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September 12, 2011

**Chemigation and Fertigation Technical Assistance Program**

The song title and some of the lyrics to singer-songwriter Bob Dylan’s “The Times They Are A-Changin’ ” seem relevant to the soil fumigant industry. The 2010 and 2011 label instructions for the soil fumigants – with the exception of Telone II and Telone EC – will impact every aspect of the application process. The risk mitigation measures, which constitute the revision to label provisions, represent the most significant changes in user instructions of any label to date. Given the rapidly approaching fall soil fumigation season and the many questions being posed by applicators, the focus of this newsletter will be on soil fumigation.

In addition to topics covered in this newsletter, there are other provisions to the 2010 pesticide label instructions for the metam sodium/potassium soil fumigants that require explanation so that certified applicators and handlers can use the metam fumigants as intended. These clarifications are presented in the WSDA publication [Metam Sodium/Potassium – 2010 Label Provisions \(AGR PUB 610-331\)](#), which is accessible from the following Internet link. These label instructions will be clarified on the 2011 labels.

<b>WSDA INTERPRETATIVE DOCUMENT</b>		
<b>METAM SODIUM/POTASSIUM – 2010 LABEL PROVISIONS</b>		
<b>Release Date:</b> June 21, 2011		
<b>Scope of Interpretative Document</b>		
The 2010 pesticide label instructions for the metam sodium/potassium soil fumigants requires explanation so that certified applicators and handlers use the metam fumigants as intended. The scope of this document focuses on the center pivot section, specifically the “Wind Speed” provision, to the phrase “the certified applicator” that is referenced throughout the pesticide label, to the dry connect fittings requirement, and to the phrase “entry restricted period.”		
Many of the new metam label risk mitigation measures are directed toward reducing the potential for bystander and handler exposure from the off-gassing of MITC, however, EPA further attends to the potential for physical drift and off-target application of the product by imposing wind restrictions and release heights during the application.		
		General policy statements and interpretative documents represent WSDA’s official interpretation of statute, rule, pesticide label instructions, and agency policy, opinions derived in exercising its discretionary authority.

<http://agr.wa.gov/PestFert/ChemFert/docs/MetamSodiumPotassium2010LabelProvisions.pdf>

Additional information about chemigation and fertigation and other relevant information are available on the [WSDA Chemigation and Fertigation Technical Assistance Program’s webpage](#) (<http://agr.wa.gov/PestFert/ChemFert/>).

**FIELD-PLACED, TEMPORARY BULK PESTICIDE STORAGE TANKS**

With the imminent start of the fall soil fumigation season, distributors are placing in-field storage tanks. To ensuring the safe handling of pesticides requires that safety information be fastened to the tanks.

Intended for short duration use, the temporary placement of storage containers is governed by [Part I: General Provision of Chapter 16-229 Washington Administrative Code \(WAC\)](#). Section 010(22) specifies criteria for temporary field storage. These placement requirements include:

- A storage capacity of 2,500 gallons or less of bulk liquid pesticide, with the exception of soil fumigant tanks which must have a maximum capacity of 10,000 gallons or less.
- The storage tank cannot remain in the same location for more than 14 consecutive days in a six-month period.
- Storage container must be chemically compatible with the material being stored within it.

In addition to the above listed placement and material compatibility requirements, bulk pesticide storage containers must contain the appropriate labeling. [WAC 16-229-180](#) specifies the labeling requirement for bulk pesticide containers used for temporary field



storage. A product may be considered “misbranded” ([RCW 15.58.130](#)) or a tank deemed improperly identified ([WAC 16-229-180](#)) unless the following information is attached to the tank.

- In a prominent location, the registered product label.
- Label or placard in accordance with the Uniform Fire Code Standard No. 79.3 for the product contained therein.
- The owner’s name, the capacity of the tank, and an identifying number that must be a minimum of two inches in height and in a color contrasting to the background.
- Placed in a weather-proof enclosure, a record of the date the storage container was placed into service.

Failure to comply with these labeling provisions may result in a violation for the distribution of a misbranded pesticide. For additional information concerning temporary field storage of a liquid bulk pesticide, please refer to [Chapter 16-229 WAC](#) or call Brent Perry, WSDA Secondary Containment Technical Advisor, at (509) 533-2689.

**2010 & 2011 SOIL FUMIGANT LABELS – CONFUSION ARISING FROM IMPLEMENTATION TIMEFRAME**

In May 2009, USEPA issued [Amended Reregistration Eligibility Decisions \(REDs\)](#) for the soil fumigant pesticides – except for Telone II and Telone EC which completed its reregistration review in 1998 – that included new safety measures for soil fumigant pesticides to increase protections for agricultural workers, fumigant handlers, and bystanders – people who live, work, or otherwise spend time near fumigated fields. Although several measures are new to fumigant labels, many were already on the product labels – such as entry restrictions, PPE, respirators, and good agricultural practices – but many of these instructions were vague or not enforceable. Therefore, a fundamental element of the RED mitigation is to set higher standards for all labels to improve their clarity and enforceability.

The mitigation measures are being phased into the marketplace on the 2010 and 2011 pesticide labels. The

integrated mitigation measures will establish safe use guidelines and formulate appropriate incident response procedures. USEPA anticipates that the full implementation of the risk mitigation measures will decrease the likelihood of accidents and errors, foster applicator planning and compliance, and assure appropriate response to exposures that occur. In turn, the risk resulting from fumigant exposure for fumigant handlers, agricultural workers, and bystanders will be reduced. These measures are for the soil fumigants chloropicrin, dazomet, metam sodium/potassium, and methyl bromide.

Risk Mitigation Measure	2010	2011	Enforced
Restricted Use Pesticide (RUP) <sup>1</sup>	●	●	Spring 2011 (2010 label)
New Good Agricultural Practices (GAPs)	●	●	
Reduction in application rates	●	●	
Use site limitations (sensitive sites)	●	●	
New handler protections	●	●	
Tarp cutting and removal restrictions	●	●	
Extended worker reentry restrictions	●	●	
Safety information for workers	●	●	
Site-Specific Fumigant Management Plan	●	●	
Post Application Summary	●	●	
First responder and community outreach		●	Not Applicable
Applicator-in-charge training		●	
Compliance assistance and assurance measures		●	
Restrictions on applications near sensitive areas		●	
Buffer zones around all treated fields		●	
Buffer credits for management practices		●	
Buffer posting		●	
Buffer overlap prohibitions		●	
Emergency preparedness measures		●	Spring 2012 (2011 label)

<sup>1</sup> Metam sodium/potassium and dazomet only. Methyl bromide and chloropicrin were already RUPs.

Phase I of the mitigation measures were implemented on fumigant labels that appeared in the spring of 2011 (2010 label). Scheduled to enter the market place in early 2012, the Phase II fumigant labels (2011 label) will encompass all the new safety mitigation measures, including buffer zones and buffer zone monitoring. (Refer to Table 1.) Telone II and Telone EC are not included in this phase in process.

The soil fumigant product label changes that go into effect on the 2010 and 2011 labels can be viewed on USEPA's website at [http://www.epa.gov/oppsrrd1/reregistration/soil\\_fumigants/](http://www.epa.gov/oppsrrd1/reregistration/soil_fumigants/).

In 2013, a new evaluation of all soil fumigant products will begin under EPA's Registration Review Program, a program mandated by The Food Quality Protection Act of 1996. Research is currently under way to address current data gaps and to refine the understanding of factors that affect fumigant emissions. Additionally, new technologies to reduce emissions are emerging. Accordingly, USEPA will expedite the registration review of the soil fumigant products by moving the timeframe from 2017 to 2013. USEPA will consider new data and technologies sooner, determine whether the mitigation included in the reregistration decision is effectively addressing the risks, and include other soil fumigants that were not a part of the previous review.

### **LICENSING & TRAINING REQUIREMENTS FOR CERTIFIED APPLICATORS APPLYING SOIL FUMIGANTS**

The 2011 labels will require any certified applicator supervising a soil fumigant application to successfully complete a training program for the active ingredient(s) in the soil fumigant being used at least once every three years. Founded on soil fumigant-related events, USEPA asserts that many accidents are attributable to mistakes made by applicators who are inexperienced or poorly trained. In response, USEPA is requiring fumigant registrants to develop and implement training programs for certified applicators supervising soil fumigant applications. The materials developed by registrants must include information on work practices that can reduce exposure to fumigants, and thereby improve safety for handlers, workers, and bystanders. USEPA expects periodic training on current safety information to enhance the ability of people supervising applications to reduce risks from exposure and to safely manage fumigant operations. Once available, on-line training materials will be listed on the USEPA website <[www.epa.gov/pesticides/reregistration/soil\\_fumigants/soil-fum-certified-applicators.html](http://www.epa.gov/pesticides/reregistration/soil_fumigants/soil-fum-certified-applicators.html)>.

As an alternative to the on-line materials, certified applicators may attend registrant-sponsored training programs. Fortunately, registrants for most of the soil fumigants used in Washington already have very good training programs in place for their products. Registrants must provide a card or certificate to applicators who successfully complete training and must maintain a record in a database of the certified applicator's attendance. Applicators should attach a copy of their card or certificate to the Fumigant Management Plan (FMP) to demonstrate that they have successfully completed the training. The FMP must document the date and location where the soil fumigant training program was completed.

In lieu of USEPA or registrant-sponsored training, USEPA will accept state certification in a soil fumigation category or a state-administered training in states, such as Washington, that have programs that meet the criteria for the registrant programs outlined in the Reregistration Eligibility Decisions. As with the registrant training, the state certification category must address the new label requirements.

As partners, WSDA and WSU will develop a certification option that complies with this requirement. An early 2012 date is anticipated for the release of the new Soil Fumigation Study Manual (available from WSU Extension) and for the implementation of the new Soil Fumigation examination (administered by WSDA). The new Soil Fumigation endorsement will be an option for both growers and commercial license holders who choose certification over registrant training. Because the current Soil Fumigation endorsement does not address the new requirements, it will not suffice for the label-mandated training. Individuals holding the current category may continue to use and supervise the use of soil fumigants only if they have attended the registrant fumigant training.

To summarize, beginning with the 2011 label provisions (scheduled to enter distribution channels in spring 2012), a licensed applicator – whether private or commercial – will have two options, as presented in Table 2.

Table 2. Options for applicators of soil fumigants in 2012.	
OPTION 1	OPTION 2
<ul style="list-style-type: none"> <li>1 Keep Certified Applicator License Current</li> <li style="text-align: center;">and</li> <li>2 Participate in either a Registrant-Sponsored Training or another EPA-Approved Training</li> </ul>	<ul style="list-style-type: none"> <li>1 Keep Certified Applicator License Current</li> <li style="text-align: center;">and</li> <li>2 Pass the new Soil Fumigation Exam</li> </ul>

**TRUCK DRIVERS AND WPS HANDLERS – SUPPLEMENTAL SOIL FUMIGANT TRAINING REQUIREMENT**

The 2010 soil fumigant labels contain a more inclusive list of what constitutes a pesticide handler task than the Worker Protection Standard ([WPS; 40 CFR Part 140](#)). WPS requires the employer to undertake steps to reduce the risk of pesticide-related illness and injury if the employer (1) uses such pesticides or (2) employs workers or pesticide handlers who are exposed to such pesticides.

Handler employers are responsible for the training of employees who are performing a pesticide handler function, as required by WPS, and for providing the protections required by the pesticide labeling and WPS. The five basic pesticide safety requirements that employers must provide to both workers and handler employees include (1) information at a central location, (2) pesticide safety training, (3) decontamination supplies, (4) employer information exchange, and (5) emergency assistance. (Refer to [Unit 3](#), EPA’s [How To Comply With the Worker Protection Standard](#).) Employers are required to provide additional WPS protections to handler employees, which are listed below. The information comprises [Unit 5](#) of the WPS manual. The content of the handler training program is listed in [WAC 16-233-225\(3\)\(d\)](#): Pesticide safety training - Standards for pesticide handlers.

- Pesticide labeling instructions and application use restrictions.
- Employee monitoring.
- Equipment safety (including operation, adjusting, inspection, maintenance, and cleaning).
- Personal protection equipment use, care, and disposal as well as cartridge replacement.

With the 2011 fumigant labels, only authorized handlers who have been properly trained and equipped according to EPA’s Worker Protection Standard (WPS) and label requirements may be in the buffer zone during the buffer zone period. The “buffer zone period” starts at the moment any fumigant is delivered/dispensed to the soil within the application block or greenhouse and lasts for a minimum of 48 hours after the fumigant has stopped being delivered/dispensed to the soil.

With 2010 soil fumigant label instructions, certified applicators must provide [Fumigant Safe Handling Information](#) to each handler involved in the application, or confirm that each handler participating in the

application has received fumigant safe handling information in a manner that they can understand within the past twelve months.



With the 2010 soil fumigant labels, fumigant handlers are prohibited from performing activities in the application block (1) unless they have been appropriately trained and equipped as handlers and (2) the certified applicator has provided them with the fumigant safe handling information. The time period is from the start of the application until the entry-restriction period ends. Loading or transferring a pesticide is such an activity.

**Question:** Given this background information, must truck drivers who haul a soil fumigant be trained as a WPS pesticide handler? Furthermore, must the truck driver receive the supplemental safety training for fumigant handlers?

The determining factor is whether the activity of transferring a fumigant – in fact, any pesticide – constitutes “use” of a pesticide. The “use” of a pesticide commences with the opening of the container or, regarding a bulk soil fumigant, with the start of the transfer process (i.e., turning of the valves).

**Answer:** From the foregoing discussion, a truck driver who is hauling a soil fumigant is not subject to label instructions, with the following exception: When transferring product to an application apparatus – whether a shank applicator or a chemigation system, the truck driver must be trained as a WPS pesticide handler and must have received the supplemental safe handling information for soil fumigant handlers.

A soil fumigant handler is a WPS-trained pesticide handler who has received the supplementary training on pesticide soil fumigants.

At this point, all the fumigant handler safety requirements on the pesticide label shall apply to the driver.

### WHEN IS A SOIL FUMIGANT APPLICATION “FINISHED?”

Under the “Directions of Use” section of the soil fumigant labels, activities are listed that are prohibited from being performed in the fumigant application block by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in the Worker Protection Standard ([40 CFR Part 170](#)). The listed activities are prohibited from the start of the application until the entry-restricted period ends. Furthermore, the certified applicator supervising the application and the owner/operator of the establishment where the soil fumigation is taking place must make sure that all persons not trained, not PPE-equipped, and not performing one of the handling tasks listed on the pesticide labeling are excluded from the application block during an entry-restricted period.

The length of the entry-restricted period varies with the handler activity. During an entry-restricted period for an untarped application, the metam labels require that entry by any person – other than an appropriately trained and PPE-equipped handler who is performing a handling task listed on this labeling – is PROHIBITED from the start of the application until five days (120 hours) after the application is complete.

However, when does the entry-restricted period begin?

According to the pesticide label for the metam products, the entry-restricted period begins when the application is complete. This may be either when the

Application block is defined as the field or portion of a field treated with a fumigant in any 24-hour period or, for center pivot applications which occur over many days, the total acreage of a field treated.

- fumigant has stopped being delivered or dispensed into the soil or
- soil seal is complete (i.e., applying a ¼-inch lap seal with a center pivot).

Consequently, if applying a post-application water seal, the five-day (120-hour) entry-restricted period will begin at the completion of the water seal.

### AND THEN . . . THERE WERE TWO

The “Respiratory Protection and Stop Work Triggers” section of a soil fumigant label requires the supervising applicator to implement an actionable response plan should any fumigant handler experience sensory irritation (e.g., tearing, burning of the eyes or nose). The response procedures

must be detailed in the FMP. If at any time any handler experiences sensory irritation, then the certified applicator supervising the soil fumigant application must decide either to

- cease operations and direct handlers not wearing an air-purifying respirator to leave the application block or
- require all handlers who remain in the application block to wear an air-purifying respirator.

If the course of action is to *stop work, rather than wear a respirator*, then fumigant handlers must leave the area and cannot return to work until monitored air concentrations are below the trigger level stated on the label. Furthermore, handlers cannot experience sensory irritation. (“Area” is the application block. With the 2011 label, area will encompass the application block and the buffer zone.)

If the air monitoring procedures recorded in the FMP specify that handlers will remain in the application block in the event sensory irritation is experienced, then any handler who remains must wear an air-purifying respirator. If air-purifying respirators are to be worn, the air monitoring plan as described in the FMP must be initiated. The air monitoring protocol is described under the “Respiratory Protection and Stop Work Triggers” section of the label.

If a handler experiences sensory irritation and decides to put a respirator on instead of stopping work, then every 2 hours the air concentration must be measured using a direct-read detection device. Air sampling must be performed to ensure that the maximum use concentration for the respirator and/or filter cartridge is not exceeded and to assist handlers in devising a course of action. (The maximum use concentration is 5 ppm for methyl bromide, 1.5 ppm for chloropicrin, and 6,000 ppb for MITC.)

For monitoring air concentration levels of a soil fumigant, a colorimetric detector tube used in combination with a volumetric sampling pump would most likely be used. A bellows- or piston-type pump draws a calibrated sample of air through the detector tube. If the targeted chemical(s) is (are) present, the reagent in the tube absorbs and reacts with the gas or vapor being measured, causing a colorimetric stain on the reagent. The colorimetric stain varies in length proportionally to the amount of gas or vapor being measured. Concentration is read directly off a scale that is etched on each colorimetric detector tube.

Devices must have a sensitivity of at least 600 ppb for MITC or 0.15 ppm for chloropicrin (a compound in C-17 and C-35). For MITC, two companies currently market detector devices with a detection sensitivity of a least 600 ppb: Draeger (Figure 1) and Sensidyne (Figure 2). These two companies and Matheson-Kitagawa distribute colorimetric detector tubes with the minimum sensitivity of 0.15 ppm for chloropicrin. Internet links to the above-mention company websites appear below:

Draeger:

[www.draeger.com/US/en\\_US/products/gas\\_detection/productSelector.action?root=10018814&cat=10024593&selections\[0\]=10026279#e1314837199182](http://www.draeger.com/US/en_US/products/gas_detection/productSelector.action?root=10018814&cat=10024593&selections[0]=10026279#e1314837199182)

Sensidyne: [www.sensidyne.com/colorimetric-gas-detector-tubes.php](http://www.sensidyne.com/colorimetric-gas-detector-tubes.php)

Matheson-Kitagawa:

[www.mathesongas.com/catalog/category.aspx?category\\_id=23&mode=specialty](http://www.mathesongas.com/catalog/category.aspx?category_id=23&mode=specialty)

**Figure 2. Sensidyne pump and detector tube.**



**Figure 1. Draeger pump and detector tubes.**



## WSDA RECORDKEEPING REQUIREMENTS FOR PESTICIDE APPLICATIONS AND FMPs

[RCW 17.21.100](#) of the Washington Pesticide Application Act and [WAC 16-228-1320](#) of the General Pesticide Rules detail the pesticide applicator recordkeeping requirements. The pesticide application record must include specific application criteria, must be updated on the same day that a pesticide is applied, and must be kept for seven years from the application date. The manner or form in which the information is recorded and maintained is not specified. However, in the event a request for application records is made, WSDA may require that the records be submitted on a prescribed form (i.e., WSDA Versions 1 through 3). In addition, industry-derived pesticide application recordkeeping forms conforming to recordkeeping requirements may be allowed with preapproval by WSDA.

Although the USEPA-derived FMP encompasses many of the reporting requirements for the WSDA pesticide applicator recordkeeping form, it is lacking several. While some of these deficiencies are included in the Post-Application Summary, the 30-day completion period conflicts with Section 2 of WAC 16-228-1320: "Application records shall be completed and available to the department the same day the pesticides were applied."

WSDA staff, upon considering discrepancies between the FMP reporting criteria and WSDA recordkeeping requirements, has concluded that a WSDA recordkeeping variance will be allowed when using a complete FMP with supplemental application information. To that end, WSDA has issued the following allowance.

Site-Specific Fumigation Management Plans (FMPs) when completed properly will satisfactorily fulfill WSDA application recordkeeping requirements, along with appended information as noted below, in lieu of completing an Official WSDA Recordkeeping Version as required in WAC 16-228-1320. The USEPA-issued FMP templates serve as the baseline comparison for this variance.

A fully completed FMP along with the following eight (8) items or those not otherwise recordable onto a FMP must be recorded in a General Comments box, if provided on the FMP, or must be recorded onto a separate sheet and attached to the completed FMP. A sample template of these criteria can be viewed by clicking [here](#).

1. Date / Time: Year, month, day(s), and the starting / stopping time(s) of the application.
2. Weather: Wind speed / direction and temperature at the time of the application.
3. Amount: Total amount of soil fumigant applied.
4. Depth: Depth of irrigation water applied.
5. Site: Crop or site on or to which the product was applied.
6. Apparatus: Apparatus license plate number (for commercial applications).
7. Applicators: Name and WSDA license number of individuals involved with the application (other than the "Applicator-in-Charge").
8. Seven Years: The applicator completing the FMP must also inscribe onto the front of the FMP, which includes the required above-listed information: "This is a WSDA Application Record and must be retained for 7 years."

## EXTERNAL SIGHT GAUGES . . . WHERE CAN THEY BE USED?

On October 29, 2008, USEPA published a final rule that amended the pesticide container and containment regulations to provide a one year extension of the labeling compliance date. On October 8, 2010, USEPA extended the labeling compliance date to **August 16, 2011**. The regulations prescribe procedures and standards for container design and the removal of pesticides from containers prior to disposal. Amending the pesticide container and containment regulations will provide for the safe storage and disposal of pesticides as a means of protecting human health and the environment pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

The pesticide container and containment regulations include five sections, which are listed below. (For information about the [EPA Pesticide Container and Containment Rule](http://www.epa.gov/pesticides/regulating/containers.htm), click on this Internet link: <http://www.epa.gov/pesticides/regulating/containers.htm>).

1. **Nonrefillable Containers:** This section addresses "one-way" or disposable containers and applies to pesticide registrants.
2. **Refillable Containers:** This section applies to containers that are intended to be refilled and reused more than once and applies to pesticide registrants.
3. **Repackaging:** This section, which describes procedures and other safeguards for repackaging pesticide into refillable containers, applies to pesticide registrants and anyone who refills pesticide containers for sale (registrants, formulators, distributors and dealers).
4. **Labeling:** The labeling segment includes instructions for how to properly clean pesticide containers and a statement identifying the container as nonrefillable or refillable.
5. **Containment Structures:** This section establishes standards for secondary containment structures at certain bulk storage sites and for containment pads at certain pesticide dispensing operations.

On June 5, 2007, WSDA requested and USEPA Region 10 (Alaska, Idaho, Oregon, and Washington) granted a request to implement [WAC 16-229: Pesticide Secondary and Operational Area Containment Rules](#) in lieu of the federal Pesticide Containment regulations. Within Region 10, only Washington had enacted Pesticide Secondary Containment rules. Acknowledging WSDA's program and consenting to Washington's secondary and operational area containment rules, USEPA granted an exemption to the federal Pesticide Containment regulation, the only exception to be granted in Region 10. The exception is only for secondary containment structures, not containers. Thus, although the federal and state regulations are similar, the differences must be considered when assessing secondary containment structures. For more information, please contact Brent Perry, WSDA Secondary Containment Technical Advisor, at (509) 533-2689.

Figure 3. An external sight gauge on a truck tank is acceptable.



External site gauges are referred to in the section on refillable containers. Several structural requirements are specified for stationary tanks:

- Capacity of 500 gallons or 4,000 pounds or greater
- Fixed in place (i.e., stationary) for 30 days or longer
- Located at facilities of independent refillers who repackage a pesticide but are not the registrant

The above listed criteria refer to stationary storage tanks, which cannot have an external sight gauge. Not being "fixed in place," temporary field storage tanks and transport tanks are not subject to the federal container and containment rule; thus, sight gauges can be used (Figure 3).

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