

Appendix 4

Ground Water Regulatory Requirements

Introduction

The following information is provided to give you a more comprehensive understanding of the regulatory requirements for wellhead protection and ground water protection areas.

In this appendix

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Wellhead Protection 3CCR § 6609

Scope 3CCR § 6609 Wellhead Protection prohibits the following activities within 100 feet of a well (including agricultural, domestic, municipal, monitoring, abandoned, and dry or drainage wells) unless the well is protected:

- Mixing, loading, and storage of pesticides.
- Rinsing of spray equipment or pesticide containers.
- Maintenance of equipment that could result in pesticide residue spillage on soil.
- Application of pre-emergent herbicides listed in 3CCR § 6800(a) or (b).

Compliance options Two options are available for complying with the wellhead protection regulations. During the permit process, review the following requirements with growers to assure that they are aware of and complying with the regulations. During field inspections, interview applicators working in proximity to wellheads to determine if they are aware of and complying with the regulations.

Option one: unprotected wellheads Determine that none of the prohibited activities occur within 100 feet of an unprotected well. The following are examples of pre-emergent herbicides that may be applied within 100 feet of an unprotected well:

- Oxyfluorfen (such as Goal and GoalTender).
- Pendimethalin (such as Pendulum and Prowl).
- Prodiamine (such as Barricide and Endurance.)
- Flumioxazin (such as Chateau and Payload).
- Oxadiazon (such as Rhonstar and Pre Pair).

Option two: protected wellheads Prohibited activities are allowed within 100 feet of a protected wellhead. Below are the two methods to determine if a wellhead is protected:

- Determine that the well is situated so that no surface water runoff can contact the wellhead including the concrete base, or
- Determine that a berm is constructed adjacent to the wellhead to prevent movement of surface water to the wellhead and that no pre-emergent herbicides are applied between the berm and the wellhead.

See below for examples of acceptable and unacceptable berms.

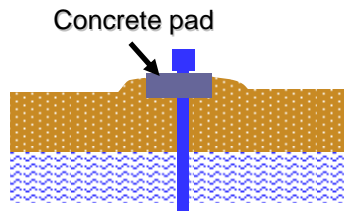
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Wellhead Protection 3CCR § 6609, Continued

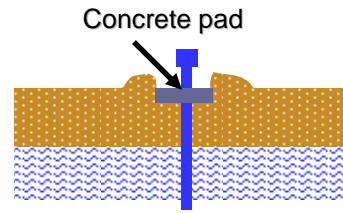
Acceptable berms

The following figures illustrate examples of acceptable berms.

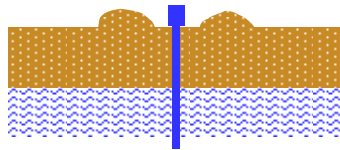
1. Concrete pad above soil level



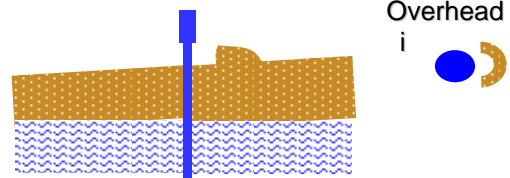
2. Concrete pad at same level as soil



3. Berm with no concrete pad



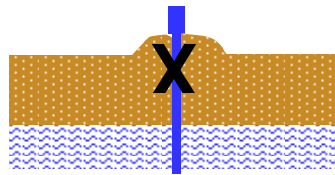
4. On sloped ground, berm only on upslope side



Unacceptable berm

The following figure illustrates an example of an unacceptable berm.

Berm should not touch casing or pump.



Ground Water Protection Management Requirements

3CCR § 6487.1 - § 6487.5

Scope

Permits are required for all agricultural, outdoor industrial and outdoor institutional uses of pesticides listed in 3CCR § 6800(a) **only within ground water protection areas** (GWPA)s. Permits can only be issued if permit applicants can implement one of the management practices specified in 3CCR § 6487.3, 6487.4 or 6487.5 as appropriate, or an alternative management practice approved by the Director.

Locating ground water protection areas

There are runoff and leaching GWPA)s. To determine the location of GWPA)s go to https://www.cdpr.ca.gov/docs/emon/grndwtr/gwpa_locations.htm identify the county of interest and follow the online instructions.

Certification requirement

Since pesticides listed in 3CCR § 6800(a) are restricted materials statewide, they must only be applied by or under the supervision of a certified applicator both **inside and outside** GWPA)s.

Artificial recharge basins (3CCR § 6487.1)

Agricultural, outdoor industrial and outdoor institutional uses of pesticides listed in 3CCR § 6800(a) are prohibited below the high waterline inside artificial recharge basins unless the pesticide is applied six months or more before the basin is used to recharge ground water. The runoff, leaching and engineered right-of-way management practices do not apply to pesticide applications in artificial recharge basins.

Canals and ditch banks (3CCR § 6487.2)

Agricultural, outdoor industrial and outdoor institutional uses of pesticides listed in 3CCR § 6800(a) are prohibited below the high waterline inside unlined canals and ditches unless:

- The pesticide user can document that the percolation rate of the canal or ditch is equal to or less than 0.2 inches per hour; or
- The pesticide is applied at least six months before water is run in the canal or ditch.

The runoff, leaching and engineered right-of-way management practices do not apply to pesticide applications inside canal and ditch banks.

Continued on next page

Ground Water Protection Management Requirements

3CCR § 6487.1 - § 6487.5, Continued

Management practices

The application of pesticides registered for agricultural, outdoor industrial or outdoor institutional use containing chemicals listed in 3CCR § 6800(a) in GWPA's requires the employment of specific management practices. These practices are described below and are delineated by the following headings:

- 3CCR § 6487.4 Management Practices for Runoff Ground Water Protection Areas
 - 3CCR § 6487.5 Management Practices for Leaching Ground Water Protection Areas
 - 3CCR § 6487.3 Management Practices for Engineered Rights-of-Way within Ground Water Protection Areas
-

Management Practices for Runoff Ground Water Protection Areas (GWPA)s, 3CCR § 6487.4

Scope When inspecting an application in an identified runoff GWPA, determine if 6800(a) pesticides are being used. If they are, determine if the management practice specified on the restricted material permit is being used properly and that the permittee is sufficiently knowledgeable about how to implement the chosen management practice.

Management practice 1 – timing If the application is made between April 1 and July 31, no other management practice is required.

Management practice 2 – retention Retain all irrigation and rain runoff on the treated field for six months following the application.

If a holding area or sump is used to store the runoff, its percolation rate shall be 0.2 inches per hour or less, unless the runoff water is completely recycled every 24 hours to the treated site, a neighboring site under the control of the permittee, or a neighboring site with the consent of the property operator of that site.

Management practice 3 – retention Channel all irrigation and rain runoff to a holding area off the application site under the control of the property operator that is designed to retain all runoff for 6 months following application.

The holding area shall have a percolation rate of 0.2 inches per hour or less.

Management practice 4 – retention For 6 months after application, channel all irrigation and rain runoff onto an adjacent unenclosed fallow field.

The fallow field should be at least 300 feet long and not irrigated for six months after application, with full consideration of any plant back restrictions.

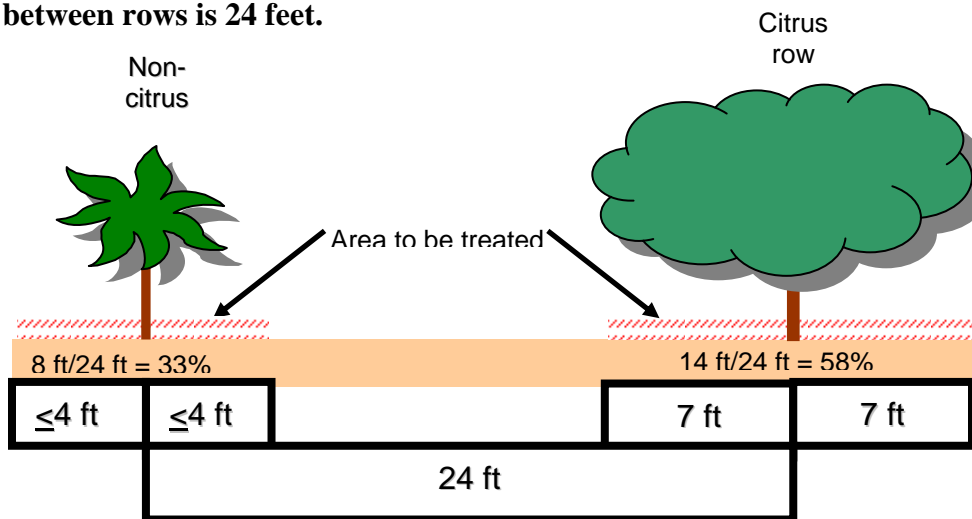
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Management Practices for Runoff Ground Water Protection Areas (GWPA)s 3CCR § 6487.4, Continued

Management practice 5 – band treatment

Apply the pesticide as a band treatment immediately adjacent to the crop row so that not more than 33 percent of the distance between rows is treated, or, in citrus, not more than the area from the tree row to the dripline is treated.

Example of a band treatment in non-citrus vs. citrus crops. The distance between rows is 24 feet.



Management practice 6 – incorporation

(not allowed for bentazon)

Incorporate the pesticide on at least 90% of treated area within 48 hours after the pesticide application in one of the following ways:

- Mechanical method (disc, harrow, rotary tiller, etc.).
- Pressurized irrigation (sprinkler or low flow irrigation) including chemigation if allowed by the labeling.
- Use ¼ - 1 inch of irrigation water, or the maximum amount of irrigation water specified on the labeling, at rates that do not cause surface water runoff.

Exemption: Incorporation is not required in the area treated that is immediately adjacent to the crop row that does not exceed 33 percent of the distance between crop rows, or, in citrus, to the band from the tree row to the drip line.

See example diagrams below.

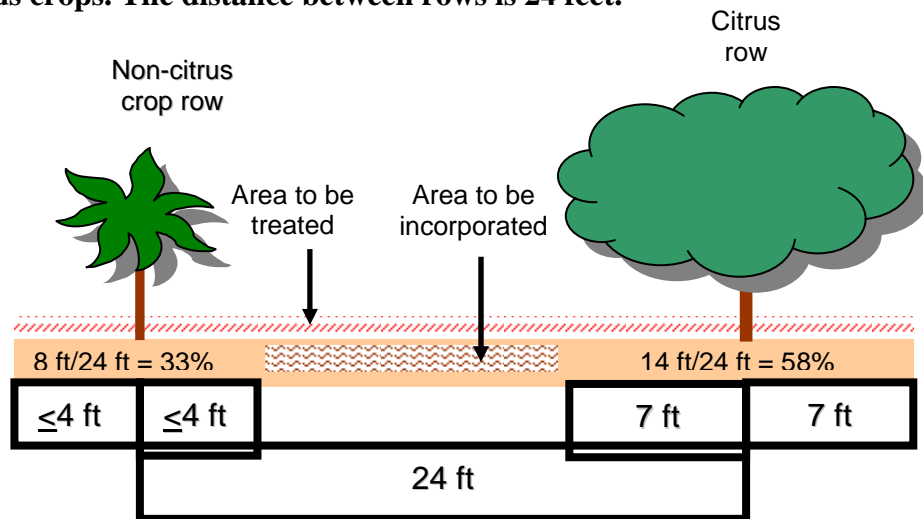
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Management Practices for Runoff Ground Water Protection Areas (GWPA) 3CCR § 6487.4, Continued

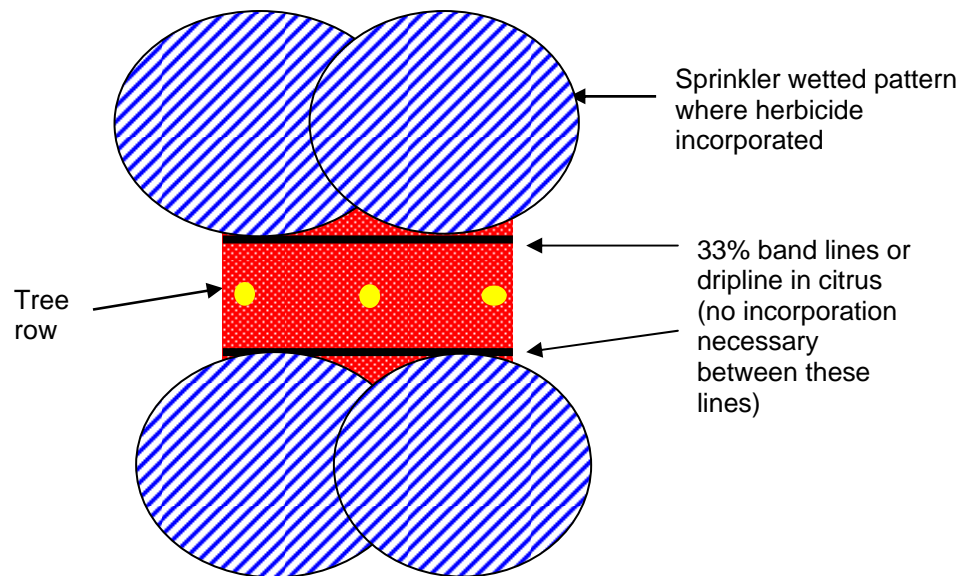
Management practice 6 – incorporation (continued)

(not allowed for bentazon)

A. Example of mechanical incorporation of pesticide in non-citrus vs. citrus crops. The distance between rows is 24 feet.



B. Example of acceptable sprinkler incorporation (100% of orchard floor treated, >90% of treated area outside the 33% band incorporated or the area from the tree to the dripline in citrus).



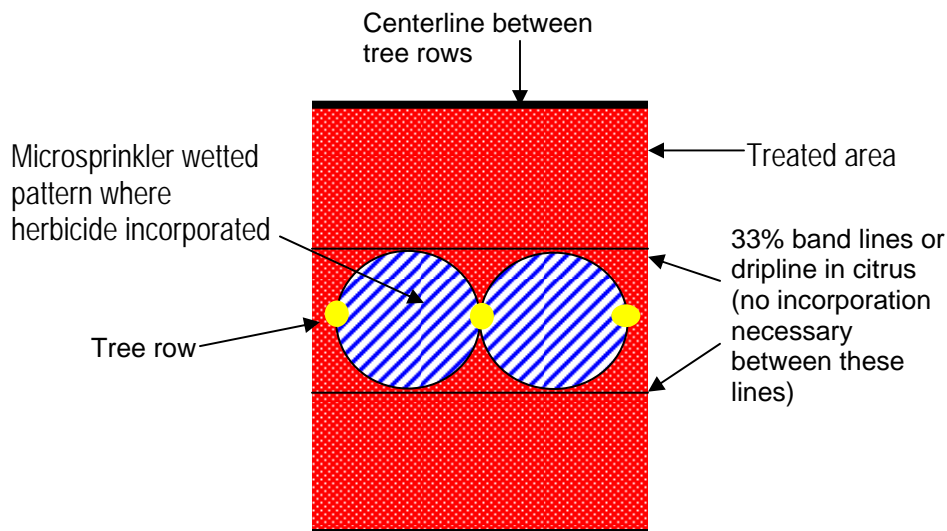
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Management Practices for Runoff Ground Water Protection Areas (GWPA) 3CCR § 6487.4, Continued

Management practice 6 – – incorporation
(continued)

(not allowed for bentazon)

C. Example of unacceptable sprinkler incorporation (none of the treated area outside of 33% band area or the dripline in citrus is incorporated).



Management practice 7 – soil disturbance

(not allowed for bentazon)

Disturb the soil to be treated within 7 days before application using a disc, harrow, rotary tiller, or other mechanical method. Soil should be disturbed approximately 1 to 3 inches.

Exemption: Incorporation is not required in the area treated that is immediately adjacent to the crop row that does not exceed 33 percent of the distance between crop rows, or, in citrus, to the band from the tree row to the drip line.

See diagram below.

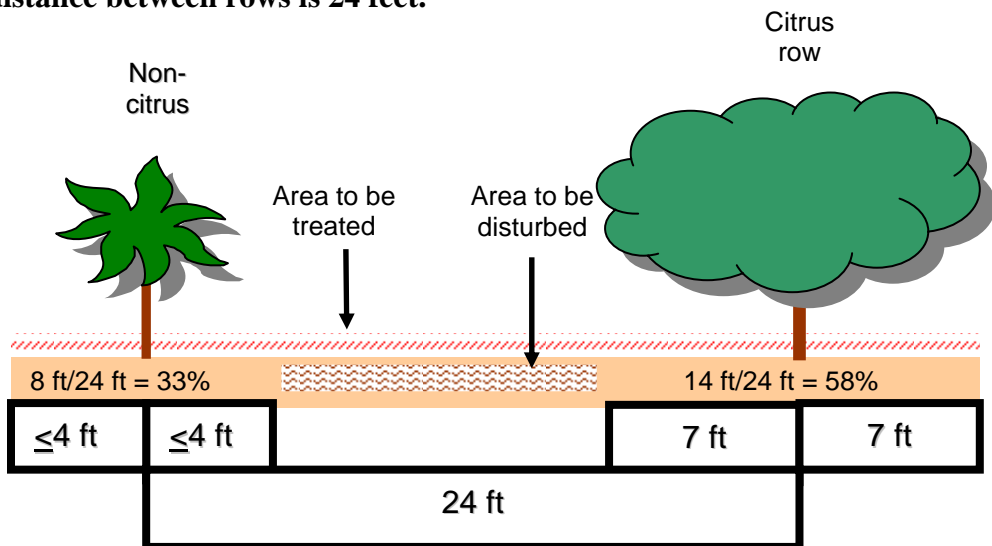
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Management Practices for Runoff Ground Water Protection Areas (GWPA) 3CCR § 6487.4, Continued

Management practice 7 – soil disturbance
(continued)

(not allowed for bentazon)

Example of the area to be disturbed in non-citrus vs. citrus crops. The distance between rows is 24 feet.



Management practice 8 – canals and rights-of-way

Applications to the tops and outer banks of canals and to rights-of-way are allowed provided runoff water moves offsite as overland flow onto adjacent land, at least equal in area to the treated area, where it infiltrates into the soil. Applications must not be allowed to flow into structures such as dry wells, ditches, or excavated retention areas with percolation rates greater than 0.2 inches per hour.

“Overland flow” is the movement of a thin film of water before the water collects into ditches, creeks, or streams.

Alternatives

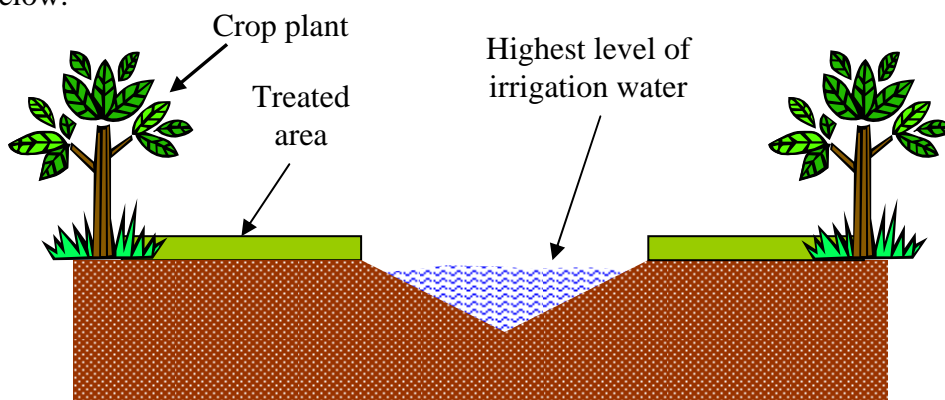
Check with your EBL to determine if any additional alternative management practices have been approved.

Management Practices for Leaching Ground Water Protection Areas (GWPA) 3CCR § 6487.5

Scope When inspecting an application in an identified leaching GWPA, determine if 6800(a) pesticides are being used. If they are, determine if the management practice specified on the restricted material permit is being used properly and that the permittee is sufficiently knowledgeable about how to implement the chosen management practice.

Management practice 1 – no irrigation No irrigation water may be applied for six months following the pesticide application.

Management practice 2 – no contact with irrigation water Application cannot be made below the level of the irrigation water in the furrow or basin for 6 months following the pesticide application. See diagram below.



Management practice 3 – efficient irrigation Manage irrigation so that the amount of irrigation water applied does not exceed the net irrigation requirement multiplied by 1.33 for six months following application of the pesticide.

See example below.

Continued on next page

Management Practices for Leaching Ground Water Protection Areas (GWPA)s 3CCR § 6487.5, Continued

efficient irrigation (continued)

Example: Calculating maximum amount of irrigation water to apply for a specific irrigation. Herbicide applied to mature citrus grove in February in Fresno County.

Month	Net Irrigation Requirement		Max. Irrigation Adjustment Factor	Max. Irrigation per Acre for Month (inches)
	ET ₀ *	Kc**		(ET ₀ x Kc x 1.33)
March	3.7	.67	1.33	3.3
April	5.3	.67	1.33	4.7
May	6.8	.67	1.33	6.1
June	7.6	.67	1.33	6.8
July	8.1	.67	1.33	7.2
August	7.0	.67	1.33	6.2

*ET₀ = reference evapotranspiration
 **Kc = crop coefficient

ET₀ and Kc can be obtained from your county farm advisor and the following document: Chapter 6 - ETc - Single crop coefficient (Kc) ([fao.org](https://www.fao.org)) at <https://www.fao.org/3/x0490e/x0490e0b.htm>.

Alternatives

Check with your EBL to determine if any additional alternative management practices have been approved.

Management Practices for Engineered Rights-of-Way within Ground Water Protection Areas (GWPA)s 3CCR § 6487.3

Scope When inspecting an application on an engineered right-of-way in an identified leaching or runoff GWPA, determine if 6800(a) pesticides are being used. If they are, determine if **one** of the following management practices is being used properly and that the permittee is sufficiently knowledgeable about how to implement the chosen management practice.

Definition "**Engineered rights-of-way**" means areas within a ground water protection area that are constructed in a way that results in increased runoff and collection of storm water, such as railroad ballasts and berms, public roadsides, and highway median strips or similar areas, but not canal or ditch banks or utility lines.

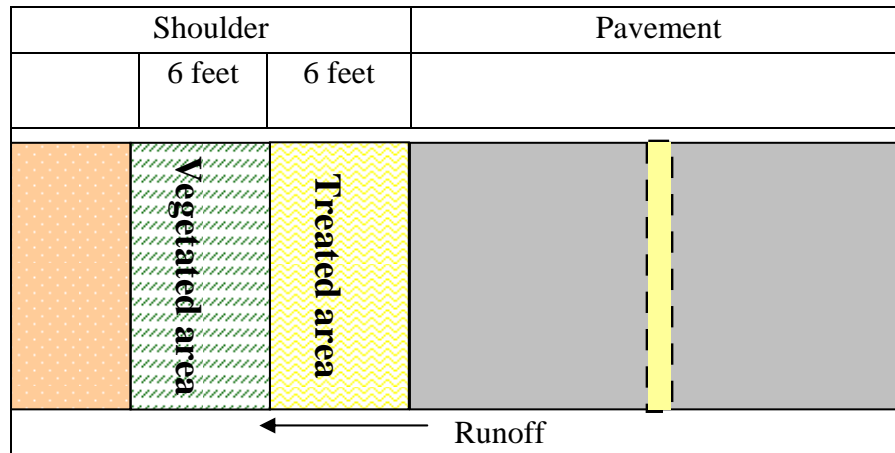
Management practice 1 – runoff GWPA)s The permittee may choose any of the management practices specified for runoff GWPA)s. See 3CCR § 6487.4 and pages 316 - 317.

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Management Practices for Engineered Rights-of-Way within Ground Water Protection Areas (GWPA)s 3CCR § 6487.3, Continued

Management practice 2 – vegetated area

The permittee may choose to manage any runoff from the treated right-of-way so that it passes through a noncrop fully vegetated area adjacent, and equal in area, to the treated area. See figure below.



Management Practice 3 – storm water permits

The permittee may comply with any permit issued by the Regional Water Board in accordance with the storm water provisions of the federal Clean Water Act for the treated area.

Alternatives

Check with your EBL to determine if any additional alternative management practices have been approved.