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| NORTH CAROLINA DIVISION OF AIR QUALITY Application Review | | | Region: Wilmington Regional Office County: New Hanover NC Facility ID: 6500356 Inspector's Name: Linda Willis Date of Last Inspection: 09/29/2021 Compliance Code: 3 / Compliance - inspection |
| Issue Date: NOVEMBER 8, 2021 | | | |
| Facility Data | | | Permit Applicability (this application only) |
| Applicant (Facility's Name): Ecolab, Inc. Facility Address: Ecolab, Inc. 2202 Burnett Boulevard Wilmington, NC 28402 SIC: 7342 / Disinfecting And Exterminating NAICS: 56171 / Exterminating and Pest Control Services Facility Classification: Before: Synthetic Minor After: Synthetic Minor Fee Classification: Before: Synthetic Minor After: Synthetic Minor | | | SIP: X NSPS: NESHAP: PSD: PSD Avoidance: NC Toxics: 112(r): Other: |
| Contact Data | | | Application Data |
| Facility Contact | Authorized Contact | Technical Contact | Application Number: 6500356.21A Date Received: 10/22/2021 Application Type: <u>Modification</u> Application Schedule: State Existing Permit Data Existing Permit Number: 10313/R03 Existing Permit Issue Date: 09/29/2021 Existing Permit Expiration Date: 08/31/2029 |
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| Review Engineer: Dean Carroll Review Engineer's Signature:  Date: 11/8/21 FOR DC | | | Comments / Recommendations: Issue: 10313/R04 Permit Issue Date: November 8, 2021 Permit Expiration Date: August 31, 2029 |

1. Application Summary - (App # 65/00356.21A)

Ecolab, Inc. submitted a permit modification application on 10/22/2021 to incorporate an alternative operating scenario of emission stacks 1A and 2A at the log fumigation site at the NC State Port facility in Wilmington, NC. The facility is required to comply with rule 15A NCAC 2D .0546 for fumigation of logs with methyl bromide (.0546), which was completed in the previous permit revision (10313R03). Ecolab, Inc. performs log fumigation and other commodities in containers using methyl bromide and phosphine. A second fumigation operation of other commodities is permitted in a cold storage / enclosed warehouse under tarpaulins. The primary operating scenario involves fumigation operations with two 40-foot tall, 20 inch by 20 inch square stacks (emission points ES-1 and ES-2).

The facility classification will remain a synthetic minor (methyl bromide is a HAP < 10 ton/yr actual emissions). No insignificant activities as defined by 02Q .0102 are at this site. Modeling was submitted with this application to demonstrate compliance with 02D .0546.

2. Application Chronology

Application received 10/22/2021
 Permit proposed issue date 11/8/2021

3. Process and Regulatory Review per 15A NCAC

Ecolab, Inc. proposes to conduct pest fumigation of logs (with methyl bromide) and other commodities (with phosphine) in shipping containers on leased property at the NC State Port - Wilmington.

The State Port is currently backed up with containers of logs that need to be shipped for the supply chain around the world. Ships are sitting in the water waiting for import of fruit that may need fumigation if the commodity is infested.

The original emission stacks (ES-1 and ES-2) that were constructed were blown down in a wind storm in Wilmington, NC making a (new) alternate operating scenario (stacks 1A and 2A) necessary. The 40-foot stack height and the 20" X 20" square discharge or equivalent cross-sectional area will be maintained in the alternate stacks as well.

The alternate operating scenario was modeled at a conservative stack velocity of 0.01 m/sec (representing fugitive emissions in DAQ policy which is near zero) and at decreased emission rates. Also, a temperature of 0 Kelvin was used as a very conservative temperature. The effect of this is that no monitoring will be required for the stack velocity on ES-1A and ES-2A but it is still required on ES-1 and ES-2.

The modeling analysis memo from RCO provided the following (11/3/21):

**Maximum Modeled Toxics Impacts (Alternative Operating Scenario)
 Ecolab Inc., Port of Wilmington, New Hanover County, NC**

| Pollutant | Averaging Period | Max. Conc. ($\mu\text{g}/\text{m}^3$) | AAL ($\mu\text{g}/\text{m}^3$) | % of AAL |
|----------------|------------------|---|----------------------------------|----------|
| Methyl bromide | 24-hr | 988.4 | 1000 | 98.8 % |
| | Annual | 4.98 | 5 | 99.6 % |
| Phosphine | 1-hr | 128.5 | 130 | 98.8 % |

This same table also equates to the following emission rates in lb/hr, lb/day, and lb/yr which are markedly less than the primary operating scenario:

| Affected Source | Toxic Air Pollutant | Emission Limit | 2D .1104 AAL | % of the AAL |
|-----------------|---------------------|----------------|------------------------------|--------------|
| ES-1A | Methyl Bromide | 1,100 lb/day | 1.0 mg/m^3 | 98.8 % |
| ES-1A | Methyl Bromide | 15,999.2 lb/yr | 0.005 mg/m^3 | 99.6 % |
| ES-1A | Phosphine | 1.65 lb/hr | 0.13 mg/m^3 | 98.8 % |

| Affected Source | Toxic Air Pollutant | Emission Limit | 2D .1104 AAL | % of the AAL |
|-----------------|---------------------|----------------|------------------------------|--------------|
| ES-2A (fruit) | Methyl Bromide | 110 lb/day | 1.0 mg/m^3 | 98.8 % |
| ES-2A (fruit) | Methyl Bromide | 2,149.4 lb/yr | 0.005 mg/m^3 | 99.6 % |

Note: methyl bromide does not have a 2Q .0711 TPER value – it was recently added to the 2D .1104 (Toxic Air Pollutant Guidelines) in November of 2020 and follows 2D .0546 for compliance. Phosphine is a current TAP in rule 2Q .0711 with a value of 0.032 lb/hr for obstructed or non-vertical stacks (.0711(a)) and 0.14 lb/hr for unobstructed and vertical stacks (.0711(b)). The modeled emission rate for phosphine in the primary operating scenario was 2.5 lb/hr

The following changes were made in this (R04) revision at condition A.6:

In accordance with 15A NCAC 2D .1104 – NC toxics - This language, in addition to the emissions limit tables above, was added to the existing permit condition A.6., near the heading of the section just below the existing toxics table:

- *This temporary alternate scenario with back-up stacks 1A and 2A will be allowed for 6 months: from November 8, 2021 until May 8, 2022.*
- *The only fumigation operation allowed at the facility shall be under the Alternate Operating Scenario from November 8, 2021 until May 8, 2022.*
- *Per 10313R04 issued on November 8, 2021, no later than February 8, 2022, Ecolab, Inc. shall submit one permit application with two distinct Alternate Operating Scenarios and related ambient modeling showing compliance with 15A NCAC 2D .0546 as follows:*
 1. *An application that includes the ambient modeling for 6 months of continuous operations under the Alternate Operating Scenario permitted in 10313R04 in combination with 6 months of continuous operations in the Primary Operating Scenario including the appropriate number of days anticipated to be needed for maintenance/emergency use of the Alternate Operating Scenario Stack when the Primary Operating Scenario Stack will not be in use.*
 2. *An application that includes use of the Primary Operating Scenario stack for a 12-month period incorporating the appropriate number of days anticipated to be needed for maintenance/emergency use of the Alternate Operating Scenario Stack when the Primary Operating Scenario Stack will not be in use.*

The main heart of the permit is the following sub-sections (15 pages long) all under the 2D .1104 NC toxics condition (A.6):

- | | |
|---|---------------------------------|
| 1. Fumigation Preparation for Containers | 1. Fumigation for Bulk Piles |
| 2. Container Fumigation | 2. Bulk Pile Fumigation |
| 3. Leak Detection and Repair Program (LDAR) | 3. LDAR |
| 4. Exhaust Stack for Containers | 4. Exhaust Stack for Bulk Piles |
| 5. Aeration | 5. Aeration |
| 6. Opening Containers | 6. Removing the Tarpaulins |

Other minor changes were performed in this revision in the sub-sections as follows:

Before the first sub-section of A.6.A., the following language was added:

1. In reference to the initial performance test required on the stack velocity (of ES-1 and ES-2) for the primary operating scenario at A.6.A.5.(Aeration) (a)(v), during the six-month period of the alternate operating scenario, the initial performance test shall not be required. Also, a change will be made to the language such that, after the six-month period is over, the initial performance test shall be conducted within 45 days of [~~issuance of this permit~~] operation of the stack fan and ductwork equipment under the primary operating scenario. The same shall be applicable for condition A.6.B.5. (Aeration) (a)(iv) where the initial performance test is required. This will be changed in this revision; 2 places.
2. In reference to the phosphine hourly emission rate in condition A.6.B. that was modeled, there is no tracking of hourly emissions in section A.6.B.2. Container Fumigation (c)(iii). This section is the quarterly reporting requirement for methyl bromide and phosphine emissions and covers annual (12-month rolling) and daily emissions of each but no mention was in the permit for hourly phosphine emissions. This will be addressed in this revision by adding a tracking and reporting requirement for hourly phosphine emissions at A.6.B.2. The hourly emissions of phosphine shall be calculated and compared to the modeled rate of 2.5 lb/hr (primary operating scenario). The alternate operating scenario has an hourly limit of 1.65 lb/hr phosphine.

02Q .0315 “Synthetic Minor Facilities”

Methyl bromide and phosphine are listed as Hazardous Air Pollutants (HAP). Since there is no physical bottle-neck other than available acreage on the property, Ecolab, Inc. could potentially exceed 10 tons per year of methyl bromide or phosphine emissions. It is unlikely phosphine emissions would approach this limit due to the NC toxics hourly limit however, in an abundance of caution, tracking, and reporting of phosphine is included in this federally enforceable limit. The applicant has requested a synthetic minor limit of 10 tons per year for each fumigant to avoid having to submit an application for a Title V permit.

4. NSPS, NESHAPS, PSD, Attainment Status, and 112r

- **NSPS** – No NSPS Subpart is applicable to the permitted sources.
- **NESHAPS** – No NESHAP subpart is applicable to the permitted sources.
- **PSD** - This facility is minor for PSD. New Hanover County has been triggered for increment tracking for NO_x (NO₂), PM₁₀, and SO₂. The actual PM₁₀ emissions were entered in the permit cover letter in the previous permit (7.0 lbs/hr). NO_x and SO₂ were both 0.0 lbs/hr.
- **Attainment Status** - This facility is in an attainment area.
- **112r** - The facility has not indicated that it handles, stores, or uses any 112R pollutants in sufficient quantities to be subject to this regulation.
- **NC Toxics** - Methyl Bromide and Phosphine are North Carolina toxics as defined in 02D .0546(a) promulgated on November 1, 2020 and phosphine is a current 2Q .0711 TAP.

5. Facility Compliance Status

Compliance inspections were performed on 9/29/2021 by Linda Willis at which time the facility was not operating.

6. Comments and Recommendations

- Recommend issuance of Permit 10313R04 to Ecolab, Inc., located in Wilmington, NC.