

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER R5-2010-0703
FOR
CITY OF PATTERSON
WATER QUALITY CONTROL FACILITY
STANISLAUS COUNTY

This Order is issued to the City of Patterson based on provisions of California Water Code (“CWC”) section 13304, which authorizes the California Regional Water Quality Control Board, Central Valley Region, (“Central Valley Water Board” or “Board”) to issue a Cleanup and Abatement Order (“CAO”), and CWC section 13267, which authorizes the Central Valley Water Board to require the submittal of technical reports.

The Executive Officer of the Central Valley Water Board finds, with respect to the Discharger’s acts, or failure to act, the following:

1. The City of Patterson Department of Public Works (hereafter “Discharger”) owns and operates the City of Patterson Water Quality Control Facility (“WQCF”), which provides wastewater treatment for the City of Patterson, the Villa Del Lago commercial development and the Diablo Grande residential and golf course resort community (located approximately seven miles southwest of the City). The treatment plant is located three miles northeast of Patterson, at 14901 Poplar Avenue.
2. The WQCF consists of three parallel treatment trains: the north activated sludge treatment system (“NASTS”); the advanced integrated pond system (“AIPS”); and the south activated sludge treatment system (“SASTS”). Wastewater from each of the three treatment systems is discharged to 16 percolation/evaporation ponds covering approximately 108 acres for disposal.
3. This Order has been prepared to address (a) total suspended solids (“TSS”), biochemical oxygen demand (“BOD”), and total nitrogen effluent limit violations from the AIPS, and (b) total nitrogen effluent limit violations from the NASTS.

BACKGROUND

4. The Discharger submitted a Report of Waste Discharge (“RWD”) in March 2007 to apply for revised Waste Discharge Requirements (“WDRs”) for a major expansion of the WQCF. The RWD proposed the following:
 - a. The NASTS would be improved to produce a higher quality effluent by installing new brush aerators and replacing the return activated sludge pumps.
 - b. The capacity of the SASTS would be increased from 1.25 to 2.5 mgd by constructing an additional oxidation ditch and clarifier capable of producing effluent with less than 20 mg/L BOD, 20 mg/L total suspended solids (TSS), and 10 mg/L nitrate nitrogen.

- c. The existing grinder/flow splitter structure would be replaced with a larger capacity structure and a new return activated sludge and waste activated sludge pump station would be constructed.
- d. A mechanical sludge dewatering unit would be constructed to replace the existing sludge drying beds.

The WQCF improvements were to be financed through the State Revolving Fund or an alternative source.

- 5. On 26 October 2007, the Central Valley Water Board adopted revised WDRs Order R5-2007-0147. The WDRs limit the total influent flow to 2.45 million gallons per day (“mgd”), and include separate influent flow limits for the three parallel treatment trains as follows:

| <u>Treatment Train</u> | <u>Current Flow Limits (mgd)</u> ¹ | <u>Post-Improvements Flow Limits (mgd)</u> ¹ |
|-------------------------------|---|---|
| North Activated Sludge System | 1.0 | 0.8 ² |
| South Activated Sludge System | 1.25 | 2.5 |
| AIPS | 0.2 | 0.2 |
| <u>Total</u> | <u>2.45</u> | <u>3.5</u> |

¹ As a monthly average flow.

² Proposed capacity reduced to meet average daily effluent limits of less than 20 mg/L BOD, 20 mg/L TSS, and 10 mg/L nitrate nitrogen.

The WDRs allow the Executive Officer to increase flow limits up to 3.38 mgd, but only after approving a technical report that would justify the increase by documenting the completed installation of an additional oxidation ditch and clarifier at the SASTS.

- 6. Effluent Limitation C.1.1 of the WDRs states:

“Effluent discharged to the percolation ponds shall not exceed the following limits, or lower values as necessary to comply with the Groundwater Limitations:

| <u>Constituent</u> | <u>Units</u> | <u>NASTS Monthly Average</u> | <u>SASTS Monthly Average</u> | <u>AIPS Monthly Average</u> |
|--------------------|--------------|------------------------------|------------------------------|-----------------------------|
| BOD ₅ | mg/L | <20 | <20 | <40 |

| <u>Constituent</u> | <u>Units</u> | <u>NASTS Monthly Average</u> | <u>SASTS Monthly Average</u> | <u>AIPS Monthly Average</u> |
|---|--------------|--------------------------------------|--------------------------------------|-------------------------------------|
| TSS | mg/L | <20 | <20 | <40 |
| Total Nitrogen | mg/L | NA | <8 | <8 |
| Total Nitrogen (Interim Limit) | mg/L | <35 | NA | NA |
| Total Nitrogen (As of 1 June 2009) | mg/L | <10 | <8 | <8 |
| <u>Total Dissolved Solids (Interim Limit)</u> | mg/L | 1,250 | 1,250 | 1,250" |

7. Improvements to the NASTS began in February 2009 and were substantially complete by November 2009. During that time, the NASTS was not in use, and all influent wastewater was split between the SASTS and AIPS treatment trains.
8. The Discharger applied for a loan through the State Revolving Fund in 2007 to finance the SASTS expansion, but the loan has not yet been approved and the project has not begun. Due to the housing downturn, the Discharger is not currently pursuing capacity improvements to the SASTS.

WDRS VIOLATIONS – AERATED INTEGRATED POND SYSTEM (AIPS)

9. Based on monthly monitoring reports for the period of November 2007 through August 2010, there was an extended period when influent flows to the AIPS exceeded the treatment capacity, and the Discharger did not consistently with the effluent limits for the AIPS. The violations are summarized below, and a detailed list is provided in Attachment A:
 - a. The influent flow to the AIPS exceeded the 200,000 gpd limit for March 2008 through November 2008, and for January and February 2009, as summarized below.

| <u>Influent Flow Limit (gpd)</u> | <u>Range of Reported Monthly Average Flows (gpd)</u> | <u>Mean of Reported Monthly Average Flows (gpd)</u> |
|--------------------------------------|--|---|
| 200,000 | 209,000 to 252,000 | 227,000 |

- b. The monthly average BOD, TSS, and total nitrogen in the AIPS effluent exceeded the effluent limits for a 34-month period from November 2007 through August 2010 as summarized below.

| <u>Constituent</u> | <u>Effluent Limit ¹ (mg/L)</u> | <u>Number of Monthly Violations</u> | <u>Range of Reported Results ¹ (mg/L)</u> | <u>Mean of Reported Results ¹ (mg/L)</u> |
|--------------------|---|-------------------------------------|--|---|
| BOD | 40 | 18 | 17.2 to 178.2 | 47.5 |
| TSS | 40 | 31 | 22 to 281 | 81.4 |
| Total Nitrogen | 8 | 26 | 0.3 to 293 | 50.6 |

¹ Monthly average concentration.

These results indicate that the AIPS has been consistently overloaded, reducing the effectiveness of BOD, TSS, and nitrogen removal, and likely resulting in excess accumulated solids within the AIPS treatment ponds and possibly the percolation/evaporation ponds.

10. Board staff issued a Notice of Violation (NOV) to the Discharger on 9 November 2009 for the AIPS violations discussed above. The NOV required the Discharger to submit a technical report describing how and when the violations would be corrected, and how they would be prevented in the future. In addition, the NOV required the Discharger to submit a technical report documenting an evaluation of sludge thickness in the potentially affected ponds and, if needed, a plan and schedule for the removal and disposal of excess sludge.
11. The Discharger submitted technical reports dated 15 December 2009, 26 January 2010, 16 September 2010, and 14 July 2010. In summary, the reports state that:
 - a. The BOD, TSS, and total nitrogen effluent violations associated with the AIPS resulted from waste activated sludge generated by the NASTS and/or SASTS routinely being discharged to the AIPS, thus overloading the system with solids. This was caused by a lack of sludge drying beds during periods of significant rainfall, and difficulties in optimizing performance of the sludge drying beds. However, as of 19 September 2010, sludge no longer enters the AIPS, and is instead directed to the SASTS digester
 - b. The planned sludge dewatering facility and associated sludge pumping systems will correct the BOD and TSS effluent violations, but the project is not scheduled to be completed until March 2011. A pipeline that will allow the waste activated sludge from the NASTS to be stabilized in the SASTS aerobic digesters and then dewatered at the sludge dewatering facility was completed in October 2010.
 - c. Since May 2010, the Discharger has reduced the influent flow to the AIPS, thus lowering the nitrogen load in the discharge. In addition, to reduce the amount of waste activated sludge, the Discharger has increased the use of the plastic media sludge drying beds at the SASTS and has reactivated the NASTS sand media drying beds.
 - d. Since September 2010, the Discharger has been diverting effluent from the AIPS back to the headworks of the treatment plant to allow additional treatment of the wastewater and thereby ensure compliance with the effluent limits.

- e. Effluent from the AIPS is discharged to nine percolation/evaporation ponds (Ponds 4, 5, 6, 8, 10, 11, 12, 13, and 14). In July 2010, seven of the ponds were evaluated for sludge thickness. No noticeable layer of sludge or algae was observed within these ponds. Two of the ponds (Ponds 12 and 13) and the AIPS ponds were not evaluated because they were in use.

This Order requires the Discharger to provide technical reports certifying that the solids dewatering facility has been completed and is operational, evaluating the sludge volume in the AIPS ponds and Ponds 12 and 13, and documenting that the AIPS system is able to treat wastewater to meet the effluent limits.

WDRS VIOLATIONS – NORTH ACTIVATED SLUDGE TREATMENT SYSTEM (NASTS)

- 12. As noted above, the NASTS treatment train was not operated between February 2008 and November 2009 during the construction of the NASTS improvements. Once the NASTS was restarted, the effluent did not comply with the nitrogen effluent limits for seven of the first ten months of operation, between November 2009 and August 2010. The exceedances are summarized below and a detailed list is included in Attachment A:

| <u>Constituent</u> | <u>Effluent Limit ¹ (mg/L)</u> | <u>Number of Monthly Violations</u> | <u>Range of Reported Results ¹ (mg/L)</u> | <u>Mean of Reported Results ¹ (mg/L)</u> |
|-----------------------|---|-------------------------------------|--|---|
| BOD | 40 | 1 | 2.1 to 57.4 | 14.5 |
| TSS | 40 | 6 | 6 to 21 | 7.5 |
| <u>Total Nitrogen</u> | <u>8</u> | <u>8</u> | <u>3.3 to 23.3</u> | <u>14.1</u> |

¹ Monthly average concentration.

- 13. In a 24 September 2010 transmittal, the Discharger stated that the total nitrogen effluent violations associated with the NASTS resulted when effluent being returned to the headworks hydraulically overloaded the system and upset the treatment process. Additionally, the absence of denitrifying bacteria contributed to the nitrogen violations. The Discharger states that equipment failures at the NASTS pumping station have since been resolved and that a performance evaluation report for the NASTS will be submitted by 15 December 2010.
- 14. This Order requires that the Discharger submit an evaluation of the NASTS showing whether any additional improvements are needed to allow it to treat wastewater to meet the effluent limits in the WDRs.

REGULATORY CONSIDERATIONS

- 15. As described in the Findings, the Discharger has consistently violated the BOD, TSS, and total nitrogen effluent limits contained in the WDRs, and by doing so, has discharged effluent

which poses a threat to groundwater and surface water quality. This Order is necessary to ensure a timely return to compliance with the WDRs.

16. By failing to meet the effluent limitations in the WDRs, the Discharger has caused or permitted, or threatens to cause or permit, waste to be discharged in such a manner that it threatens to cause a threat to public health and/or create a condition of pollution or nuisance. Therefore, the Discharger is subject to this Order pursuant to CWC section 13304.
17. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to CWC section 13263(a), waste discharge requirements must implement the Basin Plan.
18. Surface water drainage is to the San Joaquin River. The beneficial uses of the San Joaquin River (within the Sacramento San Joaquin Delta Hydrologic Area) are municipal and domestic supply; agricultural supply; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.
19. The depth to shallow groundwater underlying the facility ranges from approximately 6 to 24 feet below ground surface. The groundwater flow direction is generally from west to east toward the San Joaquin River, which is approximately one half mile downgradient of the WQCF. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
20. CWC section 13304(a) states, in relevant part, that:

Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.”
21. CWC section 13267(b) states, in relevant part, that:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall

provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order are necessary to ensure compliance with this CAO and WDRs Order R5-2007-0147, and to ensure the protection of water quality and public health. The Discharger is subject to these requirements because the Discharger owns and operates the facility that discharges waste subject to this Order.

22. The issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act, pursuant to California Code of Regulations, title 14, section 15321(a)(2).

IT IS HEREBY ORDERED that, pursuant to CWC sections 13304 and 13267, the City of Patterson shall cleanup and abate the discharge from its Water Quality Control Facility in accordance with the scope and schedule set forth below.

Any person signing a document submitted under this Order shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

1. The Discharger shall immediately take all steps necessary to ensure the full compliance with WDRs Order R5-2007-0147 and the associated Monitoring and Reporting Program.
2. **Beginning 1 February 2011**, and by the first day of the second month following each calendar quarter (**i.e., by 1 February, 1 May, 1 August, and 1 November each year**), the Discharger shall submit a progress report describing the work completed to date regarding each of the reporting requirements described below.
3. By **17 January 2011**, the Discharger shall submit a performance evaluation technical report for the NASTS. If the evaluation finds that additional improvements are needed before the NASTS can consistently treat wastewater to meet the WDR effluent limits, then the report shall include a detailed list of the needed improvements and a proposed timeline for implementation.
4. By **1 April 2011**, the Discharger shall submit a workplan that describes methods to be used to evaluate the volume and mass of sludge in the AIPS ponds and Ponds 12 and 13.
5. By **1 June 2011**, the Discharger shall submit a technical report certifying that the construction of the sludge dewatering centrifuge has been completed and is operational.

6. By **1 September 2011**, the Discharger shall submit a technical report that includes results of the sludge evaluation in the AIPS ponds and Ponds 12 and 13. If the results of the testing show that the sludge accumulation in the ponds impacts, or has the potential to impact, either treatment, storage, and disposal capacity or compliance with the effluent limits of the WDRs, the report shall include a plan and schedule for removal and proper disposal of excess sludge by 30 December 2012.
7. By **1 November 2011**, the Discharger shall submit a technical report demonstrating that all modifications/improvements needed to ensure that the AIPS, SASTS, and NASTS consistently comply with the effluent limits in the WDRs have been completed. If the technical report shows that the AIPS, SASTS, and/or NASTS are unable to meet the effluent limit requirements of the WDRs, the report must provide corrective measures to be taken to meet those limits. In addition, the report must include a schedule for completing the corrective measures.

In addition to the above, the Discharger shall comply with existing WDRs Order R5-2007-0147 and all applicable provisions of the California Water Code that are not specifically referred to in this Order. **As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional.**

If the Discharger is unable to perform any activity or submit any document in compliance with the schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Executive Officer, the Discharger may request, in writing, an extension of the time specified. The extension request shall include justification for the delay. Any extension request shall be submitted as soon as a delay is recognized and prior to the compliance date. An extension may be granted by revision of this Order or by a letter from the Executive Officer.

If the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability. Failure to comply with this Order may result in the assessment of administrative civil liability up to \$10,000 per violation per day, pursuant to the CWC sections 13268, 13350, and/or 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality
or will be provided upon request.

This Order is effective upon the date of signature.

original signed by

PAMELA C. CREEDON, Executive Officer

December 7, 2010

(Date)

Attachment A: Summary of Monthly Average Effluent Results

gjc: 7 Dec-10

Attachment A to
 Cleanup and Abatement Order No. R5-2010-0703
 City of Patterson Water Quality Control Facility
 Stanislaus County

Summary of Monthly Average Effluent Results from the AIPS

| Month/Year | BOD (<40 mg/L) ¹ | Total Nitrogen (<8 mg/L) ¹ | TSS (<40 mg/L) ¹ |
|----------------|--------------------------------|--|--------------------------------|
| November 2007 | 13.9 | NR | 28 |
| December 2007 | 21.1 | NR | 41 |
| January 2008 | 23.1 | NR | 56 |
| February 2008 | 33.6 | NR | 68 |
| March 2008 | 41.8 | 0.4 | 72 |
| April 2008 | 50.3 | 0.5 | 60 |
| May 2008 | 64.7 | 0.3 | 85 |
| June 2008 | 41 | 110.3 | 281 |
| July 2008 | 38.2 | 114 | 110 |
| August 2008 | 43 | 79.3 | 111 |
| September 2008 | 45.1 | 79.5 | 101 |
| October 2008 | 39.2 | 57 | 59 |
| November 2008 | 24.6 | 36.7 | 33 |
| December 2008 | 30.3 | 38.2 | 40 |
| January 2009 | 35.6 | 36.7 | 47 |
| February 2009 | 49.9 | 52.5 | 75 |
| March 2009 | 40.7 | 81.6 | 79 |
| April 2009 | 178.2 | 103.1 | 112 |
| May 2009 | 75.7 | 293 | 107 |
| June 2009 | 58.9 | 45.4 | 119 |
| July 2009 | 51.7 | 55 | 75 |
| August 2009 | 73.8 | 32.2 | 68 |
| September 2009 | 30.7 | 48 | 40 |
| October 2009 | 25.9 | 35.3 | 51 |
| November 2009 | 33.3 | 29.7 | 22 |
| December 2009 | 102.4 | 41 | 43 |
| January 2010 | 17.2 | 25.3 | 54 |
| February 2010 | 26.3 | 31.3 | 73 |
| March 2010 | 41.2 | 24 | 64 |
| April 2010 | 24 | 24.7 | 41 |
| May 2010 | 50.6 | 21 | 98 |
| June 2010 | 89.4 | 22.7 | 142 |
| July 2010 | 59.9 | 9 | 164 |
| August 2010 | 39.0 | 43.7 | 149 |

¹ Effluent limits as specified in Discharge Specification No. C.1.1 of the WDRs.
 Values in bold exceed the effluent limitations

Summary of Monthly Average Effluent Results from the NASTS

| Month/Year | BOD (<40 mg/L) ¹ | Total Nitrogen (<8 mg/L) ¹ | TSS (<40 mg/L) ¹ |
|---------------|--------------------------------|--|--------------------------------|
| November 2009 | 30.6 | 11.3 | 0 |
| December 2009 | 57.4 | 14.3 | 14 |
| January 2010 | 5.2 | 18 | 5 |
| February 2010 | 2.6 | 16.7 | 5 |
| March 2010 | 21.8 | 20.3 | 21 |
| April 2010 | 5.5 | 23.3 | 7 |
| May 2010 | 4.2 | 3.3 | 5 |
| June 2010 | 2.1 | 7.3 | 5 |
| July 2010 | 10.4 | 9.7 | 6 |
| August 2010 | 6.1 | 16.3 | 5 |

¹ Effluent limits as specified in Discharge Specification No. C.1.1 of the WDRs.
 Values in bold exceed the effluent limitations



California Regional Water Quality Control Board Central Valley Region

Katherine Hart, Chair



Linda S. Adams
Secretary for
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Arnold
Schwarzenegger
Governor

7 December 2010

Mike Willet, Director
City of Patterson Department of Public Works
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CERTIFIED MAIL
7009 1410 0002 1421 7683

CLEANUP AND ABATEMENT ORDER NO. R5-2010-0703, CITY OF PATTERSON WATER QUALITY CONTROL FACILITY, STANISLAUS COUNTY

Enclosed is Cleanup and Abatement Order (CAO) No. R5-2010-0703 for the subject facility. In preparing the final order, we incorporated your comments, which we received on 1 December 2010.

The CAO sets forth a scope and schedule for the remaining improvements needed to bring the facility back into compliance with Waste Discharge Requirements Order R5-2007-0147.

In order to conserve resources, a paper copy of the CAO is being sent to the Discharger only. Interested persons may download the document from the Central Valley Water Board's Internet website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/index.shtml

Copies of this document can also be obtained by contacting Guy Childs@ (916) 464-4648. or at gchilds@waterboards.ca.gov.

ANNE L. OLSON, P.E., Chief
Senior Water Resource Control Engineer
Compliance and Enforcement Section

Enclosure: Cleanup and Abatement Order No. R5-2010-0703

cc w/o enc.: Patrick Pulupa, State Water Board, Office of Chief Counsel, Sacramento
Bella Bedal, Stanislaus County Department of Environmental Resources, Modesto
Kendall Wright, Patterson Irrigator Newspaper, Patterson
Robert Godwin, LEE & RO, Inc., Sacramento

gjc: 7 Dec-10

California Environmental Protection Agency

