

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2010-9001

RICE PESTICIDES PROGRAM - CONTROL OF RICE PESTICIDES

Whereas, the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) finds that:

1. In 1990 the Central Valley Water Board established performance goals and a conditional prohibition of discharge for five rice pesticides in the fourth edition of its Water Quality Control Plan (hereafter Basin Plan). The Basin Plan states that the discharge of irrigation return flows containing carbofuran, malathion, methyl parathion, molinate and thiobencarb is prohibited unless the discharger is following management practices approved by the Central Valley Water Board, and that implementation of these management practices must be expected to result in compliance with the performance goals.
2. The Basin Plan contains the following rice pesticide performance goals applicable to all waters designated as freshwater habitat: carbofuran (0.4 µg/L), malathion (0.1 µg/L), methyl parathion (0.13 µg/L), molinate (10 µg/L) and thiobencarb (1.5 µg/L). The Basin Plan also contains a water quality objective of 1.0 µg/L for thiobencarb in waters designated for municipal and domestic supply. This level is also the secondary maximum contaminant level (MCL) set by the Department of Public Health to prevent taste complaints in drinking water supplies.
3. Of the five rice pesticides originally specified in the Basin Plan performance goals, a review of water quality data and pesticide use trends indicates that only thiobencarb is still used on rice in quantities that could potentially result in exceedances of performance goals or water quality objectives, absent implementation of Central Valley Water Board approved management practices.
4. In 1983, in consultation with the Central Valley Water Board and other agencies, the California Department of Food and Agriculture established the Rice Pesticides Program to address fish toxicity and drinking water taste concerns related to rice pesticides. In 1991, the California Department of Pesticide Regulation (DPR) was established and assumed responsibility and oversight of the Rice Pesticides Program. The DPR also assumed the lead regulatory role under the California Environmental Quality Act (CEQA) by developing the rice pesticide control effort pursuant to its certified program. Attachment A contains background information and past monitoring results for the Rice Pesticides Program.
5. DPR and the County Agricultural Commissioners (CACs) have established restrictions on the use of rice herbicides to meet water quality standards and have made enforcement of these restrictions a priority. DPR and the CACs have established a

communication and coordination mechanism with the Central Valley Water Board regarding the Rice Pesticides Program.

6. In 2003, the California Rice Commission (CRC), a commodity group representing California rice growers and handlers, took over responsibility for documenting compliance with the Rice Pesticides Program, including monitoring and preparation of the annual report. The California Rice Commission has worked with the City of Sacramento and West Sacramento to coordinate monitoring efforts to ensure compliance with the Basin Plan performance goal and water quality objective for thiobencarb.
7. DPR has amended its Data Reporting Guidelines for the Rice Pesticides Program so the California Rice Commission will obtain the inspection data, and compliance and enforcement action data directly from the agricultural commissioners of rice-growing counties so the information can be included in the annual report by the 31 December due date set by the Central Valley Water Board.
8. The Central Valley Water Board has approved management practices for thiobencarb, that include the formation of a Storm Event Work Group, increased monitoring of thiobencarb, increased focus on seepage, restricting the use of thiobencarb near rivers, and increased education efforts including CRC-hosted preseason mandatory stewardship meetings.
9. In 2009, the California Rice Commission, upon finding elevated levels of thiobencarb in agricultural drainage that exceeded the 1.5 ug/L performance goal, has taken steps to notify growers and CACs of the exceedances. The California Rice Commission has expanded its outreach program to rice growers and pesticide applicators on hold time requirements and proper application procedures. Although thiobencarb concentrations appear to have increased during 2008 and 2009, there was no exceedance of the 1.0 ug/L water quality objective for municipal and domestic supply water, which is monitored by the public water utilities at their water intakes and by the CRC in the Sacramento River.
10. The Central Valley Water Board has received a memo from the California Rice Commission dated 12 January 2010 (Attachment B) that recommends continuation of the conditions approved in past resolutions and incorporated in the *Pesticide Use and Enforcement Program Standards Compendium; Volume 3 -- Restricted Materials and Permitting* with the additional changes to the Rice Pesticides Program as follows:
  - a label amendment from the registrant to reflect the hold time in the permit conditions and to revise the application rate for a new granular formulation of thiobencarb product,
  - increase the funding for county surveillance at non-traditional hours at double the level for 2009 and increase the area of surveillance to other counties not previously funded, and

- provide additional outreach to applicators and to staff of companies selling and distributing thiobencarb.

11. The Executive Officer of the Central Valley Water Board concludes that the California Rice Commission's proposed outreach efforts and increased inspections, along with the proposed label changes to be implemented by DPR, should ensure the levels of thiobencarb observed in 2009 be lowered and that the existing Program should continue to prevent discharges containing thiobencarb from exceeding the water quality objective of 1.0 µg/L in drinking water supplies.

12. The Rice Pesticides Program will continue to monitor thiobencarb to ensure no adverse impacts to the environment from thiobencarb use in rice operations and to determine the effectiveness of its outreach efforts and increased inspections. If monitoring for the Rice Pesticides Program in 2010 complies with the thiobencarb performance goal and water quality objective, the Rice Pesticides Program shall continue the outreach and increased inspections until this Resolution is revised or replaced.

THEREFORE BE IT RESOLVED:

- 1) The Executive Officer of the Central Valley Water Board approves the management practices for the Rice Pesticides Program, subject to the following conditions:
  - a) Continuation of the management practices incorporated into the 2009 use permits, as recommended by DPR to the CACs in 2007<sup>1</sup> and listed below.
    - water-holding requirements for thiobencarb
    - drift minimization
    - mandatory preseason thiobencarb stewardship training for the permit applicant and/or his/her authorized representative for rice grown in the Sacramento Valley growers
    - water management, including emergency releases
    - seepage mitigation measures
  - b) The California Rice Commission will provide additional outreach on results from 2009 thiobencarb monitoring and required management practices to pesticide applicators. This outreach will include, but not be limited to, clarification of hold time requirements, application rates, proper application procedures, and notification of the finding of elevated thiobencarb levels in the Sacramento River near drinking water intakes. The California Rice Commission will also contact ten thiobencarb dealers and distributors in the Sacramento River Basin to discuss the Rice Pesticides Program and possible areas of improvement.
  - c) The California Rice Commission will increase the funding of additional county surveillance at non-traditional hours to double the level of 2009 and extend the

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<sup>1</sup> DPR, *Pesticide Use Enforcement Program Standards Compendium: Volume 3 -- Restricted Materials and Permitting*, Section C.2 -- Recommended Permit Conditions for Rice Pesticides.

program to counties not previously funded. Surveillance inspections will increase to approximately 1.5 times the current level with the new funding.

- d) Monitoring of thiobencarb will continue at four monitoring sites (CBD5, BS1, CBD1 and SSB) with focus on the period of heaviest pesticide use. The California Rice Commission, working with Central Valley Water Board staff and with input from interested parties, will identify a monitoring site representative of rice field discharges from a reclamation district with a previously closed system. The CRC will monitor any storm-related emergency releases at that site at the frequency agreed upon with the Central Valley Water Board staff.
  - e) If the performance goal or water quality objective for thiobencarb is not met or increasing thiobencarb concentrations are observed in waters designated for municipal or domestic water supply, the California Rice Commission, after consultation with DPR, will submit to the Executive Officer proposed actions to be implemented to achieve the performance goal or water quality objective. The addition of new management practices or modifications of previously approved practices will include an opportunity for input from interested parties before a revision of the current resolution or issuance of a new resolution by the Executive Officer. These actions must be approved by the Executive Officer as part of management practices under the Rice Pesticides Program.
- 2) The Central Valley Water Board will hold an initial meeting in October of each year with the California Rice Commission, DPR and interested parties, including the public water utilities, to review and discuss the results of the RPP monitoring. If the thiobencarb monitoring results raise any concerns, the Central Valley Water Board will hold a follow-up meeting with the interested parties to discuss the effectiveness of RPP practices and any proposed changes in the RPP management practices. Should thiobencarb concentrations increase or thiobencarb objectives be exceeded, the Central Valley Water Board will work with DPR, CRC, and the product registrant to determine whether changes in product formulation could reduce thiobencarb discharges.
  - 3) Any changes in management practices proposed by the California Rice Commission shall be distributed by the Central Valley Water Board to stakeholders, providing a minimum two week review period. Comments from all stakeholders will be reviewed and considered by the Central Valley Water Board when developing a revised or new RPP Resolution. A revised or new RPP Resolution will require approval by the Executive Officer or the interested parties may request that the resolution be considered by the Board.
  - 4) The Central Valley Water Board encourages DPR to provide pesticide use data to the CRC by 1 December of each year to allow the CRC the opportunity to submit that information in their annual report by the due date set by the Central Valley Water Board.
  - 5) The California Rice Commission shall submit a written annual summary and evaluation of the results of the Rice Pesticides Program by 31 December of each year. The evaluation shall analyze trends in thiobencarb monitoring data, review possible causes for any exceedance of the performance goal or water quality objective, and make

recommendations for actions to address any exceedance or any trend toward increasing thiobencarb levels in waters designated for municipal or domestic water supply. The Central Valley Water Board will distribute the annual summary report to interested parties with a minimum two week review period.

This Rice Pesticides Program is approved and does not require renewal, provided the thiobencarb performance goal and water quality objective are met each year, the Executive Officer concludes that additional management practices are not required, and an annual review and evaluation of monitoring results that includes all interested parties has taken place.

The Executive Officer may require revision of the Rice Pesticides Program at any time to include additional management practices to address noncompliance with the performance goal or water quality objective or modification of implemented management practices. The Executive Officer may rescind approval if compliance with the performance goal or water quality objective is not met. Any interested party may request that the Board rescind or modify this resolution.

***Original signed by Ken Landau***

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PAMELA C. CREEDON, Executive Officer

***Original dated 24 February 2010***

Date

## ATTACHMENT A

### INFORMATION SHEET Rice Pesticides Program Management Practices

#### **BACKGROUND**

The California Rice Commission (CRC) is a commodity group representing California rice growers. Each year, the CRC submits an annual report detailing monitoring and implementation of management practices required as part of the Rice Pesticides Program (RPP). The RPP was established by the California Department of Food and Agriculture in the early 1980's to address impacts to beneficial uses attributed to rice pesticides, including fish kills in agricultural drains and taste complaints in the City of Sacramento drinking water supply. In 1990, the California Regional Water Quality Control Board, Central Valley (Central Valley Water Board) Basin Plan was amended to prohibit discharge of water containing five rice pesticides (thiobencarb, molinate, malathion, carbofuran and methyl parathion) unless dischargers follow Central Valley Water Board-approved management practices.

Of the five rice pesticides originally specified in the Basin Plan performance goals, a review of water quality data and pesticide use trends indicates that only thiobencarb is still used on rice in quantities that could potentially result in exceedances of performance goals or water quality objectives, absent implementation of Central Valley Water Board approved management practices. Methyl parathion and carbofuran are no longer applied to rice in California. Molinate registration was cancelled at the registrant's request, with all remaining stocks of molinate to be used in 2009. Malathion applications on rice are generally very limited due to its lack of effectiveness for rice. Monitoring for thiobencarb will continue under the RPP.

#### **RPP REQUIREMENTS**

The RPP performance goals are shown in Table 1 and are used to evaluate the management practices. The performance goals apply to all waters designated as freshwater habitat. Central Valley Water Board approval of management practices is also dependent on compliance of discharges containing thiobencarb with the water quality objective of 1.0 µg/L<sup>1</sup> in water designated as municipal or domestic supply (e.g., the Sacramento River).

**Table 1. Performance Goals for Management Practices**

<b>Chemical</b>	<b>Performance Goal µg/L (daily maximum)</b>	<b>Product Name</b>	<b>Activity</b>
Molinate	No longer used on rice in California <sup>2</sup>		
Thiobencarb	1.5	Abolish <sup>®</sup> (liquid) Bolero <sup>®</sup> (granular)	Herbicide
Malathion <sup>3</sup>	0.1	--	Insecticide
Methyl parathion	0.13	--	Insecticide
Carbofuran	No longer used on rice in California <sup>4</sup>		

<sup>1</sup> The California secondary maximum contaminant level (MCL) for thiobencarb is 1.0 µg/L. This value is a drinking water quality objective to prevent nuisance, such as odor and taste.

<sup>2</sup> The registrant for molinate voluntarily cancelled registration in 2003 under a phase-out schedule. No sales or distribution of molinate products after 30 June 2008 and existing stock to be used in 2009. The US EPA revoked the tolerance on 31 August 2009.

<sup>3</sup> DPR Pesticide Use Report lists 4 applications of malathion to 265 rice acres for 2007. Malathion is applied to other crops.

<sup>4</sup> Use of carbofuran on rice was banned by the US Environmental Protection Agency (US EPA) in 1999 with use of existing stock to conclude in 2000.

The RPP has monitoring, compliance and enforcement components. The CRC is required to monitor during the period of heaviest pesticide use to determine if implemented management practices are effective in meeting the performance goals and water quality objective. The CRC must determine actions required to ensure growers are implementing the management practices. If management practices are not being implemented and/or are ineffective, the CRC is required to consult with DPR to determine if additional enforcement is needed to comply, or if new management practices must be implemented. Each year, the CRC submits a RPP report that provides a summary of the year's activities including monitoring and the DPR enforcement and compliance as administered by the county agricultural commissioners (CACs). In the annual report, the CRC evaluates the year's monitoring and proposes actions required to meet the performance goals and the water quality objective. In 2003, the CRC assumed responsibility for the RPP, including monitoring, submittal of the annual report to the Central Valley Water Board and proposing management practices for the next rice season, as needed.

**HISTORICAL PERSPECTIVE**

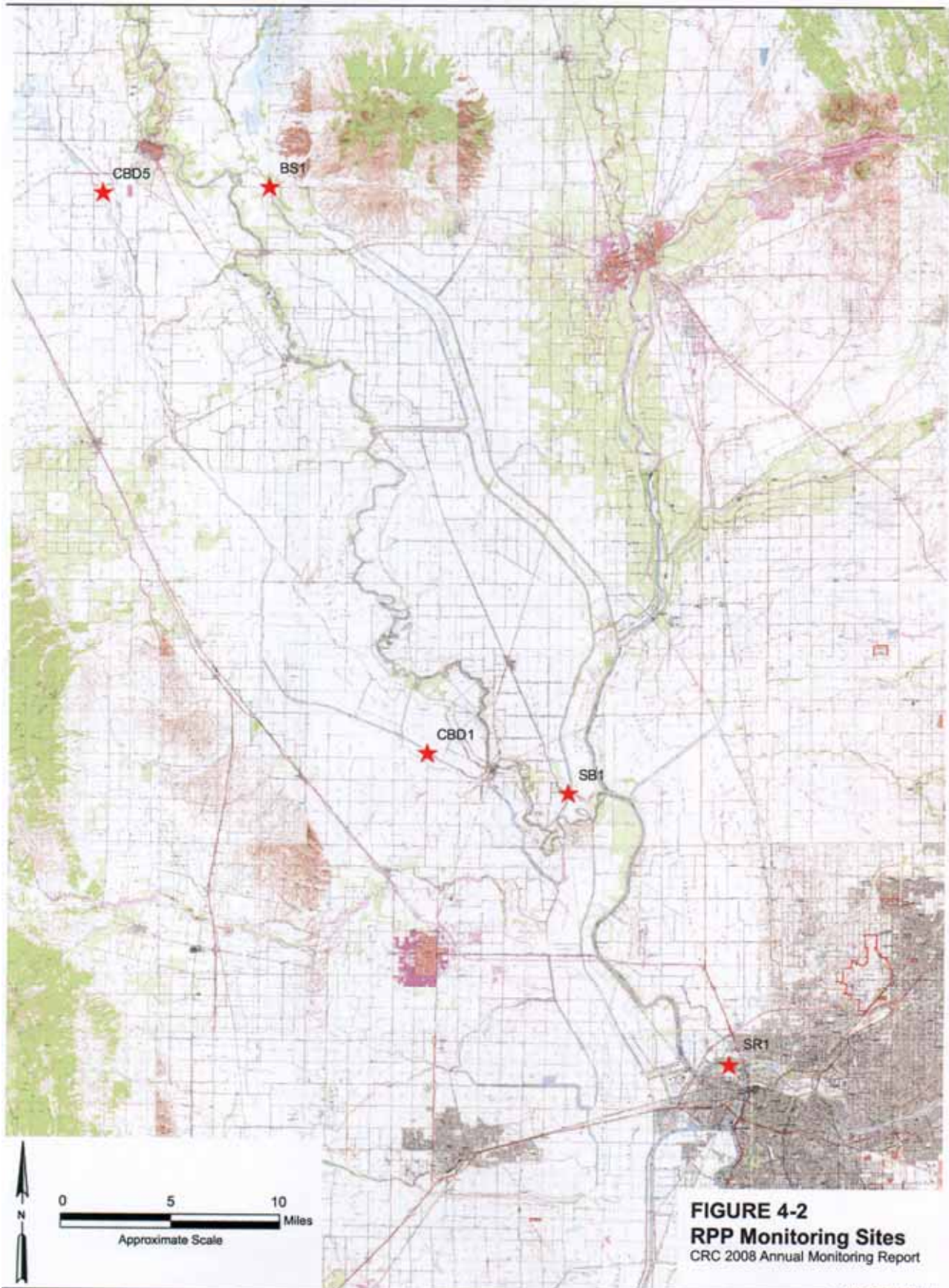
The CRC works with DPR to modify or implement required management practices for the RPP. The core of the RPP consists of water management practices that require farmers to hold pesticide-laden water on the field until pesticides degrade to a level protective of aquatic life. The RPP also includes measures to prevent pesticides drift into surface waters. Required hold times and drift prevention measures are specified by DPR and stipulated in permits issued by the CACs. Thiobencarb and molinate are restricted materials requiring growers to file a Notice of Intent (NOI) at least 24 hours prior to application and a Notice of Application (NOA) within 24 hours of application. The NOI and NOA allow the CACs the opportunity to observe application and track water holding times and other required management practices.

Sacramento Valley rice fields discharge into major agricultural drains flowing into the Sacramento River. The Colusa Basin Drain serves as a major western tributary while Butte Slough and Sacramento Slough drain from the east. The Colusa Basin Drain, Butte Slough and Sacramento Slough are not designated as municipal or domestic water supply.

The RPP has historically sampled at the four agricultural sites (CBD5, BS1, CBD1 and SSB) and one river site (SR1) listed in Table 1 and shown in Figure 1. Monitoring at SR1 is not required in the RPP, but is performed to confirm the water quality objective for thiobencarb is not exceeded at the water intakes for the City of Sacramento and West Sacramento. Sampling occurs over a 10 week period each year to evaluate compliance with performance goals.

<b>Table 1. RPP Monitoring Sites</b>		
<b>Site Code</b>	<b>Site Name</b>	<b>Type</b>
CBD5	Colusa Basin Drain at Hwy 20 (Colusa County)	Ag drain
BS1	Butte Slough at Lower Pass Rd (Sutter County)	Ag drain
CBD1	Colusa Basin Drain above Knights Landing (Yolo County)	Ag drain
SSB	Sacramento Slough Bridge near Karnak (Sutter County)	Ag drain
SR1	Sacramento River at Village Marina (Sacramento County)	River
<i>Municipal Intake Sites</i>		
SSR	City of Sacramento Intake, Sacramento River 0.3 km downstream of the American River (Sacramento County)	River
WSR	City of West Sacramento Intake at Bryte Bend (Yolo County)	River

**Figure 1. Rice Pesticides Program 2009 Monitoring Sites**





In addition to the monitoring conducted by the CRC, downstream municipalities also monitor for thiobencarb at their drinking water intakes. During years with thiobencarb detections, the cities have received customer complaints regarding an off-taste in their drinking water. Monitoring by the cities is coordinated with the CRC monitoring.

### **MANAGEMENT PRACTICES IMPLEMENTED BY RPP**

In the early years of the RPP, tailwater was the main source of rice pesticides. As management practices evolved to include longer holding times, drift and seepage emerged as primary contributors of pesticide residues in surface waters. Storm events can also play a role in thiobencarb and molinate spikes, as was observed in 2002.

The following management practices are found in the DPR *Pesticide Use Enforcement Program Standards Compendium; Volume 3 -- Restricted Materials and Permitting*, Appendix C.

#### ***Holding times***

Holding times are currently 30 days for granular thiobencarb, 19 days for liquid thiobencarb, and 28 days for molinate. Shorter holding periods are allowed in areas with reduced water availability, for fields in the San Joaquin Valley, and in hydrologically isolated fields.

As stated earlier, these holding times were established to allow pesticide degradation to a level protective of aquatic life. The required holding times are on the pesticide label and part of the permit to apply thiobencarb and molinate.

#### ***Application drift***

The majority of rice pesticides are applied by air. The RPP recognized aerial drift as a problem in 1991. By 1994, the Board approved a DPR implementation program to control drift that stipulates the management practices include buffer zones, nozzle specifications and limits on wind speeds. For thiobencarb, the following management practices have been implemented:

- No aerial applications shall be made or continued within 1/2 mile of the Sacramento or Feather Rivers in the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba unless there is a continuous positive airflow away from the river.
- In the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba, no aerial application shall be made or continued within 1/2 miles of the Sacramento or Feather Rivers when the wind speed exceeds seven (7) miles per hour.
- In Sacramento and Yolo Counties, no aerial applications shall be made or continued within 1/4 miles of the Sacramento River unless they are made under direct supervision of the county agricultural commissioner's representative.
- In Sacramento and Yolo Counties, the maximum acres treated by air each day within 1/4 mile of the Sacramento River shall not exceed 33 percent of the average acres treated per day by air within this area in each county during 2002.

The CACs are not to issue restricted material permits for the use of thiobencarb unless the growers have received certification from the California Rice Commission that they have attended a Thiobencarb Stewardship Meeting. The CAC may certify a grower that did not attend a Thiobencarb Stewardship Meeting by having them view a video of the preseason Thiobencarb Stewardship Meeting.

### **Seepage**

Seepage occurs when water moves laterally off rice fields through levees or borders into an area outside of the field boundaries. With seepage there is the potential for the pesticide-laden discharge to enter waterways before pesticide degradation is protective of aquatic life. In 1998, DPR acknowledged that seepage appeared to be, along with drift, the most significant source of pesticides in rice drainage. The Board asked DPR to provide specific steps and implementation dates for measures to address seepage.

In 2001, the RPP management practices required growers to compact levees to prevent seepage and CACs to conduct seepage inspections. Any visible seepage moving offsite during the water-holding period that drains into the waters of the State is considered an early release and is a water-holding violation.

### **Emergency Releases**

Weather conditions can have a significant impact on the rice pesticides control efforts. Warm dry seasons may result in lower pesticide concentrations due to higher degradation rates during the water hold. Wet cold years may see the opposite effect. During large storms, farmers may encounter problems maintaining their water holds due to extra water threatening the levees in the field. The same problem occurs when high winds drive water to one side of the field or levee. When this occurs, farmers may apply to their CAC for an emergency release.

Emergency releases are only granted to growers who can demonstrate need due to events outside of their control. Factors necessitating early release may be storm event related (i.e., rainfall, high winds) or other factors such as salinity. Releases are restricted to thiobencarb fields held for at least 19 days. Tailwater may be released only in the amount needed to mitigate the problem and prevent loss of the crop. Beginning in 1994, a grower with repeat violations of water holds must make improvements in the water holding capabilities. This may include installation of pumps to re-circulate tailwater or the use of fallow land for spillage.

Previously, storm event sampling for thiobencarb and molinate occurred in RD 1000, which was a closed system during the irrigation season. Due to urban expansion and development, RD 1000 is no longer a closed system and may discharge irrigation water to the Sacramento River. The California Rice Commission, working with Central Valley Water Board staff and with input from interested parties, will identify a monitoring site representative of rice field discharges from RD 1000. The CRC will monitor any storm-related emergency releases at that site at the frequency agreed upon with the Central Valley Water Board staff.

### **THIOBENCARB MONITORING RESULTS**

Thiobencarb is an herbicide used to control annual grasses and weeds. Table 2 shows the number of exceedances of the performance goal and water quality objective at RPP sites from 1998 to 2009. Though monitored at five sites, monitoring results for CBD5 and CBD1 can be used to illustrate the trend in pesticide concentration seen in recent years and the effectiveness of management practices implemented. The frequency of detection above the 1.5 µg/L performance goal and the maximum thiobencarb concentrations at CBD5 and CBD1 using available information are shown in Figure 2.

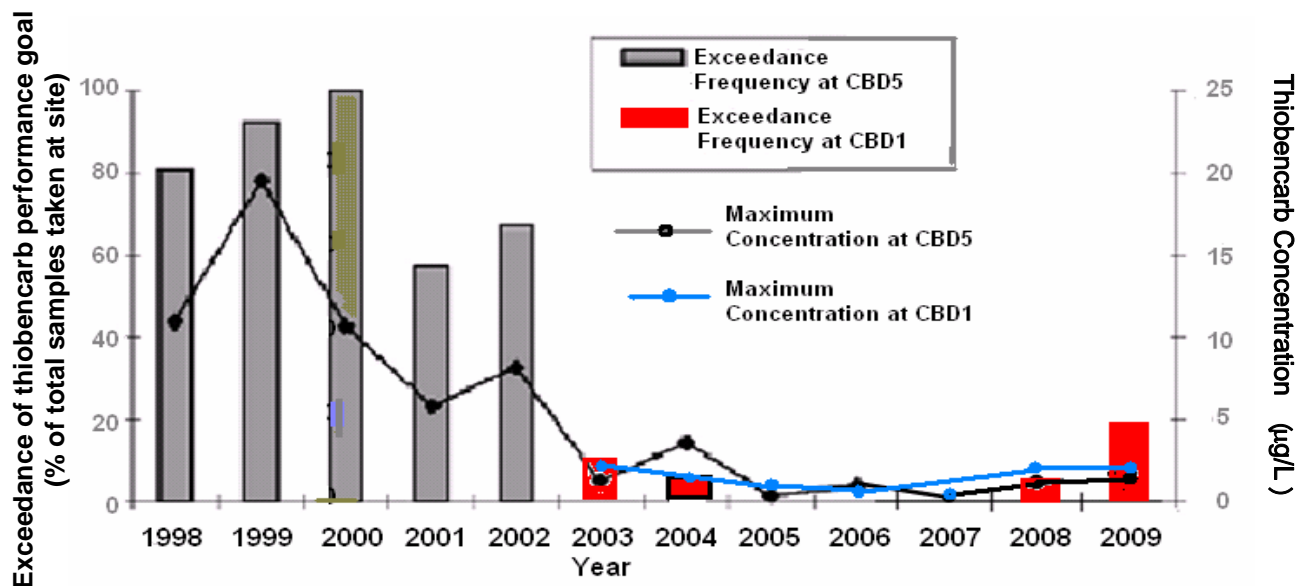
**Table 2. Thiobencarb exceedances at RPP sites**

Year	A = # of Exceedances above performance goal <sup>1</sup> B = peak concentration found at site									
	CBD5		BS1		CBD1		SSB		SR1	
	A	B (µg/L)	A	B (µg/L)	A	B (µg/L)	A	B (µg/L)	A	B (µg/L)
1998	13	11	1	2	--	--	--	--	--	--
1999	12	11	1	4.2	--	--	--	--	--	--
2000	14	10.7	2	1.6	--	--	--	--	0	ND <sup>2</sup>
2001	13	5.9	2	1.6	1	7.9	--	--	0	0.5
2002	10	8.2	4	3.4	4	6.2	--	--	0	0.9
2003	0	1.3	0	0.6	2	2.3	0	ND	0	ND
2004	1	3.6	0	ND	1	1.6	0	0.9	0	ND
2005	0	0.45	0	0.36	0	0.67	0	0.63	0	0.07
2006	0	0.97	0	0.64	0	0.9	0	0.38	0	0.17
2007	0	0.54	0	0.23	0	0.54	0	0.17	0	0.13
2008	0	1.02	1	1.99	1	1.8	0	0.32	0	0.62
2009	0	1.24	0	0.5	3	1.81	0	0.24	0	0.31

<sup>1</sup> Performance goal of 1.5 µg/L for agricultural drains and 1.0 µg/L at SR1.

<sup>2</sup> ND is non-detect at RL = 0.5 µg/L

**FIGURE 2. Annual exceedance of thiobencarb performance goal and maximum concentrations at CBD5 and CBD1.**



The maximum concentrations have increased at CBD5 and are also apparent at the downstream Colusa Basin Drain site (CBD1). The CRC will be addressing these increased thiobencarb concentrations by implementing the management practices proposed in their memo dated 12 January 2010 (Attachment B) and outlined in this RPP resolution.

In addition to the monitoring conducted by the CRC, downstream municipalities, the Cities of Sacramento and West Sacramento, monitor thiobencarb at their drinking water intakes. During years with thiobencarb detections, the cities received customer complaints regarding an off-taste in their drinking water. Table 3 summarizes the City of Sacramento and the City of West Sacramento's monitoring results. Monitoring of Sacramento's intake generally detects lower thiobencarb concentrations than those observed at West Sacramento's intake, most likely due to the addition of flow from the American River, which is essentially free of rice drainage.

Year	Municipality	Number of Detections <sup>1</sup>	Peak Concentrations (µg/L)
1994-1997	Sacramento	0	--
1998	Sacramento	1	0.14
1999	Sacramento	5	0.34
2000	Sacramento	6	0.28
2001	Sacramento	4	0.38
	West Sacramento	4	0.59
2002	Sacramento	8	0.91
	West Sacramento	8	1.6
2003	Sacramento	0	--
	West Sacramento	3	0.15
2004	Sacramento	0	--
	West Sacramento	0	--
2005	Sacramento	0	--
	West Sacramento	1	0.11
2006	Sacramento	0	--
	West Sacramento	1	0.16
2007	Sacramento	0	--
	West Sacramento	0	--
2008	Sacramento	1	0.12
	West Sacramento	2	0.31
2009	Sacramento	2	0.29
	West Sacramento	3	0.68

<sup>1</sup> Detection limit is 0.10 µg/L, except 2001 where detection limit is 0.2 µg/L

From 1997 to 2002, City of Sacramento monitoring revealed a general trend of increasing thiobencarb concentrations. In 2002, storm events caused flooding in some areas and 33 emergency releases were granted in the Sacramento Valley. From 2003 to 2007, thiobencarb levels were much lower, most likely due to the new permit conditions added to address thiobencarb. Thiobencarb detections and concentrations have increased in the last two years, mirroring the monitoring results seen at the lower end of the Colusa Basin Drain.

**RPP Monitoring for 2009**

Three exceedances of the 1.5 µg/L performance goal occurred at CBD1 in May 2009. This period is also when most thiobencarb applications occur in the southern Sacramento Valley. The water quality objective of 1.0 µg/L was not exceeded at the cities' water intakes.

### ***Compliance and Enforcement for 2009***

There were two release inquiries and one reported emergency release in 2009.

The CACs inspect molinate and thiobencarb fields for application of the product, mixing/loading of the product, emergency release inquiries, actual emergency release, seepage and water holding requirements. CACs inspected 2 molinate-treated fields and 22 thiobencarb-treated fields during application. There were no enforcement actions taken related to application and mixing/loading of these two products. Inspections confirmed water holds at 24 fields treated with molinate, and 1,012 fields treated with thiobencarb. The CACs conducted 907 seepage inspections that included 24 molinate-treated fields and 883 thiobencarb-treated fields. Of these inspected sites, 877 sites reported no discharge and 30 reported discharges of less than 5 gallons per minute. No enforcement actions were required.

### ***PROPOSED CRC MANAGEMENT PRACTICES***

In 2009, there were three thiobencarb exceedances at CBD1 of the 1.5 µg/L performance goal. The water quality objective of 1.0 µg/L at the water supply intakes for Sacramento and West Sacramento was not exceeded. The exceedances at the Colusa Basin Drain may be problems with drift management or water holding times. A new formulation of granular thiobencarb may be involved since the label incorrectly states a 14-day holding time, although CAC permits state a 30-day holding period for thiobencarb before discharging to waters of the state.

To ensure that the performance goal of 1.5 µg/L is met at the agricultural drains and the water quality objective of 1.0 µg/L is met at waters designated for municipal or domestic water supply, the CRC proposes to implement the following management practices in 2010.

- Outreach to growers and applicators on 2009 monitoring results and the need to follow management practices, including clarification of hold time requirements, application rates, proper application procedures, and notification of the finding of elevated thiobencarb levels in the Sacramento River near drinking water intakes. The CRC will contact ten thiobencarb dealers and distributors directly to discuss meeting about the Rice Pesticides Program and identify potential areas for improvement.
- Increase the funding for CAC inspections during non-traditional hours for application and holding times to twice the level for 2009 and expand the inspections to counties previously not covered. The CRC estimates that the number of surveillance inspections will increase to approximately 1.5 times the current level.
- Work with DPR to implement changes to the label language for granular thiobencarb application rate and water-holding time.

The CACs have contracted and regulatory requirements from DPR and CDFA. Work contracted by the CRC to the CACs may not be performed due to factors outside of the CRC's control such as CAC priorities set in other agreements or by weather conditions that may restrict the application and use of thiobencarb.

Growers using thiobencarb are already required to attend a Thiobencarb Stewardship Meeting or view a videotape of the presentation to receive a restricted materials permit for thiobencarb. The CRC has presented information to the California Agricultural Aircraft Association 2009 annual meeting and to the California Association of Pest Control Advisors (CAPCA) on required management practices for thiobencarb application, drift, and hold times. The CRC speaks to almost every pest control advisor and applicator handling thiobencarb in the rice counties of the Sacramento River Basin. Contacting thiobencarb sellers and distributors will start a two-way dialog on the Rice Pesticides Program and possible means of program improvement. The extent of any actions that occur will be dependent on the cooperation of the thiobencarb sellers and distributors.

In addition, the permit recommendations from 2006 and described in DPR's Compendium will be continued. These recommendations include the following for thiobencarb applications:

- No aerial applications shall be made or continued within 1/2 miles of the Sacramento or Feather Rivers in the Sacramento Valley rice growing counties of Butte, Colusa, Glenn Placer, Sacramento, Sutter, Tehama, Yolo and Yuba unless there is a continuous positive airflow away from the river.
- In the rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba, no aerial applications shall be made or continued within 1/2 mile of the Sacramento or Feather Rivers when the wind speed exceeds seven (7) miles per hour.
- In Sacramento and Yolo counties, no aerial applications shall be made or continued within 1/4 miles of the Sacramento River unless they are made under the direct supervision of the commissioner's representative.
- In Sacramento and Yolo counties, the maximum acres treated by air each day within 1/4 miles of the Sacramento River shall not exceed 33% of the average acres treated per day by air within this area in each county during 2002.
- The Communication Plan developed by the Storm Event Work Group in 2004 and updated in 2005 will be utilized in the event of a severe storm occurrence. The Storm Event Work Group will continue to meet as needed.

The CRC proposes the outreach to all rice growers to emphasize the need to follow application procedures and holding times. Additional inspections will be performed to ensure no levee seepage is occurring and proper holding times are followed. The use of grower outreach with enforcement actions (inspections and violations) has proved to be successful in previous years.

The CRC has also worked with the registrant, Valent, for implementation of further actions to comply with the thiobencarb performance goal and water quality objective. These include:

- A request by Valent to the USEPA to change the label language for California from a 14-day to 30-day water hold.
- A change in the label use rate from 26.7 lbs to 23.3 lbs/acre.<sup>56</sup>
- Development of a technical bulletin for distribution at the mandatory Thiobencarb Stewardship Meeting. This meeting is mandatory for all growers applying thiobencarb and/or his/her authorized representative. The CRC states that any person handling thiobencarb must attend, including pest control advisors (PCAs) and aerial applicators.

### ***Discussion***

The Central Valley Water Board staff has been reviewing control efforts associated with pesticide discharges from rice fields since the early 1980s. In 2007, the Central Valley Water Board approved management practices that were last updated in 2006 to control discharges of five specific pesticides used on rice.

In the past, the CRC has effectively informed growers of the consequences of not meeting the thiobencarb performance goal and water quality objective. The last resolution was in place for three (3) years from 2007 to 2009. During this period, there has been an increase in the number of exceedances that may be due to the new granular formulation of thiobencarb. Implementation of additional outreach and inspection has been recommended by the CRC. Monitoring in 2010 would

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<sup>5</sup> The label for Bolero UltraMax states a minimum of 14 day hold time. Valent requested DPR to shorten the holding period for UltraMax to 14 days, but the request was denied. To change the label, Valent has requested a label change for California use only to state a minimum of 30 days is required unless special conditions are met. If the request is granted, new containers of UltraMax will bear the new label.

<sup>6</sup> Valent has found the lower application rate to be as effective as the higher rate. This change to the label may occur immediately since it is a FIFRA Section 2(ee) Recommendation.

confirm if these management practices are effective.

***Recommendation***

The Executive Officer may decide one of several alternative actions: no action, which would retain a conditional prohibition of discharges containing the five rice pesticides; approval of a program with the same conditions as in the previous resolution; or approval subject to the new or additional conditions, either recommended by the CRC or at the discretion of the Executive Officer.

Based on the long history of the CRC's efforts to comply with the thiobencarb performance goal and water quality objective, staff recommends approval of the program with the conditions as proposed by the CRC. Water quality monitoring will continue and an annual report will be required as stated in the Resolution. The Central Valley Water Board will hold a meeting with the CRC, DPR, and interested parties, including the public water utilities, by October of each year to review and discuss the thiobencarb monitoring results for the season. If the thiobencarb monitoring results raise any concerns, the Central Valley Water Board will hold a follow-up meeting with the interested parties to discuss the effectiveness of RPP practices and any proposed changes in the RPP management practices. Should thiobencarb concentrations increase or thiobencarb objectives be exceeded, the Central Valley Water Board will work with DPR, CRC, and the product registrant to determine whether changes in product formulation could reduce thiobencarb discharges.

Any change in management practices requires Executive Officer approval. The changes in management practices will be written into a new or revised resolution and sent to all interested parties for comments, providing a minimum two week review period. Central Valley Water Board staff will consider all stakeholder comments when drafting a new or revised RPP resolution. A revised or new RPP Resolution will require approval by the Executive Officer or the interested parties may request that the resolution be considered by the Board.

If the implemented management practices prove to be effective, it is recommended that the conditions of this RPP remain in place. If the performance goal or water quality objective are not met or increasing thiobencarb concentrations are observed in waters designated for municipal or domestic water supply, the CRC is required to submit to the Executive Officer the actions it proposes to take to meet the performance goal and/or water quality objective.

The Executive Officer may require revision of the Rice Pesticides Program at any time to include, additional management practices to address noncompliance with the performance goal or water quality objective or modification of implemented management practices. The Executive Officer may rescind approval if compliance with the performance goal or water quality objective is not met. Any interested party may request that the board rescind or modify the resolution.



# CALIFORNIA RICE COMMISSION

## MEMORANDUM

**DATE:** OCTOBER 19, 2009; LAST UPDATE JANUARY 12, 2010

**TO:** CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

**FROM:** CALIFORNIA RICE COMMISSION

**RE:** RICE PESTICIDES PROGRAM – 2009 CONSENSUS RECOMMENDATIONS FOR PREPARATION OF THE 2010-2012 PROGRAM

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For 2003, 2004, 2005 and 2006 staff from the CVRWQCB and DPR collaborated with the CRC to develop program recommendations for thiobencarb use. The recommendations, adopted as conditions of approval in CVRWQCB Resolutions Nos. R5-2006-0026, and R5-2007-0018, are the basis for current revisions. Please find modifications in track change for 2009. Final 2010 recommendation will develop once we reach consensus.

The following lists the final recommendations from Resolution No. R5-2007-0018.

“1) The Regional Board approves the management practices for the 2007-2009 Rice Pesticides Program, subject to the following conditions, as discussed in the December 2006 CRC Report:

- a) Continuation of the management practices incorporated into the 2006 use permits\*, as recommended by DPR to the CACs in 2006, with modifications for 2007-2009 as discussed below.
- b) A permit should not be issued unless the permit applicant, or his/her authorized representative, has attended a Thiobencarb Stewardship Meeting sponsored by the California Rice Commission.
- c) Monitoring of thiobencarb will continue to include four monitoring sites (CBD5, CBD1, BS1 and SSB), as in 2006 monitoring, at all sites to focus on the period of heaviest pesticide use. If a sever storm occurs, the CRC will monitor storm-related releases from a reclamation district with a previously closed system.
- d) The CRC will increase the continual funding of additional county surveillance at non-traditional hours at the double the level as 2006.\*\*
- e) If the water quality objective for thiobencarb is not met, the CRC, after consultation with DPR, will return before the Board with actions to be implemented to achieve the water quality objective for the following rice season.”



- f) The CRC will provide additional outreach to companies selling and distributing thiobencarb, the staff of these companies and the applicators.\*\*\*
- 2) Board approval will not be considered final until DPR submits documentation of transmittal of conditions to the CACs in a form essentially the same as that approved by the Board. The Executive Officer may ask that the Program be brought back to the Board for approval if the conditions are not accurately relayed; and
- 3) The Regional Board encourages DPR to provide pesticide use and enforcement data to the CRC by 1 December of each year to allow the CRC opportunity to submit their annual report by 1 January; and
- 4) The CRC is requested to provide a written annual summary of the results of the Rice Pesticides Program by 1 January of each year."

Signed by the Executive Officer of the Regional Board.

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**\*The referenced permit recommendations from 2006: (DPR reviewed and responded with no changes)**

- 1) No aerial applications shall be made or continued within 1/2 mile of the Sacramento or Feather rivers in the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba unless there is a continuous positive airflow away from the river.
- 2) In the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba, no aerial application shall be made or continued within 1/2 mile of the Sacramento or Feather Rivers when the wind speed exceeds seven (7) miles per hour.
- 3) In Sacramento and Yolo counties, no aerial applications shall be made or continued within 1/4 mile of the Sacramento River unless they are made under the direct supervision of the commissioner's representative.
- 4) In Sacramento and Yolo counties, the maximum acres treated by air each day within 1/4 mile of the Sacramento River shall not exceed 33% of the average acres treated per day by air within this area in each county during 2002.
- 5) The Communication Plan developed by the Storm Event Work Group in 2004 and updated in 2005 will be utilized in the event of a severe storm occurrence. The Storm Event Work Group will continue to meet as needed.

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**\*\*Defining double the level of surveillance inspections:**

- d) The CRC will increase the continual funding of additional county surveillance at non-traditional hours at the double the level as 2006.\*\*

The CRC enters into contract with Butte, Colusa and Glenn Counties for inspections (weekends, off-hours and holidays) to provide increased surveillance to enforce the restricted materials permit conditions for water hold periods, application methods, seepage inspections and emergency release inquiries in order to enhance surface water protection. In the information the CRC obtains from the counties, the contracts account for approximately 390 to 400 in surveillance inspections provided by the three counties in 2009.

Valent offered to meet the CRC in dollar payment of the contract agreement. As a result, the CRC will offer a contract agreement to counties not currently receiving payment: Placer, Sacramento, Sutter, Tehama, Yolo and Yuba. The intent of offering a contract to all rice counties in the Sacramento River Basin is to double the level of surveillance inspections. The CRC intends to realize an increase of surveillance inspections by approximately 1.5 times the current level.

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**\*\*\*What is meant by additional outreach to companies selling and distributing thiobencarb, the staff of these companies and applicators:**

f) The CRC will provide additional outreach to companies selling and distributing thiobencarb, the staff of these companies and the applicators.\*\*\*

Item f) is a new recommendation for feedback and consensus. The CRC welcomes suggestion on item f), but cautions about adding too many specifics to the resolution. The following provides some explanation.

Note: In CA, a PCA license is required to sell restricted materials, and provide both written and verbal recommendations. Some PCAs are self-employed, independent contractors, while most opt for company employment. All dealers and distributors selling thiobencarb employ PCAs for pesticide sales, which include the regulatory requirement of providing recommendations for restricted materials.

Every spring and fall the CRC presents at CAPCA meetings in Woodland, Sutter Buttes and NorCal. The CRC presents at the CAAA annual rice meeting in addition to the mandatory thiobencarb meeting held in four locations. On an annual basis, the CRC speaks to almost every PCA and applicator handling thiobencarb in the rice counties of the Sacramento River Basin.

In an effort to increase the current level of outreach, the CRC intends to meet directly with the thiobencarb dealers and distributors that employ PCAs selling and recommending thiobencarb. The CRC intends to contact approximately ten dealers and distributors in the Sacramento River Basin to determine which companies sell thiobencarb, and whether they have an interest in meeting. The intent of this outreach is to start a two-way dialog on the significance of the Rice Pesticides Program and identify potential areas for improvement.

Note: Between the CRC and CVRWQCB, meeting attendees are extremely reluctant to speak-up in a format similar to the thiobencarb stewardship meetings. We find folks to be more candid in a smaller, casual setting.

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**Additional recommendations for implementation by Valent and not relevant to the resolution:**

Change the label language from a 14-day to 30-day water hold.

Change the label use rate from 26.7 lbs./A to 23.3 lbs./A.

Develop a technical bulletin for distribution at the mandatory meetings.

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The CVRWQCB staff are pursuing program approval through the Executive Officer rather than presenting the program to the Board.

Thank you,

*Roberta L. Fierov*