AIR POLLUTION CONTROL

Shelby County Health Department

OPERATING PERMIT

COMPANY NAME: **STERILIZATION SERVICES OF TENNESSEE**

COMPANY ADDRESS: **2396 Florida Street, Memphis, Tennessee 38109**

ISSUANCE DATE: **09/08/2022** **PERMIT NUMBER: 00477-02P**

EXPIRATION DATE: **09/08/2027**

SOURCE DESCRIPTION
Three Ethylene Oxide Sterilizers

Emission Point(s): **Scrubber exhaust stack, sterilization chamber exhaust vents, aeration room vents, and exhaust stack of oxidizer**

Emission Control(s): **Acid-water scrubber and Catalytic Oxidizer**

The holder of this permit shall comply with all conditions contained in this permit as well as all applicable provisions of the City of Memphis Code. A permit condition may be appealed by filing a petition for reconsideration within thirty (30) days after the mailing date of the permit.

This permit may be subject to revocation, suspension, modification or amendment by the Technical Manager for cause including evidence of non-compliance with any of the above; or for any misrepresentation made in the application(s) received February 25, 2021 and supporting data entered therein or attached thereto, or any subsequent submittal or supporting data; or for any alterations affecting the emissions from this source.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached 13 pages.

LARRY SMITH, TECHNICAL MANAGER
POLLUTION CONTROL SECTION

Issuance of this permit shall not relieve any owner or operator of the responsibility to comply fully with any other requirements of local, State, or Federal Law.

NON TRANSFERABLE *POST OR FILE AT INSTALLATION ADDRESS*

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Purpose of the permit:

This permit is issued for the operation of three ethylene oxide sterilizers (Units 0101, 0102, 103), two aeration rooms, and associated air pollution control systems (acid-water scrubber and catalytic oxidizer).

PERMIT CONDITIONS:

1. The maximum ethylene oxide emissions from all emission sources at this facility shall not exceed 0.36 pounds per hour (24-hour average) and 1.59 tons per consecutive 12-month rolling period.

2. The maximum ethylene oxide usage rate at this facility shall not exceed 36.25 lbs/hr (24-hour average) and 158.78 tons per consecutive 12-month rolling period.

3. The facility owner or operator shall limit emissions as follows:

Emissions Tons Per Year	PM	SO2	NOx	CO	VOCs	HAPs	HAPs
Process Description						Single	Combined
Catalytic Oxidizer *(1)*	0.12	0.01	1.55	1.293	0.09	0.028	0.029
Ethylene Oxide (EtO)						1.59	1.59
Total	0.12	0.01	1.55	1.293	0.09	1.618	1.619

(1) Burning natural gas only.

4. The annual natural gas usage for the catalytic oxidizer shall be limited to 30.91 million cubic feet per consecutive 12-month rolling period.

5. The facility owner or operator is placed on notice that condition numbers 1-2 of this permit contain limitations that allow the owner/operator to opt-out of the major source operating permit program requirements specified in City of Memphis Code Section 16-77, Reference 1200-3-9-.02(11). Failure to abide by these limits will not only subject the owner/operator to enforcement action by the Department, but it may also result in the imposition of Federal enforcement action by the EPA and the loss of Federal recognition as a conditional minor source.

Performance Requirements/Monitoring:

6. Emissions of ethylene oxide from all sterilization chamber vents at this facility shall be routed to the acid-water scrubber. The acid-water scrubber shall operate at a minimum ethylene oxide emission reduction efficiency of 99 percent during sterilization operation.

7. Emissions of ethylene oxide from the aeration room vents at this facility shall be routed to the catalytic oxidizer. The catalytic oxidizer shall operate at a minimum ethylene oxide emission reduction efficiency of 99 percent.

8. A liquid level indicator shall be installed, maintained and used to measure the scrubber liquor tank level. The level of the scrubber liquor in the recirculation tank shall be measured and recorded once per week. Operation of the facility with the liquor tank level in excess of the maximum liquor tank level established during the initial performance test shall constitute a violation of the ethylene oxide removal efficiency standard specified in this permit.

9. The maximum liquor tank level shall not exceed 60 inches.

10. The facility owner or operator shall install, calibrate, operate, and maintain a temperature monitor accurate to within ±5.6 °C (±10 °F) to measure the oxidation temperature. The owner or operator shall verify the accuracy of the temperature monitor twice each calendar year with a reference temperature monitor traceable to National Institute of Standards and Technology (NIST) standards or an independent temperature measurement device dedicated for this purpose. During accuracy checking, the probe of the reference device shall be at the same location as that of the temperature monitor being tested. As an alternative, the accuracy temperature monitor may be verified in a calibrated oven (traceable to NIST standards).

11. The facility owner or operator shall continuously monitor and record the oxidation temperature at the outlet to the catalyst bed when the oxidation unit is in operation. From 15-minute or shorter period temperature values, a data acquisition system for the temperature monitor shall compute and record a daily average oxidation temperature. Strip chart data shall be converted to record a daily average oxidation temperature each day any instantaneous temperature recording falls below the minimum temperature.

12. The oxidation temperature shall not be less than 240°F. [source request]

13. All components attached to and serving the air pollution control equipment shall be well maintained, in use, and functioning properly during operation of the sterilizers.

14. The following work practice shall be complied with by the owner or operator regarding the catalytic oxidizer:

    (a) Every 5 years, beginning 5 years after the initial compliance test, replace the catalyst bed with new catalyst material. (Source Request)

15. The facility shall develop and implement a Continuous Monitoring System (CMS) Quality Control Program. The CMS Quality Control Program shall include, at a minimum, a written protocol that describes procedures for each of the following operations:

    (a) Initial and subsequent calibration of the CMS;
    (b) Determination and adjustment of the calibration drift of the CMS;
    (c) Preventive maintenance of the CMS, including spare parts inventory;
    (d) Data recording, calculations, and reporting;
    (e) Accuracy audit procedures, including sampling and analysis methods; and
    (f) Program of corrective action for a malfunctioning CMS.

Record Keeping:

16. The following records are required to be recorded in a form suitable and readily available for expeditious inspection and review. These files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

    (a) Daily ethylene oxide usage
    (b) All required measurements needed to demonstrate compliance with a relevant standard, including but not limited to:
        i. Weekly scrubber liquor tank level measurements
        ii. Records of temperature strip charts and daily average oxidation temperature
        iii. Raw measurements that support data that the source is required to report, such as:
            1. Raw performance testing measurements
            2. Raw performance evaluation measurements
    (c) Records of monthly fuel usage
    (d) All results of performance tests, CMS performance evaluations, and opacity and visible emission observations
    (e) All measurements as may be necessary to determine the conditions of performance tests and performance evaluations
    (f) All CMS calibration checks
    (g) All adjustments and maintenance performed on CMS
    (h) Total process time during the reporting period
    (i) Each period during which a CMS is malfunctioning or inoperative (including out-of-control periods)

(j) Records of malfunctions including:
   i. occurrence and duration of each malfunction of operation (i.e., process equipment) or the required air pollution control and monitoring equipment
   ii. specific identification (i.e., the date and time of commencement and completion of each time period of excess emissions and parameter monitoring exceedances) that occurs during periods other than startups, shutdowns, and malfunctions of the affected source
   iii. the nature and cause of any malfunction (if known)
   iv. the corrective action taken or preventive measures adopted
   v. the nature of the repairs or adjustments to the CMS that was inoperative or out of control

(k) All required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods)

(l) The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks

(m) All procedures that are part of a Quality Control Program developed and implemented in accordance with condition 15 of this permit

(n) All documentation supporting initial notifications and notifications of compliance status under 40 CFR Part 63.9

(o) Provide supporting documentation that demonstrates the catalyst bed for the catalytic oxidizer has been replaced as required by condition no. 14 of this permit

17. Preventative and maintenance records shall be kept on all air pollution control equipment for a period of at least five (5) years and made available to this Department upon request.

Reporting:

18. Quarterly reports summarizing the monthly ethylene oxide usage rate for the last consecutive twelve-month rolling period shall be delivered or postmarked no later than thirty (30) days following the end of each calendar quarter. These reports shall also include a Summary Report and/or an Excess Emissions and Continuous Monitoring System Performance Report. The facility owner or operator shall report the results as required for each CEMS.

    If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than 1 percent of the total operating time for the reporting period, and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the Summary Report shall be submitted, and the full Excess Emissions and Continuous Monitoring System Performance Report need not be submitted. When no deviations have occurred or monitoring equipment has not been inoperative, repaired, or adjusted, such information shall be stated in the Summary Report.

If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, both the Summary Report and the Excess Emissions and Continuous Monitoring System Performance Report shall be submitted.

Summary Report

A summary report shall be submitted for the hazardous air pollutants monitored. The summary report shall be entitled "Summary Report—Gaseous and Opacity Excess Emission and Continuous Monitoring System Performance" and shall contain the following information:

a. The company name and address of the affected source;
b. An identification of each hazardous air pollutant monitored at the affected source;
c. The beginning and ending dates of the reporting period;
d. A brief description of the process units;
e. The emission and operating parameter limitations specified in the relevant standard(s);
f. The monitoring equipment manufacturer(s) and model number(s);
g. The date of the latest CMS certification or audit;
h. The total operating time of the affected source during the reporting period;
i. An emission data summary (or similar summary if the facility owner or operator monitors control system parameters), including the total duration of excess emissions during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of excess emissions expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes;
j. A CMS performance summary (or similar summary if the facility owner or operator monitors control system parameters), including the total CMS downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes;
k. A description of any changes in CMS, processes, or controls since the last reporting period;
l. The name, title, and signature of the responsible official who is certifying the accuracy of the report; and
m. The date of the report.

Excess Emissions and Continuous Monitoring System Performance Report

Excess Emissions and Continuous Monitoring System Performance Reports shall contain the following information:

a. The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks;
b. The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard, that occurs during periods other than startups, shutdowns, and malfunctions of the affected source;
c. The nature and cause of any malfunction (if known);
d. The corrective action taken or preventive measures adopted;
e. The nature of the repairs or adjustments to the CMS that was inoperative or out of control;
f. The total process operating time during the reporting period;
g. Information from any calibration tests in which the monitoring equipment is not in compliance with PS9 or the method used for temperature calibration; and
h. The name, title, and signature of the responsible official who is certifying the accuracy of the report.

19. The facility shall report the results of required performance tests to the Technical Secretary. The owner or operator must report the results of the performance test before the close of business on the 60th day following the completion of the performance test.

Insignificant Emissions Unit:

The facility has one 10 Hp Natural Gas fired boiler which is considered an insignificant emissions source and his listed in the permit for information only.

General permit conditions are attached in Appendix A.

APPENDIX A

General Permit Conditions for Synthetic Minor Sources

SECTION I: OPERATIONAL REQUIREMENTS

1. The facility owner or operator shall control dust, fumes, gases, mist, vapors, or any combination thereof in such a manner as to not cause a nuisance in accordance with City of Memphis Code Section 16-88(a).

2. The facility owner or operator shall not cause, suffer, allow, or permit any air contaminant source to be operated without employing suitable measures for the control of the emission of objectionable odors in accordance with City of Memphis Code Section 16-88(b).

3. The facility owner or operator shall not discharge from any source whatsoever such quantities of air contaminant, uncombined water, or other materials, which cause a traffic hazard, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(3)].

4. The facility owner or operator shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne, in accordance with City of Memphis Code Section 16-89.

5. The open burning of residential, commercial, institutional, or industrial solid waste is prohibited except as specified in this permit or in City of Memphis Code Section 16-50.

6. Air contaminant sources must take all reasonable measures to keep emissions to a minimum during startups, shutdowns, and malfunctions in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.02]. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions, and shall be considered in violation of the emission standard exceeded and this rule.

SECTION II: TESTING REQUIREMENTS

7. The facility owner or operator may be required to conduct or have conducted such tests as are necessary to establish the quantity or identity of air contaminants emitted from an air contaminant source. Such tests shall be conducted in a manner approved in advance by the Technical Manager, in accordance with City of Memphis Code Section 16-85.

8. Whenever the Technical Manager has reason to believe that the emission limits of the regulations set forth herein are being violated, the Technical Manager may require The facility owner or operator to conduct or have conducted at the owner's or operator's expense, tests to determine the emission level of specific air contaminants, in accordance with City of Memphis Code Section 16-85.

9. The facility owner or operator of an air contaminant source to be tested shall provide the Technical Manager at least 30 days prior written notice of any performance test and the test protocol form, except as otherwise specified in a promulgated test method, to afford the Technical Manager the opportunity to have an observer present and to approve the test protocol, in accordance with City of Memphis Code Section 16-85.

10. Performance tests shall be conducted under representative performance conditions of the tested air contaminant source(s) for which compliance is to be demonstrated by the test. Samples shall be taken in such number, duration and location as to be statistically significant and representative of performance conditions for which compliance is to be demonstrated by the test, in accordance with City of Memphis Code Section 16-85. Unless otherwise specified in the test method, each performance test shall be corrected to standard conditions, defined as a temperature of 293 K (68° F) and a pressure of 101.3 kilopascals (29.92 in Hg).

11. The facility owner or operator may be required to retest at the request of the Technical Manager if the maximum production rate that occurred during compliance testing is exceeded by 10 percent or more, in accordance with City of Memphis Code Section 16-86.

12. Unless otherwise specified in the test method, each performance test shall consist of three separate runs using the applicable test method. Each test run shall be conducted for the time and under the conditions specified in the applicable test method. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs, in accordance with City of Memphis Code Section 16-85, [Reference the Rules and Regulations of Tennessee, Rule 12003-10].

SECTION III: MONITORING/RECORDKEEPING REQUIREMENTS

13. A log of all malfunctions, startups, and shutdowns resulting in emissions in excess of the standards in the City of Memphis Code or any permit issued thereto must be kept at the facility in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.04]. This log must record at least the following:

a) Stack or emission point involved;

b) Time of malfunction, startup, or shutdown or when first noticed;

c) Type of malfunction and/or reason for shutdown;

d) Time startup or shutdown was complete or time the air contaminant source returned to normal operation; and

e) The company employee making entry on the log must sign, date and state the time of each log entry. The information under items (a) and (b) above must be entered into the log by the end of the shift during which the malfunction, startup, or shutdown began.

All information shall be entered in the log no later than twenty-four (24) hours after the startup or shutdown is complete, or the malfunction has ceased or has been corrected. Any later discovered corrections can be added in the log as footnotes with the reason given for the change.

SECTION IV: REPORTING/NOTIFICATION REQUIREMENTS

14. When any air contaminant source malfunctions in such a manner as to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-3 or any permit issued thereto, or of sufficient duration to cause damage to property or public health, The facility owner or operator of the air contaminant source shall promptly notify the Technical Manager of such malfunction and provide a statement giving all pertinent facts, including the estimated duration of the malfunction, in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.03]. Violations of the visible emission standard (excluding visible emissions caused by hazardous air pollutants named in Chapter 1200-3-11), which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Shelby County Health Department, Pollution Control Section.

15. The Technical Manager shall be notified when the malfunction has been corrected, in accordance with City of Memphis Code Section 16-87 [Reference Rules and Regulations of Tennessee, Rule 1200-3-20-.03]. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required. Any malfunction that creates an imminent hazard to health

must be reported by telephone immediately to the Shelby County Health Department, Pollution Control Section and the Emergency Management Agency.

16. The facility owner or operator shall submit a report to the Department, on an annual basis, that establishes the amount of actual emissions of each regulated pollutant for the facility according to the provisions in City of Memphis Code Section 16-98. This report shall be submitted no later than February 28th of each calendar year and shall include emissions that occurred during the previous calendar year.

SECTION V: MISCELLANEOUS GENERAL REQUIREMENTS

17. The facility owner or operator shall apply for a permit renewal at least sixty (60) calendar days prior to the expiration of this permit in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.02(3)(a)].

18. The facility owner or operator shall pay fees in accordance with City of Memphis Code Sections 16-93 through 16-96.

19. This permit is not transferable from one person to another person, nor from one air contaminant source to another air contaminant source, nor from one location to another location pursuant to City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(6)].

20. The facility owner or operator shall maintain this operating permit readily available for inspection by the Technical Manager or his/her designated representative on the operating premises. A person required by regulations to have one or more operating permits shall keep at least one operating permit prominently and conspicuously displayed on the operating premises in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.02(5)].

21. The Shelby County Health Department in conjunction with the Memphis and Shelby County Air Pollution Control Board shall have authority, at their option, to institute and litigate proceedings for violations as set out therein, in accordance with City of Memphis Code Section 16-57. Any person who knowingly:
    a) Violates or fails to comply with any provision of the City of Memphis Code, any board or administrative order or any permit condition;
    b) Makes any false material statement, representation, or certification in any record, report, plan or other document required by permit to be either filed or maintained;
    c) Falsifies, tampers with, renders inaccurate or fails to install any monitoring device or method required to be maintained or followed; or
    d) Fails to pay a fee commits a Class C misdemeanor pursuant to the Tennessee Code Annotated with the fine not to exceed ten thousand dollars ($10,000) per day per violation. For the purpose of this section, each day of continued violation constitutes a separate offense and is punishable as such.

22. The facility owner or operator of any air contaminant source shall be responsible for complying with emission regulations as contained in other chapters of these regulations at the earliest practicable time and for this purpose the Board shall have the authority and responsibility to require compliance with these regulations at an earlier date than indicated where such earlier compliance may reasonably be accomplished, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(1)].

23. The facility owner or operator shall not use any plan, activity, device or contrivance which the Technical Manager determines will, without resulting in an actual reduction of air contaminants, conceal or appear to minimize the effects of an emission which would otherwise constitute a violation of these Regulations, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(2)]. Methods considered circumvention of the regulations include but are not limited to the following:

    a) Air (or other gases) introduced for dilution purposes only; or

    b) The staggered installation and operation of a facility to avoid coverage by a standard that applies only to operations larger than a specified size.

24. The Technical Manager may suspend or revoke any construction or operating permit if the permit holder fails to comply with the provisions, stipulations, or compliance schedules specified in the permit; all provisions of these regulations; and all provisions of the Tennessee Air Quality Act, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.03(7)]. Upon permit suspension or revocation, if the permit holder fails to take remedial action, he shall become immediately subject to enforcement actions prescribed by law.

25. Failure to comply with any of the provisions of the City of Memphis Code shall constitute a violation thereof and shall subject the person or persons responsible therefore to any and all of the penalties provided by law, in accordance with City of Memphis Code Section 16-57.

26. For the purpose of carrying out the requirements of the City of Memphis Code, the Technical Manager or his/her authorized representatives, including engineers, assistants, environmentalists and other employees, shall be permitted at all reasonable times to enter into any manufacturing plants, business buildings or other buildings, and all lots, grounds and premises, in order to thoroughly examine any items in relation to public health and air pollution thereon and therein, in accordance with City of Memphis Code Section 16-61.

27. The facility owner or operator shall not begin the construction of a new air contaminant source or the modification of an air contaminant source which may result in the discharge of air contaminants without first having applied for and received from the Technical Manager a construction permit for the construction or modification of such air contaminant source, in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.01(1)(a)], except as specifically exempted in Rule 1200-3-9-.04 or excluded in subparagraph 1200-3-2-.01(1)(aa) or subparagraph 1200-3-2-.01(1)(cc).

28. The application for a construction permit shall be made on forms available from the Technical Manager not less than ninety (90) days prior to the estimated starting date of construction in accordance with City of Memphis Code Section 16-77 [Reference Rules and Regulations of Tennessee, Rule 1200-3-9-.01(1)(b)]. Sources identified in Paragraph 1200-3-9-.01(4) shall make application for a construction permit not less than one hundred twenty (120) days prior to the estimated date of construction.