west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2518C
Plant ID No.:	011-00037
Applicant:	Alcon Research, Ltd.
Facility Name:	Huntington
Location:	Cabell County
NAICS Code:	339113
Application Type:	Modification
Received Date:	April 12, 2012
Engineer Assigned:	David Keatley
Fee Amount:	$1,000
Date Received:	April 13, 2012 ($500) and May 4, 2012 ($500)
Complete Date:	September 4, 2012
Due Date:	December 3, 2012
Applicant Ad Date:	April 25, 2012
Newspaper:	*The Herald Dispatch*
UTM's:	Easting: 385.7 km Northing: 4,257.6 km Zone: 17
Description:	Installation of a 400 kW emergency generator.

DESCRIPTION OF PROCESS

Alcon Manufacturing, Ltd. utilizes ethylene oxide (EtO) gas in two existing sterilizer chambers to sterilize it ophthalmic products. Alcon's primary products are intraocular lenses; secondary products are lens related accessories.

The EtO (10% by weight) is purchased in a mixture with two HCFC's (comprising 90% by weight). This gas mixture is nonflammable and nonexplosive. The two HCFC's are HCFC-124 (chlorotetrafluorethane, 63%) and HCFC-22 (chlorodifluoromethane, 27%). Additional details of the gas mixture are included in Material Safety Data Sheet #HM-0713 (see copy labeled as Attachment D).

During the computer-controlled sterilization cycle, six chamber purges are

performed. During these, the EtO gas mixture is exhausted out of the sterilization chamber and piped to a Chemrox-brand DEOXX acid scrubber. Here, the gas is exposed to acid conditions in a absorber tower. As a result, the EtO is chemically converted to ethylene glycol.

The ethylene glycol is captured, neutralized to a neutral pH range, and removed by tanker truck as needed for recycling by a licensed waste processor. The two HCFC's are discharged to the atmosphere through a vent in the absorbers tower. The current scrubber was tested and certified to operate at a greater than 99% efficiency on April 6, 2000.

A second DEOXX acid scrubber was installed and air testing was conducted in November of 2005. This scrubber operated at greater than 99% efficiency also. It will be connected to all three existing sterilizers. This scrubber has adequate capacity to handle the inputs from the three existing sterilizers. The third sterilizer will only utilize the proposed scrubber.

The application is proposing the installation of a 400 kW emergency/stand-by generator. The engine is a #2 Fuel Oil (FO) fired six-cylinder 619 bhp Caterpillar.

SITE INSPECTION

From Charleston travel I64 W until exit 18. Turn right onto Merritts Creek Connector/WV-193 go 3.2 miles to WV-2 (Ohio River Rd.) and go approximately 0.2 miles turn right onto Kyle Lane.

Richard E. Ray of DAQ's Compliance and Enforcement Section performed a full onsite visit of the facility on October 7, 2011 and the facility was in compliance.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER FOR THIS MODIFICATION

The air emissions from the emergency generator engine are from the engine manufacturer (EM) and AP-42. The hours of operation of the engine are 500 hours per year. The emission factors for EM in g/bhp-hr are: NO_x, 3.49, CO, 0.35; VOC, 0.04; and PM, 0.034. The emission factor from AP-42 in lb/MMBTU are: SO_2, 0.29.

Emissions from #2 FO tank will be considered negligible due to tank size and content vapor pressure.

The following table lists the estimated emissions.

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
4S	Emergency Generator 619 bhp	Nitrogen Oxides	4.8	1.19
		Carbon Monoxide	0.48	0.12
		Volatile Organic Compounds	0.05	0.014
		Sulfur Dioxide	1.27	0.32
		Total Particulate Matter	0.05	0.014
		PM_{10}	0.05	0.014

REGULATORY APPLICABILITY FOR THIS MODIFICATION

45CSR4 *- To Prevent and Control the Discharge of Air Pollutants Into the Open Air Which Causes or Contributes to an Objectionable Odor or Odors*

The facility is subject to the requirements of 45CSR4 and shall not allow the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

45CSR13 - *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation*

The proposed construction is subject to the requirements of 45CSR13 because engine 4S is subject to NSPS IIII. NSPS IIII is considered a substantive requirement.

45CSR16 - *Standards of Performance for New Stationary Sources Pursuant to 40CFR60*

45CSR16 incorporates by reference the standards of performance for new stationary sources (40CFR60). This facility has proposed the installation of an emergency generator engine (4S) that is subject to 40CFR60 Subpart IIII, and is therefore subject to 45CSR16.

45CSR22 - *Air Quality Management Fee Program*

This facility is subject to the requirements of 45CSR22. This source has a total reciprocating engine capacity less than 1,000 hp and is a therefore a 9M source and shall pay an annual fee of $200.

40CFR60 Subpart IIII - *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*

Since Alcon Research, Ltd. commenced construction after July 11, 2005 (construction date: 2012) and engine EG-1 was manufacturer after April 1, 2006 (manufacture date: 2012), 4S is subject to Subpart IIII. 4S has a displacement per cylinder of less than 30 (2.54 L), is not a fire pump engine, and is considered an emergency engine the emission standards are in Section 60.4202. 4S is a 2007 or later model and has a maximum engine power less than 3,000 hp, but greater than 50 bhp. 4S must meet the emission standards in 40CFR89.112 and 40CFR89.113.

40CFR89.112 Table 1 provides the emission standards applicable for 4S. 4S is rated for 619 bhp and is subject to tier 3 standards, the emission standards in g/kw-hr are: NMHC+NO_x, 4.0; CO, 3.5; and PM, 0.2. 4S is required to meet these emission standards over the entire life of the engine. This engine must meet the fuel requirements it 40 CFR 80.510(b). EG-1 is required to have a non-resettable hour meter prior to engine startup. 4S must be operated and maintained according to the manufacturer's written instructions and procedures. Maintenance checks and readiness testing of 4S shall be limited to 100 hours per year. 4S must be installed and configured according to manufacturer's specifications.

4S is a certified engine and has no testing requirements.

Unless otherwise stated WVDEP DAQ did not determine whether the registrant is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart HH and 40 CFR 63, Subpart ZZZZ.

AIR QUALITY IMPACT ANALYSIS

Based on the annual emissions rates this facility will not be a major source as defined by 45CSR14, so no air quality impact analysis was performed.

CHANGES TO PERMIT R13-2518C

Installation of #2 Fuel Oil Tank (5S) and emergency generator (4S). Emergency Generator (4S) is subject to Subpart IIII. Conditions 4.1.9. through 4.1.13. and 4.2.2. were added to the permit.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates Alcon Research, Ltd.'s emergency generator should meet applicable requirements of state rules and federal regulations. It is recommended that Alcon Research, Ltd's proposed emergency generator installation should be granted a 45CSR13 construction permit for their facility.

David Keatley
Permit Writer

Date