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State of California—Health and Human Services Agency
California Department of Public Health



ARNOLD SCHWARZENEGGER
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Item No. 16
Supporting Document No. 8

September 15, 2008

John Robertus, Executive Officer
California Regional Water Quality Control Board – San Diego Region
9174 Sky Park Court, Suite 100
San Diego CA 92123

**CAMP PENDLETON SOUTH, RECYCLED WATER SYSTEM NO. 3790702
DETERMINATION OF MODAL CONTACT TIME, PROJECT NO. 704
TITLE 22 ENGINEERING REPORT, PROJECT NO. 706**

CDPH has received from Marine Corp Base Camp Pendleton South (CPS) the Tracer Test Report (tracer report) for the determination of Modal Contact Time (MCT) of the chlorine contact basin at Southern Region Tertiary Treatment Plant (SRTTP). The tracer report has been evaluated to determine that acceptable methods and procedures were performed during the tracer test and that the determination of the MCT accurately describes the hydraulic characteristics of the chlorine contact basin.

CDPH has received from Marine Corp Base CPS the Title 22 Engineering Report For The Production, Distribution And Use Of Recycled/Reused Water (Title 22 ER). The report has been evaluated to determine compliance with the California Health and Safety Code and the California Code of Regulations (CCR), Title 22, Division 4, Chapter 3, Water Recycling Criteria, which includes the applicable rules and regulations that apply to the production of tertiary treated recycled water and the use of recycled water for irrigation purposes.

CDPH would like to offer the following comments:

TRACER TEST REPORT

1. Determination of the MCT when using the slug-dose method requires a mass balance be performed on the system tested to demonstrate acceptable recovery of the tracer. Marine Corp Base CPS shall determine the percent recovery for the fluoride tracer and submit a revised tracer report.

2. Upon approval of the tracer report, peak dry weather flow at SRTTP shall not exceed a total flow of 4.0 MGD through both chlorine contact basins. The flow through a single chlorine contact basin shall not exceed 2.0 MGD.
3. The water level at the exit of the chlorine contact basins during peak dry weather flow shall be maintained at a minimum level of 10 feet.
4. The chlorine contact basin effluent shall have a minimum chlorine residual of 5.0 mg/L at all times regardless of flow rate.

TITLE 22 REPORT

DISINFECTED TERTIARY RECYCLED WATER

Pursuant to Section 60304(a), Title 22, CCR, and applicable to the use areas tabulated in Section 10.0 of the Title 22 ER:

1. Recycled water used for surface irrigation, in accordance with Section 60301.230(a)(1), Title 22, CCR, shall be disinfected tertiary recycled water. Marine Core Base CPS shall provide a chlorine disinfection process following filtration that provides a CT, the product of total chlorine residual and modal contact time measured at the same point, value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow.
2. Recycled water used for surface irrigation, in accordance with Section 60301.230(b), Title 22, CCR, shall have a median concentration of total coliform bacteria measured in the disinfected effluent not exceeding an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

FILTERED WASTEWATER

Marine Corp Base CPS shall revise the Title 22 ER to include, at a minimum, the requirements for the Aqua-Aerobics PA-13 Nylon Pile Fabric Cloth Media Filter in accordance with the CDPH document Treatment Technology Report For Recycled Water dated January 2007.

3. Loading rates shall not exceed 6 gpm/ft².
4. The filtration process must be complimented with a disinfection process which is compliant with Section 60301.230, Title 22, CCR.

5. Acceptance of this treatment technology is limited to the PA-13 Nylon Pile Cloth Media.
6. Influent turbidity in the filtered water shall not exceed 10 NTU more than 5 percent of the time within a 24-hour period.
7. The operations plan shall include scheduled inspections and assessments of the cloth condition as an operational safeguard. This should include a routine visual inspection at least monthly, and a more in-depth assessment of the cloth condition at least annually. Inspection frequencies may change as media condition and performance experience is gained with time.
8. The operations plan shall provide for assurances that adequate backwash duration is practiced to ensure solids removal 'in' and 'on' the cloth media.
9. The operations plan shall provide for assurances that adequate sludge wasting is practiced to ensure against excessive solids buildup in the filter vessel.
10. Turbidity performance is limited to the requirements in Section 60301.320(a), Title 22, CCR, and the turbidity of the filtered wastewater shall not exceed an average of 2 NTU within a 24-hour period; 5 NTU more than 5-percent of the time within a 24-hour period; and 10 NTU at any time.

USE AREA REQUIREMENTS

Marine Corp Base CPS shall revise the Title 22 ER, Section 11.3, to include the requirements for purple pipe for recycled water in accordance with Section 116815, Health and Safety Code, and the requirements for use areas in accordance with Section 60310(g), Title 22, CCR.

11. All pipes installed above or below ground that are designed to carry recycled water shall be colored purple or distinctively wrapped with purple tape. Underground piping may also be stenciled in purple with the words "RECYCLED WATER – DO NOT DRINK".
12. The Lemon Grove Ponds Basins 1, 2, Reservoir 16151, Horse Lake, and Gooseneck Lake shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide, that include the following wording: "RECYCLED WATER – DO NOT DRINK – NO BODY CONTACT – NO WADING OR SWIMMING".
13. Marine Corp Base CPS shall revise the recycled water distribution system maps to show the locations of the signs.

SAMPLING AND ANALYSIS

Marine Corp Base CPS shall revise the Title 22 ER, Section 7.2, to include the frequency of sampling and analysis in accordance with Section 60321(a)(b), Title 22, CCR.

14. Disinfected tertiary recycled water shall be sampled at least once daily for total coliform bacteria. The samples shall be taken from the disinfected effluent and shall be analyzed by an approved laboratory.
15. Disinfected tertiary recycled water shall be continuously sampled for turbidity using a continuous turbidimeter and recorder following filtration. Compliance with the daily average operating filter effluent turbidity shall be determined by averaging the levels of recorded turbidity taken at four-hour intervals over a 24-hour period. Compliance with turbidity pursuant to Section 60301.320 (a)(2)(B) and (b)(1) shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period. Should the continuous turbidimeter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of up to 24 hours. The results of the daily average turbidity determinations shall be reported quarterly to the regulatory agency.
16. Marine Corp Base CPS shall revise the Title 22 ER to include the calibration frequency for all turbidimeters and chlorine analyzers.

If you have any questions regarding this letter, please contact myself or Alan Tell at (619) 645-2573.

Sincerely,



Sean Sterchi, P.E.
District Engineer, San Diego District

cc: Khalique Khan
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September 17, 2008

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**CAMP PENDLETON SOUTH, RECYCLED WATER SYSTEM NO. 3790702
DETERMINATION OF MODAL CONTACT TIME, PROJECT NO. 704**

Dear Mr. Robertus:

California Department of Public Health (CDPH) issued comments on September 15, 2008, for Marine Corp Base Camp Pendleton South on the Tracer Test Report for the determination of Modal Contact Time of the chlorine contact basin at Southern Region Tertiary Treatment Plant.

This letter is to issue a correction to Item 4 under the section TRACER TEST REPORT. This item is revised as follows:

TRACER TEST REPORT

4. The chlorine contact basin effluent shall have a minimum chlorine residual of 3.0 mg/L at all times regardless of flow rate.

We apologize for any inconvenience this may have caused. If you have any questions regarding this letter, please contact myself or Alan Tell at (619) 645-2573.

Sincerely,

Sean Sterchi, P.E.
District Engineer, San Diego District

cc: Khalique Khan, Environmental Engineering Division
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