



March 4, 2022

Mr. Sean Taylor, Program Manager
Georgia EPD – Air Protection Branch
Stationary Source Compliance Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

Subject: **Sterigenics Atlanta Facility Leak Detection and Repair Plan**

Dear Mr. Taylor

In accordance with the GA EPD permit, Sterigenics is providing a Leak Detection and Repair Program Plan for the Sterigenics Atlanta facility located at 2971 Olympic Industrial Drive, Suite 116, in Atlanta, Georgia.

Permit Number 7389-067-0093-S-06-0 condition 5.9 requires Sterigenics to submit a Leak Detection and Repair Program Plan for the Atlanta facility within 60 days after issuance of this permit for review and approval by the GA EPD.

Sterigenics has developed the attached Leak Detection and Repair Program Plan and is submitting for your review and approval. Once GA EPD provides approval of the attached Leak Detection and Repair Program Plan, Sterigenics requests 60 days to implement the program. This implementation time will allow Sterigenics to make changes if required by GA EPD, finalize the procedures and forms, process the documents through the internal document management system and allow sufficient time to train employees. If this request cannot be granted, please let us know as soon as possible.

Please contact me at lhartman@sterigenics.com or 630-928-1724 for questions or additional information.

Regards,

A handwritten signature in cursive script that reads "Laura Hartman".

Laura Hartman
Manager, Environmental Health and Safety

Attachment: Leak Detection and Repair Program Plan

CC: General Manager, Sterigenics Atlanta Facility

Leak Detection and Repair Program Plan

for

Sterigenics Atlanta Facility

Facility AIRS Number: 04-13-067-00093

PERMIT NO. 7389-067-0093-S-06-0

Address: 2971 Olympic Industrial Drive SE, Suite 116
Atlanta, Georgia 30339

Date: March 4, 2022

Plan Version: 1.0

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1.0 Introduction

1.1 Background: Georgia Environmental Protection Division (GA EPD) issued an air quality permit on January 6, 2022, to the Sterigenics Atlanta Facility. Permit Condition 5.9 requires the facility to develop, implement, and maintain an ethylene oxide Leak Detection and Repair Program (LDAR) which will monitor all outside components (valves, flanges, fittings, connectors, etc.) for leaks with, at a minimum, weekly monitoring frequency.

1.2 Facility Overview: Sterigenics operates a commercial sterilization facility located at 2971 Olympic Industrial Drive SE, Suite 116, Atlanta, Georgia 30339 (Sterigenics Atlanta). Sterigenics Atlanta utilizes ethylene oxide (EO) to sterilize customers' product and propylene oxide to treat nutmeats and a cosmetic ingredient.

1.3 Applicable Requirements: GAEPD issued an air quality permit to the Sterigenics Atlanta facility on January 6, 2022, which includes a requirement to implement a Leak Detection and Repair (LDAR) program on all exterior components.

As a reference, the following permit condition exists in the permit:

Condition 5.9 The Permittee shall develop, implement, and maintain an ethylene oxide Leak Detection and Repair Program. The program shall check all outside components (valves, flanges, fittings, drums, etc.) for leaks with, at a minimum, weekly monitoring of all components. The program, and any modifications to the program, shall be subject to review and approval by the Division. The initial copy of the program shall be submitted to the Division, in writing, no later than 60 days following the date of issuance of this permit. [391-3-1-.02(6)(b)1.]

1.4 General Purpose/Goals of the LDAR Management Plan: This LDAR program plan has been developed to provide instruction on the LDAR program at the Sterigenics Atlanta facility. The purpose of this plan is to outline steps and procedures to consistently implement and maintain a LDAR program. The goal of the plan is to identify the elements of the LDAR program at the Sterigenics Atlanta facility and includes the following:

- Definitions
- Roles and responsibilities
- Scope and management of plan
- Monitoring and repair process
- Reporting
- Recordkeeping
- Training

2.0 Definition

- 2.1 The following definitions are being included for training purposes and to provide guidance on terms used in this plan. Currently no federal or state regulations require LDAR for commercial sterilization facilities and no applicable definitions exist outside of this plan.
- 2.2 Background Concentration– The ambient concentration of ethylene oxide in the air determined at least one meter away from any component or source of EO
- 2.3 LDAR Leak Definition: LDAR Leak refers to ethylene oxide detected at concentrations greater than or equal to 50 ppm using a monitoring device set up to monitor for EO (for example, PID). If a LDAR leak is detected, corrective action, re-monitoring and reporting are required.

3.0 Roles and Responsibilities:

3.1 Corporate EHS:

- Defines LDAR program.
- Manages and approves changes to LDAR program.
- Works with facility operations and maintenance to understand and train on LDAR program elements.
- Assists with reporting leaks to GA EPD.

3.2 Facility GM/Maintenance Manager: Oversees compliance with LDAR program.

3.3 Facility Maintenance Department and/or LDAR designee:

- Conducts and completes LDAR monitoring, repairs, and recordkeeping.
- Communicates results of inspections to management including leaks and any additional corrective actions for repairing leaks.
- Maintains and calibrates monitoring equipment and repair materials.

4.0 LDAR Program

- 4.1 **Applicability:** LDAR Program Plan Management of Change (MOC): The LDAR Program Plan will be reviewed and revised or updated as necessary. Revisions to this Plan will be submitted to GA EPD for review and approval prior to finalizing the revisions. The following table indicates changes to the Plan to track Plan history and evolution.

Plan Version	Date Modified	Description of Modifications and Comments
Version 1.0	March 4, 2022	Original Plan

4.2 **Master Equipment List:** Per the permit condition, outside components will be included in the LDAR program plan. The outside components at the Sterigenics Atlanta facility are located in the EO drum storage area and on the roof.

4.2.1 EO Drum Storage Area: The EO drum storage area stores (1) full drums of EO after delivery and prior to use inside the building and (2) used drums of EO that have been used inside the building and are waiting to be shipped back to the supplier. EO drums are DOT regulated and maintained by the vendor. Drum components consist of two valves and four melt plugs on top of each drum. The picture below identifies the components on the drum.



4.2.2 The roof contains ductwork and piping to the AAT scrubber with dry beds (AAT). This ductwork routes the outlet of Backvents, Aeration, and Chamber room ventilation to the AAT. The piping routes the outlet of the Ceilcote Scrubber to the AAT. See below for an overhead snapshot of the piping on the roof.



The ductwork and piping on the roof prior to the AAT consist of components including valves, flanges, connectors, etc. A master list of all components will be maintained on site. Each component that is subject to monitoring is assigned a unique Component ID that is used to identify component information. Components may be identified in the field by weatherproof tags that contain the component ID or components may be identifiable in relation to a nearby tagged component. The master list will be reviewed and updated as necessary to ensure changes are identified and all existing components are monitored. In addition, any changes to the ducting or piping on the roof will be reviewed by Corporate EH&S to determine if the master list of components requires updates. Any changes to the master list will be approved by Corporate EH&S.

- 4.2.3 The roof also contains ductwork from the outlet of the AAT that route to the stack. Since this ductwork is after all emission control devices, this ductwork is not part of the LDAR Program.

5.0 Monitoring Inspection and Repair Process

5.1 **Instrumentation:** Inspections will be performed using an approved portable analyzer.

- 5.1.1 The Mini Rae 3000 monitors volatile organic compounds using a photoionization detector (PID) with a 10.6 eV gas-discharge lamp. The current Mini Rae 3000 Specification Sheet is attached in Attachment 1.
- 5.1.2 Based on technology enhancements, if another monitoring instrument becomes available, Sterigenics will evaluate the capabilities of the instrument.

5.2 **Calibration and Maintenance:**

- 5.2.1 The monitoring instrument will be calibrated prior to conducting weekly LDAR monitoring. Two-point calibration of zero and standard reference gas will be used to calibrate the PID Mini Rae 3000. Standard reference gas will be isobutylene gas at a

concentration of 100 ppm. The standard reference gas will be provided with a certification from the manufacturer.

- 5.2.2 Maintenance of the instrument will be completed based on manufacturer recommendation.

5.3 Component Screening Procedures: When monitoring is conducted, the probe inlet is placed at the surface of the component interface where leakage could occur and moved along the interface periphery while observing the readout.

5.4 Monitoring Frequency

- 5.4.1 Monitoring of LDAR components referred to in this section will be completed on a weekly basis unless the facility is not operating due to planned maintenance lasting 3 days or more during that week. This time period is typically referred to as a facility planned shutdown.
- 5.4.2 Corporate EH&S will work with facility personnel to develop a job safety analysis or procedure to outline safety guidelines and appropriate personal protective equipment needed for monitoring and repairing of components.
- 5.4.3 Drum storage: EO drum components will be monitored with a monitoring device on a weekly basis. In addition to this LDAR monitoring, other monitoring is part of standard operating procedures which may also result in identifying a LDAR leak.
- Monitoring drum connections at time of delivery.
 - Monitoring drum connections after disconnecting from chamber and before moving to drum storage area.
 - Continuous monitoring with two LEL sensors located in drum storage room.

This additional monitoring will require documentation only if a LDAR leak is detected. Upon detection of a leak, an incident report will be completed in Sterigenics EHS Management System for documentation of repair, corrective actions, quantity of emissions released, and if reporting is required.

- 5.4.4 Ducting/piping to AAT located on the roof: Components located on the ducting and piping to the AAT will be monitored weekly using a monitoring device. No monitoring will be completed during the week of a facility planned shutdown.
- 5.4.5 Monitoring will be scheduled on a weekly basis consisting of Monday thru Sunday. Monitoring will normally be scheduled for the beginning of the week to allow for time during the week and prior to the following Monday to reschedule and complete the monitoring if an unforeseen circumstance prevents the monitoring to be completed on the scheduled day. In addition to unforeseen circumstances, inclement weather may prevent monitoring to be conducted safely as scheduled since one monitoring area is located on the roof of the building.

5.5 Requirements for Repairing LDAR Leaks: For components meeting the LDAR leak definition, the leak must be repaired as soon as practical, but no later than 7 days after it is detected. An initial

attempt will be made immediately as described below in Repair methods. If the first attempt at repair is not successful, an action plan will be developed for additional repair efforts.

5.6 Repair methods: For any monitoring result that results in EO levels above 1 ppm, a repair will be attempted immediately.

5.6.1 EO Drum –

5.6.1.1 Upon discovery of levels on one of the valves on the drum, attempt to tighten or secure the valve. The two valves on top of the drum may be hand tightened to try and stop any levels from being detected from those components. Following this attempt, verify levels with the monitoring instrument. If readings are no longer detected, the valve has been secured. Evaluate drum condition to determine if drum needs to be returned to vendor. If valve cannot be secured, contact Corporate EHS. If safe to do so, move drum inside to designated area.

5.6.1.2 Upon discovery of levels on one of the melt plugs on the drum, follow procedures to use a Melt Plug Clamp. The current EO drum vendor has provided Melt Plug Clamps to safely fit over melt plugs on the vendor specific drum with the purpose of stopping active leaks. Contact corporate EH&S and the drum vendor to determine next steps.

5.6.2 Outside ducting or piping to AAT-

5.6.2.1 Upon discovery, attempt to repair component with available materials. Following first attempt, monitor to verify if attempted repair was successful. If first attempt was successful, document results on the monitoring inspection record.

5.6.2.2 If first attempt was not successful, communicate results to the maintenance supervisor and develop an action plan for a second attempt at repair. Once second attempt at repair is completed, monitor to verify attempted repair was successful.

5.6.3 Repair Planning and Procedures: To attempt immediate repair of a component, materials will be made available on site in a designated location. Repair or replacement materials for the ducting or piping will be maintained in the leak repair cabinet on the roof or the maintenance shop depending on the type of material.

5.7 Maintenance activities: On occasion, maintenance tasks may involve opening a ducting or piping system that is part of this plan. Prior to performing these maintenance tasks, line break procedures are required to be completed. Line break procedures outline steps to remove hazardous material such as ethylene oxide from the piping prior to opening the line. Line break procedures also require evaluating the work to identify other risks and identifying safety precautions to ensure the work is completed safely.

6.0 Recordkeeping

6.1 Required Records

6.1.1 LDAR monitoring inspection records will be maintained for each week. Examples of the

weekly monitoring records for the EO drum storage area and the components on the roof are included in Attachment 2. The final formatting of these example forms may change but the information recorded should remain the same.

6.1.2 Any identified LDAR leak will be documented in the EHS Management system to document the estimated emissions, closure of action items, and correspondence with the state.

6.1.3 Monitoring instrument calibrations will be documented, and the records will be maintained.

6.1.4 Training will be documented to include the training provided and date completed.

6.2 **Data Retention policy:** Records of weekly monitoring inspections and instrument calibrations will be kept for 2 years.

7.0 Reporting

7.1 **Agency Notifications:** Permit condition 7.15 requires reporting to GA EPD within 24 hours of discovering a spill or release. If a LDAR leak is detected as defined in the LDAR Program Plan, the LDAR leak will be considered a release and follow the reporting requirements of this permit condition and Georgia Rule. Therefore, a notification will be emailed to the Air Protection Branch (air.release@dnr.ga.gov) within 24 hours to indicate a release has occurred. In addition, a follow up report shall be submitted within 48 hours following the initial email notification describing:

- The release
- Causes of release
- Estimated amount of release
- Steps taken to contain the release

The permit condition is provided below:

Permit Condition 7.15 Any spill or unpermitted release of ethylene oxide at the facility, regardless of the amount of the release, shall be reported to the Air Protection Branch by email (air.release@dnr.ga.gov) within 24 hours of discovering such spill or release. As used in this condition, the term "spill or release" shall have the same meaning as set forth in the Georgia Code O.C.G.A. § 12-14-1.13. Emissions of ethylene oxide resulting from an operator error, a malfunction, or other failure of equipment at the facility that results in ethylene oxide not being routed through the air pollution control equipment prescribed in this permit is a release. The full report shall describe (1) the release, (2) its causes, (3) the estimated amount of ethylene oxide released, and (4) the steps taken to contain it and said report shall be submitted within 48 hours of the initial email notification.

[Georgia Code O.C.G.A. § 12-9-7(a) and Georgia Rule 391-3-1-.02(2)(a)(3)(ii)]

8.0 Training

8.1 Site personnel training requirements:

- 8.1.1 Facility General Manager and Maintenance Supervisor will be trained on the LDAR program plan initially.
- 8.1.2 All maintenance or designated employees will be trained on conducting monitoring for this LDAR Program Plan initially and on an annual basis

8.2 **Training Content:** Training will be provided for management, maintenance and other designated employees as described in the roles and responsibilities section that will be assigned LDAR tasks. Training will include the following topics:

- Use of PID
- Placement of PID while monitoring
- Identified components on ducting
- Recordkeeping requirements
- Notification requirements

Minirae® 3000 + Technical Specifications

INSTRUMENT SPECIFICATIONS	
Size	10" L x 3.0" W x 2.5" H (25.5 cm x 7.6 cm x 6.4 cm)
Weight	26 oz (738 g)
Sensors	Photoionization sensor with standard 10.6 eV or optional 9.8 eV or 11.7 eV lamp
Battery	<ul style="list-style-type: none"> Rechargeable, external field-replaceable Lithium-Ion battery pack Alkaline battery adapter
Running time	16 hours of operation (12 hours with alkaline battery adapter)
Display Graphic	4 lines, 28 x 43 mm, with LED backlight for enhanced display readability
Keypad	1 operation and 2 programming keys, 1 flashlight on/off
Direct Readout	Instantaneous reading <ul style="list-style-type: none"> VOCs as ppm by volume (mg/m³) High values STEL and TWA Battery and shutdown voltage Date, time, temperature
Alarms	95dB at 12" (30 cm) buzzer and flashing red LED to indicate exceeded preset limits <ul style="list-style-type: none"> High: 3 beeps and flashes per second Low: 2 beeps and flashes per second STEL and TWA: 1 beep and flash per second Alarms latching with manual override or automatic reset Additional diagnostic alarm and display message for low battery and pump stall
EMC/RFI	Compliant with EMC directive (2004/108/EC) EMI and ESD test: 100MHz to 1GHz 30V/m, no alarm Contact: ±4kV Air: ±8kV, no alarm
IP Rating	<ul style="list-style-type: none"> IP-67 unit off and without flexible probe IP-65 unit running
Datalogging	Standard 6 months at one-minute intervals
Calibration	Two-point or three-point calibration for zero and span. Reflex PID Technology™ Calibration memory for 8 calibration gases, alarm limits, span values and calibration dates
Sampling Pump	<ul style="list-style-type: none"> Internal, integrated flow rate at 500 cc/mn Sample from 100' (30m) horizontally or vertically
Low Flow Alarm	Auto pump shutoff at low-flow condition
Communication & Data Download	<ul style="list-style-type: none"> Download data and upload instrument set-up from PC through charging cradle or using BLE module and dedicated APP Wireless data transmission through built-in RF modem
Wireless Network	Mesh RAE Systems Dedicated Wireless Network
Wireless Range (Typical)	Up to 15ft (5m) for BLE EchoView Host: LOS > 660 ft (200 m) ProRAE Guardian & RAEMesh Reader: LOS > 660 ft (200 m) ProRAE Guardian & RAELink3 Mesh: LOS > 330 ft (100 m)
Safety Certifications	US and Canada: CSA, Classified as Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, D Europe: ATEX II 2G EEx ia IIC T4
Temperature	-4° to 122° F (-20° to 50° C)
Humidity	0% to 95% relative humidity (non-condensing)
Attachments	Durable bright yellow rubber boot
Warranty	3 years for 10.6 eV lamp, 1 year for pump, battery, sensor and instrument
Wireless Frequency	ISM license-free band. IEEE 802.15.4 Sub 1GHz
Wireless Approvals	FCC Part 15, CE R&TTE, Others¹
Radio Module	Supports BLE or Bluetooth or RM900

¹ Contact RAE Systems for country-specific wireless approvals and certificates. Specifications are subject to change.

SENSOR SPECIFICATIONS			
Gas Monitor	Range	Resolution	Response Time T90
VOCs	0 to 999.9 ppm 1,000 to 15,000 ppm	0.1 ppm 1 ppm	< 3 s < 3 s

MONITOR ONLY INCLUDES:

- MiniRAE 3000 + Monitor, Model PGM-7320
- Wireless communication module built in, as specified
- Datalogging with ProRAE Studio II Package
- Charging/download adapter
- RAE UV lamp, as specified
- Flex-I-Probe™
- External filter
- Rubber boot
- Alkaline battery adapter
- Lamp-cleaning kit
- Tool kit
- Soft leather case

OPTIONAL CALIBRATION KIT ADDS:

- 100 ppm isobutylene calibration gas, 34L
- Calibration regulator and flow controller

OPTIONAL GUARANTEED COST-OF-OWNERSHIP PROGRAM:

- 4-year repair and replacement warranty
- Annual maintenance service

Attachment 2

Sterigenics Atlanta LDAR Program Plan
04 March 2022

Sterigenics Atlanta Facility Leak Detection and Repair Monitoring Form Example Only - Final formatting may change

Date of Inspection:

Name of person completing inspection:

Component ID or Equipment Description	Component Type	Date	Monitoring result (PPM) (result > 50 ppm, contact EHS)	Date of 1st Repair Attempt	Repair Method(s) Applied	Date(s) of Remonitoring	Result(s) of Remonitoring	Comments
Backvents								
BV-1	Connector							
BV-2	Damper							
BV-3	EXPANSION JOINT							
BV-4	Connector							
BV-5	Connector							
BV-6	Connector							
BV-7	Connector							
BV-8	Connector							
BV-9	Connector							
BV-10	Connector							
BV-11	Connector							
BV-12	Connector							
BV-13	Connector							
BV-14	Connector							
BV-15	3 way split							
BV-16	FLANGE							
BV-17	FLANGE							
BV-18	FLANGE							
BV-19	FLANGE							
BV-20	FLANGE							
BV-21	FLANGE							
BV-22	FLANGE							
BV-23	FLANGE							
BV-24	FLANGE							
BV-25	FLANGE							
BV-26	FLANGE							
BV-27	CONNECTOR							

Sterigenics Atlanta Facility
Leak Detection and Repair Monitoring Form
Example Only - Final formatting may change

Date of Inspection:

Name of person completing inspection:

EO Drum Storage Room

Number of Drums	
Date	
Any results > 1 ppm	Circle one: Yes / No
Drum ID(s) with >1 ppm	
Date of 1st Repair	
Date(s) of Remonitoring	
Result(s) of Remonitoring	
Comments	

ORIGIN ID:ENLA (847) 855-6110
STERIGENICS
STERIGENICS
2015 SPRING ROAD STE 650

OAK BROOK, IL 60523
UNITED STATES US

SHIP DATE: 04MAR22
ACTWGT: 0.10 LB
CAD: 100999785/INET4460

BILL THIRD PARTY

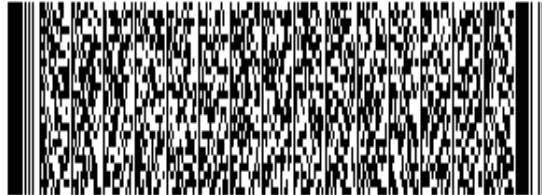
TO **MR TAYLOR, COMPLIANCE PROGRAM MGR**
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ATLANTA GA 30354

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PO:

REF: DOCUMENTS

DEPT:

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