

MEMORANDUM

From: Allan Felsot, Washington State University

To: Portland Water Bureau; Hearings Officer

Date: August 23, 2023

Re: Response to Select Testimony from Land Use Review Process for the Filtration Facility and Pipelines

This memorandum responds to a selection of Multnomah County land use review public comments received as of the date of this response that address chemical use as an accepted farm practice in the surrounding lands. I previously provided a report, “Use and Safety Characterization of Pesticides Used on Agricultural Properties Nearby the Proposed Site for the Portland Water Bureau’s Bull Run Filtration Facility,” dated September, 2022, to the Water Bureau, which was included in the land use record as staff’s Exhibit A.39 (referred to herein as the “September 2022 Report”). Additionally, I provided a Memorandum dated July 26, 2023, which was included in the land use record as staff’s Exhibit I.83 (the “Prior Memorandum”). This memorandum builds on the Prior Memorandum and September 2022 Report and uses defined terms and other concepts from that report.

The responses below are intended to address the themes and concepts in this selection of public comments. For that reason, these responses are likely to also be applicable to other public comments now in the record or that are placed in the record after the date of this response.

Surface Nursery Written Testimony – Exhibit I.51 – Page 9:

“During this improvement and construction period, their workers will be within 10’ of where we currently farm. If we need to spray in that area, there is a time during and after application known as ‘no entry’ period where no one should be in the exposed area.”

This statement is factually incorrect because it misstates the definition of a Restricted Entry Interval (REI) under the Worker Protection Standard. As explained by the EPA in an updated commentary on the REI (May 2023, <https://www.epa.gov/pesticide-worker-safety/restrictions-protect-workers-after-pesticide-applications#:~:text=For>), attached to this memorandum, the REI is “the time immediately after a pesticide application when entry into the treated area is restricted”. This comes from the federal regulations at 40 CFR §170.305.¹ The CFR defines “treated area” as “any area to which a pesticide is being directed or has been directed.” The treated area is the key phrase because any area being used by the Water Bureau is not treated and if it was, the pesticide applicator could be at risk for violation of the label because the application is only permitted to be directed on the crop. Any drift outside of the crop is not part of the “treated area” and thus the REI is not applicable.

¹ Applies in Oregon via OAR 437-004-6000.

“We will either have to arrange with PWB to shut down their construction and block all access to the emergency access road for up to a 72-hour re-entry period following spray application, or relocate our trees a significant distance from the road they are taking, allowing for a much farther setback than the 10 feet currently allocated in their proposal.”

First, the REI applies only to the treated crop area, not areas outside of the crop, as explained above. Drift outside of a treated area is illegal. For this reason alone, there is no reason the farmer would need to relocate trees, increase a setback, or stop use of the emergency access road.

Second, without reference to a specific label showing a 72 hour REI, this specific information cannot be validated. However, examination of two labels included in the September 2022 Report indicates a significantly shorter REI. For example, product labels for the active ingredient bifenthrin (Talstar) and paraquat (Gramoxone) were queried for stated REIs. Bifenthrin was chosen because it has the lowest LD50 (i.e., highest oral toxicity) among studied pesticides likely to be used, and its REI is 12 hours. Paraquat was chosen because it has the signal word of Danger Poison with skull and crossbones because it is considered highly hazardous without appropriate (and specified) respiratory protection. The Gramoxone label specifies an REI ranging from 12-24 hours depending on the specific use pattern. Thus, two of the product labels predicted to be most protective of worker health show REIs well under 72 hours.

“The first option forces a significant change in our practices by being forced to not just inform but also coordinate this with PWB’s construction plans.”

Application of chemicals without regard to weather conditions or the expected degree of drift onto adjacent properties is not an accepted farm practice. When off-site spray drift is anticipated, it is an accepted farm practice to call or otherwise inform neighboring uses to advise them of the spraying activity. Therefore, informing the neighboring Water Bureau construction crew of a situation when off-site spray drift is anticipated would not force a significant change in the accepted farm practices of preventing spray drift in the first place and, second, of informing a neighbor when drift conditions exist.

This statement – as well as the first comment that describes a “no entry period” that exists “during and after” application of pesticides – seems to conflate the REI with the Application Exclusion Zone (AEZ) but they are actually two different Worker Protection Standard rules. The REI is a fixed time interval that restricts entry into the treated area, but not outside of it. The AEZ is a dynamically changing space that is measured outward from the spray nozzle wherein an application is forbidden when persons within the boundaries of the farm establishment are in the AEZ. Because a tractor is constantly moving, the AEZ is constantly changing. Therefore, any AEZ would be necessitated only when a person within the boundaries of the farm establishment is within the designated space and the AEZ would quickly become more distant to a space outside of the crop as the application equipment moves farther into the treated crop area. In Oregon, Oregon OSHA has adopted its own AEZ regulations (rather than adoption of the EPA requirements by reference) in OAR 437-004-6405, attached. The accepted farm practice is to comply with the AEZ requirements that apply in the state, rather than the EPA AEZ requirements. Oregon OSHA declined to adopt the EPA AEZ requirements,

according to a summary of the rulemaking posted on OSHA's website, in part because of ongoing uncertainty surrounding the EPA requirements. The attached Oregon OSHA "frequently asked questions" document retrieved from Oregon OSHA's website on 8/23/23 makes clear that the AEZ does not "apply to my neighbor's property or the county road next to my farm" and the farmer is "not expected to control people off the establishment." Therefore, the farmer is not legally responsible for the Water Bureau contractor, nor to modify spraying practices or inform or coordinate with the contractor. While the *contractor* may decide to modify their construction schedule based on observations of spraying nearby, the construction will not force a change in the farmer's accepted farm practices by requiring them to inform or coordinate with contractors constructing the road. The same is true during ongoing operations after construction, which will infrequently use the road.

Regardless of the AEZ rule, pesticide applicators are still required to follow pesticide labels, which include a prohibition on drift that travels off-site, as well as Oregon state law that generally prohibits application of pesticides in a manner that causes pesticide drift off-site. All labels, including all those evaluated in the September 2022 Report, state the applicator is responsible for avoiding off-site spray drift. This mandate occurs on every pesticide label in the "Directions for Use" section.

Because an AEZ is a temporary spatial area surrounding the spraying equipment, even if under the EPA rules it encompasses a space outside the boundaries of the establishment, the accepted farm practice if someone is present in that AEZ is to "evaluate the situation and conditions and determine if the farmer can resume the application without contacting anyone with the pesticide, either directly or through drift."²

Pertinently, other subsections of product labels, for example "Environmental Hazards," mandate prohibitions against drift. Common language among labels in this section states, "Do not apply when weather conditions favor drift from treated areas." So, if the wind direction or other factors could create off-site spray drift, the farmer is already obligated – regardless of an AEZ – to suspend application, adjust the application method (such as height of application), or employ other drift reduction measures. For this reason, even an AEZ that extended beyond the boundaries of the establishment would not force a change in the farmer's accepted farm practices because accepted practices already require the applicator to avoid off-site drift. If the farmer can avoid off-site drift, the application of the pesticide can continue.³

² EPA Worker Protection Standard Application Exclusion Zone Requirements: Updated Question and Answers, 2/15/2018.

³ EPA Worker Protection Standard Application Exclusion Zone Requirements: Updated Question and Answers, 2/15/2018.

ATTACHMENTS

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Restrictions to Protect Workers After Pesticide Applications

Employers must take the actions described below to protect workers after pesticide applications on agricultural establishments.

On this page:

- What is a restricted-entry interval?
- What actions must an employer take regarding REIs?
- [For more information](#)

Related Information

- EPA has revised the worker protection standard, learn more. [SEARCH EPA ARCHIVE <https://archive.epa.gov/>](https://archive.epa.gov/)

What is a restricted-entry interval?

The restricted-entry interval (REI) **is the time immediately after a pesticide application when entry into the treated area is restricted.** Some pesticides have one REI, such as 12 hours, for all crops and uses. Other pesticides have different REIs depending on the crop, method of application, or the post-application activity to be performed. When two or more pesticides are applied at the same time and have different REIs, the longer REI must be followed.

The REI is listed on the pesticide labeling under the heading "Agricultural Use Requirements" in the "Directions for Use" section of the pesticide labeling, or next to the crop or application method to which it applies.

What actions must an employer take regarding REIs?

Employers at agricultural establishments must keep **workers** out of a pesticide-treated area during the REI with only two exceptions:

- Early entry **with no contact.**
- Early entry **with contact** <<https://epa.gov/pesticide-worker-safety/protections-workers-who-must-enter-pesticide-treated-areas-early>> for short-term, emergency, or specially excepted tasks, which must comply with additional restrictions.

Entry into treated areas during an REI is allowed to perform **handling** tasks as long as the persons entering such areas are trained and equipped as **pesticide handlers** and receive all other applicable WPS handler protections.

What does early entry with no contact mean?

After any inhalation exposure level listed on the product labeling has been reached or any WPS-specified ventilation criteria have been met, an employer at an agricultural establishment may permit workers into a treated area during an REI if they will not touch or be touched by any pesticide residues, including:

- On plants, including both agricultural plants and weeds.
- On or in soil or planting medium.
- In water, such as irrigation water or water standing in drainage ditches or puddles.
- In air, if pesticide remains suspended after application, such as after fumigation or after a smoke, mist, fog or aerosol application.

Avoiding contact by using personal protective equipment does not qualify as no-contact early entry.

No-contact early-entry workers do not have to be provided the special protections required for other early-entry workers.

The following are examples of situations where a worker would not be expected to contact pesticide residues in a treated area after sprays, dusts, and vapors have settled out of the air:

- The worker is wearing footwear and is walking in aisles or on roads, footpaths, or other pathways through the treated area where the plants or other treated surfaces cannot brush against the worker and cannot drop or drip pesticides onto the worker.
- The worker is in a vehicle in a treated area where the plants cannot brush against the worker and cannot drop or drip pesticides onto the worker.
- After a pesticide application that is incorporated or injected into the soil, the worker is doing tasks that do not involve touching or disrupting the soil subsurface.
- The worker is driving through the treated area in an enclosed cab on a truck, tractor, or other vehicle that prevents occupants from contacting pesticide residues or pesticide-treated surfaces.

For More Information

- How to Comply Manual, Unit 4 <<https://epa.gov/pesticide-worker-safety/pesticide-worker-protection-standard-how-comply-manual>>
- Interpretive Policy, Section 5 <<https://epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-40-cfr-parts-156-170-interpretive>>

[Pesticide Worker Safety Home <https://epa.gov/pesticide-worker-safety>](https://epa.gov/pesticide-worker-safety)

[How EPA Protects Workers from Pesticide Risk <https://epa.gov/pesticide-worker-safety/how-epa-protects-workers-pesticide-risk>](https://epa.gov/pesticide-worker-safety/how-epa-protects-workers-pesticide-risk)

[Recognition and Management of Pesticide Poisonings <https://epa.gov/pesticide-worker-safety/recognition-and-management-pesticide-poisonings>](https://epa.gov/pesticide-worker-safety/recognition-and-management-pesticide-poisonings)

[In Case of Pesticide Poisoning <https://epa.gov/pesticide-worker-safety/case-pesticide-poisoning>](https://epa.gov/pesticide-worker-safety/case-pesticide-poisoning)

[Agricultural Worker Protection Standard \(WPS\) <https://epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wps>](https://epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wps)

[How to Get Certified as a Pesticide Applicator <https://epa.gov/pesticide-worker-safety/how-get-certified-pesticide-applicator>](https://epa.gov/pesticide-worker-safety/how-get-certified-pesticide-applicator)

[Pesticide Containers <https://epa.gov/pesticide-worker-safety/pesticide-containers>](https://epa.gov/pesticide-worker-safety/pesticide-containers)

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Oregon Occupational Safety and Health Division - Chapter 437

Division 4 AGRICULTURE

437-004-6405
Restrictions Associated With Outdoor Production Pesticide Applications

Note: Oregon OSHA has declined to adopt 40 CFR 170.405(a). In Oregon OAR 437-004-6405 applies.

This rule applies in Oregon where workers or other people are adjacent to pesticides being applied in outdoor production areas **that are within the boundaries of the establishment**. This rule becomes effective January 1, 2019.

Note: Nothing in these rules affects separate statutory or regulatory requirements such as the buffer zone requirement related to aerial herbicide applications in forestry operations (ORS 527.672).

(1) Treated area: The area to which a pesticide is being directed and/or deposited during an application. After the application is complete, the treated area is subject to the labeling-specified restricted-entry interval (REI) and the post-application entry restrictions specified in Sec. 170.407 of the Worker Protection Standard (WPS).

(2) Enclosed agricultural structure: a fully-enclosed space (has walls, ceilings, and floors that minimize the entry of outside air when doors, windows, and mechanical air intakes are closed) with an interior area that shelters occupants from dermal exposure to pesticide spray drift.

(3) Application Exclusion Zone (AEZ): The AEZ is an area that moves with and exists in relationship to the application equipment. The number of feet shown is the horizontal radius of the area surrounding the application equipment during the application process and may extend beyond the treated area. It extends downward from that horizontal plane to the ground. Pesticide labels that have more stringent restrictions regarding distances must be followed. The agricultural employer must implement the AEZ as follows:

(a) **Workers and labor housing occupants** must evacuate the AEZ, which shall extend 150 feet from the application equipment and last until 15 minutes after the application equipment passes, when the label requires the handler to use respiratory protection during application and one of the following applies:

(A) The application is by air blast sprayer;

(B) The pesticide is applied aerially;

(C) The spray quality is smaller than medium;

(b) **Workers and labor housing occupants** must either remain in an enclosed agricultural structure or evacuate the AEZ, which shall extend 100 feet from the application equipment and last until 15 minutes after the application equipment passes, when the label does not require the handler to use respiratory protection during application and one of the following applies:

(A) The application is by air blast sprayer;

(B) The pesticide is applied aerially;

(C) The spray quality is smaller than medium.

Workers not on paid status or labor housing occupants must be permitted to evacuate even if the employer otherwise chooses to allow them to remain in an enclosed agricultural structure.

(c) **Workers and labor housing occupants** must either remain in an enclosed agricultural structure or evacuate the AEZ, which shall extend 25 feet from the application equipment when all of the following apply:

- (A) The application is not by air blast sprayer;
- (B) The pesticide is not applied aurally;
- (C) The pesticide is sprayed from a height greater than 12 inches from the planting medium;
- (D) The spray quality is medium or larger;
- (d) No AEZ applies for appropriately trained and equipped handlers involved in the application.

Note: No AEZ is required for applications not covered by the above. Examples include applications of granular, soil incorporated (other than fumigants) pre-plant, dipping cuttings, and at-plant pesticide applications as long as they are applied from a distance of less than 12 inches from the planting medium and use a spray quality of medium or larger.

See Figure 1 -- Worker Protection Standard Application Exclusion Zone Decision Matrix.

(4) The agricultural employer must ensure that prior to pesticide applications, any enclosed agricultural structures (labor housing or work-related structures) that are located within the AEZ and that are used at any time by employees and other occupants must have all of the following:

- (a) All doors and windows closed;
- (b) Any air in-take devices or mechanisms turned off;
- (c) Provisions to protect or store personal or household items that are not located in an enclosed agricultural structure from potential contamination;
- (d) A closeable storage area for shoes/boots to prevent tracking of pesticide into the structures where people live or reside.
- (5) Employers must provide the following information in a manner that is easy to understand and effectively conveys the information needed prior to the pesticide application, **to occupants of an enclosed agricultural structure** in the AEZ:
 - (a) Instructions on closing windows and doors to minimize exposure to outside air regardless of whether they are staying inside the enclosed agricultural structure or evacuating during nearby pesticide applications.
 - (b) Instructions on how to close potential air-intakes and any other measures to minimize exposure to outside air during nearby pesticide applications.
 - (c) The start and stop times for remaining inside the enclosed agricultural structures and how to determine when the application equipment is in range.
 - (d) Instructions as to whether people can, as appropriate, evacuate or stay in an enclosed agricultural structure, how to maintain protective measures, and how long they must remain outside the AEZ.
 - (e) Instructions on how to protect personal or household items in the AEZ from potential contamination.
 - (f) Instructions on how to report pesticide residue or deposit on enclosed agricultural structures, personal, or household items in AEZ.
- (6) Employers must provide information and ensure that all adult **occupants of agriculture labor housing** within the AEZ have access to:
 - (a) An information station located in close proximity to agriculture labor housing that contains information on pending applications, with a means of alerting occupants to changing information.
 - (b) Information on how to prevent and reduce pesticide exposure.
 - (c) Information about the location of the pesticide safety information required by Sec. 170.311(a)
- (7) If anyone other than a trained and protected handler exits an enclosed agricultural structure and enters the AEZ the handler must suspend the pesticide application as per Sec. 170.505(b).

Figure 1- Worker Protection Standard, Application Exclusion Zone Decision Matrix

*Spray quality: (as defined by the American Society of Agricultural and Biological Engineers Standard S-572.1) considers several factors including the nozzle design, system pressure, and speed of the application equipment. The eight spray

quality categories are referenced in nozzle charts:

Smaller than medium (droplet spectrum with volume median diameter of less than 294 microns+):

Extra fine (XF)

Very fine (VF)

Fine (F)

Medium or larger (droplet spectrum with volume median diameter of 294 microns+ or more):

Medium (M)

Coarse (C)

Very coarse (VC)

Extra coarse (XC)

Ultra coarse (UC)

+Micron = (um) =micrometer: Standard unit of measure for particulate matter.

1 um is 1/1000th of a millimeter.

[ED. NOTE: To view attachments referenced in rule text, click here for PDF copy.]

Statutory/Other Authority: ORS 654.025(2) & ORS 656.726(4)

Statutes/Other Implemented: ORS 654.001-654.295 & ORS 654.750-654.780

History:

OSHA 2-2018, adopt filed 06/29/2018, effective 01/01/2019

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Why not just send farmworkers to motel rooms during evacuations when pesticide applications occur?

The specific proposal to send farmworkers to motels was never endorsed by Oregon OSHA, although it, and its likely cost, did receive a good deal of attention by grower organizations after the suggestion was made by worker advocates.

Other issues aside, there would be considerable practical difficulties involved in enforcing such a rule in relation to housing that is not required under state law and that can be closed by the grower at any time and for almost any reason.

The AEZ applies only to people, not housing, correct?

The AEZ applies to people whether or not structures are involved. The original EPA rule on which it was based did not address the question of housing or other structures adjacent to agricultural crops.

Will the AEZ apply to my neighbor's property or the county road next to my farm?

No. The AEZ only applies within the boundaries of the establishment. The agricultural employer is not expected to control people off the establishment.

For pesticides that require applicators to use respirators, the AEZ expands to 150 feet – 50 feet more than the EPA rule. Why?

First, the reason that evacuations are required is because worker housing and other structures cannot necessarily substitute for a respirator, while such structures can provide protection against skin contact.

The reason for the larger AEZ is our recognition both that respiratory hazards frequently represent both chronic as well as acute risks, and that drift, if it occurs, can certainly extend that distance.

During an evacuation from the AEZ, would people need to be transported somewhere else?

Our rules do not require anything beyond the removal of workers and others from the AEZ, whether the zone results in removal from a field, housing, or another farm structure.

Some growers say they will remove several rows of trees to create a buffer between worker housing and the AEZ, rather than evacuate workers and their families. Why didn't Oregon OSHA consider the cost of this in the fiscal impact statement?

The Fiscal Impact Statement assesses the cost of complying with the rule. As Oregon OSHA explained to the FIAC in response to the letter objecting to the original Fiscal Impact Statement, the proposed rule does not require the removal of trees and such removal is not a necessary result of compliance with the rule.

No members of the FIAC proposed actual changes to the Fiscal Impact Statement based on this concern. And while one member of the FIAC did not support the committee's final recommendation because of it, the other six members all supported the Fiscal Impact Statement without additional changes beyond those reflected in the revision Oregon OSHA filed as a result of their work.



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