

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	R20-18
PROPOSED NEW 35 ILL. ADM. CODE 249)	(Rulemaking – Air)
ETHYLENE OXIDE AMBIENT AIR)	
MONITORING)	

NOTICE

TO: Don Brown	Marie Tipsord
Clerk	General Counsel
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Mark Kaminski
Hearing Officer
Illinois Pollution Control Board
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SEE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Board the Illinois Environmental Protection Agency's Responses to Prefiled Questions, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Antonette R. Palumbo
Antonette R. Palumbo
Assistant Counsel
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DATED: June 24, 2020

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PROPOSED NEW 35 ILL. ADM. CODE 249) R20-18
ETHYLENE OXIDE AMBIENT AIR) (Rulemaking – Air)
MONITORING)

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY’S RESPONSES TO
PREFILED QUESTIONS**

NOW COMES the Illinois Environmental Protection Agency (“Illinois EPA” or “Agency”), by one of its attorneys, and submits the following responses to the prefiled questions submitted by the Illinois Pollution Control Board (“Board”) with the Hearing Officer Order dated March 12, 2020.

1. On page 5, TSD states that the “Act requires the Agency to conduct air testing to determine ambient levels of ethylene oxide throughout the State, and to submit rules for such ambient air testing.”
 - a. Please clarify whether ambient levels determined under the proposed rule will represent the background concentrations of ETO where air quality is not impacted by the permitted ETO emitting sources.

Yes, ambient levels determined under the proposed rule are intended to represent the background concentrations of ETO where air quality is not impacted by the permitted ETO-emitting sources.

- b. If not, explain what ambient ETO levels mean in the context of the proposed rules.

N/A

2. On page 6, TSD notes that the “Illinois monitoring sites in the proposed rule are currently in use by the Agency for the purposes of ambient air monitoring and are adequate to provide the Agency and the public with information about ambient levels of ethylene oxide throughout the State.”
 - a. Please explain how the 6-month sampling results at the five locations will be translated to ambient levels of ETO throughout the state.

The sampling results will provide information about the ambient levels by providing multiple readings at different locations throughout the State

representing different levels of industry, traffic, and population. Using this information, general background levels can be inferred for similar areas statewide.

- b. Comment on whether the ambient levels would be determined for each county or on broader regional basis.

A broader regional basis. Not only would monitoring in each of Illinois' 102 counties be unrealistic from a resource perspective, but it would also be unlikely to yield helpful information. The Agency would not expect that ETO background levels would be different in different counties if those counties have similar features. Monitoring plans are based on having a network of monitors representing different levels of industry, traffic, and population around the State.

- 3. On page 6, TSD notes that Table 1 lists information regarding each of the proposed monitoring site's distance from a known emission source of ETO, as well as from major highways.

- a. Please clarify whether Table 1 lists all permitted ETO emitting sources within the state. If not, please update the table to include other sources and their distance from the nearest monitor location and major highways.

No, Table 1 does not list all permitted ETO emitting sources within the State. The purpose of the Table is to set forth each proposed monitoring site's distance from potential sources of ETO to demonstrate that the monitors would indeed be measuring ambient air rather than air impacted by such ETO sources. The intent was not to look at all permitted ETO sources within the State, but the Agency is providing that information in Attachment A per the Board's request. However, the distance of permitted ETO sources from major highways does not have any bearing on the Agency's selection of monitoring locations for ETO. Only the distance from the monitor to the nearest major highway might be considered pertinent; with this in mind, the Agency requests that the Board clarify if it still needs this information.

- b. Please update the ETO monitoring location map (Figure 1) to show all ambient monitors used by IEPA for monitoring criteria pollutants, as well as all permitted ETO emitting sources.

The requested map is attached as Attachment B. However, the Agency is unclear as to the reason for this request, since other ambient monitors cannot measure ETO. Illinois EPA has already considered a number of factors in selecting locations for its proposed ETO monitoring sites, including whether the monitor is in an urban or rural area, its location in the State, whether appropriate equipment can be placed at the monitor, and whether staff are able to maintain the monitor on an appropriate schedule.

4. On page 8, TSD states that the ETO sampling would be conducted for a period of six months by taking air samples every 12 days with 15 samples being taken at each site.

- a. Please comment on the sources of uncertainty and errors associated with the sampling of ETO and clarify whether the proposed sampling frequency and the number of samples at each site are adequate to minimize such errors and uncertainty. Comment on whether doubling the sampling period to 12 months would increase the confidence level of the data.

Each measurement will have a degree of error or uncertainty due to the limitations in the accuracy of the sampling and analysis methods. As stated in the TSD, Method TO-15 has an uncertainty of about 30 percent. This is mostly due to the very small concentrations of the pollutants being measured in the sampled air, usually measured in fractions of micrograms per cubic meter.

Doubling the sampling period from 6 months to 12 months would only double the number of samples collected and would not “minimize such errors and uncertainty” because the uncertainty is inherent to the test method for a single measurement. The uncertainty in any reported measurement from a sampling site would not be reduced by averaging with other measurements from the same site at a different time. Similarly, doubling the sampling period to 12 months would not increase the confidence level of the data.

The Agency will evaluate all monitoring data it collects, and additional samples would represent additional data points, but not necessarily less error or uncertainty in those data points.

- b. Please clarify whether the proposed 6-months sampling period is adequate to address spatial and temporal variability. In this regard, comment on whether sampling period of at least 12 months is necessary to account for seasonal variations and weather factors.

Spatial variability depends on the location of the monitors and would not be addressed by a change in the sampling period. For the purposes of determining an ambient level, six months should be adequate to establish representative background levels. While the concentrations of some pollutants in ambient air can be significantly impacted by seasonal variations and weather factors (such as ozone or fine particulate matter), and there has been speculation that ETO levels could change seasonally, at the time of this writing there is no solid scientific information demonstrating such a fluctuation. Additionally, if there is such variability, it would need to be greater than 30 percent to be noticeable above the uncertainty of the methodology. Research is ongoing in this area by USEPA and other entities.

5. On page 8, TSD states that the USEPA Method TO-15, Determination of Volatile Organic Compounds (VOCs) would be used to analyze the air monitoring samples for ETO.

a. Please clarify whether the Method TO-15 is a Federal Reference or Equivalent Method (FRM or FEM). If so, is Method TO-15 on the List of Designated Methods incorporated by reference in 35 Ill. Adm. Code 243.108.

It is neither because an FRM or FEM is applicable only to criteria pollutants. ETO is a hazardous air pollutant. Method TO-15 is an “EPA Method” Analytical Method.

b. Please comment on whether the proposed rules under Section 249.110 must require the use of USEPA Method TO-15 for analyzing air monitoring samples for ethylene oxide.

No, it should not be required that Illinois EPA specifically use this method. This is the only method currently available for ETO sampling analysis, but USEPA is discussing a modification to the method and may develop additional modifications moving forward. The Agency must have the flexibility to utilize the most appropriate, accurate, up-to-date method. This rulemaking was intended to address statutory requirements, and to prescribe the location and duration of monitoring; the Agency’s monitoring procedures themselves are largely governed by evolving federal guidance, methods, and requirements and therefore are not generally prescribed in State regulations.

c. Also, clarify whether any federal guidance and requirements pertaining to quality assurance protocols will be followed during the sampling and analysis. Please comment on whether the proposed rules should address quality assurance and quality control protocols.

Yes, all federal guidance and requirements pertaining to quality assurance protocols will be followed during the sampling and analysis. The proposed rules do not need to specifically address such matters as Section 249.110(c) already requires the Agency to “comply with all applicable USEPA guidelines for ambient air monitoring,” as noted in Question 9, below. The Agency is the only entity required to take action under this rule and is already familiar with all applicable quality assurance protocols. Also, as noted in response to subsection (b), the requirements imposed by USEPA may change, so flexibility is needed.

6. On page 8, TSD notes, “Method TO-15 begins with collecting atmospheric samples into a specially-prepared stainless steel canister using a sampling train that regulates the rate and duration of the sampling.” Please clarify the duration of sampling at each sampling event and comment on whether the sample is considered as a composite sample.

The duration is approximately 24 hours, as noted in Question 8, below. Air is being sampled continuously for 24 hours. The Agency is not aware of the meaning of the term “composite sample” in this context. To the extent it is intended to mean a blend of individual samples, no, it is a continuous sample rather than a blend.

7. On pages 8 and 9, TSD states, “the rule as proposed can be implemented without economic burden to any entity in the State except for the Illinois EPA, and the Agency considers the costs associated with the monitoring requirements as proposed to be reasonable to meet the requirements set forth in the Act.”

- a. Please provide a cost estimate for implementing the proposed ETO monitoring requirements.

Using current laboratory and equipment pricing, the Agency estimates that it will cost approximately \$34,000 to implement the ETO monitoring requirements as proposed to the Board.

- b. Comment on whether the cost would double if the sampling period is increased from 6 to 12 months, if required to address spatial and temporal variations.

Yes, the cost would roughly double. The only cost that would not double is the one-time purchase of a timer for \$500.

- c. Would the Agency consider the increased monitoring costs to be still reasonable to meet the requirements of the Act?

The Agency does not believe that it is necessary to double the sampling period. As such, additional costs would not be reasonable.

Proposed Rules

8. Section 249.110(a) requires each ethylene oxide sample to be taken over a period of approximately 24 hours. Please clarify whether the sample is taken continuously over the 24-hour period. Also, explain why the term “approximately” is used instead of requiring each sample to be taken over a period of 24 hours.

The sample is taken continuously over the 24-hour period. As far as “approximately,” some of the sampling may be initiated and terminated manually. As such, it cannot be expected that the Illinois EPA employee performing such duties will be at the location exactly 24 hours apart. When USEPA has collected samples under similar circumstances, they ensured that a sampling timeframe began and ended within roughly the same hour, for example between 9 am and 10 am, each day. As long as the exact time is logged and provided to the lab, this is not an issue in determining the ETO concentration.

9. Section 249.110(c) requires the Agency to “comply with all applicable USEPA guidelines for ambient air monitoring.”

a. Please provide a list USEPA guidelines that apply ambient air monitoring.

Generally speaking, standard air monitoring regulations are at 40 CFR 50, 53, and 58. These regulations also reference or adopt procedures, which also serve as guidelines, such as quality assurance documents (like USEPA’s Air Monitoring Handbook), USEPA air monitoring guidance documents, and USEPA-approved operating procedures.

In order to encompass and reference the proper procedures and guidelines, including regulations, the Agency would recommend adding the words “regulations and” to Section 249.110(c) before the word “guidelines”. This proposed change would be:

Section 249.110 Ethylene Oxide Ambient Air Monitoring Requirements

(c) The Agency must comply with all applicable USEPA regulations and guidelines for ambient air monitoring.

a. Does the Agency consider USEPA Method TO-15 Determination of Volatile Organic Compounds (VOCs) in Air as an applicable guideline?

USEPA Method TO-15 is the proper way to measure ambient concentrations of ETO, and thus is an applicable USEPA guideline for the purposes of this rulemaking.

b. Comment on whether any of the USEPA guidelines should be incorporated by reference.

No, for the same reasons set forth in response to Question 5(b) and (c) above and Question 10 below.

10. Please comment on whether the following changes to the rule language are acceptable to IEPA:

Section 249.100 Purpose

The purpose of this Part is to specify set forth the procedures and requirements that must be used by manner in which the Agency shall to conduct ambient air monitoring of ethylene oxide under in accordance with the requirements in Section 9 .16 (text from P.A. 101-22) of the Environmental Protection Act (415 ILCS 5/9.16, P.A. 101-22).

Section 249.105 Monitoring Locations

The Agency ~~must shall~~ monitor ~~levels of ethylene oxide levels~~ in the ambient air in or around the following locations in Illinois ~~under in accordance with~~ the requirements set forth in of s~~Section 249~~50.110:

- a) Northbrook;
- b) Schiller Park;
- c) Nilwood;
- d) Alton; and
- e) Bondville.

Section 249.110 Ethylene Oxide Ambient Air Monitoring Requirements

- a) The Agency ~~must shall~~ conduct ambient air monitoring for ethylene oxide in or around each location specified in Section ~~249~~50.105 for a period of six consecutive calendar months. During that time frame, the Agency ~~must shall~~ collect a sample every 12 days. Each sample ~~shall must~~ be collected over a period of ~~approximately~~ 24 hours.
- b) The six-month monitoring period ~~must shall~~ commence no later than one year after the effective date of this Part.
- c) The Agency ~~must shall~~ comply with all applicable USEPA guidelines for ambient air monitoring.

Section 249.115 Monitoring Results

The Agency ~~must shall~~ make the ethylene oxide ambient air monitoring results publicly available on the Agency's website within 30 days of receipt of each set of quality assured data.

Section 249.120 Sunset Provisions

The provisions of this Part ~~will shall~~ no longer apply 24 months after the effective date of this Part.

The word “approximately” should not be removed from Section 249.110(a). As the Agency explained above in the answer to Question 8, some of the samples may be taken manually, and “approximately” must be included in the rule in order to account for manual sampling. Furthermore, it is the Agency’s preference that the

purpose of the rulemaking specified in Section 249.100 remains as it was originally drafted. As explained in response to Question 5, the Agency did not intend for this rulemaking to prescribe all of the procedures and requirements applicable to the Agency's monitoring efforts, most of which are federally driven and subject to change. This rulemaking was intended to address statutory requirements, and to prescribe the location and duration of monitoring. The Agency included the broad proposed language in Section 249.110(c), requiring the Agency to comply with all federal monitoring guidelines, to confirm that its procedures will conform to federal requirements with respect to ETO monitoring, just as with monitoring for other pollutants.

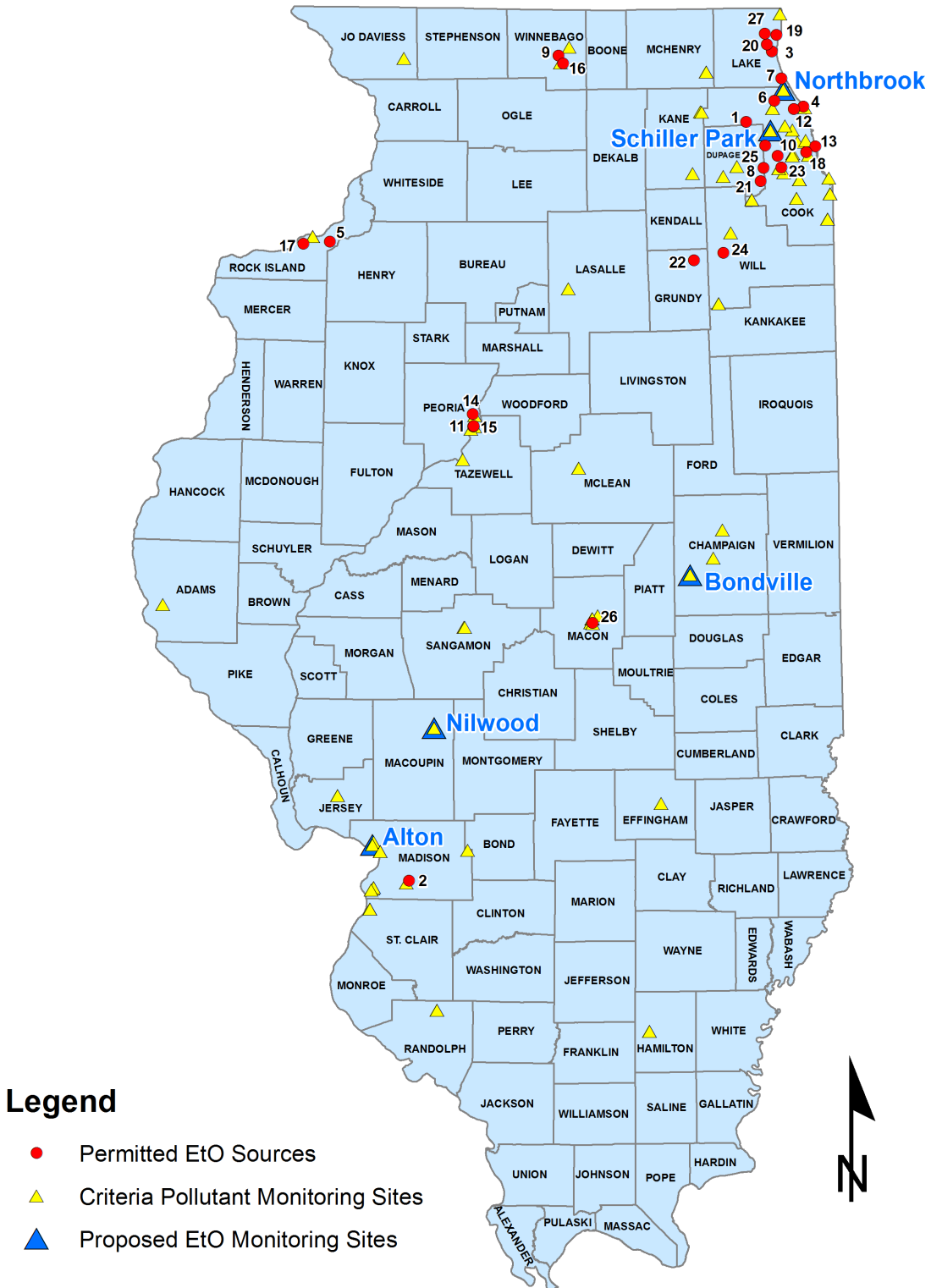
The Agency also recommends making the change it has suggested in the answer to Question 9a.

Attachment A: Table of Sources and Distances

Map ID	Source Name	Address	City	County	Nearest Proposed EtO Monitor	Distance (miles)
1	Alexian Bros Medical Ctr	820 Biesterfield Rd	Elk Grove Village	Cook	Schiller Park	7.8
2	Anderson Hospital	Rte 162 & Old Edwardsville Rd	Maryville	Madison	Alton	15.1
3	Lovell Federal Health Care Center	3001 Green Bay Rd	North Chicago	Lake	Northbrook	11.9
4	Evanston Hospital	2650 Ridge Ave	Evanston	Cook	Northbrook	7.8
5	Genesis Medical Center	801 Illini Dr	Silvis	Rock Island	Schiller Park	134.8
6	Glenbrook Hospital	2100 Pfingsten Rd	Glenview	Cook	Northbrook	4.2
7	Highland Park Hospital Foundation	777 Park Avenue West	Highland Park	Lake	Northbrook	3.5
8	Hinsdale Hospital*	120 N Oak St	Hinsdale	DuPage	Schiller Park	11.2
9	Javon Bea Hospital - Rockton	2400 N Rockton Ave	Rockford	Winnebago	Schiller Park	66.7
10	Loyola University Medical Center	2160 S 1st Ave	Maywood	Cook	Schiller Park	7.7
11	Methodist Medical Center of Illinois	221 N E Glen Oak	Peoria	Peoria	Bondville	78.1
12	NorthShore Univ Health System Skokie Hospital	9600 Gross Point Rd	Skokie	Cook	Northbrook	6.5
13	Northwestern Memorial Hospital	251 E Huron St	Chicago	Cook	Schiller Park	14.0
14	Proctor Hospital	5409 N Knoxville	Peoria	Peoria	Bondville	80.3
15	St Francis Medical Center	530 NE Glen Oak Ave	Peoria	Peoria	Bondville	78.1
16	Swedish American Hospital	1401 E State St	Rockford	Winnebago	Schiller Park	64.7
17	Trinity Medical Center	2701 17th St	Rock Island	Rock Island	Schiller Park	142.6
18	University of Illinois at Chicago	1853 W Polk St	Chicago	Cook	Schiller Park	12.3
19	Waukegan Illinois Hosp Co LLC	1324 N Sheridan Rd	Waukegan	Lake	Northbrook	16.5
20	Medline Industries Inc Northpoint Services Div	1160 S Northpoint Blvd	Waukegan	Lake	Northbrook	14.3
21	Sterigenics US LLC	7775 Quincy St	Willowbrook	DuPage	Schiller Park	15.3
22	Equistar Chemicals LP	8805 N Tabler Rd	Morris	Grundy	Schiller Park	44.7
23	Pelron Corp (Ele Corp)	7847 W 47th St	Lyons	Cook	Schiller Park	11.4
24	Stepan Co	22500 W Millsdale Rd	Elwood	Will	Schiller Park	38.8
25	Sun Chemical Corp	135 W Lake St	Northlake	Cook	Schiller Park	4.7
26	Tate & Lyle Ingredients Americas LLC	2200 E Eldorado St	Decatur	Macon	Bondville	32.2
27	Vantage Specialties Inc	3938 Porett Dr	Gurnee	Lake	Northbrook	17.5

*Hinsdale Hospital's sterilizer was removed on June 10, 2020. Revised permit is pending.

Attachment B: Ambient Monitoring Network Map



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CERTIFICATE OF E-MAIL SERVICE

I, the undersigned, on affirmation, state the following:

That I have served the attached Illinois Environmental Protection Agency's Responses to Prefiled Questions by e-mail upon:

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That my e-mail address is antonette.palumbo@illinois.gov.

That the number of pages in this e-mail transmission is 14.

That the e-mail transmission took place before 5:00 p.m. on the date of June 24, 2020.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Antonette R. Palumbo
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DATED: June 24, 2020

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