

Georgia Department of Natural Resources

Environmental Protection Division • Air Protection Branch

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Judson H. Turner, Director

NARRATIVE

TO: David Matos
FROM: Susan Jenkins
DATE: May 2, 2014

Facility Name: **Sterigenics U.S. LLC**
AIRS No.: 067-00093
Location: Smyrna, GA (Cobb County)
Application #: 22479
Date of Application: March 11, 2014

Background Information

Sterigenics U.S. LLC (“Sterigenics”) is permitted as an ethylene oxide and propylene oxide sterilization facility located at 2973 Olympic Industrial Park, Smyrna, Georgia (Cobb County). The facility operates under Permit No. 7389-067-0093-V-04-0 issued May 19, 2010. The facility is subject to 40 CFR 63 Subpart O – “Ethylene Oxide Emission Standards for Sterilization Facilities”.

Purpose of Application

Sterigenics has submitted a Title V and SIP application, assigned No. 22479, and dated March 11, 2014 for the following:

1. Change the facility classification from Title V to Synthetic Minor: It should be noted that the facility is not required to have a Title V permit due to applicability of 40 CFR 63 Subpart O – “Ethylene Oxide Emission Standards for Sterilization Facilities” per 40 CFR 63.360(f). This language was added to the regulation on December 19, 2005:

If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

2. Decommission a 15-pallet sterilization chamber (Chamber #9: SEV-9 and CEV-9).
3. Install a 30-pallet sterilization chamber (5,174 cubic feet: Chamber 10: SEV-10 and CEV-10).
4. Decommission Aeration Rooms 11, 12, and 13 (Total = 55,562 cubic feet: AR-11, AR-12 and AR-13).
5. Install a new Aeration Room (152,400 cubic feet) – Name AR-1.

Updated Equipment List

Emission Units			Associated Control Devices	
Source Code	Description	Installation Date	Source Code	Description
SEV-1	Six-pallet Sterilization Chamber 1 vacuum pump	1967	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-2	Six-pallet Sterilization Chamber 2 vacuum pump	1967	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-3	Nine-pallet Sterilization Chamber vacuum pump	1967	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-4	Five-pallet Sterilization Chamber vacuum pump	1967	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-5	Thirteen-pallet Sterilization Chamber vacuum pump	1987	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-6	Thirteen-pallet Sterilization Chamber vacuum pump	1992	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-7	Thirteen-pallet Sterilization Chamber vacuum pump	1994	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-8	Thirteen-pallet Sterilization Chamber vacuum pump	1994	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-9	Fifteen-pallet Sterilization Chamber vacuum pump	2002 Decom 2014	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
SEV-10	Thirty-pallet Sterilization Chamber vacuum pump	2014 NEW	EC2	AAT Scrubber System (with Dry Bed Adsorber)
			EC3	Ceilcote Scrubber
CEV-1	Back vent for Chamber 1	1967	NA	None
CEV-2	Back vent for Chamber 2	1967	NA	None
CEV-3	Back vent for Chamber 3	1967	NA	None
CEV-4	Back vent for Chamber 4	1967	NA	None
CEV-5	Back vent for Chamber 5	1987	NA	None
CEV-6	Back vent for Chamber 6	1992	NA	None
CEV-7	Back vent for Chamber 7	1994	NA	None

Emission Units			Associated Control Devices	
Source Code	Description	Installation Date	Source Code	Description
CEV-8	Back vent for Chamber 8	1994	NA	None
CEV-9	Back vent for Chamber 9	2002 Decom 2014	NA	None
CEV-10	Back vent for Chamber 10	2014 NEW	NA	None
AR-11	Aeration Room 11	1994 Decom 2014	EC2	AAT Scrubber System (with Dry Bed Adsorber)
AR-12	Aeration Room 12	1994 Decom 2014	EC2	AAT Scrubber System (with Dry Bed Adsorber)
AR-13	Aeration Room 13	1997 Decom 2014	EC2	AAT Scrubber System (with Dry Bed Adsorber)
AR-1	Aeration Room 1	2014 NEW	EC2	AAT Scrubber System (with Dry Bed Adsorber)

*proposed within current application

Emissions Summary

The facility has provided facility wide emission calculations to demonstrate that the facility will be a synthetic minor site with the facility changes. The calculations were performed as follows:

- Sterilization Equipment (SEV-1-SEV-8, SEV-10) Process throughput, controls, and allowable emissions under 40 CFR 63 Subpart O.
- Aeration Room Vents (AR-1): Process throughput, controls, and allowable emissions under 40 CFR 63 Subpart O.
- Sterilization Chamber Exhaust Back vents (CEV-1 through CEV-8 and CEV-10): Process throughput.

Facility-Wide Emissions

(in tons per year)

Pollutant	Current Facility Configuration			Future Facility Configuration		
	TV Potential (2)	SM Potential	Actual	TV Potential	SM Potential	Actual
PM	<100	<100	0.08	<100	<100	0.08
PM10	<100	<100	0.08	<100	<100	0.08
PM2.5	<100	<100	0.0	<100	<100	0.0
NOx	<25	<25	3.1	<25	<25	3.1
CO	<100	<100	0.93	<100	<100	0.93
VOC	0 to 10	2.725	1.6	0 to 10	<25	1.6
Individual HAP						
EtO –(1)	<10	2.6	1.6	<10	4.98	1.6
PPO – (1)	<10	0.125	0.007	<10	0.25	0.007
Total HAP	<25	2.725	1.6	<25	5.23	1.6

(1) – Taken from SIP Application Form Item 13.

(2) The potential to emit of VOC emissions from the facility exceeds 25 tpy without VOC controls. The numerical value of 25 tpy is the threshold for triggering Nonattainment New Source Review.

Regulatory Applicability

Sterilization Equipment

Both the new and old sterilization operations are regulated under 40 CFR 63 Subpart O – “Ethylene Oxide Emissions Standards for Sterilization Facilities.” Sterigenics will still utilize the “AAT Scrubber System” (ID No. EC2) to scrub the ethylene oxide emissions from the aeration rooms. Scrubber EC2 exhausts through a dry bed adsorber. This scrubber system also backs up the “Ceilcote Acid Water Scrubber” (ID No. EC3). Scrubber with ID No. EC3 receives the exhaust (mostly ethylene oxide) from the sterilization chamber vacuum pumps. Scrubber with ID No. EC3 causes the ethylene oxide to react to form ethylene glycol.

Sterigenics noted, in their application, that the facility is potentially subject to Georgia Rule 391-3-1-.02(2)(tt) “VOC Emissions from Major Sources” which is a wrong conclusion. Sterigenics could not be classified as an SM source and be subject to Georgia Rule (tt).

Fuel-Burning Equipment

Sterigenics notes that Georgia Rules 391-3-1-.02(2)(d) and 391-3-1-.02(2)(g) are applicable requirements. Sterigenics operates at least two pieces of fuel-burning equipment with a rated heat input capacity of less than 5 MMBtu/hr, burning only distillate fuel oil, natural gas and/or LPG. This last statement is taken from Title V Application No. 19323.

Sterigenics’ application did not include an applicability analysis of the Boiler GACT “National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources”. Georgia EPD will assume that the two pieces of fuel-burning equipment meet the definition of *gas-fired boiler* as defined in 40 CFR 63.11237 and as such is exempt from the Boiler GACT requirements.

Permit Conditions

The permit conditions for the Sterigenics facility are described below. In many cases, the conditions were carried over from their Title V permit.

New Condition No.	Previous Condition No.	Description
1.1	8.17.1	General requirement applicable to all facilities.
1.2	8.15.1	General requirement applicable to all facilities.
1.3	Version of 8.10.1.	General requirement applicable to all facilities.
1.4	6.1.1	General requirement applicable to all facilities.
1.5	Version of 8.1.2	General requirement applicable to all facilities.
2.1	3.3.1	Statement of 40 CFR 63 Subpart O applicability.
2.2	3.3.2	Statement of 40 CFR 63 Subpart A applicability.
2.3	3.3.3	Part 63 Subpart O ethylene oxide (EtO) emission standard for sterilization chamber vents.
2.4	3.3.4	Part 63 Subpart O EtO emission standard for aeration room vents.
2.5	3.3.5	Statement of when the Part 63 Subpart O emission standards apply.
2.6	NEW	Statement limiting fuel-burning equipment to only fire natural gas as defined in the Boiler GACT.
3.1	Version of 8.22.1	General requirement applicable to all facilities.
4.1	NEW	General requirement applicable to all facilities.
4.2	NEW	General requirement applicable to all facilities.
4.3	NEW	General requirement applicable to all facilities.
5.1	5.1.1	General monitoring requirement applicable to all facilities.
5.2	5.2.1	Requires installation and operation of monitoring devices on the two scrubbers.

New Condition No.	Previous Condition No.	Description
5.3	5.2.2	Establishes monitoring requirements for acid-water scrubbers per 40 CFR 63.364(b).
5.4	5.2.3	Establishes monitoring and record keeping requirements for the dry bed adsorbers.
6.1	4.1.1, 4.1.2	General requirement applicable to all facilities.
6.2	NEW	Establishes initial performance testing for new EtO sterilization chamber SEV-10.
6.3	NEW	Establishes initial performance testing for new aeration chamber AR-1.
7.1		General requirement applicable to all facilities.
7.2	6.1.6	General requirement applicable to all facilities.
7.3	6.2.1	Specified record keeping requirements per 40 CFR 63.367(a).
7.4	6.1.7.b 6.1.7.c	Reporting requirement written by SSCP (Don Holder). Does not impose new reporting requirement. Imposes reporting requirements found in Title V permit template for this particular facility.
7.5	6.2.4	Reporting requirements for new Part 63 Subpart O emission units per 40 CFR 63.366(c)(1)(ii).
7.6	Version of Section of 6.1.	Reporting requirements per 40 CFR 63.366(a).
7.7	Version of Section of 6.1.	General reporting requirements.
8.1	NEW	General requirement applicable to all facilities.
8.2	8.4.1	Requirement per Georgia Rule 391-3-1-.03(9).
8.3	NEW	Standard language revoking all existing permits.

Toxic Impact Assessment

A new toxic impact assessment is not required for this permitting action.

Summary & Recommendations

No public advisory for this application was issued. The facility will be reclassified as a synthetic minor site. Compliance responsibility for the source will remain with SSCP due to the applicability of 40 CFR 63 Subpart O.

I recommend issuing Air Quality Permit No. 7389-067-0093-S-05-0 to Sterigenics for the installation and operation of a new sterilization chamber with vacuum pumps (SEV-10) and for aeration room (AR-1) and the reclassification of the source as a synthetic minor source. The new permit will revoke Air Quality Permit No. 7389-067-00093-V-04-0.