).

(b) NO<sub>2</sub> is assumed to be equal to 10 percent of the total NO<sub>x</sub> emitted.

- d. Visual emissions from each diesel generator exhaust stack must be no more than ten percent, with the exception of a two minute period after unit start-up. Visual emissions must be measured by using the procedures contained in 40 C.F.R. Part 60, Appendix A, Method 9.

## **5. OPERATION AND MAINTENANCE MANUALS**

A site-specific O&M manual for the H5 Data Center equipment must be developed and followed. Manufacturers' operating instructions and design specifications for the engines, generators, cooling towers and associated equipment must be included in the manual. The O&M manual must be updated to reflect any modifications of the equipment or its operating procedures. Emissions that result from failure to follow the operating procedures contained in the O&M manual or manufacturer's operating instructions may be considered proof that the equipment was not properly installed, operated, and/or maintained. The O&M manual for the diesel electric generation units and associated equipment must at a minimum include:

- a. Manufacturer's testing and maintenance procedures that will ensure that each individual engine will conform to 40 CFR 89 Tier II specifications throughout the life of the engine.
- b. Normal operating parameters and design specifications.
- c. Operating maintenance schedule.

## **6. SUBMITTALS**

All notifications, reports, and other submittals must be sent to:

Washington State Department of Ecology  
Air Quality Program  
4601 N. Monroe Street  
Spokane, WA 99205-1295

Annual reports may also be submitted electronically to: [emissions.inventory@ecy.wa.gov](mailto:emissions.inventory@ecy.wa.gov)

*OR AS DIRECTED.*

## **7. RECORDKEEPING**

All records, O&M manual, and procedures developed under this Order must be organized in a readily accessible manner and cover a minimum of the most recent 60-month period except as required for stack testing in Condition 3. Any records required to be kept under the provisions of this Order must be provided within 30 days to Ecology upon request. The following records are required to be collected and maintained.

- a. Fuel receipts with amount of diesel and sulfur content for each delivery to the facility.
- b. Monthly and annual fuel usage.
- c. Monthly and annual hours of operation for each diesel engine. The cumulative hours of operation for each engine must be maintained for the life of the engine while at H5, and

must include which engines have been stack tested, and the report information from Condition 8.e.

- d. Purpose, electrical load and duration of runtime for each diesel engine period of operation.
- e. Annual gross power generated at the facility.
- f. Upset condition log for each engine and generator that includes date, time, duration of upset, cause, and corrective action.
- g. Any recordkeeping required by 40 C.F.R. Part 60 Subpart IIII.
- h. Air quality complaints received from the public or other entity, and the affected emissions units and any actions taken to resolve issues.

## **8. REPORTING**

- a. The serial number, manufacturer make and model, standby capacity, and date of manufacture must be submitted to Ecology prior to installation for each engine and generator.
- b. The following information will be submitted to Ecology at the address in Condition 6 by January 31 of each calendar year. This information may be submitted with annual emissions information requested by Ecology's Air Quality Program (AQP).
  - i. Monthly and 12-month rolling annual total summary of fuel usage compared to Condition 2.a.
  - ii. Monthly and 12-month rolling annual total summary of the air contaminant emissions for pollutants above the WAC 173-400-110(5) and WAC 173-460-150 de minimis levels.
  - iii. Monthly and 12-month rolling hours of operation with annual rolling total.
  - iv. Monthly and 12-month rolling gross power generation with annual total as specified in Condition 7.e.
  - v. A listing of each start-up of each diesel engine that shows the purpose, fuel usage, and duration of each period of operation.
- c. Any air quality complaints resulting from operation of the emissions units or activities must be promptly assessed and addressed. A record must be maintained by each tenant of the action taken to investigate the validity of the complaint and what, if any, corrective action was taken in response to the complaint. Ecology must be notified within three days of receipt of any such complaint.
- d. H5 must notify Ecology by e-mail or in writing within 24 hours of any engine operation of greater than 60 minutes if such engine operation occurs as the result of a power outage or other unscheduled operation. This notification does not alleviate H5 from annual reporting of operations contained in any section of Condition 9.
- e. Stack test reports of any engine must be submitted to Ecology within 45 days of completion of the test and must include, at a minimum, the following information:



- i. Location, unit ID, manufacturer and model number of the engine(s) tested, including the location of the sample ports.
- ii. A summary of test methods, results (reported in units and averaging periods consistent with the applicable emission standard or limit), field and analytical laboratory data, quality assurance/quality control procedures and documentation.
- iii. A summary of operating parameters for the diesel engines being tested.
- iv. Engine electronic operational data during testing.
- v. Copies of field data and example calculations.
- vi. Chain of custody information.
- vii. Calibration documentation.
- viii. Discussion of any abnormalities associated with the results.
- ix. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.

## 9. GENERAL CONDITIONS

- a. **Activities Inconsistent with this Order** – Any activity undertaken by the Permittee, or others, in a manner that is inconsistent with the data and specifications submitted as part of the NOC application or this NOC Approval Order, will be subject to Ecology enforcement under applicable regulations.
- b. **Availability of Order** – Legible copies of this NOC Approval Order and any O&M manual(s) must be available to employees in direct operation of the equipment described in the NOC application and must be available for review upon request by Ecology.
- c. **Compliance Assurance Access** – Access to the source by representatives of Ecology or the United States Environmental Protection Agency (EPA) must be permitted upon request. Failure to allow access is grounds for enforcement action under the federal Clean Air Act or the Washington State Clean Air Act, and may result in revocation of this NOC Approval Order.
- d. **Discontinuing Construction or Operation** – This NOC Approval Order will become invalid if construction of the equipment described in the NOC application and this NOC Approval Order does not commence within 18 months after receipt of this NOC Approval Order.

If construction or operation is discontinued for 18 months or longer on a portion or all of the equipment described in the NOC application and this NOC Approval Order, the portion of the NOC Approval Order regulating the inactive equipment will become invalid. Ecology may extend the 18-month period upon request by the Permittee and a satisfactory showing that an extension is justified.

- e. **Equipment Operation** – Operation of the facility must be conducted in compliance with all data and specifications submitted as part of the NOC application and in accordance with O&M manuals, unless otherwise approved in writing by Ecology.

- f. **Registration** – Periodic emissions inventory and other information may be requested by Ecology. The requested information must be submitted within 30 days of receiving the request, unless otherwise specified. All fees must be paid by the date specified.
- g. **Violation Duration** – If the Permittee violates an approval condition in this NOC Approval Order, the violation is presumed to commence at the time of the testing, recordkeeping, or monitoring which indicates noncompliance. The violation is presumed to continue until the time or retesting, recordkeeping, or monitoring which indicates compliance. A violation of an approval condition includes, but is not limited to, failure of air pollution control equipment, failure of other equipment resulting in increased emissions, or a failed source test indicating an exceedance of an emission limit. The duration of a violation may also be determined based on credible evidence which shows that the violation was of longer duration, that there were intervening days during which no violation occurred, or that the violation was not continuous in nature.
- h. **Obligations under Other Laws or Regulations** – Nothing in this NOC Approval Order excuses the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.
- i. **Maintaining Compliance** – It will not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the operations in order to maintain compliance with the conditions of this NOC Approval Order.
- j. **Visible Emissions** – No visible emissions from the source are allowed beyond the property line, as determined by 40 C.F.R. Part 60, Appendix A, Test Method 22.
- k. **Changes in Operations** – Any changes in operation contrary to information submitted in the NOC application must be reported to Ecology at least 60 days before the changes are implemented. Such changes in operation may require a new amended NOC Approval Order.

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

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

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

## **YOUR RIGHT TO APPEAL**

You have a right to appeal this Approval Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Approval 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 the following within 30 days of the date of receipt of this Approval Order:

- File your appeal and a copy of this Approval 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 Approval 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
<b>Department of Ecology</b> Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	<b>Department of Ecology</b> Attn: Appeals Processing Desk P O Box 47608 Olympia, WA 98504-7608
<b>Pollution Control Hearings Board</b> 1111 Israel Rd. SW, STE 301 Tumwater, WA 98501	<b>Pollution Control Hearings Board</b> P O Box 40903 Olympia, WA 98504-0903

DATED at Spokane, Washington this XX<sup>th</sup> day of MONTH 2021.

PREPARED BY:

APPROVED BY:

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Jenny Filipy, P.E.  
Commercial Industrial Unit  
Air Quality Program  
Eastern Regional Office

\_\_\_\_\_  
David T. Knight  
Section Manager  
Air Quality Program  
Eastern Regional Office

