



REGION 3

PHILADELPHIA, PA 19103

Report Title: Clean Air Act Inspection of Linde Inc
Inspection Date(s): 03/13/2025
Regulatory Program(s): NSPS, NESHAP, State general permit

Company Name: Linde, PLC
Facility Name: Linde
Facility Location: 7350 Carbide Road
Baltimore, MD 21226

Latitude: 39.188502 **Longitude:** -76.563764
County/Parish: Baltimore City

ICIS-Air Number: MD0000002400300420
Permit Number: Maryland permits 02-5-0456, 0457 N, and 4078
NAICS Code: 325120 **SIC:** 2813
DSB ID #: ECAD-139

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EPA Lead Inspector

Signature

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Date

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I. Introduction

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at Linde (Linde or Facility) to verify compliance with applicable State and Federal regulations. The Maryland Department of the Environment (MDE) was notified of the inspection on January 27th, 2025 via email. On March 11, 2025 EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to Shawn Mortimer, 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 Clean Air Act. 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 Section A. Summary of the Facility.

A. Summary of the Facility

The Facility is located at 7350 Carbide Road, Baltimore, MD. The facility produces liquified nitrogen, oxygen, and argon from ambient air. The facility distributes products primarily by truck and also operates a pipeline to distribute nitrogen to one local customer.

The Facility received state general permits to construct from MDE for Emergency Generators and Medium Fuel Burning (Boiler/Heater) Equipment issued on November 14, 2022 and April 16, 1997, respectively. After construction, the emergency generator and fuel burning equipment are subject to the corresponding general permit.

Linde is classified as a minor source for nitrogen oxides (NO_x), Particulate matter (PM), and carbon monoxide (CO), Sulfur Dioxide (SO₂), and Volatile Organic Compounds (VOC). Linde is also classified as a minor source for hazardous air pollutants. The Facility is subject to, or potentially subject to the following federal regulations:

- 40 C.F.R. Part 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 C.F.R. Part 60 Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

B. Inspection Opening Conference

At 08:30 AM on March 13, 2025 EPA inspectors arrived at the Facility for a CAA Inspection and conducted a brief opening conference. Linde was represented by Shawn Mortimer – Facility Manager, Joe Bradley - SHiE, and Thomas Kane – I&G Tech. Also, Roland Gorschboth and Jeremy Olver of MDE were present. EPA inspectors, Steve Ott and Paul Arnold 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 documents provided or photographs taken during the inspection as confidential business information (CBI). At that time, Shawn Mortimer did not claim any photos or documentation as CBI.

II. Site Activity/Process Description

The facility has changed ownership multiple times since beginning operation in 1978, initially operating as Union Carbide, which later operated as Praxair. In approximately 2021, Praxair Inc and Linde Inc. merged, and the Facility has operated as Linde PLC since that time. The facility has six fulltime employees, that work Monday-Friday, 7:00AM to 3:00PM. The facility is operated 24/7 365 days a year to produce oxygen, nitrogen and argon.

Linde generates and distributes oxygen, nitrogen, and argon which are produced via processing ambient air. The process begins by filtering ambient air of debris and is followed by the first stage of compression, which is powered by an electric motor. Gas is then routed to an aftercooler and then to the pre-purifier where water is removed. The aftercooler during certain conditions, such as start-up utilizes approximately 4000 pounds of R-134a refrigerant for cooling, but also utilizes produced nitrogen as a refrigerant. Gas is then further compressed and sent to the distillation tower. At this point gas is fed into the bottom of the tower, while liquid nitrogen is fed in through the top. Gases and liquids are then removed from the distillation column and sent to their respective holding tanks. Excess nitrogen from the distillation tower is sent back to the initial cooling stage.

The opening conference concluded at 09:30AM.

III. Observations

EPA inspectors were led on a walkthrough of the Facility at 09:35AM by Thomas Kane of Linde. Roland Gorschboth and Jeremy Olver of MDE were also present for the walkthrough. EPA inspectors noted photos would be taken during the Facility walkthrough (Attachment 2).

The walkthrough began by visiting the “trace” boiler located inside of a small garage. This unit supplies heat to prevent various sections of piping in the facility from freezing. Before entering the garage, Mr. Thomas pointed out two large above ground storage tanks which contain liquid nitrogen and oxygen, as well as two much smaller tanks that hold nitrogen which supply a pipeline (photo 1). The trace boiler was constructed in 1974, per the specification plate. Per the facility, the unit is rated for 40,000 Btu. The unit was generating 5 pounds per square inch of steam and is natural gas fired.

Next, EPA viewed Boiler 1 and Boiler 2, both are located outdoors, immediately next to the trace boiler garage. Boilers 1 and 2 were installed in 1978 and both are rated at 10.5MMbtu. Mr. Thomas indicated that neither boiler is operational and both boilers were removed from service about 10 years ago. Boiler 1 (photo 3) appeared to be connected (hard piped) to a fuel source. Boiler 2 (photo 4) did not appear to be connected (hard piped) to a fuel source. Inspectors also observed the train offloading area, where the facility receives argon. The facility indicated that they do not produce enough argon onsite, and they supplement produced argon with delivered argon. Argon is also the only product brought in by rail, and no products are shipped out via rail. The Facility indicated that all argon and oxygen is shipped out via truck, and nitrogen is distributed via truck and pipeline.

Inspectors then were then given a tour of the distillation process (picture 6). Ambient air goes through several stages of compression, expansion, water removal, and ultimately distillation. The distillation process is cooled

initially by nitrogen stored onsite, though after the system is operating at capacity, the process is able to use produced nitrogen as a cooling method. The total time for ingested air to be processed is approximately 3.5 – 4.0 hours.

Inspectors were brought to observe the Cummins 3412 diesel-fired emergency generator. The generator is rated at 749 horsepower and has a 1997 model year and was installed in 1997. The generator was not running during the inspection, and as of 10:05AM the unit's non-resettable hour meter indicated 1323.7 hours. Linde has a service contract for the generator, and the oil filters indicated they were last replaced 10/15/2024 and the engine hours at that time were 1309.

The walkthrough concluded at 10:15AM.

IV. Records Review

The records review commenced immediately after the plant walkthrough at 10:20AM. EPA inspectors reviewed documents requested in the March 11, 2025 email to Shawn Mortimer (see Attachment Records were provided at the time of the inspection by Shawn Mortimer and Joe Bradley. Below are the records requested and what was provided:

1. Process flow diagram and site plot plan – *A process diagram and map were provided.*
2. Any/all permits issued by Maryland DOE for emissions sources. – *the facility provided their permit.*
3. A list of all combustion sources, such as engines, boilers, etc. and include the following:
 - a. Make/model - *provided*
 - b. Horsepower rating or capacity (MMBtu) - *provided*
 - c. Fuel(s) combusted - *provided*
 - d. Year of manufacturer - *provided*
 - e. Year of install - *provided*
 - f. Monthly fuel usage from 2020-current (gallons, MMscf, etc.) - *provided*
 - g. Monthly hours of operation January 2021-current – *provided for emergency generator. Linde to provide records for Boiler 1, Boiler 2, and trace boiler via "GoAnywhere".*
 - h. Records of any maintenance/tune-ups from January 2022-current – *provided*
 - i. All diesel fuel receipts for January 2022 – current – *provided.*
4. Copies of any stack tests conducted on any engines or boilers to determine emissions rate, control efficiency or for compliance demonstrations, etc. conducted at the facility since 2010. – *the facility has not conducted any stack tests since 2010.*
5. Any list of all other emissions points for: HAPs, ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and/or nitrogen dioxide. – *The facility indicated their current emissions sources were one boiler and one engine.*
6. Provide Annual emissions calculations for CY21 to present? – *Emissions calculations were based on AP-42*
7. Annual facility production for CY21 to present?
 - a. Average annual production is:
 - i. Oxygen: 240 MMscf/Year

ii. Nitrogen: 240 MMscf/Year

iii. Argon: 36 MMscf/Year

8. Is the facility subject to any MACT regulations? – *Facility indicated they are not aware of other applicable MACT rules.*

V. Closing Conference

After the records review, EPA inspectors, Linde representatives: Shawn Mortimer, Joe Bradley, and Thomas Kane along with, MDE inspectors: Roland Gorschboth and Jeremy Olver 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 11:45 AM.

The following have been identified as potential issues during the inspection. They are issues that require either further investigation by EPA or additional information or explanation by Linde.

- During the inspection, the facility indicated that they removed two natural gas fired boilers, subject to 40 CFR 60, Subpart Dc and a Maryland State General Permit, were removed from service without notifying Maryland Department of the Environment or EPA.
- Linde indicated that Boilers 1 and 2 were no longer in service, but Unit 1 may still have a hard piped fuel supply line. During the closing conference, Mr. Mortimer indicated that he would have his staff disconnect boiler 2 from any potential fuel source(s).

VI. List of Attachments

Attachment 1:	Email correspondence to Shawn Mortimer of records requested to review during inspection
Attachment 2:	Photo Log
Attachment 3:	Sign-in sheet

