

**Ecolab, Inc.**

**Hearing Officer's Report and Recommendations**

Virtual Public Hearing

August 31, 2021

Public Comment Period:

July 30, 2021 through September 2, 2021

Pertaining to Permit Application No. 6500356.20A and  
Draft Air Quality Permit No. 10313/R03 for:

Ecolab Inc.

2202 Burnett Boulevard | Wilmington, North Carolina

New Hanover County

Facility ID No. 6500356

Classification: Synthetic Minor

Hearing Officer

T. Ray Stewart, Jr., P.E., CPM

Regional Supervisor, Winston Salem Regional Office

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## **I. Background**

On November 23, 2020, the North Carolina Department of Environmental Quality (DEQ), Division of Air Quality (DAQ), received an Air Quality Permit application (App. No. 6500356.20A) from Ecolab, Inc. The purpose of the application was to modify the facility's existing Air Quality Permit to incorporate the requirements of the recently promulgated rule 15A NCAC 2D .0546 for the fumigation of logs with methyl bromide, and to incorporate the fumigation of other commodities with the use of phosphine. The facility was previously permitted under Air Quality Permit No. 10313R02, which expired on May 31, 2018, but the facility has been operating under the requirements of that permit under a permit renewal application shield per NCGS 150B-3(a) based on a renewal application submitted on February 16, 2018 (App. No. 6500356.18A). Thus, the proposed draft permit serves as both a modification and a renewal of the previous Air Quality Permit. The facility is located at the NC State Port at 2202 Burnett Boulevard in Wilmington, New Hanover County, NC., which is in the DAQ Wilmington Region (DAQ/WIRO).

## **II. Air Quality Permit Application and Permit Review**

The DAQ's mission is to work with the state's citizens to protect and improve outdoor, or ambient, air quality in North Carolina for the health, benefit, and economic well-being of all. To accomplish this mission, the DAQ requires industrial facilities to apply for and receive Air Quality Permits prior to construction and operation of the air pollution sources and air pollution control equipment to ensure compliance with all applicable federal and state regulations.

As stated above in the *Background* section of this Hearing Officer's Report, this application is for the renewal and modification of the facility's existing Air Quality Permit, whose purpose will be to allow for the fumigation of logs and other commodities in containers, using methyl bromide and phosphine, as well as adding a second fumigation operation for other commodities in a cold storage/enclosed warehouse under tarpaulins. The proposed Air Quality Permit should ensure the facility's compliance with federal and state air quality regulations, including (but not limited to) 15A NCAC 2D .0546 "Control of Emissions from Log Fumigation Operations" and 15A NCAC 2D .1104 "Toxic Air Pollutant Guidelines."

## **III. Notice of Public Hearing**

At the discretion of the Director of the DAQ, a notice of the draft Air Quality Permit was posted in the Wilmington Star-News newspaper on July 30, 2021 and began a comment period. Likewise, a notice of the draft Air Quality Permit was posted on the DAQ public engagement webpage as well. Copies of the permit application, Air Quality Permit review and draft Air Quality Permit were posted on the DAQ website, as well as at the DAQ/WIRO and for public review throughout the comment period. The virtual, online Public Hearing was held on August 31, 2021 through WebEx online platform. The final public comment period ended at 5 PM on Thursday, September 2, 2021.

#### **IV. Overview of Public Comments Received**

Over the duration of public comment period, 39 written comments were received. Likewise, more than 28 commenters were in attendance and 11 commenters gave verbal comments during the August 31, 2021 virtual Public Hearing. 2 verbal comments were left in the voicemail box dedicated for public comments. The overwhelming majority of commenters, both verbal and written opposed the issuance of the permit, either altogether or in its current draft form. Many of the citizens who made verbal comments during the Hearing were also individuals who provided written comments.

All comments received during the public comment period, both oral and written, have been evaluated and copies of all written comments and any attachments to those written comments can be made available by the DAQ upon request. All comments were given equal consideration, whether they were written, left verbally in the voice mail box designated for comment, or made verbally at the August 31, 2021 virtual Public Hearing. Many of the comments received, both oral and written, expressed similar approval or concerns, often using almost identical language. Written comments that are very similar in their text will be addressed as a group by this Hearing Officer. Those written comments that raise significant technical and/or regulatory issues will be addressed individually by this Hearing Officer.

##### **A. Comments from Speakers at the August 31, 2021 Virtual Public Hearing**

On August 31, 2021, the DAQ held a virtual Public Hearing, which began at approximately 6:05 PM. The Public Hearing was held through the WebEx online platform. Additionally, a dedicated telephone number was provided to enable citizens to call in to the hearing and make comments if they had either no internet access or a poor internet connection. During the Hearing, Mr. Dean Carroll, Permitting Coordinator of the DAQ Wilmington Regional Office (DAQ/WIRO), gave a presentation of the draft Air Quality Permit for the Ecolab facility. The Hearing Officer for the Public Hearing was Mr. Ray Stewart, Regional Air Quality Supervisor for the DAQ's Winston Salem Regional Office (WSRO). Citizens were allowed to make comments during the Public Hearing but were not permitted to ask questions of either the Hearing Officer, Mr. Pjetraj, or Mr. Carroll. During the Public Hearing, citizens were allowed up to 3 minutes to speak. Of the citizens who were signed up to speak, 11 of them did speak, while another 2 citizens who were signed up to speak were not present for the Hearing.

The verbal comments during the Public Hearing were not as detailed as some of the written comments received. However, many of the general points and claims that were made were very similar to those received in the written public comments. Examples of the statements and claims made by speakers include the following:

- Methyl Bromide is toxic to human beings, destroys the protective ozone layer of Earth's atmosphere, and should be banned from use.

- The facility is in an area of the City of Wilmington where nearby residents are low income and will affect communities where there are environmental justice concerns.
- Debarking of the logs would be a safer way to eliminate pests, rather than fumigation.
- Concerns were expressed for the workers at the facility and the level of methyl bromide and phosphine exposure they might receive.
- Third parties should do all monitoring of methyl bromide and phosphine that might be required at the facility by the Air Quality Permit.
- The Acceptable Ambient Levels (AAL) from methyl bromide as listed in 15A NCAC 2D .1104 “Toxic Air Pollutant Guidelines” are too high to protect human health.
- Concerns were expressed that the stacks to be used to disperse any emissions of methyl bromide were not high enough.
- A desire was expressed for easy public access to any leak detection and monitoring data and any reporting required of the facility by the Air Quality Permit.
- A desire was expressed for the public to be notified immediately should emissions of methyl bromide or phosphine be sufficient to cause an exceedance of their respective AAL’s at the facility’s fence line.
- Several speakers expressed appreciation that the NC Environmental Management Commission (EMC) adopted 15A NCAC 2D .0546 “Control of Emissions From Log Fumigation Operations,” and amended 15A NCAC 2D .1104 “Toxic Air Pollutant Guidelines,” both of which became effective on November 1, 2020.

A recording of the Public Hearing, as well as a listing of the persons who spoke at the hearing, can be made available by the DAQ upon request.

Hearing Officer’s Response:

Many of the comments made and issues raised by the commenters who spoke at the Public Hearing were similar in nature to the written comments made during the overall Public Comment period. Those verbal Public Hearing comments will be addressed in the course of addressing the written comments. All public comments, both written and at the Public Hearing, were considered carefully by this Hearing Officer. However, the decision of

whether the draft Air Quality Permit should be issued to the Ecolab facility must be based on the facility's compliance with applicable state and federal air quality regulations.

B. Written Comments from Residents of the Del Webb Community

Many of the written comments from residents of the nearby Del Webb community contained very similar, if not identical language. The following is an example of the comments made from those residents:

- *“Phosphine gas has been added to the permit without the public knowledge and the effect of emissions when added to methyl bromide presently being used.”*
- *“There is no independent monitoring and compliance requirement in the application.”*
- *“No trial study and data have been generated from the site.”*
- *“Debarking can be used to meet the feasible alternative to methyl bromide use and the quarantine and pre-shipment requirements.”*

Hearing Officer's Response:

The duty of the DAQ is to ensure that sources of regulated air pollutant emissions comply with state and federal air quality regulations. One of the primary ways that the DAQ executes this duty is through its Air Quality Permitting program. Through the permitting process, the professional staff of the DAQ applies its technical and regulatory expertise in its review and evaluation of a proposed or existing facility's Air Quality Permit application. Based on that review, a draft Air Quality Permit is created in a manner that gives the DAQ a reasonable expectation that if the facility complies with the conditions of the permit, the facility will be in compliance with applicable state and federal air quality regulations. However, it is not the duty of the DAQ to dictate to any regulated facility how it should meet the needs of its customers, so long as the facility complies with its Air Quality Permit and applicable state and federal air quality regulations. When it comes to wooden logs, it is outside of the DAQ's scope of responsibility and authority to require Ecolab to meet its customer's pest control requirements with debarking over fumigation, so long as compliance is achieved and maintained.

In the case of the renewal and revision of the Ecolab Air Quality Permit in question, the Director of the DAQ felt that there was significant public interest and decided to put the draft Air Quality Permit out for public comment and hold a virtual Public Hearing. It is through this means that the public is aware of the proposed use of both methyl bromide and phosphine in the facility's fumigation operations.

The monitoring and recordkeeping requirements within the draft Air Quality Permit are adequate. The facility and its processes will be subject to inspection by the staff of the DAQ/WIRO. As a result of the facility's compliance with the draft Air Quality Permit, a significant amount of important data, germane to ensuring compliance with state and federal regulations, will be generated. This Hearing Officer agrees that as much of the data generated as possible should be made available for public review.

C. Written Comments from Dr. Leonard Bull

Dr. Leonard Bull, retired Professor of Animal Science at NC State University and former Director of the Animal and Poultry Waste Management Center, made significant written comments over the course of three separate emails. The comments below are from his written comments.

- *“There is a requirement stated from EPA regarding the professional and certified capability of those gathering data. Is that in the permit?”*
- *“Air samples should be recorded continually whether pooled over a designated timeframe or not.”*
- *“ALL data and samples MUST be retained in the chain of custody by a third party at all times.”*
- *“A test of the dispersion and deposition of methyl bromide exiting the 40 ft high stack into the atmosphere at several locations within a 360-degree circle of at least 5 miles in all directions from the stack.”*
- *“If a "model" is used in any of the air content estimates the standard error for any calculated data point must be provided.”*
- *“There is a requirement stated by EPA regarding the professional and certified capability of those gathering data. Is that in the permit? And employees should NOT be the ones to collect samples! (Third party).”*
- *“ALL data and samples MUST be retained by and in the legal "chain of custody" by a third party" at all times.”*
- *“Air samples should be collected continually by percentage aliquot and any independent spot sampling by individuals to indicate momentary concentrations MUST be done using monitoring devices with capability of detecting a concentration range that goes below and above the highest and lowest concentrations ever to be encountered. Those devices must be certified and approved by EPA, DEQ.”*

- *“All samples taken and report data MUST be recorded and retained by a third party in the legal chain of custody. Company employees must not be the ones to collect data or samples.”*
- *“A test of the dispersion and the deposition arc must be done for methyl bromide exiting the proposed 40 ft high stack into the atmosphere, at several locations within a 360-degree circle of at least 5 miles in all directions from the stack. The 40 ft stack MAY NOT BE TALL ENOUGH...it is similar to the top of a brick chimney on a two-story house with a full height attic in downtown Wilmington.”*
- *“If a "model" is used in any of the air content estimates, the statistical standard error for any calculated data point must be provided. Models developed elsewhere, with different wind patterns, humidity, foliage, and physical structures, etc., should not be used to determine the dispersion characteristics of methyl bromide in this area.”*

Hearing Officer’s Response:

Like Dr. Bull, the DAQ finds it important that data collected as a result of Ecolab’s execution of the monitoring and recordkeeping requirements of its Air Quality Permit to be of high quality, carefully and accurately recorded and reported, and germane to determining the facility’s compliance with state and federal air quality regulations. The DAQ is also aware that the quality of the results of any computer dispersion modeling performed is dependent on the inputs to the model and the data used to run the model. The AERMOD modeling platform is the current EPA approved model. The draft Air Quality Permit for Ecolab contains adequate monitoring, recordkeeping, and reporting requirements, which this Hearing Officer finds are sufficient to determine whether the estimates being made related to fugitive emissions and are being used in the computer dispersion model are accurate. As with any Air Quality permit issued, the Director of the DAQ has the authority to reopen and modify the permit if data is found that indicates the parameters used in the model are not being met.

Likewise, the professional staff of the DAQ’s Air Quality Analysis Branch (AQAB) has reviewed computer dispersion modeling which indicates that ambient levels of methyl bromide and phosphine produced by fumigation activities at the Ecolab facility are not expected to exceed the Acceptable Ambient Levels (AAL) for those pollutants which are listed in 15A NCAC 2D .1104 “Toxic Air Pollutant Guidelines.” A July 23, 2021 memorandum from Matthew Porter, Meteorologist of the AQAB to Dean Carroll, Permitting Coordinator of the DAQ/WIRO, is attached as Appendix C to this Report. The table below summarizes the maximum modeled ambient impacts for methyl bromide and phosphine:



<b>Pollutant</b>	<b>Averaging Period</b>	<b>Max. Conc. (µg/m<sup>3</sup>)</b>	<b>AAL (µg/m<sup>3</sup>)</b>	<b>% of AAL</b>
Methyl bromide	24-hr	997.02	1000	99.7 %
	Annual	4.72	5	94.4 %
Phosphine	1-hr	128.16	130	98.6 %

The DAQ ensures that the inputs used in the computer dispersion modeling are accurate through periodic compliance inspections, and facility monitoring, recordkeeping, and reporting.

D. Comments from Mr. Peter Joyce

Mr. Peter Joyce, President of Value Recovery, Inc., made several significant comments, which are summarized below:

- Mr. Joyce is concerned that, while the Ecolab – NCSPA facility would be a Title III Synthetic Minor facility for methyl bromide, Ecolab's corporate strategy will be to apply for a series of Title III Synthetic Minor facilities throughout NC in order to avoid having one or more facilities that would be Title III Major, thereby requiring a Title V Air Quality Permit.
- Scrubber systems designed and built by Mr. Joyce's company, Value Recovery, Inc., operate at two commercial fumigation facilities that control their emissions of methyl bromide. Mr. Joyce made the following claims about the facilities that control of methyl bromide emissions through the emission control equipment:
  - The two fumigation facilities that utilize the emissions control equipment designed by his company have combined for the control of more than 250,000 pounds of methyl bromide in 8+ years.
  - One of the facilities achieved a 93% control efficiency of methyl bromide.
  - The scrubbing technology is listed as a Best Available Control Technology (BACT) by the California Air Resources Board.

- The State of Virginia has done a MACT analysis for log fumigations at the Suffolk, VA site and concluded that emissions controls of methyl bromide are required.
- The February 5, 2021 Ecolab, Inc. response to Dean Carroll's (DAQ/WIRO) additional information request of January 21, 2021 was flawed in the following ways:
  - The drawing in the response was poorly drawn and doesn't represent an appropriate process flow diagram (PFD) or process and instrumentation diagram (P&ID).
  - The fan type and horsepower are not designated.
  - There is no flowrate information for either the ductwork or the fan.
  - The connections from the containers to the fan are not described.
  - There is no information regarding balancing the air flows in the ducting to ensure that each trunkline carries the required amount of air.

Hearing Officer's Response:

The DAQ appreciates the comments of Mr. Joyce and the data that he has provided regarding the success of his company in controlling the emissions of methyl bromide at other locations in the country.

Along with federal air quality regulations, the DAQ is responsible for ensuring compliance with the air quality regulations of the State of North Carolina. The NC Environmental Management Commission (EMC) adopted 15A NCAC 2D .0546 "Control of Emissions From Log Fumigation Operations," and amended 15A NCAC 2D .1104 "Toxic Air Pollutant Guidelines" to include methyl bromide as a NC Toxic Air Pollutant, on November 1, 2020. These were significant steps in the effort to protect the health and safety of North Carolinians in relation to methyl bromide.

The DAQ reviews each facility that is an emission source of regulated air pollutants on a case-by-case basis. In the case of the Ecolab facility in Wilmington, the draft Air Quality Permit is for a facility that would be classified as a Synthetic Minor facility for the potential emissions of hazardous air pollutants listed in Title III of the 1990 Clean Air Act Amendments (CAAA). Should Ecolab make either physical or operational changes to its Wilmington facility which might potentially change its permitting status, the DAQ will act accordingly.

Regarding Mr. Joyce's comments about the process drawing submitted as a part of the February 5, 2021 Ecolab, Inc. response to Dean Carroll's (DAQ/WIRO) additional information request of January 21, 2021, the draft Air Quality Permit contains conditions written to require that parameters are measured that would demonstrate that proper air flow will exhaust the methyl bromide out of the stack at a velocity and flow that is consistent with the computer dispersion model inputs.

E. Written Comments from the NAACP – Brunswick County Branch

Carl Parker and Brayton Willis of the NAACP – Brunswick County Branch made significant comments, which are summarized below:

- Concern was expressed with the use of methyl bromide as a fumigation gas under any circumstances because history has recorded that this gas can become an environmental justice issue when improperly used presenting high risks of exposure that have been borne by residents in impoverished, rural areas.
- Credit was given to the DEQ for establishing formal rules for the use of methyl bromide.
- Concern was expressed regarding the methyl bromide exposure risk from fumigated shipping containers for groups such as dockworkers, warehouse workers, customs officers, residents, and those that traverse around the proposed site. Shipping container conditions can change over the lifecycle of a container, which like everything else, do not last forever. Because there is no universal standard for shipping containers, they could have damaged and non-airtight structural failures on the roofs, walls, and of floors including bad seals and doors that are difficult to open.
- The recommendation was made to enact a prohibition on opening fumigation containers until a risk assessment conducted by a trained and certified industrial hygienist concludes that it is safe to do so as well as providing mandatory safety and personal protective equipment training for employees who will be charged with performing this work.
- Concern was expressed that Methyl bromide has no warning properties, thus protecting the safety and health of workers and residents around the Port will depend on obtaining accurate and timely air monitoring data as well.
- The recommendation was made that if the renewed and revised Air Quality Permit is issued, all shipping containers must be appropriately marked with placards designating that these vessels contain logs treated with methyl

bromide fumigant gas or other suitable signage that meets federal standards for restricted use pesticides.

- Because NC DEQ rules for methyl bromide fumigation only recently became effective, the strong suggestion was made that the DAQ staff perform a comprehensive review of lessons learned from other States who are responsible for the oversight of similar port fumigation operations.
- Reference was made the NAACP's examination of the regulations regarding the use of methyl bromide at the Port of San Diego. A more detailed description of their findings can be found in their written comments, which are available for review by the public.
- The comment was made that the NAACP had looked at the number and grouping of violations that Ecolab has accumulated nationwide since 2000. The claim was made that Ecolab facilities has been cited 77 times for a wide variety of offenses ranging from safety, financial, environmental and employment and have been fined \$120,228,914 for these violations.
- The comment was made that methyl bromide is destructive of the Earth's ozone layer.

Hearing Officer's Response:

General Comments

It would be not appropriate for this Hearing Officer to respond to comments on Ecolab's compliance history with environmental regulations not related to federal air quality regulations or the air quality regulations of the State of North Carolina, nor would it be appropriate for this Hearing Officer to respond to comments on Ecolab's compliance history with the occupational safety regulations in any state. However, this Hearing Officer will respond to comments related to environmental justice and resident health and safety issues below.

Environmental Justice and Community Outreach

As is referenced above in the *Notice of Public Hearing* section of this Report, a notice of the draft Air Quality Permit was posted in the Wilmington Star-News newspaper on July 30, 2021 and began the comment period. Likewise, a notice of the draft Air Quality Permit was posted on the DAQ public engagement webpage as well. Copies of the permit application, Air Quality Permit Review and draft Air Quality Permit were posted on the DAQ website, as well as at the DAQ/WIRO for public review throughout the comment period. The August 31, 2021 Public Hearing was accessible both by dial-in phone number and by internet access through the WebEx platform using a computer or other connected devices. All

comments received, no matter the method by which they are received by the DAQ (postal mail, voicemail, email, or shared orally during the Public Hearing) were weighed equally by this Hearing Officer.

After preparing the Environmental Justice (EJ) Report (Appendix B of this Hearing Officer's Report) for the proposed renewed and revised draft Air Quality Permit, the DEQ performed the following enhanced engagement actions to ensure meaningful involvement of the community regarding the permit application review process for the facility:

- July 30, 2021: A translation into Spanish was completed, based on an analysis of feasibility, especially Census Tract 108.
- August 5, 2021: Outreach letters in English and Spanish were sent out to sensitive receptors.
- August 12, 2021: Enhanced outreach was conducted within Census Tract 109, where there was a higher percentage of low income urban or suburban populations identified. A total of 44 locations were visited.
- August 17, 2021: The Mayors of Navassa and Leland were emailed to inform them of the project.

In short, it is the view of this Hearing Officer that when it comes to the potential issuance of the draft Air Quality Permit to Ecolab, the DEQ and the DAQ engaged in meaningful consideration of Environmental Justice issues and invested in public engagement and participation to ensure that all affected communities had an opportunity to have meaningful involvement in the permitting process during the current public health pandemic.

The commenters noted the demographics of the communities surrounding the Ecolab site and expressed concern regarding these demographics as they relate to fumigant exposure. As the commenters point out, the DEQ's Environmental Justice Report includes information on the elevated number of certain racial and ethnic groups. There is no state air quality law or regulation that either mandates or directs the DEQ to perform any cumulative impact analysis. However, the DEQ remains committed to environmental justice and equity, and as such, compiled the aforementioned information within the EJ Report in order to promote ease of access to this information for the public, the applicant and the DEQ staff. State and federal air quality regulations, including NC air toxics regulations, are intended to be for the benefit of all residents of North Carolina, regardless of their race, gender, or economic status.

## Worker and Resident Health and Safety Issues

The DEQ is aware and sensitive to issues related to the health of both workers at the Wilmington Ecolab facility (New Hanover County) and nearby residents. Issues related to worker exposure and safety should be handled by DEQ's sister state and federal agencies such as the Occupational Safety and Health Administration (OSHA), the US Department of Agriculture (USDA), and the NC Department of Agriculture and Consumer Services (NCDA&CS). Reference is made to this Hearing Officer's Response to the Written Comments from Dr. Leonard Bull section of this Report, especially those portions referencing the computer dispersion modeling results related to the maximum modeled ambient impacts for methyl bromide and phosphine. Likewise, reference is made to the monitoring, recording, and reporting requirements of the draft Air Quality Permit throughout this Hearing Officer's Report.

### F. Written Comments from Toxic Free NC

Mr. Connor Kippe, Policy Advocate for Toxic Free NC, made several significant comments, which are quoted below:

- *“Methyl Bromide is a highly neurotoxic chemical, at which even low levels of exposure to long term brain lesions can occur. It also has a range of other effects, including chronic respiratory disease and kidney disease, depending on dosage and length of exposure.”*
- *“While the control measures at both of the facilities applying to permit, are likely sufficient to mitigate the worst impacts of exposure to methyl bromide outside of the mile surrounding the site - there are significant concerns for both the workers in these facilities and areas highly proximate to the use of this fumigation. Principally, that the technological control mechanisms are insufficient and that these permits do not consider other health burdens experienced.”*
- *“Previous research suggests that environmental factors and seal quality effectiveness are critical in preventing leakage of fumigants such as methyl bromide to local populations. In both Seven Springs and Wilmington these factors could cause exposure in health affecting doses of methyl bromide - especially given the presence of other contaminants in both communities and underlying population demographics.”*
- *“Both location sites are ranked as economically disadvantaged (Tier 1 - Wayne, Tier 2 - New Hanover) and for both within the local setting (a 1-mile radius) there were at risk populations, with both having a greater*

*proportion of residents experiencing poverty. Both also continued populations more likely to be strongly affected by cumulative toxic exposures, youth and elderly (respectively Seven Springs and Wilmington).”*

- *“Additionally, Wayne County is a heavily pesticide-exposed county due to its largest industries being natural resources and agriculture related. Using USGS Pesticide Maps from 2017, you can determine that there are many pesticides applied at greater than 4.85 lbs. per square mile within Wayne County, and that many of the other pesticides are applied at rates greater than 0.86 lbs. per square mile.”*
- *“These demographic variables are likely to impede the ability of either of these populations to provide long term care for themselves or others from health effects caused by leakages and/or exposure to methyl bromide. They are also likely to compound the incidence of health issues experienced by these residents. The State of North Carolina has a responsibility to reduce the economic and health burdens on these communities it has long historically underserved.”*
- *“Methyl bromide is also a significant greenhouse gas, banned by adherents to the 1987 Montreal Protocol specifically for this cause. Under E.O. 80 put forth by Governor Cooper, NC aims to reduce greenhouse gas emissions 40% below 2005 emissions. Allowing for the permitting of these facilities when alternatives such as debarking in place of the use of this chemical are likely to make reducing emissions harder for our state and endanger our natural resources such as the lumber being fumigated with methyl bromide at both of these locations.”*
- *“Permitting these locations for use and release of methyl bromide endangers the health of local residents, and the long-term health of our state. Toxic Free NC believes that these permits should be denied, as the control mechanisms may not be adequate to prevent leakage of methyl bromide, and general dispersion (permitted release not leakage) itself poses a danger depending on local weather conditions that do not receive guidance in these documents. These communities are already overburdened with toxic chemicals and layering another acutely poisonous one - which has already been banned for in residence and food uses - will only continue to perpetuate environmental injustice ongoing in these communities.”*

Mr. Kippe’s comments were footnoted with references, which can be found in his original written comments and are available for review by the public.

Hearing Officer’s Response:

Toxicity and Health Effects Associated with Fumigant Exposure

The DAQ is aware of the health risks associated with human exposure to methyl bromide. This is exactly why the NC Environmental Management Commission (EMC) adopted 15A NCAC 2D .0546 “Control of Emissions From Log Fumigation Operations,” and amended 15A NCAC 2D .1104 “Toxic Air Pollutant Guidelines” to include methyl bromide as a NC Toxic Air Pollutant, on November 1, 2020. These were significant steps in the effort to protect the health and safety of North Carolinians in relation to methyl bromide. Phosphine has been listed as a NC Toxic Air Pollutant for many years.

Seal Quality Effectiveness/Fumigant Leakage

Mr. Kippe noted that environmental factors and seal quality effectiveness are critical in preventing leakage of fumigants such as methyl bromide. Mr. Kippe also stated that the control mechanisms in the draft Air Quality Permit may not be adequate to prevent fumigant leakage. The DAQ is aware of the issues posed by excessive fugitive emissions from fumigation. In order to limit fugitive emissions, the draft Air Quality Permit for Ecolab contains adequate monitoring, recordkeeping, and reporting requirements, including a Leak Detection and Repair Program (LDAR). This Hearing Officer believes that these requirements are sufficient to ensure compliance with the inputs used in the dispersion modeling as they relate to fugitive emissions. As referenced in this Hearing Officer’s Response to *Written Comments from Dr. Leonard Bull* section of this Report, the draft Air Quality Permit for Ecolab contains adequate monitoring, recordkeeping, and reporting requirements. The Hearing Officer finds the requirements are sufficient to ensure the dispersion model inputs are accurate. As with any Air Quality Permit, the Director of the DAQ has the authority to reopen and modify the permit if data is found that indicates the parameters used in the model are not being met.

Demographics of Surrounding Communities

The DEQ is keenly aware and sensitive to environmental justice issues and the health of both workers at the Wilmington Ecolab facility (New Hanover County) and nearby residents. Issues related to worker exposure and safety should be handled by DEQ’s sister state and federal agencies, such as OSHA, USDA, and NCDA&CS. This Hearing Officer would like to direct the public’s attention to his response in the *Written Comments from the NAACP – Brunswick County Branch*



section of this Report and the DEQ's Environmental Justice Report for the Wilmington Ecolab facility, which is attached as Appendix B to this Hearing Officer's Report.

### Greenhouse Gas/Executive Order 80

The DAQ recognizes there is significant public interest in the reduction of greenhouse gas emissions and Executive Order 80. This order led to the creation of the North Carolina Climate Change Interagency Council, of which the DEQ is a participating agency. Furthermore, the DEQ developed the NC Clean Energy Plan under the directive of this order. While this order does not have a direct impact on this draft Air Quality Permit, DEQ will continue to strive to accomplish the goals set forth by this order through participation in the North Carolina Climate Change Interagency Council, among other initiatives established by this order.

#### G. Written Comments from Ecolab, Inc.

Ms. Alison Marwitz, JD, Principal Regulatory Specialist for Ecolab, Inc., made significant regulatory and technical comments about the draft Air Quality Permit on behalf of the company, which are summarized below.

- **Subject Matter Jurisdiction:**

Ecolab contends that several the permit conditions in the draft Air Quality Permit address issues covered by other state and/or federal agencies. More specifically:

#### **United States Department of Agriculture (USDA):**

Ecolab makes the claim that USDA regulations and guidance documents related to preventing the introduction of invasive species, while ensuring bystander and worker safety, render certain proposed permit conditions of the draft Air Quality Permit unnecessary. Likewise, the permit conditions in question create "compliance risks due to differing interpretations, changing regulations, and potentially conflicting requirements." Ecolab wishes that these permit conditions be removed from the draft Air Quality Permit, so that the enforcement authority will remain with other state and federal agencies. The permit conditions that Ecolab wishes to be removed are listed in their written comments.

**US EPA Federal Insecticide, Fungicide, and Rodenticide Act (EPA IFRA):**

Ecolab makes the claim that requirements of this federal regulation ensure bystander and worker safety, while the permit conditions in question create "compliance risks due to differing interpretations, changing regulations, and potentially conflicting requirements." The permit conditions that Ecolab wishes to be removed are listed in their written comments.

- **Subject Matter Jurisdiction Specific Comments:**

Ecolab contends that,

*"...inserting already existing regulatory requirements governed by other state and federal agencies that have subject matter expertise and existing interpretations of those regulations into the Proposed Air Permit does not enhance the existing safety requirements or assurances."*

Additionally,

*"...it creates inconsistency through potential interpretation differences, is unduly burdensome, and is unnecessary given the fact that enforcement authority already exists with the USDA, EPA, and their counterpart state agencies. Including these overlapping conditions is contrary to the directive found in North Carolina's Administrative Procedure Act Article 2A Part 1 section 150B-19.1(d)."*

Finally, as stated earlier, Ecolab is,

*"...concerned that this significant overlap will create compliance risks and jurisdictional conflict among the agencies. Therefore, Ecolab respectfully requests that the DAQ withdraw all overlapping permit conditions (as identified in sections 1. a. and b.) thereby allowing the USDA, EPA, and their counterpart state agencies to continue performing their responsibilities in regulating and enforcing their already existing respective regulations."*

**Hearing Officer's Response:**

Ecolab's comments state that "including these overlapping conditions is contrary to the directive found in North Carolina's Administrative Procedure Act Article 2A Part 1 section 150B-19.1(d)." The DAQ and this Hearing Officer does not agree with this statement for several reasons.

First, Article 2A of the Administrative Procedure Act governs rulemaking proceedings conducted by state agencies such as the Environmental Management Commission. Indeed, 150B-19.1 is titled “Requirements for agencies in the rulemaking process.” Therefore, this statutory provision does not apply to permit conditions that DAQ deems necessary to ensure compliance with North Carolina’s air toxics regulations.

Second, to the extent Ecolab claims that DAQ’s permit conditions overlap with requirements imposed by *federal* agencies, N.C. Gen. Stat. 150B-19.1(d) only governs coordination between *state* agencies in *state* rulemaking proceedings. See 150B-2(1a) (defining “agency” to mean “an agency or an officer in the executive branch of the government of this State”).

Finally, these conditions are necessary to ensure compliance with North Carolina’s air toxics rules. These conditions reflect operating practices that Ecolab has represented can and will be implemented to ensure that the leak rates used in Ecolab’s air toxics modeling reflect Ecolab’s real-world operations. Moreover, Ecolab has not identified any requirements in this permit that would prevent Ecolab from complying with requirements imposed by any state or federal agency.

- **Additional Comments:**

- **Comment No. 1 - Emission Source Descriptions:**

Ecolab lists alternatives to Emission Source descriptions, stack parameters, and operating limits "to allow for operational continuity should there be supply chain, weather created, or other damage preventing the use of the already submitted air dispersion modeling files." The suggested changes are listed in Addendum 1 of Ecolab’s written comments.

Hearing Officer’s Response:

Toxics computer dispersion modeling demonstrations submitted in accordance with 15A NCAC 02Q .0709 “Demonstrations” have the option of including multiple operating scenarios to account for operational variability. Parameters that may be adjusted under alternative operating scenarios include emission release points, exhaust flow rates, emission rates, and any other changes that could affect compliance with the Acceptable Ambient Levels (AALs). In the case of this application, the dispersion modeling that was submitted in support of this application did not contain multiple operating scenarios. Dispersion modeling submitted to the DAQ is subject to review by a Meteorologist the Air Quality Analysis Branch (AQAB). If Ecolab wishes to operate the fumigation operation with

parameters that vary from those in the approved modeling analysis, a permit modification application must be submitted and should include modeling files for the other modeled operating scenarios listed in Addendum 1 of this Ecolab comment. Inclusion of the requested changes to the draft Air Quality Permit is not recommended by this Hearing Officer.

**Comment No. 2 - Comments on Permit Language for 2D .0546:**

Ecolab claims that there are multiple regulatory and grammatical errors in the draft Air Quality Permit and claims the draft Flowers Air Quality Permit is more accurate.

Hearing Officer's Response:

This Hearing Officer concurs with comment and recommends that the DAQ/WIRO make the appropriate changes to Condition A.5 of the draft Air Quality Permit.

**Comment No. 3 - Permit Testing Requirements:**

Ecolab references draft Permit Conditions A.5.a.ii through viii and B.5.a.i through vii, and requests changes to the testing timeline.

Hearing Officer's Response:

As noted by this Ecolab comment, DAQ regulations require that the owner or operator of an air emission source submit a stack testing protocol at least 45 days prior to conducting the stack emissions test if pre-test approval of the protocol is desired. This comment also notes that, 15A NCAC 02D .2602 "General Provisions on Test Methods and Procedures" requires that any person proposing to conduct an emissions test must notify the DAQ at least 15 days before beginning the test. The comment incorrectly states that the 15-day notice "cannot be provided until the DAQ protocol approval." This is not stated in the regulation. Furthermore, it is common practice for Air Quality Permit holders to submit a test notification to the DAQ prior to receiving approval of the test protocol. Since this draft Air Quality Permit requires pre-approval of the test protocol, this Hearing Officer recommends that the test deadline in Permit Conditions A.6.A.5.a.v and A.6.B.5.a.iv be changed to 90 days. A 90-day test deadline allows ample time for the permittee to submit and obtain approval of the test protocol following permit issuance. A test deadline of 120 days is not necessary. The testing required by this Permit Condition is relatively simple, so the process of preparing and submitting a test protocol should not be overly burdensome.

This comment also requests to amend each of the sub-conditions requiring testing to read: “within 120 days of issuance of this permit and after installation of the permanent stack in accordance with...” The comment goes on to outline that, “due to COVID-related supply chain interruptions and weather impacts, the permanent design may not be operational at the time of permit issuance.” This Hearing Officer finds that Ecolab has had sufficient time since 15A NCAC 2D .0546 became effective on November 1, 2020 to build a permanent stack that would allow the facility to be compliant with the rule.

Like most permit conditions that contain toxics restrictions under 15A NCAC 02D .1104 “Toxic Air Pollutant Guidelines,” this Permit Condition states that, “Placement of the emission sources, configuration of the emission points, and operation of the sources shall be in accordance with the approved dispersion modeling analysis.” Permit Conditions A.6.A.4.a and A.6.B.4.a go on to state that:

*“The exhaust stack shall be located, built and operated as described in the approved dispersion modeling submission to the DAQ, dated July 8, 2021. The stack shall be used for all fumigation operations during the aeration periods. The stack shall be no less than 40 feet in height and 2 feet in equivalent diameter and construction must be confirmed with as-built construction documentation.”*

Adding language that states: “...within 120 days of issuance of this permit and after installation of the permanent stack in accordance with...” to the testing requirements would make this Permit Condition contradictory and ambiguous. While testing may not be required immediately upon permit issuance, this draft Air Quality Permit is clear that compliance with the inputs used in the modeling analysis (e.g., stack characteristics, exhaust flow rate, etc.) is required immediately upon permit issuance and at all times thereafter. Therefore, the requested changes of the draft Air Quality Permit are not recommended by this Hearing Officer.

**Comment No. 4 - Minimum Pressure Requirements:**

Ecolab made references to Permit Conditions A.6.A.5.a.ix and A.6.B.5.a.viii and made the following comments:

*"In the above requirement, the DAQ is requiring each of three test runs to be averaged. The DAQ is then averaging the three runs and is calling the average of the three runs a minimum for demonstrating compliance with velocity. In reality, the minimum run should be deemed the minimum for demonstrating compliance with velocity. Otherwise, the DAQ will be requiring Ecolab to operate a higher*

*pressure during normal operation which will result in a higher velocity and will incur additional power usage and wear and tear on the fan and system. Operating at the minimum average pressure of the three runs should be adequate if the final testing demonstrates compliance with the velocity requirements. There have been several federal NESHAP rules that follow this logic for developing minimum operating limits for source operating parameters."*

Hearing Officer's Response:

It is common practice in Air Quality permitting to set parametric monitoring values to demonstrate compliance with an emissions limit. Typically, these values are set by performing source emission testing, and recording parameter values during the test period. The values are then averaged across the test period since compliance with the emission limit is also determined across the same timeframe (as prescribed by 15A NCAC 02D .2608 "Number of Runs and Compliance Determination").

In the case of this monitoring requirement, the parameter is not being tied directly to an emissions limit, rather it is being tied to an operational requirement. If the test run with the lowest recorded pressure demonstrates compliance with the minimum stack velocity and flow requirements contained in Permit Conditions A.6.A.5.a.i and A.6.B.5.a.i using the value from this run would be adequate. Therefore, this Hearing Officer recommends that Permit Conditions A.6.A.5.a.ix and A.6.B.5.a.viii be revised to allow for the test run with the lowest average total pressure be used to demonstrate compliance, provided that compliance with the minimum effluent velocity and flow rate are met.

**Comment No. 5 - Perishable Commodity:**

In those places in the draft Air Quality Permit that reference "bulk fruit fumigation," Ecolab wishes the description to be changed to "bulk perishable commodity fumigation."

Hearing Officer's Response:

This Hearing Officer concurs with comment and recommends that the DAQ/WIRO change references to "bulk fruit" in the equipment list and permit conditions of the draft Air Quality Permit to instead reference "bulk perishable commodity."

**Comment No. 6 - Ground and Container Distance Readings:**

Ecolab referred to draft Permit Conditions A.6.A.3.b.ii, A.6.B.1.a.i, A.6.B.3.b.ii, and A.6.B.3.c.iv and made the following comments:

*"As previously discussed with the DAQ, these devices have fragile tips that are made of glass. They are highly sensitive and will pick up readings at greater than 12 inches and, in fact, can pick up leaks from several feet away. This is acceptable by the USDA and the EPA under FIFRA. The 3 inches provided in the Proposed Air Permit is not operationally feasible nor is it necessary. Requiring this unnecessarily close distance with a glass device will only result in frequent damage and will not improve the detection ability of the device. Moreover, there are times when shipping containers are parked such that access to all sides of the containers is not readily feasible. In these instances, Ecolab does check for leaks but may not be able to access the side of the container in the manner prescribed within the Proposed Air Permit. Ecolab therefore requests that a specific distance be removed and the language be changed to reflect that leak detection will occur and be corrected for should leaks be identified."*

**Hearing Officer Response:**

Leak Detection and Repair (LDAR) programs are a common requirement in state Air Quality Permits and are also included in numerous federal regulations. LDAR program requirements are codified under various sections of the federal New Source Performance Standards promulgated in 40 CFR Part 60 and the National Emissions Standards for Hazardous Air Pollutants promulgated in 40 CFR Part 63. There are some variations between the programs in each respective subpart, but the regulations share many commonalities. Specifically:

- The regulations reference Method 21 of 40 CFR part 60, Appendix A. for determining the presence of leaking sources.
- The regulations require that “The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible.” (40 CFR 63.180(c)(3))

It is noted that Method 21, which is “applicable for the determination of VOC leaks from process equipment,” dictates that when checking for leaks, the tester should “place the probe inlet at the surface of the component interface where leakage could occur” (see section 8.3.1). Furthermore,

Appendix B of the EPA document, “Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems (EPA-450/2-78-051)” contains a Gasoline Leak Detection Procedure by Combustible Gas Detector. This procedure states that, “The probe inlet shall be 2.5 cm from the potential leak source.” Guidance provided in both federal regulations and promulgated test methods/procedures consistently state that when conducting leak testing, it is desirable to be as close as possible to the potential source. These requested changes to the draft Air Quality Permit are not recommended by this Hearing Officer.

**Comment No. 7 - Recording and Submittal of Concentration Readings:**

Ecolab referred to draft Permit Conditions A.6.A.1.a.ii, A.6.A.1.b.ii, A.6.A.6.b.ii, A.6.B.1.a.ii, A.6.B.1.a.ii, A.6.B.1.b.ii, A.6.B.1.c, and A.6.B.3.c.ii and made the following comments:

*"The above Proposed Air Permit Conditions discuss the placement, reading, recording, and submittal of bulk pile and container methyl bromide concentrations using 'internal monitoring lines.' As has been discussed with the DAQ, once the fumigant is entered into the shipping container or the tarpaulin and has reached homeostasis, leaks do not occur, or if they do it is within the already accounted for fugitive emission rate. During the treatment period, which is when internal monitors are used to record the concentration of methyl bromide within the shipping container or under the tarpaulin, the concentration of methyl bromide fluctuates due to its absorption and desorption into and out of the commodity. This is a natural and necessary part of fumigation and ensures that all life stages of the pest of concern are terminated prior to import or export. The recording, as required by USDA, is necessary to ensure that the minimum concentration is maintained throughout the treatment period to ensure termination occurs. Recording and documenting these numbers for potential leak detection purposes is not of value because they will naturally fluctuate. These values may be misinterpreted and therefore pose a compliance risk when none exists. Ecolab therefore respectfully requests that all language referencing use, placement, recordkeeping, and submittal of these values be removed from the Proposed Air Permit."*

**Hearing Officer Response:**

This comment pertains to the permit requirements for placement, reading, and recording of bulk pile and container fumigant concentrations using internal monitoring lines. The permit also requires quarterly summary/deviation reporting. This comment states that, “Recording and



documenting these numbers for potential leak detection purposes is not of value because they will naturally fluctuate. These values may be misinterpreted and therefore pose a compliance risk when none exists.”

It should be noted that, except for condition A.6.B.3.c.ii, the permit conditions identified in this comment are not listed under the “Leak Detection and Repair Program (LDAR)” provisions of the permit (Permit Conditions A.6.A.3 and A.6.B.3). Rather, this comment refers to the following Permit Conditions:

- Fumigation Preparation (Permit Conditions A.6.A.1 and A.6.B.1)
- De-tarping/Opening Bulk Pile (Permit Condition A.6.A.6)
- Opening Containers (condition A.6.B.6)

It should also be noted that this comment discusses natural fluctuations of the fumigant concentrations *during the fumigation period* and expresses concern that such fluctuations could pose a compliance risk. The conditions of the permit identified by this comment state that the monitoring of fumigant concentrations is conducted “To demonstrate the end of the aeration period.” (See Permit Conditions A.6.A.6.a and A.6.B.6.a). Since the permit does not require this monitoring during fumigation, concentration fluctuations should not pose a compliance issue.

The toxics modeling submitted in support of this application assumed that 1% by weight of the total amount of fumigant used is fugitive during fumigation (active application and exposure period) and 5% by weight of the total amount of fumigant used is fugitive during aeration. Should the tarpaulin be removed from a bulk log pile or the container door be opened while significant quantities of fumigant remained in the respective enclosure, the assumption made in the toxics modeling may not be valid. The requirements identified by this comment are not leak detection and repair requirements. Rather, these requirements are designed to ensure that no more than 5 ppm of fumigant remains in the enclosure prior to opening and that in doing so, the estimated 5% fugitive emissions rate used as an input for the modeling during aeration is not exceeded. These requested changes of the draft Air Quality Permit are not recommended by this Hearing Officer.

It should be noted that this comment references a recordkeeping requirement under the LDAR conditions of the permit (A.6.B.3.c.ii). It is unclear how this recordkeeping requirement relates to the fumigant concentration measurement requirements discussed by this comment, so

changes to this condition of the draft Air Quality Permit are not recommended by this Hearing Officer.

**Comment No. 8 - Fumigant Monitoring Line Seal, Tarpaulin:**

Ecolab referred to draft Permit Conditions A.6.A.2.a.iv, A.6.A.2.b.v, and A.6.A.3.b.ii and made the following comments:

*"In the above conditions, the DAQ is requiring that tape be used to seal the ends of the fumigant administration lines. This requirement is operationally unnecessary for tarpaulin fumigation events and creates potential OSHA and EPA FIFRA violations. These lines are used for USDA purposes to take readings of the fumigant concentration for tarp and container fumigations. Once those readings are taken, the lines are placed under the tarps thereby preventing emission leaks. Additionally, unnecessarily placing hands (bare or gloved) over methyl bromide is not allowed under relevant OSHA and the EPA regulations. Ecolab therefore requests language requiring taping the ends of these devices be removed."*

**Hearing Officer Response:**

As previously discussed, the toxics computer dispersion modeling submitted in support of this application assumed that 1% by weight of the total amount of fumigant used is fugitive during fumigation (active application and exposure period). The intent of the requirement referenced by this comment is to ensure compliance with the modeling by limiting the potential for fugitive emission from the fumigant supply lines. It is important to note that this comment also points out that these lines are also used to take readings of the fumigant concentration inside the tarpaulin or container enclosure. The first two conditions referenced do not pertain to lines used to sample fumigant concentrations inside the container, but refer to instead the line used to deliver fumigant to the container. The third reference pertains to the required distance of the probe during LDAR monitoring. As discussed under comments 7 and 13, these requirements are designed to ensure that no more than the estimated 5% fugitive emissions rate used as an input for the modeling during aeration is not exceeded and the 1% fugitive emissions rate used as an input for the modeling during fumigation is not exceeded. Ecolab's Bulk Log Fumigation Standard Operating Procedure (SOP) submitted to the DAQ on April 14, 2021 states that:

*"Once the bulk pile has received the desired level of fumigant (as prescribed in the APHIS Treatment Manual), the fumigant supply line will be disconnected from the methyl bromide cylinders and the*

*ends are taped, rolled up and laid under the excess tarp on the outside of the row of sand bags.”*

The assertion in this comment that “the lines are placed under the tarps thereby preventing emission leaks” is misleading because, per the SOP, the lines are placed *outside* of the row of sandbags. These requirements are necessary to assure compliance with the toxics modeling demonstration. Furthermore, this requirement is included in Ecolab’s internal SOPs. Therefore, the requested changes of the draft Air Quality Permit are not recommended by this Hearing Officer.

**Comment No. 9 - Cubic Feet vs. Cubic Meters:**

Ecolab referred to draft Permit Condition A.6.A.2.b.iv and made the following comments:

*"Ecolab is required by the USDA to record the amount of commodity being treated in cubic feet as opposed to cubic meters. Should the DAQ choose to duplicate this requirement, Ecolab requests that the units of measurement be consistent with already existing regulations and be changed to cubic feet instead of cubic meters."*

**Hearing Officer’s Response:**

This Hearing Officer concurs with comment and recommends that the DAQ/WIRO make the appropriate changes to Permit Condition A.6.A.2.b.iv of the draft Air Quality Permit.

**Comments No. 10 - Leak Detection Devices and Reading Levels:**

Ecolab referred to draft Permit Conditions A.6.A.3.a.iii, A.6.A.3.b.iii, A.6.A.3.c.iii, A.6.A.3.c.iv, A.6.A.3.c.vii, A.6.A.6.a.i, A.6.A.6.a.ii, A.6.A.6.a.iii, A.6.B.3.a.ii, A.6.B.3.b.iii, A.6.B.3.c.iii, A.6.B.6.a.i, A.6.B.6.a.ii, and A.6.B.6.a.iii. The following comments were made:

- *"The air dispersion modeling accounts for a 1% non-active and 5% active fugitive emission rate with compliance demonstration of the fugitive leaks contemplated by the LDAR Monitoring and Recordkeeping for Bulk Fumigation requirements. Demonstrating compliance with fugitive emission rates removes the need for specific leak detection in that leakage is already contemplated and accounted for in the air dispersion modeling. Compliance with the fence line concentration requirements is therefore accomplished with these assumed leakage rates."*

- *“Should the DAQ want additional assurances, Ecolab is concerned with the detection limit requirements as currently drafted within the Proposed Air Permit. As described, the DAQ is using parts per million measurements to indicate leaks. The device used for this type of leak detection measures leakage rates in ounces and not parts per million. Ecolab does use another device to determine final methyl bromide concentration which does generate results in parts per million but, as with the other devices contemplated in the Proposed Air Permit it is not methyl bromide specific. Moreover, the device which measures concentration in parts per million cannot operationally be used in the manner described in the Proposed Air Permit.”*
  
- *“Ecolab would also like to address the challenges associated with placing detection limits that fall outside of the detection limit of the device’s reading capabilities. Under federal regulations, leak thresholds are required to be set at measurable levels. While the devices are used to read leaks, the zero ppm (or ounce) requirement may fall outside of the detection limit thereby creating a compliance issue.”*
  
- *“Finally, the only existing devices that can be used to detect leaks by generating a measurable value detect an entire category of chemicals, volatile organic compounds (VOCs), of which methyl bromide is one. The devices described in the Proposed Air Permit are not specific to methyl bromide. Because the devices also pick up on other VOCs, such as gasoline and diesel emissions, benzene, ethylene glycol, formaldehyde, methylene chloride, tetrachloroethylene, toluene, xylene, and 1,3-butadiene, the device will pick up and read these concentrations in addition to methyl bromide. Due to the highly sensitive nature of these devices, this reality creates a situation where false positives occur as do inaccurately high concentration levels.”*
  
- *“Based on the above concerns, Ecolab respectfully requests that the leak detection language either be removed or modified to only include “reading levels indicating a leak” without a value or unit of measurement (ounce, ppm, etc...) and that there be removal of recording a value due to the inaccuracy and existence of false positives and false high readings.”*

Hearing Officer Response:

While the narrative portion of this comment makes numerous references to the leak detection requirements of the permit, it is important to note that this comment references permit conditions that contain both leak detection and repair requirements (LDAR) and the monitoring of fumigant concentrations during fumigation and prior to aeration (inside the containers or tarpaulins). It is also important to note that Ecolab has indicated in various correspondence with the DAQ during the permitting process that it utilizes two different types of monitoring devices:

- USDA-recommended instrumentation for monitoring the concentration of fumigant in the enclosure.
- A handheld photoionization detector for monitoring for leaks

This comment expresses concern that the device used by the facility cannot measure in parts per million (ppm) and goes on to suggest that the detection limits in the permit may fall outside the device detection limits of the permittee. Additionally, the comment states that Ecolab does use another device that generates results in ppm, but that this device cannot be operationally used as described in the Air Permit. This comment does not provide specifics regarding the type of instrumentation referenced. Nor does it provide specific details regarding why this instrument cannot be operationally used in the manner described in the Air Permit. Correspondence between Ecolab and DAQ personnel indicate that Tiger handheld VOC photoionization detectors (PIDs) are utilized to check for leaks. The website of the manufacturer of this product (Ion Science Ltd) indicates that, “The Tiger handheld VOC gas detector provides a dynamic detection range of 0 to 20,000 parts per million (ppm) with a minimum sensitivity of 0.001ppm (1 ppb).” Ecolab has indicated in various correspondence with the DAQ during the permitting process that the methyl bromide detection device provides concentration in units of oz./1000 ft<sup>3</sup>. Ecolab has also indicated to the DAQ that it follows the guidelines set forth for fumigation in the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Treatment Manual. The treatment manual contains a conversion factor for the conversion from oz./1000 ft<sup>3</sup> to ppm. This Hearing Officer recommends that Permit Conditions A.6.A.3.a.ii, A.6.A.6.a.i, A.6.B.3.a.ii, and A.6.B.6.a.i be revised to remove the detection limit and require use of USDA-recommended instrumentation that will detect and analyze fumigant gases.

This comment also expresses concern that the device used to demonstrate compliance with the LDAR requirements may generate false positives by detecting other volatile organic compounds (VOCs), aside from methyl

bromide or phosphine. This comment goes on to request that the leak detection language be removed or the specific concentration that constitutes a leak be removed from the permit.

LDAR programs are frequently included in Air Quality Permits for sources of volatile organic compounds (VOC) or hazardous air pollutants (HAP) where equipment leaks may result in substantial emissions. LDAR programs are also codified in numerous federal New Source Performance Standards (40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR 63) including standards that apply to the Synthetic Organic Chemicals Manufacturing and the Gasoline Distribution Industries, among many others. The EPA document, “Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017)” presents standard procedures for estimating mass emissions from equipment leaks. This document also explains how to estimate the control efficiency of equipment leak emission control techniques, such as LDAR. Section 5-8 of this document notes that one of the key parameters for estimating the control effectiveness of an LDAR program is the leak definition (concentration). Removing the leak detection concentration would render the LDAR program ineffective and unenforceable. Furthermore, removing the LDAR language from the permit leaves the permit without any enforceable mechanism to assure that the fumigant used during fumigation and aeration are ventilated out the exhaust stack in the quantities stated in the permit application. These requested changes of the draft Air Quality Permit are not recommended by this Hearing Officer.

Regarding the possibility of false positive readings. This Hearing Officer agrees that the potential for false positives may exist. The DAQ requested information on monitoring equipment and monitoring that Ecolab regularly performs and incorporated that monitoring into the permit. Neither the permit application, nor additional information submitted to the DAQ during the application process contain specific information regarding the calibration procedures or manufacturer’s recommended operating procedures for the Tiger handheld PID or any other leak detection device. Method 21 of 40 CFR part 60, Appendix A- “Determination of Volatile Organic Compound Leaks” contains a procedure in section 8.3.2 for accounting for local ambient VOC concentration during leak testing. This Hearing Officer recommends that the procedures from Section 8.3.2 of Method 21 be incorporated in the LDAR requirements of the draft Air Quality Permit.

**Comment No. 11 - Fumigant Leak Detection during Entry, Mid, and End of Fumigant Addition to the Shipping Containers and Tarpaulin Covered Piles:**

Ecolab referred to draft Permit Conditions A.6.A.3.c.iii, A.6.A.3.c.iv, and A.6.B.3.c.iv and made the following comments:

*"With the permit, the DAQ is requiring that leak checks be performed at the "onset", "midpoint," and "end" of fumigant addition to the enclosure (tarpaulin covered pile or shipping container). Fumigant addition to the described enclosure can take anywhere from 3 minutes for a shipping container and 15 minutes for a large tarpaulin covered pile. The timeframe which is required to perform a typical leak check is proportionate to the size of the container and, in each instance, would be approximately the same as the duration required to add the fumigant to the enclosure. This reality makes separating into 3 separate leak checks at the onset, midpoint, and end of fumigation window impossible because they are not distinguishable. Ecolab therefore requests removal of requiring these separate leak checks due to the inability to comply with the requirement."*

**Hearing Officer Response:**

This comment points out that fumigant addition timeframes range from between 3 and 15 minutes, and notes that the permit requirement to perform three distinct leak checks during this time frame is impractical and difficult to comply with. This condition requires the facility to leak check the fumigation delivery system at the onset of fumigant application. Additionally, the Permittee is required to leak check the tarpaulin enclosure or shipping container at the midpoint and end of addition of fumigant.

As previously discussed, the leak check requirements in this permit condition are designed to ensure that fugitive emission rates do not exceed 1% by weight of the total amount of fumigant used during fumigation (active application and exposure period). Both the fumigant delivery system, and the tarpaulin enclosure or shipping container, are potentially significant sources of fugitive emissions. Therefore, it is necessary to maintain leak check requirements for this equipment. However, this Hearing Officer agrees that it may be difficult to distinguish between the two leak checks that are required at the midpoint and end of fumigant addition. Therefore, this Hearing Officer recommends that Permit Conditions A.6.A.3.c.iv and A.6.B.3.c.iv be revised to require a leak check at the onset and the end of fumigant addition. This Hearing Officer does not recommend any changes to Permit Conditions A.6.A.3.c.iii.

**Comment No. 12 - Fumigant Leak Detection After Aeration Fan Turn-Off:**

Ecolab referred to draft Permit Condition A.6.A.3.c.v and made the following comments:

*"...the timing of the leak detection as it relates to fan operation is redundant. For fumigation operations, fans are used during the window in which the fumigant is added to ensure circulation of the fumigant throughout the enclosure. Once the fumigant reaches the required volume/concentration, the fans are turned off and the treatment period begins. During the time frame associated with the treatment period, the fumigant is not circulating and leaks do not occur (as previously discussed potential fugitive emissions are accounted for in the air modeling). The additional checks are therefore unnecessary. Ecolab requests removal of these steps."*

**Hearing Officer Response:**

This comment notes that recirculation fans are not used in the tarpaulin enclosure after fumigant application is complete. This permit condition requires an additional leak check following the completion of fumigant application *if recirculation fans are used*. Since recirculation fans are not used following the completion of fumigant application, this Hearing Officer recommends the removal of Permit Condition A.6.A.3.c.v.

**Comment No. 13 - De-tarping and Container Opening Delays:**

Ecolab referred to draft Permit Conditions A.6.A.6.a.i, A.6.A.6.a.ii, A.6.B.6.a.i, and A.6.B.6.a.ii and made the following comments:

*"The USDA and EPA directly address the aeration procedures with specific direction given on how and when to complete aeration. In the Proposed Air Permit conditions listed above, the DAQ's instruction is inconsistent with the USDA and EPA requirements. The requirements are written with worker and bystander safety as the primary focus with fumigation operational needs accounted for as well. Ecolab therefore respectfully requests that the DAQ's inconsistent direction of taking multiple readings be removed."*

**Hearing Officer Response:**

This comment states that the permit conditions pertaining to monitoring of fumigant concentration inside the tarpaulin or shipping container enclosure



at the end of aeration are inconsistent with EPA and USDA requirements. This comment does not specifically state how the requirements of the Air Quality permit are inconsistent with EPA and USDA requirements. As previously discussed in this report under Comment No. 7, the toxics modeling submitted in support of this permit application estimates that, following aeration, no more than 5 ppm of fumigant remains in the enclosure prior to opening and that in doing so, the estimated 5% fugitive emissions rate used as an input for the modeling during aeration is not exceeded. The monitoring requirements identified by this comment are necessary to ensure compliance with the toxics modeling, therefore changes to these conditions of the draft Air Quality Permit are not recommended by this Hearing Officer.

The Hearing Officer's recommended technical revisions to the draft Air Quality Permit should not have an impact on the DAQ's ability to evaluate Ecolab's compliance with state and federal air quality regulations. A summary of these technical revisions can be found in the Conclusions and Recommendations Section of this Report.

## **V. Conclusions and Recommendations**

After considering all public comments addressing whether the DAQ should issue a renewed and revised Air Quality Permit (Permit No. 10313/R03) to Ecolab, Inc. to operate a facility for the fumigation of logs and bulk perishable commodities, the recommendations of this Hearing Officer are as follows:

- Air Quality Permit No. 10313/R03 should be issued to Ecolab, Inc. with the following modifications:
  - The test deadlines in Permit Conditions A.6.A.5.a.v and A.6.B.5.a.iv should be changed to 90 days.
  - The DAQ/WIRO should review the text of Permit Condition A.5 of the draft Air Quality Permit, ensure it is grammatically correct and consistent with the regulatory intent 15A NCAC 2D .0546 "Control of Emissions from Log Fumigation Operations," and make any necessary changes.
  - Permit Conditions A.6.A.5.a.ix and A.6.B.5.a.viii should be revised to allow for the test run with the lowest average total pressure be used to demonstrate compliance, provided that compliance with the minimum velocity and flow are met.

- The DAQ/WIRO should change references to “bulk fruit” in the equipment list and permit conditions of the draft Air Quality Permit to instead reference “bulk perishable commodity.”
- The units in Permit Condition A.6.A.2.b.iv should be changed from cubic meters to cubic feet.
- The DAQ/WIRO should revise Permit Conditions A.6.A.3.a.ii, A.6.A.6.a.i, A.6.B.3.a.ii, and A.6.B.6.a.i to remove the detection limit and require use of USDA-recommended instrumentation that will detect and analyze fumigant gases.
- A reference to Section 8.3.2 of Method 21 of 40 CFR part 60, Appendix A should be incorporated into the LDAR requirements of the draft Air Quality Permit (Conditions A.6.A.3 and A.6.B.3).
- Permit Conditions A.6.A.3.c.iv and A.6.B.3.c.iv should be revised to require a leak check at the onset and end of fumigant addition.
- Permit Condition A.6.A.3.c.v related to recirculation fans should be removed.



T. Ray Stewart, Jr., P.E., CPM  
Hearing Officer

September 27, 2021

Date

**Appendix A**

**Draft Air Quality Permit and Permit Review**

**Appendix B**

**Ecolab Environmental Justice Report**

**Appendix C**

**DAQ Memorandum on Toxic Air Pollutant Modeling**

**Appendix D**

**Comments from Mr. Peter Joyce**

**Appendix E**

**Comments from the NAACP -Brunswick County Branch**

**Appendix F**

**Comments from Toxics Free NC**

**Appendix G**

**Comments from Ecolab, Inc.**