



California Regional Water Quality Control Board

San Francisco Bay Region



Alan C. Lloyd, Ph.D.
Agency Secretary

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Arnold Schwarzenegger
Governor

March 25, 2005
File No. 2199.9438 (RS)

Mr. Carl Wilcox
California Department of Fish & Game
P.O. Box 47
Yountville, CA 94599

Subjects: Review of Operations Plan and Annual Self-Monitoring Report, and Revisions to Self-Monitoring Program, South San Francisco Bay Low Salinity Salt Ponds, Alameda County

Dear Mr. Wilcox:

As indicated in its Annual Self-Monitoring Report, the California Department of Fish & Game (CDFG) is in noncompliance with Order No. R2-2004-0018 for (1) discharging oxygen depleted waters to San Francisco Bay, and (2) not communicating permit violations in accordance with Standard Provisions and Reporting Requirements. This letter requests that CDFG resubmit its Operation Plans and Annual Self-Monitoring Report by no later than May 31, 2005, to address concerns we relayed in a March 3, 2005, meeting with your staff. Further, this letter revises Table 2B of the CDFG Self-Monitoring Program (revision enclosed) to more accurately document the effect of pond discharges on receiving waters, and eliminate requirements that have not contributed useful information for operating the pond systems.

Noncompliance with Board Order

The Annual Self-Monitoring Report (ASMR) acknowledges that discharges from Pond Systems B2 and B10 did not meet the dissolved oxygen limit prescribed in Order No. R2-2004-0018. Algal growth and decomposition in these ponds appeared to cause the low dissolved oxygen levels.

On communicating noncompliance to the Water Board, CDFG did not follow Standard Provisions and Reporting Requirements, which require that it notify Water Board staff by phone within 24 hours, and follow-up with a written report within 5 business days. The ASMR does not acknowledge this noncompliance with reporting requirements, or changes CDFG will implement to ensure in the future the Water Board is informed in a timely manner if pond discharges do not meet requirements contained in Order No. R2-2004-0018.

Revisions to Operation Plans and ASMR

As mentioned above, we met with you to discuss some potential revisions to the Operation Plans and ASMR. The proposed revisions are mainly to ensure that CDFG uses the monitoring data to develop and evaluate the effectiveness of best management practices, and optimize operations for protection of water quality. For this reason, we recommend that CDFG either combine the Operation Plans and ASMR as one document, or at least provide clearer cross-referencing between the two documents. As indicated above, please resubmit revised versions of the Operation Plans and ASMR, either as one or two documents, no later than May 31, 2005.

For the revised Operation Plans, we request that CDFG (a) evaluate the effectiveness of proposed corrective measures in minimizing dissolved oxygen violations (i.e., use 2004 data to show the effect of ceasing nighttime discharges), (b) implement corrective measures if the 10th percentile of dissolved oxygen values at the discharge point falls below 3.3 mg/L instead of 3.0 mg/L, and (c) document measures it will implement to minimize the downtime of continuous monitoring devices.

For the revised ASMR, we request that CDFG (a) address improvement of communication of discharge noncompliance, and document internal changes to show that data will be evaluated in the most timely manner possible (e.g., investigate the use of telemetry and protocol for evaluating data and reporting violations to Water Board staff), (b) provide the detection limit for recent metals monitoring (Table 5 of ASMR), (c) resample ponds B2 and B10 for chromium, copper, lead, and mercury since they exceeded the water quality objectives, (d) check for transcription errors in metals reporting (i.e., Table 5 indicates that chromium, copper, nickel, and lead contained the exact same levels in Ponds B2 and B10), and (e) clarify Table 1 Summary of Discharge Events, as some of the dates for closing and opening intake and discharge structures appear to be missing.

Interpretation of Dissolved Oxygen Data

We recognize that, without the installation of aerators, it will not be feasible for a well-operated lagoon system to continuously meet an instantaneous dissolved oxygen limitation of 5.0 mg/L; nor does it appear that a stringent interpretation of this limit is necessary to protect water quality, based on review of probe monitoring data in the Bay and recent site-specific standards work in the Everglades and Virginian Province. The dissolved oxygen objective of 5.0 mg/l in the Basin Plan is based on the national criteria published by the U.S. Environmental Protection Agency (USEPA), which has acknowledged in the Virginian Province (Cape Cod, MA to Cape Hatteras, NC) standard-setting process that levels lower than 5.0 mg/l naturally occur in estuaries. At our March 3, 2005, meeting, it appeared that all parties agree that triggering of reporting and best management practice (BMP) implementation should occur when dissolved oxygen concentrations are observed in the discharge outside of the natural range of what is observed in relatively unimpacted, functional slough and lagoon environments of the South San Francisco Bay, especially during extended periods of high air and water temperature.

At this point, oxygen levels of pond waters discharged from Ponds B2 and B10 were marginally acceptable. This conclusion is based on our statistical analysis of natural dissolved oxygen variations in sloughs in the South Bay.

Order No. R2-2005-0003, adopted by the Board on February 16, 2005, permits Cargill Incorporated to discharge saline waters from Pond A18 to Artesian Slough. In drafting this Order, we evaluated summertime, benthic dissolved oxygen levels in a number of locations based on available data collected by continuous monitoring devices, including Artesian Slough and Coyote Creek, where the City of San Jose had deployed probes for several weeks. From this analysis, we established a trigger in the Cargill Pond A18 Order that if the dissolved oxygen levels at the point of discharge fall below a 10th percentile of 3.3 mg/L (calculated on a calendar weekly basis), the Discharger shall make a timely report to the Board, and implement BMPs described in its Operations Plan. This dissolved oxygen trigger is based on levels found in Artesian Slough near the heron rookery in July 1997, during an extended period of high air temperatures, and appears to be the most relevant representation of natural dissolved oxygen variations in sloughs or lagoon systems currently available. Therefore, in evaluating compliance with the dissolved oxygen limit contained in Order No. R2-2004-0018, we believe that CDFG should consider it a trigger for reporting and action if, at the point of discharge, the 10th percentile falls below 3.3 mg/L (calculated on a calendar weekly basis).

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Based on our analysis of 2004 data, discharges from Pond B10 were below this trigger about 50 percent of the time, and from Pond B2 about 20 percent of the time. We do recognize that once additional discharge and receiving water monitoring data has been collected, it may be possible to establish more relevant performance criteria; however, we believe this is the most relevant trigger, based on current available information, to protect beneficial uses. For this reason, we included an optional provision in Cargill's Pond A18 Order to provide a technical report justifying an alternative trigger level based on well-performing lagoon systems in and around the South Bay. If they submit an analysis acceptable to the Executive Officer, then for consistency we would modify the trigger level for all dischargers from the former salt ponds. We remain open to review information on this subject that you submit in defense of an alternative trigger level, for instance in the 2005 ASMR.

In analyzing dissolved oxygen and pH data, we noted that continuous monitoring devices experienced significant downtime for certain periods, and therefore, we request that CDFG document in its Operation Plan measures it intends to implement to minimize such periods. We also recognize that discharge from ponds B2 and B10 did not occur over the whole time-period shown above. For this reason, we request that CDFG clarify in its ASMR the dates that it opened and closed intake and discharge structures, as some of these dates appear to be missing.

Modifications to Self-Monitoring Program

To more adequately document the effect of pond discharges on receiving waters, this letter modifies the self-monitoring program for Order No. R2-2004-0018. For continuous circulation period monitoring, this letter requires that CDFG (a) collect receiving water samples along the transect identified for initial release samples, (b) document if it collects samples at flood tide, ebb tide, or slack tide, and (c) include monitoring near the bottom, in addition to monitoring near the surface, for dissolved oxygen, pH, salinity, temperature, and turbidity.

Additionally, this letter requires that CDFG document in its ASMR (starting for the 2005 monitoring period) the time-period each day that ponds discharge, and an estimate of the quantity discharged. This is necessary to provide a context of the amount of pond waters entering sloughs and the Bay relative to ambient flows, the intermittent nature of the discharges (i.e., only around low tides), and to document the effect of manipulating flow rates on receiving water quality, because adjusting flow rates is indicated as one of the corrective measures if salinity or dissolved oxygen levels become problematic.

On monitoring requirements, we learned at the March 3, 2005, meeting that the Agencies do not believe monthly within-pond monitoring from May through October for dissolved oxygen, pH, temperature, salinity, chlorophyll *a* provides useful information for pond management. The Agencies indicated that they would conduct within-pond monitoring if pond discharges appear to be threatening noncompliance, but did not believe that the Self-Monitoring Program should have a prescriptive requirement. We agree, and hereby eliminate monthly within-pond monitoring requirements. However, if CDFG finds that it violates limits of this Order, in particular the dissolved oxygen trigger of 3.3 mg/L (mentioned above), this letter amends the Self-Monitoring Program to require that CDFG conduct within-pond monitoring to investigate the potential for using baffles to transfer more oxygenated water towards the discharge point. Additionally, this letter amends the Self-Monitoring Program to require that CDFG accelerate receiving water monitoring to weekly from monthly if it finds dissolved oxygen levels below a 10th percentile of 3.3 mg/L (calculated on a weekly basis) at the discharge point.

We appreciate the commitment and partnership of CDFG in working with USGS to collect information on total and methyl mercury in the sediments of the former salt ponds, both at the water-sediment interface and at depth. This information was collected and reported to the Water Board without the need for prescriptive self-monitoring requirements and demonstrated our collective commitment to learn more

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about the dynamics of mercury in various wetland management scenarios as the initial stewardship plan gets underway and long-term planning decisions are made. This information collection effort should continue to be closely coordinated with the long-term restoration planning effort led by the California Coastal Conservancy.

We thank CDFG for taking the time to meet with us on March 3, 2005, to discuss potential improvements for ensuring that the initial stewardship plan operates as smoothly as possible during the transition from salt-making to restoration of estuarine wetland functions. As CDFG is preparing to initiate discharge from Ponds B2C and B6A this year, we would like to remind it that in accordance with Provision D.3 of Order No. R2-2004-0018 it must have an Operations Plan for each of these systems in place before commencing discharge. If you have any questions concerning this communication, please contact Robert Schlipf at (510) 622-2478 or via email at rschlipf@waterboards.ca.gov.

Sincerely,

Original signed by

Bruce H. Wolfe
Executive Officer

Enclosure: Revised Table 2B of Self-Monitoring Program

cc: John Krause, California Department of Fish & Game, Yountville
Steve Ritchie, California Coastal Conservancy
Clyde Morris, U.S. Fish & Wildlife Service, Newark
Amy Hutzell, State Coastal Conservancy, Oakland
Lisa Stallings, Life Science Inc., Woodland

TABLE 2B –CONTINUOUS CIRCULATION MONITORING FOR BAUMBERG PONDS

| Sampling Station: | D.O | pH | Temp | Salinity | Metals | Sample Function |
|--------------------------|-----|----|------|----------|--------|-----------------|
| | A | A | A | A | C | Discharge |
| B-2-2a | B | B | B | B | | Receiving |
| B-2-2b | B | B | B | B | | Receiving |
| B-2-2c | B | B | B | B | | Receiving |
| B-2-3a | B | B | B | B | | Receiving |
| B-2-3b | B | B | B | B | | Receiving |
| B-2-3c | B | B | B | B | | Receiving |
| | A | A | A | A | C | Discharge |
| B-2C-2 | A | A | A | A | | Receiving |
| B-2C-3 | A | A | A | A | | Receiving Water |
| B-2C-4 | A | A | A | A | | Receiving Water |
| B-2C-5 | A | A | A | A | | Receiving Water |
| B-2C-7 | A | A | A | A | | Receiving Water |
| B-6A-1 | A | A | A | A | C | Discharge |
| B-6A-2 | A | A | A | A | | Receiving Water |
| B-6A-3 | A | A | A | A | | Receiving Water |
| B-6A-6 | A | A | A | A | | Receiving Water |
| B-6A-7 | A | A | A | A | | Receiving Water |
| B-8A-1 | A | A | A | A | C | Discharge |
| B-8A-2 | A | A | A | A | | Receiving Water |
| B-8A-3 | A | A | A | A | | Receiving Water |
| B-8A-4 | A | A | A | A | | Receiving Water |
| B-10-1 | A | A | A | A | C | Discharge |
| B-11-1 | A | A | A | A | C | Discharge |
| B-10-11-2 | A | A | A | A | | Receiving Water |

| Sampling Station: | D.O | pH | Temp | Salinity | Metals | Sample Function |
|--------------------------|-----|----|------|----------|--------|-----------------|
| B-10-11-3 | A | A | A | A | | Receiving Water |
| B-10-11-4 | A | A | A | A | | Receiving Water |
| B-10-11-5 | B | B | B | B | | Receiving Water |

LEGEND FOR TABLE 2B

A = Receiving water samples shall be collected at discrete locations near the surface and bottom from downstream to upstream of the discharge point. Receiving water slough samples shall be collected monthly from May through October as close to low tide as practicable. Discharge pond samples shall be collected before pond water mixes with receiving water using a continuous monitoring device from May through October. If dissolved oxygen levels at the discharge point fall below a 10th percentile of 3.3 mg/L (calculated on a calendar weekly basis), the Discharger shall accelerate receiving water monitoring to weekly, notify Water Board staff, and implement best management practices to increase dissolved oxygen levels in discharged water (including within pond monitoring). For days it collects receiving water samples, the Discharger shall also report standard observations, as described in Section D of the SMP, and document if it collect samples at flood tide, ebb tide, or slack tide. Additionally, the Discharger shall record a daily estimate of the quantity and time-period of discharge based on pond water levels and the strength of tides.

B = Receiving water samples shall be collected at discrete locations near the surface and bottom from downstream to upstream of the discharge point. Receiving water bay samples shall be collected monthly from May through October as close to low tide as practicable. For days it collects receiving water samples,

LEGEND FOR TABLE 2B - Continued

the Discharger shall also report standard observations, as described in Section D of the SMP, and document if it collect samples at flood tide, ebb tide, or slack tide.

C = Water column samples for total and dissolved arsenic, chromium, nickel, copper, zinc, selenium, silver, cadmium, lead, and mercury shall be collected annually in August or September. When collecting metals samples, the Discharger shall also monitor for salinity, and total suspended solids.