

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of the)
CITY OF SACRAMENTO)
For Review of Failure to Act by the)
California Regional Water Quality)
Control Board, Central Valley Region,)
with Respect to Discharges of Rice)
Herbicides. Our File No. A-456.)
_____)

ORDER NO. WO 87-4

BY THE BOARD:

The City of Sacramento (City) initially filed a petition with the State Water Resources Control Board (State Board) on November 18, 1986, seeking review of alleged failure to act by the Regional Water Quality Control Board, Central Valley Region (Regional Board) to control the presence of rice herbicides in the Sacramento River. The City is seeking to protect the beneficial use of the waters of the river as a drinking water supply. Following further Regional Board review and action relative to the issues raised in the initial petition, the City filed an amended petition which incorporated its initial petition. The amended petition was received by the State Board on February 18, 1987. In essence, the City requests the State Board to enforce relevant provisions of the Water Quality Control Plans for the Sacramento River Basin and the Sacramento-San Joaquin Delta Basin (Basin Plan). These Basin Plans establish a numeric water quality objective of 0.6 parts per billion (ppb) for the total concentration of all pesticides in the Sacramento-San Joaquin Delta and establish narrative objectives regarding "Chemical Constituents", "Pesticides", "Tastes and Odors" and "Toxicity" for

surface waters within the Sacramento River Basin.¹

I. BACKGROUND

Prior to Consideration of a 1987 Regulatory Program

Rice herbicides applied in the Sacramento Valley have been reported to cause adverse effects on water quality in the Sacramento River and its tributaries. Specifically, trace concentrations of thiobencarb (marketed by Chevron Chemical Company under the trade name "Bolero") have been implicated in causing bitter taste in drinking water produced by the City of Sacramento's Water Treatment Plant. This Plant supplies domestic water to over 100,000 people.

On January 26, 1982, the State Board issued a Pesticide Guidance Report which recognized the California Department of Food and Agriculture (CDFA) as the lead agency regarding registration and use of pesticides. However, the report also indicates that the State Board and Regional Boards must be prepared to act to prevent adverse impacts on water quality that might result from agricultural practices. The Regional Board has provided input to CDFA since 1984 regarding its efforts to regulate the use of rice herbicides. These efforts have included both sales limitations and a variety of management practices. On February 20, 1986, the State Board issued Order No. W0 86-3 which reviewed, at the request of the City of Sacramento, the adequacy of

¹ We have determined that all other issues raised by the City's petition fail to raise substantial issues that are appropriate for review. Therefore, we will limit our review to the issues discussed in this Order. (See Title 23 California Administrative Code, Chapter 3, Subchapter 6, Section 2052.)

CDFA's 1986 proposed regulatory program for rice herbicides.² The State Board Order stated that the 1986 rice herbicide program adopted by CDFA, while an improvement over earlier CDFA programs, should be modified to prevent Bolero concentrations from exceeding 1 ppb at the City's intake during the 1986 rice growing season.³ The Order suggested that this could be accomplished by restricting Bolero applications to 10,000 acres in the "non-exempt" areas (drainage basins that discharge into the Sacramento River and within which water has to be held on fields six days after the application of Bolero). The State Board Order also stated that if CDFA failed to modify their 1986 regulatory program, the Regional Board should, prior to the 1987 rice-growing season, take appropriate action to ensure that rice herbicides would not exceed secondary action levels in the Sacramento River.

Bolero was sold for 19,681 non-exempt acres in 1986.⁴

Ordram, another rice herbicide, was applied on 272,822 acres in the Sacramento Valley and Bolero was applied on 81,121 acres (61,512 acres were

² State Board Order No. WQ 86-3 contains a review of many issues which led up to our consideration of the matter before us today. We will not reiterate the historical background and analysis which is contained in Order No. WQ 86-3 but we urge interested persons who may not be familiar with that Order to read it in order to better understand the context of our action today.

³ See Appendix One for the "action levels" for Ordram and Bolero which we determined in State Board Order No. WQ 86-3 were appropriate for use by the Regional Board in deciding whether concentrations of Ordram and Bolero were consistent with the narrative objectives for "Chemical Constituents", "Pesticides" and "Tastes and Odors" contained in the Basin Plan.

⁴ In reality, some of the Bolero designated for use on non-exempt areas was actually used in recycled or no-discharge areas. Therefore, actual use in non-exempt acreage was probably taking place on approximately 16,681 acres. It should also be noted that Order WQ 86-3 did indicate that CDFA should have discretion to authorize Bolero use on up to 20,000 acres of the non-exempt acres if river flows were high.

exempt, that is, acreages that did not discharge to the Sacramento River or areas that have water recirculating or ponding systems to dilute Bolero residues in the fields).⁵

CDFA's 1986 program was generally successful in controlling discharges of Ordram and Bolero to the Sacramento River. Except for one day, the residues of these herbicides in the river water were below the Department of Health Services' (DHS) interim action levels cited in Appendix 1 to this Order.⁶ On May 26, 1986, Bolero residues of 3 ppb in the river at the City's water intake exceeded the secondary action level of 1.0 ppb for objectionable taste. In response to 15 taste complaints on a single day, the City started treating the water with potassium permanganate on May 27, 1986. A total of 55 bitter taste complaints were received by the City during the 1986 rice season.

CDFA's 1986 program did not include any controls for discharge of other rice herbicides, including Basagran, to the Sacramento River. Regional Board monitoring has detected bentazon, the active ingredient in the herbicide Basagran, in the Sacramento River each year since 1984. Monitoring for 1986 detected up to 16 ppb bentazon in the City's raw intake water and up to 5.1 ppb bentazon in the City's treated drinking water. On October 3, 1986, DHS set an action level of 8 ppb for bentazon (Basagran) in drinking water for the

⁵ Exempt areas were defined as:

Acreages that do not discharge to the Sacramento River. Acreages served by recirculation systems or where fallow acreage was used to pond water and water was not discharged for at least 14 days following the last application of Bolero.

Fields where water was held 30 days following application of Bolero.

⁶ This compares quite favorably with 1985 when Bolero exceeded the 1 ppb secondary action level at the City's intake for 19 days, with a peak concentration of nearly 4 ppb.

protection of human health. (See Appendix One to this Order.)

The 1987 Regulatory Program

On August 18, 1986, the City of Sacramento filed a petition with the Regional Board. The petition stated that the 1986 herbicide control program was inadequate and requested the Regional Board to implement and enforce discharge standards for, and develop and implement a plan to control, the use of Bolero, Ordram and all other pesticides to ensure that the concentration of these pesticides, individually or collectively, will not exceed 0.6 ppb at the City's Sacramento River intake.⁷ The City also requested the development of a monitoring program for propanil and other rice herbicides and immediate action to eliminate the presence of Basagran in the Sacramento River.

On October 24, 1986, the Regional Board considered the City's petition as well as two reports, in draft form, from CDFA regarding its 1987 proposed programs to prevent offsite movement of molinate and thiobencarb (the active ingredients in Ordram and Bolero) and to reduce bentazon (Basagran) residues in the Sacramento River. CDFA's 1987 proposed program for Ordram was identical to its 1986 program.⁸ The proposed program for Bolero would have reduced the

⁷ This total concentration of pesticides limit in the Basin Plan applies to Delta waters. However, the northern most point of the Delta boundary is the Sacramento River at the I Street Bridge. This is less than one mile below the City's intake tower. We noted in our Order No. WO 86-3 that a peak concentration of Bolero in excess of 1 ppb at the intake would not be significantly attenuated at Freeport, almost 15 miles away. Total pesticide levels would also not vary significantly from the City's intake to the Delta boundary.

⁸ Water was held on fields for 12 days except: In areas where there is no discharge to the Sacramento River, holding time was 8 days. Shorter holding time was allowed on fields treated with preplant soil

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non-exempt sales from 20,000 to 15,000 acres and increased the total sales limit for both exempt and non-exempt from 100,000 to 125,000 acres. The program for reducing bentazon concentrations would prohibit its direct application to ditches and drains. In addition, water would have to be retained within a treated field for at least 8 days following application of Basagran, unless emergency release of tailwater after 6 days was authorized by the County Agricultural Commissioner.

After considering the City's petition and CDFA's draft 1987 control program, the Regional Board adopted Resolution No. 86-214 which stated that a more restrictive program was needed to remove the major threat to beneficial water uses and to bring compliance with applicable water quality objectives of the Basin Plan. The Regional Board requested that CDFA:

- a. Adopt specific mass discharge rates and time schedules as program goals for Ordram and Bolero for 1987 through 1989;
- b. Limit the use of Bolero to 85,000 acres;
- c. Limit the use of Basagran to ensure that the residual concentration of bentazon cannot exceed 8.0 ppb at the City's intake;
- d. Obtain environmental fate information for Basagran in 1987;
- e. Monitor the Sacramento River and associated drains in 1987 for six

⁸ (FOOTNOTE CONTINUED)

incorporated Ordram.

Where tailwater was recirculated or ponded on fallow fields, water could be released from such systems 12 days after the last Ordram application in the affected area.

Agricultural Commissioners could allow an emergency release after 6 days if the crop was threatened.

Agricultural Commissioners could allow releases from fields after 8 days if flow rates in the drains and river allowed.

other chemicals such as propanil in addition to bentazon, molinate and thiobencarb.

The Resolution requested a report from CDFA by November 21, 1986 on its willingness to implement and enforce these recommendations and directed the Executive Officer to prepare appropriate regulatory or enforcement measures for the Regional Board to consider if CDFA failed to express its willingness to implement and enforce the recommendations.

The City, being unsatisfied with the outcome of the October 24, 1986 meeting, filed a petition with the State Board on November 18, 1986 asked the State Board to act on its petition by January 15, 1987. In a letter dated December 19, 1986, the State Board advised the City that the Regional Board had adopted on December 12, 1986 a regulatory program to control discharges of rice herbicides and that the Regional Board would be taking further action in January 1987. It was suggested that, if the City wanted to proceed with its petition, it should be supplemented to reflect the most recent Regional Board action.

In response to the Regional Board's Resolution 86-214, CDFA updated its draft rice herbicide program for 1987. The proposed program for Ordram was changed to eliminate the option of allowing the County Agricultural Commissioners to allow releases from fields after 8 days, rather than the usual 12 days. The proposed program for Bolero reduced the non-exempt sales to 10,000 acres with an additional 3,000 acres to be treated if flows in the Sacramento River on May 1st were adequate to provide sufficient dilution. The total sales limit then would be 120,000 acres (or 123,00 acres with adequate river flows). The updated draft program also included new measures to control the discharges of Basagran to the river. No discharges from Basagran treated

fields would be allowed from the time of application until the fields are drained for harvest unless rice growers obtain an emergency variance. Thus, the field holding period for irrigation tailwater with Basagran residue would be between 30 to 80 days.

At the Regional Board's meeting on December 12, 1986, the Regional Board accepted CDFA's updated proposed program for Basagran after finding that it had been significantly strengthened. However, the Regional Board requested that CDFA implement a phased end-of-growing season discharge program rather than allowing all discharges to commence on the same date. The Regional Board also accepted the updated program for Ordram with the proviso that all rice growers discharging water containing Ordram should submit a technical report to the Regional Board. The Regional Board concluded that the updated proposed program for Bolero was not acceptable, in part because it establishes the DHS secondary action level of 1 ppb as a permissible level for Bolero in the water. In addition, the Regional Board found that the updated draft program would allow a 50% increase in Bolero sales over 1986. This would result in an estimated mass discharge of 1,600 pounds which would be over three times the limit of 500 pounds of Bolero in 1987 which was included as a mass discharge rate in the Regional Board's Resolution 86-214. As a result, the Regional Board directed its staff to prepare area-wide waste discharge requirements for persons that discharge water containing thiobencarb, the active ingredient in Bolero.

On January 23, 1987, the Regional Board voted not to adopt the draft waste discharge requirement recommended by its staff. Rather, the Regional Board accepted CDFA's updated 1987 proposed program for Bolero with two amendments proposed by the rice industry and accepted by CDFA's representative

at the meeting. The amendments reduced the non-exempt acreage from 10,000 to 8,000 acres and increased the tailwater holding period for non-exempt acreage from 6 to 8 days.⁹

The City of Sacramento filed an amended petition with the State Board on February 16, 1987 alleging that the Regional Board actions to date have failed to effectively regulate the discharges of rice herbicides into the Sacramento River.

On March 10, 1987, CDFA issued an order banning the use of Bolero for the 1987 rice growing season on the remaining 8,000 acres which had been classified non-exempt. This was apparently done in anticipation of low flows in the river this year which increase the possibility of violation of the 1 ppb secondary action level for Bolero due to insufficient dilution.

II. CONTENTIONS AND FINDINGS

The City's petition raises many issues which are most appropriately dealt with by first reviewing the adequacy of the 1987 rice herbicide control program which will effect discharges to the Sacramento River starting as soon as May 1987. We will then review appropriate control programs for future years and outline a process to be followed to ensure that water quality in the Sacramento River is protected over the long term.

At the outset, however, we want to emphasize that we continue to

⁹ A third amendment proposed by the rice industry would have reduced Bolero peak discharges by limiting the application to 800 acres per day for non-exempt Bolero. CDFA stated that it could not enforce this condition and the amendment was not included by the Regional Board when it accepted the updated 1987 program.

recognize and respect the status of CDFA as the lead agency regarding registration and use of pesticides and herbicides. We in no way intend to usurp that role either by our actions today or in the future. We are charged, nonetheless, by the mandates in the California Water Code, with protecting water quality throughout the state to ensure the protection of both present and future beneficial uses. Additionally, Water Code § 13247 requires CDFA to regulate the use of rice herbicides in a manner consistent with water quality control plans.

1. Contention: In essence, the City contends that the 1987 rice herbicide control program will not adequately protect the Sacramento River as a drinking water supply.

Findings: If the 1987 control program had remained as it was when first proposed by CDFA, we agree that there would have been problems with its adequacy. However, the plan has changed substantially and at this point we find it to be acceptable since it represents further progress toward achieving the Basin Plan objectives and at a minimum will meet DHS action levels. Our conclusion regarding specific aspects of the program are:

A. Ordram The major change in the Ordram control program as compared to the 1986 program is the elimination of the option to reduce the on-field holding time from 12 days to 8 days. This option was used in 1986, resulting in a weighted average required holding time of only 9.3 days. Regional Board staff estimate that, assuming the average holding time was 9.3 days in 1986, the new 12 day holding time could produce up to a 40% reduction in Ordram discharge. Although this would not meet the mass discharge goal of a 50% reduction over levels observed in 1986 as called for in the Regional Board's Resolution 86-214, it appears to us to be enough of an improvement to justify

its use as a control measure for 1987.

We note that in a worst case situation all of the 16,681 acres which were treated with Bolero in a non-exempt manner in 1986 may be treated with Ordram in 1987 due to the prohibition on use of non-exempt Bolero. This could result in the use of Ordram being increased from use on 272,822 acres in 1986 to use on 289,503 acres in 1987. We do not anticipate, however, that this will result in violation of action levels since holding time will increase from an average of 9.3 days to a minimum of 12 days.

B. Basagran CDFA's 1986 program had no controls over Basagran. The 1987 program prohibits direct application to ditches and drains and establishes a minimum of one month that water must be held on the field after treatment with Basagran. The average holding time probably will be much longer since most applications are made in June and discharge to the river is not allowed until September 1. Given the lack of data, it is difficult to quantify what the residual levels of Basagran will be after this extensive holding time. We concur with the Regional Board's request to CDFA that there be a phased end-of-growing season discharge program so that all discharges do not commence on the same date. More importantly, we look forward to an analysis of the data collected on this herbicide in 1987 in order to more accurately establish a control program for basagran in the future. However, we find the control program for 1987 to be adequate and feel that it ensures compliance with the DHS action level for Basagran.

C. Bolero Under CDFA's 1987 program, there will only be discharge of Bolero from exempt areas, that is, areas that do not drain into the river upstream of the City's intake or areas that have water recirculating or ponding systems to dilute Bolero residues in the fields. Since staff of the Regional

Board and of CDFA both estimate that up to 85% of Bolero residues in the Sacramento River in 1986 were from non-exempt Bolero use, it is unlikely that the action levels will be violated in 1987. However, we note that even with the elimination of all non-exempt use, the 1987 predicted Bolero mass discharge of 990 pounds from 110,000 exempt acres (assuming the Regional Board staff's estimate of 9×10^{-3} pound/acre/year) will be almost twice the 500 pound rate for mass discharge contained in the Regional Board's Resolution 86-214. Therefore, further reductions in use will have to take place in future years if the Basin Plan objective of 0.6 ppb total pesticide concentrations in the Delta is to be attained.

D. Propanil This herbicide was not included in CDFA's 1986 control program and has not been routinely monitored in the past. In addition, DHS has not yet established drinking water action levels for propanil. Given this dearth of information, we support both CDFA and the Regional Board in their plans to monitor this herbicide along with several others in 1987. CDFA has stated that most propanil used in the Sacramento Valley is applied to areas that do not drain into the Sacramento River above the City's intake. Given this, we feel that it is acceptable to wait until the monitoring data from 1987 is analyzed before considering what control measures may be needed.

To sum up our review of the 1987 program, it is clear that decisions on proposed discharges of waste must implement the Basin Plan and take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, water quality conditions that can reasonably be achieved through the coordinated control of all factors which affect water quality in the area and economic considerations. (Water Code §§ 13241, 13263.) In balancing these factors, immediate compliance with water

quality objectives is not always required. For example, the Basin Plans contain programs of implementation needed for achieving water quality objectives (Water Code § 13050j). Waste discharge requirements may contain time schedules (Water Code § 13263). The Regional Board's Basin Plan in recognition of the lack of conclusive technical information regarding some of its objectives, contains the following statement:

"In some instances water quality objectives were formulated to preserve historic conditions, but the data base is not sufficiently complete to determine the temporal and hydrologic variability that is an inherent aspect of historic water quality. When violations of such objectives occur, the Regional Board will use judgment to determine if the objectives could reasonably be achieved through the coordinated control of all factors affecting water quality in the area."
(page I-4-4)

Therefore, we find the 1987 plan to be acceptable since it

- (1) ensures compliance with DHS action levels at a minimum and
- (2) represents continuing progress toward implementing the Basin Plan objectives.

2. Contention: The City requests that action be taken to ensure that the standards in the Basin Plan are achieved within a reasonably expeditious time, not to exceed three years.

Findings: The City's petition focuses on the Basin Plan objective of 0.6 ppb for all pesticides in the Sacramento-San Joaquin Delta. Before dealing with that issue, we want to review several other matters which we consider pertinent to successful future programs for control of rice herbicide discharges so as to protect the quality of Sacramento River water for beneficial uses.

Actions by DHS In our State Board Order No. WO 86-3 we conclude

that DHS's Recommended Drinking Water Interim Action Levels for Bolero were appropriate for use by the Regional Board in determining whether or not observed concentrations of Bolero are consistent with narrative objectives for "Chemical Constituents", "Pesticides", and "Tastes and Odors" in the Basin Plan. The record before us today contains conflicting allegations regarding the propriety of the 1.0 ppb secondary action level to prevent objectionable taste in drinking water. The City contends that in 1986, even though the 1.0 ppb limit was only exceeded on one day, the City nonetheless received a total of 55 taste complaints during the rice growing season. On the other hand, Chevron Chemical Company, the manufacturers of Bolero, argues that there is insufficient scientific evidence to link Bolero to the City's taste complaints at all, let alone to justify the 1.0 ppb secondary action level. In light of these allegations, we request DHS to re-evaluate the secondary action level of 1.0 ppb for Bolero.

Regarding Basagran, we note that DHS in establishing a primary drinking water action level for this herbicide received studies which suggest that Basagran may be an animal carcinogen. If in the future DHS' analysis of this herbicide concludes that Basagran is a potential human carcinogen, then its current action level of 8 ppb must be reevaluated.

Even more importantly, we urge DHS to no longer wait until a pesticide shows up in a drinking water supply before setting action levels for it. The knowledge that propanil and any newly registered rice pesticides are being discharged upstream of the City's intake should be sufficient to trigger the establishment by DHS of action levels for these chemicals.

Actions by CDFA It is difficult to predict mass discharges, subsequent river concentrations and flow levels in the Sacramento River.

Nonetheless, we believe that if CDFA's program which allowed discharge from 8,000 non-exempt acres had been implemented for 1987, under "worst case" low-flow conditions the Bolero concentrations at the City's intake would have exceeded the 1.0 ppb secondary action level. Given the fact that in 1986 up to 85% of Bolero residues in the river are believed to have come from non-exempt areas, we believe that the use of non-exempt Bolero should not be permitted by CDFA for all future years.¹⁰ In order to provide more timely review of future control programs, we request CDFA to notify the Regional Board by August 1, 1987 about whether or not it will implement this recommendation.

We also request that CDFA obtain information on the amounts, time and locations of the use of other pesticides such as carbofuran. Such information is essential to the development of a solid data base on which to base regulatory actions.

In keeping with the need for further information, CDFA should require taste and odor data to be included with the regular toxicology and environmental fate data which is required for the registration of any new chemical herbicides.

We note that the rice herbicide working group did not meet in 1986 to evaluate the 1986 monitoring data and to develop recommendations regarding the 1987 control program.¹¹ During 1984 and 1985 this group participated in the

¹⁰ We note that counsel for the Rice Industry Committee testified before the Regional Board that it was the belief of the industry that 1987 was in fact to be the last year for non-exempt Bolero use. (See transcript of the Regional Board meeting on January 23, 1987, page 39, line 4 - page 40, line 6.)

¹¹ The rice herbicide working group consists of representatives of CDFA, the Regional Board, the State Board, the Department of Fish and Game, the

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evaluation of monitoring data and development of the following year's program. Input from this group can be of great value in developing future actions. CDFA should reactivate the group to coordinate the monitoring program for 1987 and to evaluate the monitoring data.

Finally, we are very concerned with the way the rice herbicide control programs to date have focused solely on the discharge of each herbicide individually. CDFA's emphasis has been on ensuring that DHS action levels for individual herbicides are not violated. The cumulative hazard of several rice herbicides mixing together at one time in the river needs to be assessed. CDFA should consider both the DHS action levels and cumulative toxicity hazards in carrying out its control programs.

Actions by the Regional Board If CDFA determines that Bolero can be used in non-exempt areas in 1988, it should so advise the Regional Board by August 1, 1987. The Regional Board must then adopt more stringent measures to ensure that Bolero will not be discharged in a manner that is presently characterized as "non-exempt". The record reflects considerable concern by the Regional Board as to the significant amount of staff time involved in regulating and monitoring all rice growing areas in the region. In addition, representatives of the majority of rice growers who follow best management practices and do not contribute substantially to the herbicide discharges

¹¹ (FOOTNOTE CONTINUED)

Agricultural Commissioners of Sacramento Valley Counties, the City, the University of California (Extension Service), the Rice Research Board, and various rice-industry groups (e.g., the Sacramento Valley Water Quality Committee, reclamation districts, rice growers, etc.)

stated that they should not unnecessarily be subject to waste discharge requirements. Given these factors, we recommend that the Regional Board take more stringent action only relative to the non-exempt areas. If CDFA has not committed by August 1, 1987 to now allow the use of Bolero in non-exempt areas in 1988, the Regional Board should take control actions as soon as possible thereafter. The rice growers need adequate time to adapt their practices to the limitations of any such control actions.

We turn now to the issue of Basin Plan compliance. The City's petition is largely based on an argument that the Regional Board is failing to enforce the 0.6 ppb total pesticide concentration for Delta waters which is a water quality objective contained in the Basin Plan. This objective was first adopted by the Regional Board in 1967; there is minimal evidence as to the technical basis which supported its adoption at that time and the objective has not been reviewed over the past 20 years. Given this situation, it is imperative that the Regional Board reconsider the propriety of such an objective. This is not to say that the existing objective is incorrect, only that it should be reconsidered. New information such as the DHS action levels and the cumulative toxicity hazard data discussed in this Order should be considered by the Regional Board.¹² Consideration should also be given to the December 1986 Project Report on the Interagency Delta Health Aspects

¹² In considering the emphasis to be placed on action levels, however, we caution the Regional Board to weigh the advice of Dr. Steven Book, formerly staff toxicologist at DHS, who testified before the Regional Board that it is DHS's opinion that levels of contamination should be kept far below drinking water action levels. (See transcript of the Regional Board meeting on October 24, 1986, page 54 et seq., for a more detailed discussion of this issue.)

Monitoring Project. This report contains information regarding pesticides in Delta waters that should be helpful in considering revisions to the Basin Plan. Additionally the Basin Plan review must be consistent with new legal requirements established by the federal Water Quality Act of 1987 as well as State Board Resolution 68-16. Finally, the Basin Plan must be amended to include a clear plan of implementation for achieving whatever water quality objectives come out of the review process. Such a plan must ensure that the objectives are ultimately achieved.

Pacific Legal Foundation, an interested person regarding this petition, states that the 0.6 ppb water quality objective should most appropriately be reviewed by the State Board as part of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Hearing Process. A Pollutant Policy Document will be issued by the State Board to provide guidance to the San Francisco Bay and Central Valley Regional Boards on the update of their basin plans. However, specific water quality objectives should be developed by the Regional Boards, subject of course to our review and approval as required by the Water Code. We encourage the Regional Board and all other interested persons to participate in those hearings which will lead up to our adoption of a Pollutant Policy Document in late 1988. At that time, the Regional Board should use the Document to review and revise its Basin Plan.

In the interim, the Regional Board must continue to take action to see that progress is being made in attaining the current 0.6 ppb objective. Two actions which might aid this would be to require staggered application of each herbicide and staggered discharge. These measures would help to lower peak concentrations of the herbicides in the river.

III. CONCLUSIONS

1. For the reasons discussed above, we conclude that the rice herbicide control program for 1987 as approved by the Regional Board and as subsequently modified by CDFA is adequate. However, as requested by the Regional Board, CDFA should require a phased end-of growing season discharge program for Basagran to ensure that all discharges do not commence on the same date.

2. DHS should re-evaluate the propriety of its 1.0 ppb secondary action level for Bolero (thiobencarb) and review the action level for Basagran in light of any new information concerning its reported carcinogenicity in laboratory animals. In addition, DHS should establish action levels now before the next rice herbicide use season for all of the major rice pesticides.

3. CDFA should determine whether to allow the use of Bolero on non-exempt acreage for all future years. Information should be obtained on the amounts, time and location of the use of other pesticides such as carbofuran and CDFA should require taste and odor data prior to the registration of any new chemical herbicides. The rice herbicide working group should be reactivated to coordinate and evaluate the 1987 monitoring program. Finally, CDFA's future rice herbicide control programs should consider cumulative toxicity hazards in addition to the present emphasis on DHS action levels for individual herbicides.

4. If CDFA contemplates approving the use of Bolero in a non-exempt manner in 1988 and future years, the Regional Board should be notified by August 1, 1987. If CDFA has not notified the Regional Board regarding this matter by August 1, 1987, the Regional Board must then take more stringent

measures to ensure that Bolero will not be discharged in a manner that is presently characterized as "non-exempt". The Regional Board must reconsider, and revise if necessary, the 0.6 ppb total pesticide concentration objective for Delta waters contained in the Basin Plan. Until that objective is either affirmed or revised, the Regional Board must continue to act to attain the 0.6 ppb objective. A plan for implementing the objectives must also be developed as part of the reconsideration process.

IV. ORDER

IT IS HEREBY ORDERED THAT:

1. The Executive Director of the State Board shall transmit this order to the directors of CDFA and DHS so that action may be taken in accord with our conclusions today.
2. The Regional Board must take more stringent action to prohibit the discharge of Bolero in non-exempt areas in 1988 and future years if CDFA does not notify the Regional Board by August 1, 1987 that it intends to not allow the use of Bolero on non-exempt acres in future years.
3. The Regional Board must reconsider and revise, if necessary, the 0.6 ppb total pesticide concentration objective for Delta waters contained in its Basin Plan and develop a plan of implementation.

4. Until the total pesticide objective is affirmed or revised, the Regional Board must continue to act to attain the 0.6 ppb objective.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an Order duly and regularly adopted at a meeting of the State Water Resources Control Board held on April 16, 1987.

AYE: W.D. Maughan
D.E. Ruiz
D. Walsh
E.H. Finster
E.M. Samaniego

NO: None

ABSENT: None

ABSTAIN: None


Maureen Marche
Administrative Assistant to the Board

APPENDIX 1
INTERIM RECOMMENDED ACTION LEVELS AND
GUIDELINES FOR ORDRAM AND BOLERO

	<u>Ordram</u> (ug/l molinate)	<u>Bolero</u> (ug/l thiobencarb)	<u>Basagran</u> (ug/l bentazon)
I. <u>DHS Action Levels</u>			
For the protection of human health (primary action level for drinking water)	20	10	8
To prevent objectionable tastes in drinking water (secondary action level in raw water)	--	1.0	
II. <u>DFG Guidelines</u>	90	24	
For the protection of aquatic resources in the Sacramento River and its tributaries			