



## REGION 3

PHILADELPHIA, PA 19103

**Report Title:** Clean Air Act Inspection of Amazon Data Services, Inc.  
**Inspection Date(s):** 12/05/2024  
**Regulatory Program(s):** CAA, SIP  
**Company Name:** Amazon Data Services, Inc.  
**Facility Name:** Amazon Data Services, Inc.  
**Facility Location:** 45220 Prologis Plaza  
Sterling, VA 20166  
**Latitude:** 38.98837 **Longitude:** -77.43831  
**County/Parish:** Loudoun  
**AFS/ICIS-Air Number:** VA0000005110701053  
**Permit Number:** 74063  
**NAICS Code:** 518210  
**DSB ID #:** ECAD - 113

| Facility Representatives:                                                                                                | Point of Contact                    |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
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- Additional Facility Representatives are listed in the Sign – In sheet

### EPA Inspectors:

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**EPA Lead Inspector**

**Signature**

**Parmatma Adhikari**

**Date**

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**Kristen Hall**

**Date**

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## **I. Introduction**

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at Amazon Data Services, Inc. (Amazon Data Services or Facility) to verify compliance with applicable State and Federal regulations. The Virginia Department of Environmental Quality (VADEQ) was notified of the inspection on November 18, 2024, via email. On December 3, 2024, EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to Divya Garrepalli, prior to the inspection (see Attachment 1). These records are listed in the Records Review section of the report.

The inspection included an evaluation of the Facility's processes and its compliance with the CAA. All information included in this report is the result of statements by the Facility representatives, materials shown to the inspectors by the Facility representatives, and/or documents provided by the Facility representatives to the inspectors at the time of, or subsequent to, the inspection. In addition, information gathered prior to the inspection from a review of EPA and State records may be included in this report.

### **A. Summary of the Facility**

The Facilities inspected are IAD-51, IAD-56, IAD-88, IAD-89, IAD-192 and IAD-214 are permitted under the CAA permit of Amazon Data services located in Sterling, Virginia 20166.

IAD-51 is located at 45220 Prologis Plaza, Sterling, Virginia 20166

IAD-56 is located at 45210 Prologis Plaza, Sterling, Virginia 20166

IAD-88 is located at 45110 Loudoun Downs Lane, Sterling, Virginia 20166

IAD-89 is located at 45111 Loudoun Downs Lane, Sterling, Virginia 20166

IAD-192 is located at 22574 Pacific Boulevard, Sterling, Virginia 20166

IAD-214 is located at 22750 Pacific Boulevard, Sterling, Virginia 20166

The Facility received a synthetic minor CAA permit (#74063) from VADEQ issued on May 28, 2024.

Amazon Data Services is classified as synthetic minor (SM) source for Particulate Matter (PM), Nitrogen Oxides (NO<sub>x</sub>), Carbon Monoxide (CO) and Volatile Organic Compounds (VOCs). The Facility is subject to, or potentially subject to the following federal regulations:

- 40 CFR part 60 subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR part 63 subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

### **B. Inspection Opening Conference**

At 9:00 AM on December 5, 2024, EPA inspectors arrived at the Facility for a CAA Inspection and conducted a brief opening conference. Amazon Data Services was represented by Aimee Schupp

(Regional Environmental Engineer), Keith Schefield (GST Chief), Jason Dean (Chief Engineer), Jeff Boyd (Cluster Manager), Rob Early (Facility Manager), Aizhan Dossanova (Environmental Manager), Catherine Barker (Cluster Operation Lead), Sharon Yoon (Security Manager) and Gauri Gajewar (Environmental Engineer). Also, David Parry, an air compliance inspector from VADEQ was present. EPA inspectors, Parmatma Adhikari and Alex Everhart, presented their credentials and explained the purpose of the visit was to conduct a CAA inspection to determine compliance with their permit and any applicable regulations. Additionally, EPA informed the facility representatives of their right to claim any confidential business information (CBI). At that time, Amazon Data Services did not claim any photos or documentation as CBI.

## II. Site Activity/Process Description

Amazon Data Services is a company that provides cloud-based services, including analytics, storage, databases, and networking. Amazon Data Services, formerly known as VA Data Inc. until 2019, is a commercial data center providing services to multiple clients. The facility employs 130 full-time personnel to support continuous 24/7 operations with rotational staff shifts. Amazon Data Services is a subsidiary of Amazon.com, Inc., which is a publicly traded company.

The Facility, as defined by the permit, consists of six buildings. The following table lists the facilities along with the date they began operations.

| Facility ID | Date Began Operations |
|-------------|-----------------------|
| IAD-88      | 2013                  |
| IAD-89      | 2014                  |
| IAD-51      | 2016                  |
| IAD-56      | 2017                  |
| IAD-192     | 2023                  |
| IAD-214     | 2024                  |

The facility utilizes emergency generators during electrical emergencies, maintenance and testing, and operational checks. The number of emergency generators is sufficient to cover the full load required for each data center. At the time of inspection, none of the generators were operating.

IAD-51 and IAD-56 had been permitted for nine generators each, all of which were installed and operational. IAD-88 and IAD-89 were permitted for 18 generators each, but only 14 were installed in IAD-88 and 13 in IAD-89. All installed generators in these two buildings were operational. IAD-192 had been permitted for 27 emergency generators, including a house generator dedicated to building power. Of these, only nine were currently operational, and seven were installed but not yet operational. IAD-214 had been permitted for 23 generators, including one house generator, but at the time of inspection, only six generators were operational, and four were installed but not yet operational.

The Facility had no combustion sources other than the emergency generators listed in the permit, and no portable generators or storage tanks were present. Each generator is equipped with a 2,500-gallon belly tank for fuel supply.

The Facility conducts in-house generator maintenance, tracked by an Enterprise Asset Management (EAM) software. Maintenance schedules included 6-month general inspections, 12-month filter changes, 36-month oil changes and fuel sampling, and 72-month belt and cooling system replacements.

The opening conference concluded at 10:30 AM.

### III. Observations

EPA inspectors were led on a walkthrough of the Facility at 10:30 AM by Aimee Schupp and Sharon Yoon of Amazon Data Services and David Parry of VADEQ was also present for the walkthrough. EPA inspectors noted photos would be taken during the Facility walkthrough (Attachment 2).

First, the inspection team observed the emergency generators of IAD-56 and IAD-51. These facilities are separate buildings located adjacent to each other inside of the same perimeter fence. The emergency generators are arranged in two rows, mirroring each other along an alleyway between the buildings. Both IAD-56 and IAD-51 have nine (9) emergency generators, all of which are in operating condition, however, none of the engines were operating during the inspection. Initially, the team inspected the emergency generators of IAD-56, followed by those of IAD-51. The information for each inspected generator is summarized in the table below.

| Site     | Site ID | VADEQ<br>Ref No. | SN       | Make        | Model        | Size<br>(bhp) | Hour of<br>Operation | Fuel Used<br>(gallons) |
|----------|---------|------------------|----------|-------------|--------------|---------------|----------------------|------------------------|
| IAD- 51  | 1A      | M2               | SFJ00389 | Caterpillar | 3516C        | 2937          | 99.5                 | 3278                   |
| IAD -51  | 2A      | M4               | SFJ00383 | Caterpillar | 3516C        | 2937          | 109.7                | 4003                   |
| IAD- 51  | 4A      | M7               | SFJ00410 | Caterpillar | 3516C        | 2937          | 110.8                | 3827                   |
| IAD – 56 | Catcher | L2               | SEK00582 | Caterpillar | 3516C-<br>HD | 3634          | 91.8                 | 4825                   |
| IAD – 56 | 1B      | M10              | SFJ00406 | Caterpillar | 3516C        | 2937          | 90.4                 | 2810                   |
| IAD – 56 | 2B      | M12              | SFJ00409 | Caterpillar | 3516C        | 2937          | 90.0                 | 2719                   |

Subsequently, after completing the inspection of the emergency generators at IAD-56 and IAD-51, the team was escorted to the IAD-214 site. They arrived at the IAD-214 building/site at 11:15 AM.

Additionally, the facility staff mentioned that the emergency generators in IAD-214 are equipped with add-on controls (selective catalytic reduction and catalyzed diesel particulate filter) to manage emissions. Also, all Model 3516C emergency diesel engine gen-sets are equipped with electronic fuel

injection and turbocharged engines as control devices. At this location, the inspection team inspected the following emergency generators.

| Site     | Site ID | VADEQ Ref No. | SN       | Make        | Model | Size (bhp) | Hour of Operation | Fuel Used (gallons) |
|----------|---------|---------------|----------|-------------|-------|------------|-------------------|---------------------|
| IAD- 214 | HS      | H2            | LTH00938 | Caterpillar | C18   | 909        | 19.7              | 309                 |
| IAD -214 | 2.1C    | D2            | JD&00667 | Caterpillar | 3516E | 4043       | 24.7              | 2949.7              |

Next, the inspection team proceeded to IAD-192, arriving at 12:02 PM. The generator inspected at IAD-192 is summarized in the following table.

| Site     | Site ID | VADEQ Ref No. | SN       | Make        | Model    | Size (bhp) | Hour of Operation | Fuel Used (gallons) |
|----------|---------|---------------|----------|-------------|----------|------------|-------------------|---------------------|
| IAD- 192 | HS      | H1            | LTH00752 | Caterpillar | C18      | 909        | 24.0              | 356                 |
| IAD -192 | 2.1A    | L42           | LYM03141 | Caterpillar | 3516C-HD | 3633       | 31.6              | 2512                |

Finally, after examining the emergency generators at IAD-192, the team was escorted to the IAD-88 and IAD-89 locations. They arrived at these sites at 12:30 PM and observed one emergency generator for each IAD. The generators inspected at the IAD-88 and IAD-89 locations are summarized in the table below.

| Site    | Site ID | VADEQ Ref No. | SN       | Make        | Model    | Size (bhp) | Hour of Operation | Fuel Used (gallons) |
|---------|---------|---------------|----------|-------------|----------|------------|-------------------|---------------------|
| IAD- 88 | 5B      | L13           | SEK01074 | Caterpillar | 3516C-HD | 3634       | 136.1             | 8572                |
| IAD -89 | 4A      | L27           | SBK02311 | Caterpillar | 3516C-HD | 3634       | 97.1              | 5779                |

The walkthrough concluded at 12:55 PM.

#### IV. Records Review

The records review commenced immediately after the plant walkthrough at 1:00 PM. EPA inspectors reviewed documents requested in the December 3, 2024, email to Divya Garrepalli (see Attachment 1). Records were provided at the time of the inspection by Gauri Gajewar. Below are the records requested and what was provided:

1. Provide a plot plan of the Facility. Also, provide a paper copy during the opening conference.  
 ⇒ *The plot plan of the Facility was provided during the inspection.*

2. Provide a detailed description of Amazon Data Service's process(es).  
⇒ *Process description was covered during the opening conference.*
3. A list of all combustion sources at the Facility such as furnaces, boilers, and/or engines.
  - a. For each boiler or engine identified, provide:
    - i. Date of installation;
    - ii. Type of fuel(s) combusted;
    - iii. Maximum heat input rating (MMbtu, HP or kW/hr);
    - iv. Days each unit operated and hours of operation<sup>1</sup> monthly from January 2020 to the present.
  - b. Fuel usage on a monthly basis for any combustion equipment at the Facility (boilers, emergency generators, fire pumps, etc.) since January 2020.
  - c. Records of each tune-up conducted at each unit since January 2020.⇒ *Information of combustion sources was provided during the inspection.*
4. Provide copies of the emission statements submitted to VADEQ for the years 2020-2023. These emission statements shall include the emission factors used to determine emissions and the derivation of each factor (stack test, CEMS, AP-42, etc.).
5. Annual emissions calculations (preferably emailed in an unlocked Microsoft Excel format) since 2020, including but not limited to:
  - a. Monthly rolling emissions of PM, VOCs, HAPs and NO<sub>x</sub> for each process unit and facility wide along with supporting calculations for 2020-2023 (lbs/hr).
6. Provide a list of any and each control device currently in use at Amazon Data Services used to control or reduce emissions from any emission point at the site. The list should include:
  - a. The make/model of the control;
  - b. Date of installation at the Facility;
  - c. Which pollutant(s) are being controlled;
  - d. Each source or emission point being controlled;
  - e. The capture and destruction efficiency for each control;
7. Copies of any stack tests conducted on any engines or boilers to determine emission rate, control efficiency, or for compliance demonstrations, etc. conducted at the Facility since 2020.
8. Provide a list of each request for permit determination or permit application submitted to the VADEQ since January 2020. Also, provide a list of each permit or permitting determination issued to Amazon Data Services. This should include the date of the request/permit and the permit number, if applicable.
9. Identify whether conducts peak shaving or has entered into contracts for emergency demand response. If so, provide copies of any contracts related to these operating scenarios.
10. Provide copies of any initial notifications, compliance reports, and/or periodic reports submitted to either EPA or MDE pursuant to applicable regulations under 40 C.F.R. Part 60 and 63.

The remaining documents for QN 4 -10 were emailed by Aimee Schuppin on December 13, 2024.

## **V. Closing Conference**

After the records review, EPA inspectors, Aimee Schupp, Gauri Gajewar, Sharon Yoon and David Parry had a brief closing conference to ask additional questions and discuss observations. The EPA inspectors noted that the investigation is on-going, and any areas of concern identified in the final report do not necessarily reflect a violation or deviation, rather, they are areas that will require further investigation. EPA also noted that they would issue an inspection report within 60 days, with a copy to the State. Simultaneously, EPA will perform a detailed review of records and may have additional questions. The inspection concluded at 2:00 PM.

While EPA did not identify any specific issues with Amazon Data Services during the inspection, a thorough review of the records collected during and after the inspection is being conducted, and EPA may generate additional questions.

**VI. List of Attachments**

- Attachment 1: Email correspondence to Divya Garrepalli of records requested to review during inspection
- Attachment 2: Photo Log
- Attachment 3: Sign – In Sheet