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CITY OF SACRAMENTO

DEPARTMENT OF ENGINEERING

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CITY MANAGER'S OFFICE
RECEIVED
AUG 3 1983

J. F. VAROZZA
CITY ENGINEER

M. H. JOHNSON
ASSISTANT CITY ENGINEER

FILED
By the City Council
Office of the City Clerk
report requested
AUG 9 1983

August 2, 1983

City Council
Sacramento, California

Honorable Member in Session:

SUBJECT: Status Report on Rice Herbicides, Bolero and Ordram

SUMMARY

This report is an update on the 1983 rice herbicide use season and its impact on the City's drinking water treatment.

BACKGROUND

Many time during the past year I have discussed with you the problems of rice herbicides not only being present in the Sacramento River but also being the causative agent of our bitter water complaints during the past three years. The herbicide problem, unfortunately, has not disappeared.

The City was fortunate that 1983 was an unusually wet year. The spring runoff was such that flows in the Sacramento and American River, were and still are, well above average. Because of these high flows the rice field runoff was not only diluted but partially diverted. It is estimated that over 40 percent of the agricultural waste from the rice fields flowed around Sacramento through a series of drainage ditches and ended up in the Delta. This does not mean that we did not have rice herbicides in the river; they were present but in lower concentrations.

Our bitter water complaints were almost negligible. The City's Water Division laboratory staff monitored the Sacramento River throughout the herbicide use season. Results of these analyses are shown on the attached graphs.

Based on the chemical properties of Ordram and Bolero our laboratory equipment can only detect Ordram down to a concentration of 0.30 parts per billion and Bolero down to a concentration of 0.10 parts per billion. These detection limits mean that Ordram and Bolero may be present in our Sacramento River water supplies but our laboratory equipment cannot detect them below our detection limit.

The first indication of rice herbicides came on June 6, 1983 when we found both Bolero and Ordram at Crawdad Landing, one-half mile upstream from the confluence of the American River. On June 8 we discovered Ordram at the treatment plant intake, and on June 13 Bolero was also detected.

Our first "bitter taste" complaint received at the treatment plant came on June 9, 1983. Comparing the 1983 season to last years:

	Maximum Concentration Detected		Number of Taste ^a Complaints
	Ordram	Bolero	
June, 1982	16 ppb ^b	2.1 ppb	46
June, 1983	2.0 ppb	0.38 ppb	12

^a received at water quality laboratory and investigated by Staff
^b parts per billion

In addition, we were blessed this year with higher than average flows in the American River. As a consequence, 40 to 60 percent of the water at our Sacramento River intake, located just downstream from the confluence, was from the American River.

This year was also unique in that we began treating the Sacramento River production water with potassium permanganate, a chemical specifically added to combat the bitter taste experienced during previous years. This additional treatment and its associated cost is summarized below:

Time used	April 27 to July 11, 1983
Amount of water treated	3,194 Million Gallons
Average dose of permanganate	0.20 parts per million
Average lbs/day used	70
Total lbs used	5,438
Total cost of chemical used	\$6,793
Average cost per day	\$90

In spite of a generally problem-free spring there remain a number of issues which are still unanswered. These are:

1. The Taste Problem - Whether the treatment with potassium permanganate is capable of completely removing the bitter taste has not been field proven. As mentioned before, this year was very unusual. The high level of herbicides experienced during past years were not detected. If permanganate can remove the taste at low levels, will it be capable of doing so at the higher concentrations?
2. Synergistic^a and Toxicological Effects - Studies by Mie University of Japan has shown that Bolero has a synergistic effect when combined with Ordram and causes an increase in the mortality of fish. Bolero also has synergistic effects with the pesticides Baytex (MPP), Baycarb (BPMC) and Triflurlin.

No studies have been done on possible synergistic effects when both Ordram and Bolero are oxidized by chlorine during the water treatment process. In addition, our laboratory has found that TCE^b from Aerojet has been found as

^a The joint action of agents/drugs taken together increase each other's effectiveness.

^b Trichloroethylene

far down as the mouth of the American River. It is not yet known whether TCE concentrations will increase when the river flow decreases. Whether TCE will combine or recombine with Ordram and Bolero will have to be studied.

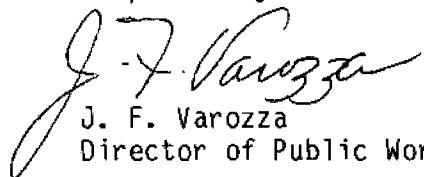
Toxicological work with mice and rats have only been done with individual herbicides. No research has been done on what occurs when both herbicides are ingested at the same time.

In addition, we still have not received an unequivocal statement from the State Health Department certifying that there are absolutely no toxic problems associated with the breakdown products of Bolero and Ordram found in our drinking water supply.


- 3. Rice Field Holding Times - Data presented to date on the degradation of Bolero on the rice fields is still inconclusive. Work should continue in order to prove or disprove the validity of the current 6-day label holding period.
- 4. Payment-in-Kind (PIK) Program - The PIK Program has caused a major decline in both the amount of rice planted and the amount of herbicides used. The PIK program will not be offered in 1984 and 1985. If both Bolero and Ordram receive full registration, we can expect to see increases in rice herbicide concentrations in the river.

With your approval we will continue with our efforts to protect not only the quality of the City's drinking water supply but also its source, the Sacramento River.

Respectfully submitted,


 J. F. Varozza
 Director of Public Works

FOR CITY COUNCIL INFORMATION:


 Walter J. Slips
 City Manager

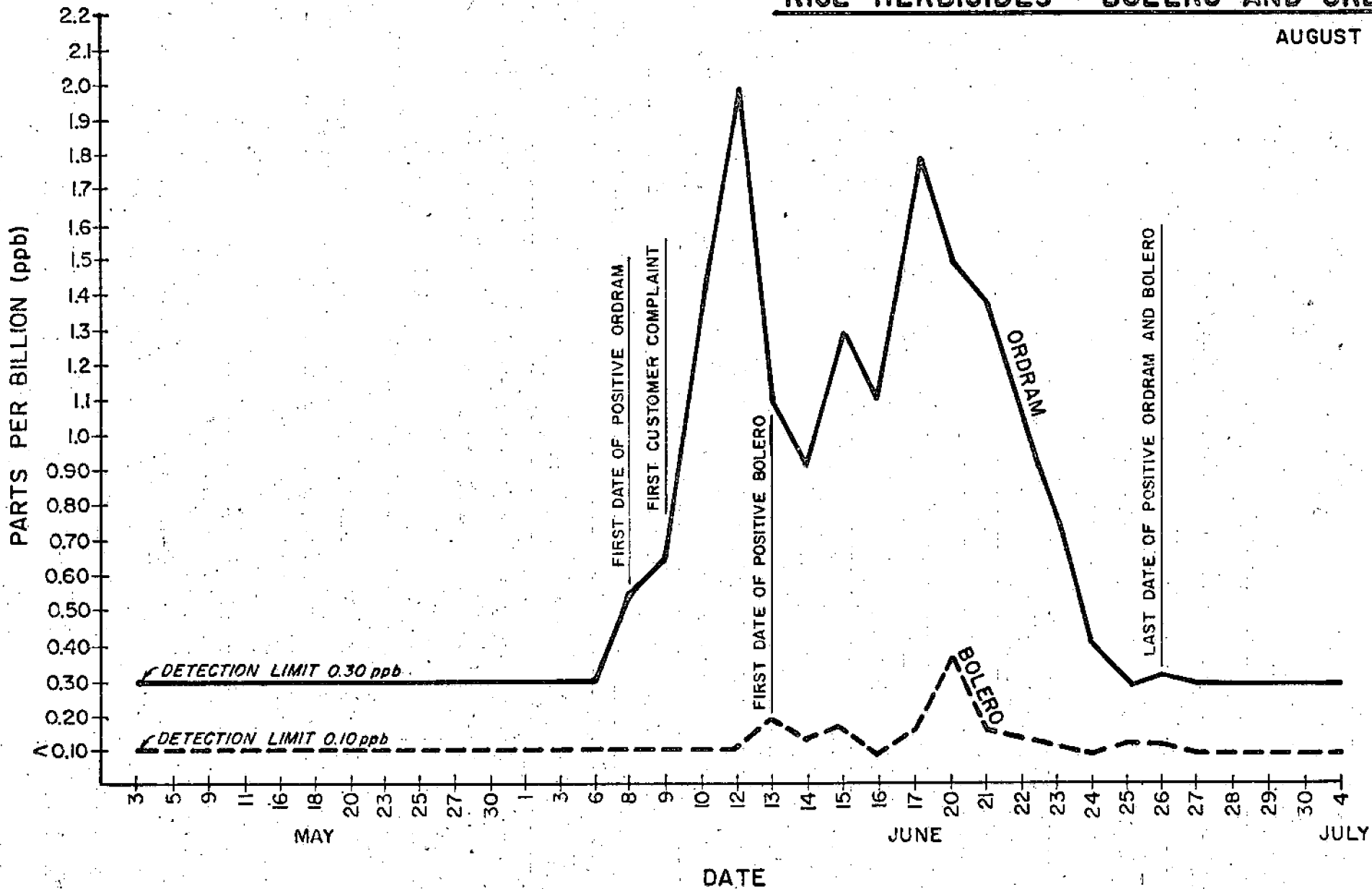
JS:vz
 Attachments (2)
 cc: R. C. Bitten
 J. Sequeira
 files

August 9, 1983
 District All

SACRAMENTO RIVER
at Water Treatment Plant intake

RICE HERBICIDES - BOLERO AND ORDRAM

AUGUST 1983

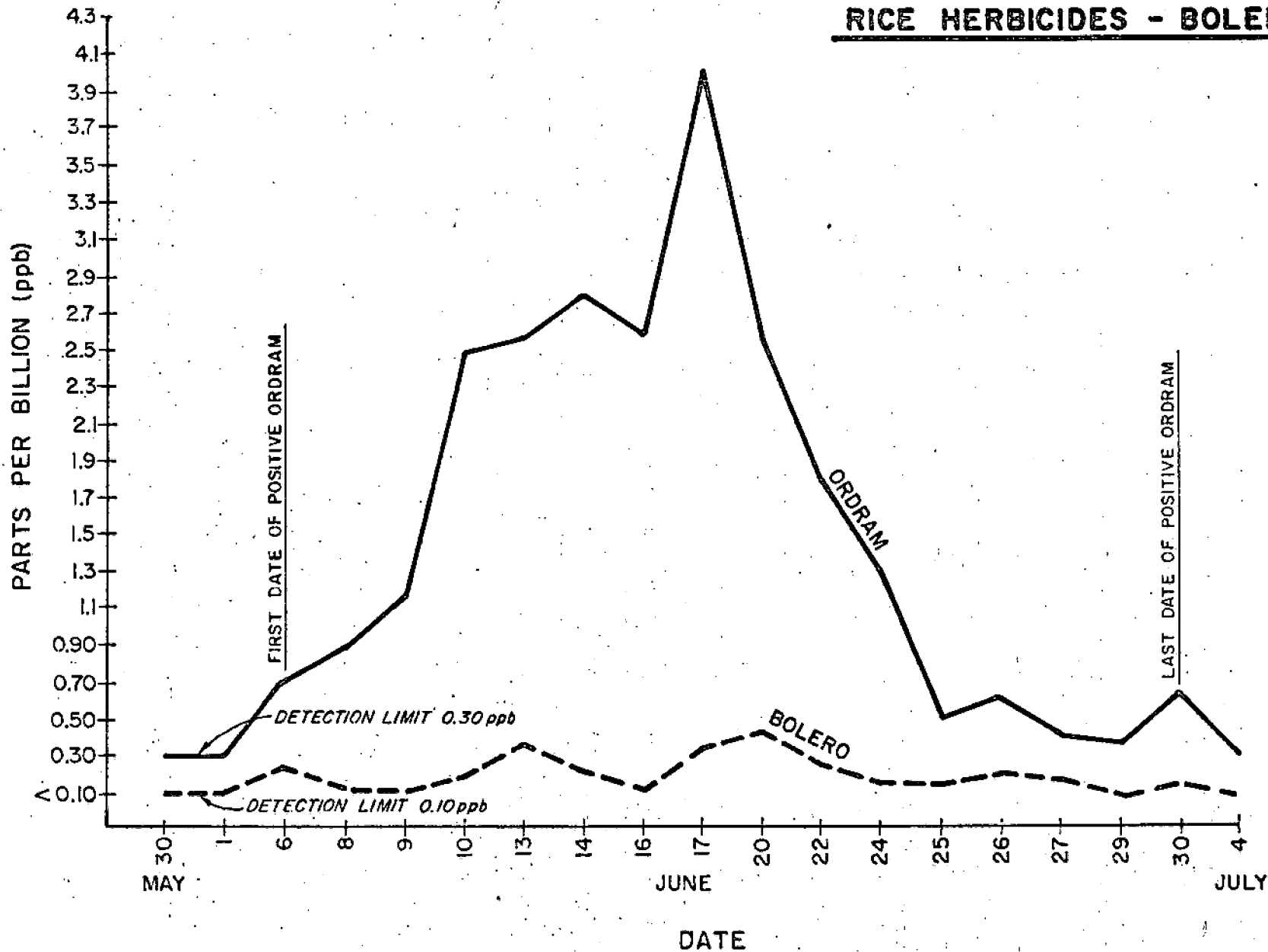


CRAWDAD LANDING

Sacramento River onehalf mile upstream from confluence of American River

RICE HERBICIDES - BOLERO AND ORDRAM

AUGUST 1983



MEMORANDUM

TO: J. F. VAROZZA, DIRECTOR OF PUBLIC WORKS

FROM: LORRAINE MAGANA, CITY CLERK

SUBJECT: REFERRAL OF ITEM NO. 34, COUNCIL
AGENDA OF AUGUST 9, 1983

DATE: AUGUST 10, 1983

Pursuant to Council action, the following matter is referred to you:

Request report re: all chemicals tested for and found; monthly status reports; levels of vinyl cholride found in drinking water; what chemicals used by City to clean water; talk to Reclamation Board re level of water maintained; report to Budget & Finance Committee on new equipment required, additional personnel required and feasibility of offering City's lab facilities to other jurisdictions for a fee; request State to notify the City immediately of contaminates found by them.

LM/km