

Application Method 4

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications

Scope In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

Additional restrictions may apply for fields located within California’s nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on “A-Z Index” then “Nonattainment area maps.” Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

- CAC discretion**
1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC’s adopted permit conditions. DPR may provide specific guidance about exceptions.
 2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
 3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.
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Emergency response plan The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

- Restrictions near Schools, Day care centers, and Preschools**
1. All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of “School”) unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
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Continued on next page

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

Restrictions near Schools, Day care centers, and Preschools
(continued)

2. For applications made greater than ½ mile up to 1 mile from the perimeter of a school property, unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of application, several restrictions apply including:
 - field monitoring every hour for 12 hours following application; and
 - applications that comply with the “Application Method Requirements” and “Emergency Response Measures: Offsite Movement Suppression Requirements” as described below.

Application method requirements

1. Flood applications are not allowed in the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas between May 1 to October 31.
2. Unless required otherwise, the fumigant must be applied with at least 4 inches of water per acre.
3. Application block size cannot exceed 80 acres in a 24-hour period.

Table 1. Maximum Size of Application Block Treated Within 24 Hours for Flood Applications Near “Schools”

Distance to Perimeter of Nearest School* Property	Maximum Application Block Size
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	40 acres
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	80 acres

*See Appendix I for definition of “School”

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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

**Application
method
requirements**
(continued)

Table 2. Maximum Size of Application Block Treated Within 24 Hours for Flood Applications Near “Occupied Structures” or “Bystander Areas”

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Maximum Application Block Size
¼ mile or less	40 acres
Greater than ¼ mile	80 acres

*See Appendix I for definitions of “Occupied Structure” and “Bystander Area”

**Offsite
movement
suppression
requirements:
emergency
response
measures**

For all flood applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 3 and 4. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan.

Table 3. Required Capability to Suppress Offsite Movement Near “Schools”

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application

*See Appendix I for definition of “School”

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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

Offsite
movement
suppression
requirements:
emergency
response
measures
(continued)

**Table 4. Required Capability to Suppress Offsite Movement Near
“Occupied Structures” or “Bystander Areas”**

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application
Greater than 1 mile	Exempt (not required)

*See Appendix I for definitions of “Occupied Structure” and “Bystander Area”

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located on the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
 - total quantity of 0.20–0.40 inches of water over the treatment site,
 - irrigation delivery rate of 0.15–0.25 inches per hour, and
 - irrigation duration of 2–3 hours.

The ranges of 0.20–0.40 inches of water and 0.15–0.25 inches per hour allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.
2. Follow application site monitoring requirements under “Application Site Monitoring Requirements” detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

Permit application

Permit applications must include a map of all “occupied structures” and “bystander areas” (see Appendix I for definitions of “Occupied Structure” and “Bystander Area”) within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The buffer zone size and buffer zone duration if longer than required by the label.
 - The certified applicator’s 24-hour contact telephone number.
 - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
 - Proof of sufficient water availability for application and offsite movement suppression requirements. (Attach proof to Fumigation Management Plan.)
 - Include the map required for Fumigation Management Plan in the NOI.
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Application timing

There is no timing restriction on flood application.

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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

Buffer zones

1. Label buffer zone credits are not allowed.
 2. Tables
 - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
 - i. All metam sodium flood injection applications require a minimum buffer zone of 100 feet.
 - ii. All metam potassium flood injection applications require a minimum buffer zone of 90 feet.
 - iii. No application may exceed 80 acres in a 24-hour period.
 3. Permission for adjoining properties
 - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
 - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).
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Application site monitoring requirements

1. General Requirements
 - Monitoring information must be recorded on the form “Monitoring During Application (Field Fumigation) DPR-ENF-223” or an equivalent form and attached to the Post-Application Summary.
 - If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures) the certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
 - Application site monitoring as described in this permit condition is separate from the “Fumigant Site Monitoring” option of the “Emergency Preparedness and Response Measures” specified on the label, and must be conducted for each application.
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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

Application site monitoring requirements (continued)

- Whenever “Emergency Preparedness and Response Measures” are triggered, and the “Fumigant Site Monitoring” option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
 - Monitoring must be done at the outer edge of the buffer zone.
 - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
 - Monitoring must be done in all directions on calm days (see Appendix I for definition of “Calm Day”).
 - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).
- 2. Pre-Application
 - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
- 3. During Application
 - The following conditions must be monitored every hour until the application is completed, recorded on the form “Monitoring During Application (Field Fumigation) DPR-ENF-223” or an equivalent form during the application, and attached to the Post-Application Summary:
 - Wind speed and wind direction; and
 - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).
- 4. Post-application
 - On the day of application, the certified applicator supervising the application must ensure that a trained handler is present at the site continually from 1 hour before sunrise through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If the trained handler is an employee, he or she must either have the authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.

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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

Application site monitoring requirements
(continued)

- Post-application field monitoring shall be conducted for 12 hours following application and recorded on “Monitoring Post-Application DPR-ENF-224” or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 5 and 6:

Table 5. Frequency of Post-Application Monitoring Required Near “Schools”

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of “School”

Table 6. Frequency of Post-Application Monitoring Required Near “Occupied Structures” or “Bystander Areas”

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of “Occupied Structure” and “Bystander Area”

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Post-application watering information (see “Post-Application Water Treatments (Field Fumigation) DPR-ENF-225”). Record start and stop times for water treatments, as well as total inches applied.

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Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications, Continued

**Application site
monitoring
requirements**
(continued)

- Any unusual conditions observed at the application site (e.g., dry soil conditions, odor, irrigation equipment failure or spill).
- Monitoring must be done in all directions on calm days.

**Post-
application
water
treatments**

Flood applications do not require post-application water treatments (see Appendix I for definition of “Post-Application Water Treatment”).

Appendix I: Definitions

Application: Activities required to incorporate metam sodium, metam potassium, or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30–35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency response in the event MITC odors from metam sodium, metam potassium, or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium, and dazomet applications. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the structure (e.g., yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard).”

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where pest control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½–1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

Rotary Tiller Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compaction device.

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the California Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website: <https://secure.dss.ca.gov/CareFacilitySearch/>. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8–14 inch horizontal “V”-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1–4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

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