

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF MAY 12-13, 2005

Prepared on April 21, 2005

ITEM NO: 20

SUBJECT: Revised Waste Discharge Requirements for California Department of Parks and Recreation, Santa Cruz County, Waste Discharge Requirements Order No. R3-2005-0035. (NPDES Permit No. CA 0048267)

KEY INFORMATION:

Treatment System Location: Big Basin State Park, Santa Cruz County
Discharge Type: Domestic wastewater
Design Capacity: 0.03 million-gallons-per-day (MGD) average flow, 0.1 MGD peak flow
Average Flow: 0.02 MGD
Treatment: Tertiary
Disposal: East Branch of Waddell Creek
Reclamation: Landscape irrigation
Existing Orders: NPDES Order No. 00-31

SUMMARY

The California Department of Parks and Recreation, Big Basin State Park (hereafter Discharger) owns and operates a treatment plant to treat domestic wastewater from Big Basin State Park. The Discharger improved plant operations to reliably comply with requirements, and plans more improvements, including ultraviolet-light disinfection and a complete collection system renovation.

Discharger uses the solids as soil amendment throughout the park grounds or disposes of them in a landfill. Design average daily flow is 0.03 million gallons per day (MGD), and design peak wet weather flow is 0.1 MGD.

COMPLIANCE HISTORY

Since completing operational improvements in 2002, the Discharger has maintained excellent compliance with Order No. 00-31's waste discharge requirements.

BACKGROUND

Wastewater Treatment Plant. The plant provides tertiary wastewater treatment by means of influent grinding, primary clarification, trickling filters, secondary clarification, slow sand filtration, chlorination/dechlorination, ammonia removal and pH control. Most treated wastewater is discharged to the East Branch of Waddell Creek, with a small fraction used for landscape irrigation. Attachments A, B and C show the plant location, process flow and the ammonia removal system, respectively.

DISCUSSION

WASTE DISCHARGE REQUIREMENTS

The proposed Order adds superscripts to waste discharge requirements to identify their origin. The proposed Order includes requirements from the 2000 *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* and federal regulations listed in 40CFR122 and 40CFR133. Requirements without superscripts are based on staff's professional judgment.

The Discharger treats waste biosolids for one year in an unheated and unmixed anaerobic digester and dries the stabilized solids in drying beds. The

Discharge Prohibitions. The proposed Order's Prohibitions limit discharge to the East Branch of

Waddell Creek and to Board-approved water reuse sites. The Discharger irrigates landscaping with a small portion of the tertiary-treated reclaimed water, which contains less than 2.2 MPN/100mL of total coliform. The Prohibitions also prohibit the discharge of any warfare agents or radioactive wastes, plant bypasses, and spills and overflows.

California Toxics Rule Pollutants. In 2002, the Discharger analyzed its effluent for the pollutants listed in the California Toxics Rule, detecting nothing except the trihalomethanes (THMs) chloroform, dichlorobromomethane and chlorodibromomethane. The effluent contained the latter two THMs at levels exceeding the Toxics Rule's water quality objectives. Chlorine disinfection likely generates the THMs. Therefore, the proposed Order includes interim and final effluent limitations for the noted THMs, except chloroform for which the Toxics Rule specifies no limit. Proposed Monitoring and Reporting Program No. R3-2005-0035 (MRP) requires the Discharger to monitor its effluent monthly for the pollutants until full activation of the planned ultraviolet-light (UV) disinfection system. UV disinfection adds no THMs to wastewater.

The Discharger successfully tested a pilot UV system and plans to install a full-sized system by May 1, 2006. To ensure this, the proposed Order's Provisions F.6 and F.7 require the Discharger to complete the project (among a total of six projects) by May 1, 2006, and to report the project's status to the Executive Officer in November 2005.

Staff infers the discharge will likely contain no Toxics Rule pollutants in the future based on the 2002 analytical results and on the nature of the discharge's source. Toxics Rule pollutants originate from high-temperature or highly corrosive industrial sources or are persistent organic pollutants such as banned pesticides, dioxins, or polychlorinated biphenyls. Campground wastewater is likely free of pollutants of this nature. Therefore, the proposed MRP requires the Discharger to monitor its effluent once during the life of the permit (in August 2007) for all Toxics Rule pollutants.

As a service, the MRP advises the Discharger of the pollutant list's location in the Code of Federal

Regulations. The proposed MRP requires the Discharger to use the approved analytical methods in 40CFR136, and requires the Discharger to employ the Minimum Levels listed in Appendix 4 of the Toxics Rule's State Implementation Plan (SIP). The MRP also advises the Discharger of the SIP's Internet address and requires the Discharger to use the lowest applicable Minimum Level; that is, the lowest detection limit listed in the SIP.

Other Effluent Limitations. The proposed Order's Table A limits the discharge of the following pollutants: Biochemical Oxygen Demand (BOD), suspended and settleable solids, oil and grease, methyl butyl alkyl sulfonate (MBAS), pH, un-ionized ammonia, and acute and chronic toxicity. Table B limits effluent metals concentrations to Basin Plan objectives. Other effluent limitations require the discharge to contain adequate dissolved oxygen and to be free of toxic pollutants in toxic amounts. The effluent limitations also prohibit the discharge of materials that could cause a nuisance or impair beneficial uses, including floating matter or biostimulatory substances. Staff developed the limits based on the Basin Plan's requirements, California Code of Regulations Title 22 requirements, and professional judgment.

Receiving water limitations. The Proposed Order's receiving water limitations prohibit the discharge from excessively changing the Creek's temperature, pH, and coloration and from depleting the Creek's oxygen. The limitations prohibit the discharge from causing the Creek's ammonia to rise to toxic levels, turbidity to excessively increase, and nuisance algal growth. The limitations restrict fecal coliform to 200/100mL.

Acting together with the proposed effluent limitations, the receiving water limitations comprehensively protect the Creek's beneficial uses.

Provisions. The proposed Order includes the usual Provisions rescinding the existing Order and requiring the Discharger to comply with the MRP and the Standard Provisions sent with the first draft Order and MRP. The Provisions also include

requirements that the Discharger, if the effluent is consistently toxic, conduct a Toxicity Reduction Evaluation to track down and eliminate the source.

CHANGES TO WASTE DISCHARGE REQUIREMENTS

As discussed earlier the proposed Order includes interim and final effluent limitations for two THMs. See **California Toxics Rule**, above.

The proposed Order includes two new Provisions, which require the Discharger to complete six planned plant and collection system improvement projects by May 1, 2006, and to report on their status in November 2005. As mentioned earlier, the Discharger plans to construct a new UV disinfection system and to completely renovate the collection system, which will eliminate or greatly reduce the excessive infiltration and inflow (I&I) the plant now suffers. Other projects will replace the plant's wastewater coagulation system, improve its pH control system, replace the plant's emergency generator and transfer switch, and replace the laboratory building. The Discharger's staff stated the funds are encumbered for the projects. Staff stated they must be completed by the end of April to avoid disturbing the nesting of a nearby pair of marbled murrelets, which is a rare, small auk-like bird inhabiting the Pacific Ocean's coast that nests in the redwood forest in Santa Cruz County.

MONITORING AND REPORTING PROGRAM

As stated above, the collection system experiences substantial I&I during the rainy season. Therefore, the proposed MRP requires the Discharger to annually inspect the ground surface overlying the entire system and to monthly inspect the systems segments in need of most repair. The proposed MRP requires the Discharger to videotape and smoke-test the system every five years and to conduct an I&I study during the winter of 2007/2008. The Discharger plans, and the proposed Order requires, a complete collection system renovation, which will probably greatly reduce I&I.

The proposed MRP requires influent monitoring for flow, BOD and suspended solids, which allows the Discharger to determine the plant's percent BOD and solids removal. The proposed MRP

requires effluent monitoring for flow, fecal and total coliform and all other pollutants limited in the effluent limitations noted above. The proposed MRP also requires the Discharger to monitor its effluent for all Toxics Rule pollutants, as mentioned above.

The proposed MRP requires the Discharger to monitor the Creek for toxic ammonia and other forms of nitrogen, for total and fecal coliform and enterococcus, and requires an annual Rapid Bio-assessment. The Rapid Bio-Assessment (RBA) is one of the three procedures NPDES permits can require of Dischargers to protect beneficial uses. The RBA looks at the aquatic life in the Creek to see if the species correlate with good water quality, as expected in the Creek, a pristine mountain stream. The other procedures to protect water quality included in the proposed Order and MRP are the pollutant-specific effluent limitations and monitoring, and acute and chronic toxicity effluent limitations and monitoring.

The proposed MRP also requires the Discharger to monitor waste plant biosolids for metals.

CHANGES TO MONITORING AND REPORTING PROGRAM

As stated above, the proposed MRP requires the Discharger to analyze the discharge for Toxics Rule pollutants in August 2007.

REASONABLE POTENTIAL ANALYSIS

Federal regulations governing the Federal and State NPDES permit program require that NPDES permits contain effluent limitations for all pollutant parameters that:

"...may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. (40 CFR sec. 122.44 (d)."

In 2002, the Discharger analyzed its effluent for Toxics Rule pollutants and found THMs, demonstrating a reasonable potential exists for some THMs to exceed a water quality objective. Therefore, the proposed Order includes interim

and final effluent limitations for the specific THMs and requires the Discharger to upgrade the plant and return to compliance in 2006.

ANTI-BACKSLIDING

40CFR122.44(l) requires effluent limitations for reissued NPDES permits be at least as stringent as the previous permit, unless certain grounds for "backsliding" apply. All changes to the proposed Order's effluent limitations accord with the anti-backsliding provisions.

ENVIRONMENTAL SUMMARY

The issuance of waste discharge requirements for this discharge is exempt from provisions of the California Environmental Quality Act (Division 13 of the Public Resources Code, Chapter 3 commencing with Section 21100, et. Seq.) in accordance with Section 13389 of the California Water Code.

COMMENTS

1. Monterey Bay National Marine Sanctuary (MBNMS) staff comments supported adoption of the permit. They requested the Discharger provide them, by March 2006, with a status report of the plant improvements mentioned above, and they requested the Discharger notify MBNMS staff at 888-902-2778 if the plant suffers a sewage spill that is likely to enter the ocean. MBNMS staff sent the Discharger a copy of their comment letter.

Staff Response. Staff recommends the Discharger comply with MBNMS staff's request.

2. California Department of Fish and Game – No response
3. California Department of Parks and Recreation – No response.
4. Santa Cruz County Environmental Health Services – No response.

RECOM MENDATION

Adopt Waste Discharge Requirements (WDRs) Order No. R3-2005-0035 and MRP No. R3-2005-0035 as proposed.

ATTACHMENT

1. WDRs Order No. R3-2005-0035
2. MRP No. R3-2005-0035.

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