CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. R9-2009-0021

MASTER RECLAMATION PERMIT
FOR
SOUTHERN REGION TERTIARY TREATMENT PLANT
UNITED STATES MARINE CORPS, CAMP PENDLETON
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. The United States Marine Corps (USMC), Camp Pendleton (Base) filed a Report of Waste Discharge (ROWD) dated February 14, 2008, including the *Engineering Report for the Production, Distribution and Use of Recycled/Reused Water*, as required by California Water Code section 13260(a) for persons discharging waste or proposing to discharge waste that could affect the quality of waters of the state. The ROWD also fulfills Water Code section 13522.5(a), which requires a report from any person recycling or proposing to recycle water, or using or proposing to use recycled water. The USMC was enrolled under Conditional Waiver No. 7- Discharges of Recycled Water to Land on October 1, 2008 limited to the period prior to issuance of this Order.

2. The USMC submitted the appropriate filing fee also required by section 13260(a). For the purposes of determining the appropriate filing fee, the discharge regulated by this Order is considered to have a threat to water quality rating of 3, and a complexity rating of B, as defined in California Code of Regulations (CCR), Title 23, section 2200. The threat to water quality is based on potential for minor impairment of designated beneficial uses and complexity is based on a discharge of nontoxic waste that has physical, chemical, or biological treatment systems.

3. The ROWD describes the necessary measures for the design and operation of a treatment and disposal system for municipal wastewater, which consists primarily of domestic sewage and minor quantities of industrial wastes. Municipal wastewater contains elevated concentrations of dissolved solids, suspended solids, biochemical oxygen demand, carbon, nitrogen, phosphorous, chlorides, alkalinity, and grease that must be adequately treated before discharging to the environment.

4. The Southern Region Tertiary Treatment Plant (SRTTP) is designed to receive and treat wastewater flows currently being processed at the Base's sewage treatment plants Nos. 1, 2, 3, and 13 upon completion of necessary pumps and piping. The SRTTP treatment process includes an oil/water separator, mechanical and manual bar screens, grit collectors, sequencing batch reactors, cloth disk filters, disinfectant contact basins, aerobic digestion, dewatering press, drying beds, and air biofilter. Solid waste consisting of screenings and dried sludge is hauled to a properly permitted landfill appropriate for the waste characterization of the solids. The design capacity of the SRTTP is 5 million gallons per day (mgd) and the USMC reports the

current operating flow is 2.7 mgd, with plans to increase to the maximum permitted flow of 3.75 mgd.

5. Groundwater supply wells for the Base are located in the Las Pulgas Canyon and Santa Margarita River watershed. Potable water supply wells in the Santa Margarita River watershed are generally in the Chappo and Upper Ysidora Hydrologic Subareas, which are located up-gradient of the proposed recycled water discharge areas described in Finding 6. With the exception of San Mateo Point housing, the USMC obtains all drinking water supplies from underground aquifers or basins. The USMC monitors for background levels of regulated and unregulated contaminants in drinking water pursuant to California Department of Public Health requirements CCR Title 22, Division 4, Chapter 15, section 64416. The total dissolved solids (TDS) concentration in groundwater supply wells is approximately 755 milligrams per liter (mg/L), which is greater than the water quality objective (see Finding 12). The USMC has authorized funding for a military construction project that will reduce TDS in the drinking water supply. The USMC expects a correlated reduction of TDS in the SRTTP effluent. The project could occur as early as fiscal year 2009 (beginning October 1, 2008). Under these conditions, the discharge of recycled water with TDS concentrations above Basin Plan objectives will be temporary and localized, thereby having a reasonable affect on beneficial uses. Approximately 93 percent of recycled water by volume will be discharged to the Mission Hydrologic Subarea (HSA) that generally has higher water quality objectives. The discharge location in the Ysidora Hydrologic Area (HA), adjacent to Interstate 5 (water quality objectives do not apply west of Interstate 5), is not a planned or anticipated source of groundwater for beneficial use due to saltwater intrusion from the Ocean, which is the ultimate down-gradient fate of the discharge[1]. The design spray irrigation application rate (Finding 6) is less than the estimated evapotranspiration rate to limit the potential for recycled water to reach groundwater. Existing and planned vegetation exhibited normal growth with irrigation of 1,500 mg/L-TDS.

6. The tertiary treated recycled water will be reused only for spray irrigation initially on 374 acres in the following areas on Base:

TABLE 1

Irrigation Site	Area (acre)	Latitude (approximate)	Longitude (approximate)	Delivery Rate Design (acre-feet/yr)
Front Gate/ Recreation Fields	34	33°13'36" N	117°23'27" W	124
Marine Memorial Golf Course	180	33°15'53" N	117°22'26" W	963
Horse Pasture	142	33°17'15" N	117°18'24" W	517
Mainside Parade Grounds	18	33°18'18" N	117°18'36" W	66

[1] The groundwater flow direction is based on data from nearby underground storage tank cases.

7. The USMC will recycle as much disinfected tertiary treated wastewater in the southern part of the Base as practically feasible. The USMC anticipates that the volume of wastewater will increase with the construction of planned housing units, which may necessitate additional areas for discharges of recycled water. Planned and potential recycled water discharge areas were analyzed in the *Final Environmental Impact Statement for the Tertiary Treatment Plant and Associated Facilities, MCB Camp Pendleton* (EIS) prepared for the USMC in April 2004.

8. The SRTTP treated effluent currently is discharged to the Oceanside Ocean Outfall via the Lemon Grove Pump Station pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109347, Order No. R9-2003-0155, which the USMC renewed under Order R9-2008-0096. The USMC currently discharges to the Marine Memorial Golf Course, Horse Pasture, and Mainside Parade Grounds under Conditional Waiver No. 7- Discharges of Recycled Water to Land. The use of the Oceanside Ocean Outfall is the fail-safe discharge point in the event the capacity of the Lemon Grove Ponds and the permitted recycled water discharge areas are exceeded.

9. The USMC administers a Source Control Program ("Program", see Part D of Order No. R9-2003-0155) to identify, characterize, and eliminate sources of pollutants entering sewage treatment plants. The Program includes industrial waste surveys, a contract for inspection and maintenance of oil and water separators, a Base order informing and instructing food and hospitality services on proper practices and public education for Base housing residents. The Program allows the USMC to limit oil and grease concentrations in effluent[1] despite being unable to reliably meet the influent concentration limit of 25 mg/L for oil and grease established by Order No. R9-2003-0155, therefore the Regional Board removed the influent limitation for the renewal in Order No. R9-2008-0096.

10. The Regional Board, under authority of Water Code section 13244 , adopted the Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) on September 8, 1994. The State Water Resources Control Board (SWRCB) subsequently approved the Basin Plan on December 13, 1994. Subsequent amendments to the Basin Plan have also been adopted by the Regional Board and approved by the SWRCB. The Basin Plan contains beneficial uses and water quality objectives, and a policy for regulating the discharge of reclaimed (or recycled) water to comply with water quality objectives. The requirements of this Order are consistent with those Basin Plan requirements for discharges of reclaimed water.

11. The Basin Plan establishes the following beneficial uses of groundwater for the affected Hydrologic Areas (HA) and Subareas (HSA) of the Santa Margarita Hydrologic Unit (HU) and the San Luis Rey HU:

[1] The USMC reported two detections greater than 5 mg/L of oil and grease in monthly samples collected since September 2003.

TABLE 2

Hydrologic Area (Hydrologic Subarea)	Basin Number	Designated Beneficial Uses
Ysidora HA (Lower Ysidora HSA [a])	902.10	Municipal (MUN), Agricultural (AGR), Industrial Service (IND) and industrial process (PROC)
Lower San Luis HA (Mission HSA [b])	903.10	Municipal (MUN), Agricultural (AGR) and Industrial Service (IND)

[a] = Location of the Front Gate discharge area.
[b] = Location of the Golf Course, Horse Pasture, and Mainside Parade Grounds discharge areas.

12. The Basin Plan establishes the following water quality objectives for the Ysidora Hydrologic Area of the Santa Margarita River watershed and Mission Hydrologic Subarea of the San Luis Rey River watershed:

TABLE 3

Constituent	Concentration not to be exceeded more than 10% of the time in one year		
	Units	Mission HSA (903.11)[a]	Ysidora HA (902.10)[a]
Total Dissolved Solids	mg/L	1500 [cd]	750 [c]
Chloride	mg/L	500 [cd]	300 [c]
Sulfate	mg/L	500 [cd]	300 [c]
Percent Sodium	%	60	60
Nitrate	mg/L	45 [cd]	10 [c]
Iron	mg/L	0.85 [cd]	0.3 [c]
Manganese	mg/L	0.15 [cd]	0.05 [c]
Methylene Blue Active Substances	mg/L	0.5 [cd]	0.5
Boron	mg/L	0.75 [cd]	0.75 [c]
Odor	None		
Turbidity	NTU	5	5
Color	Units	15 [cd]	15
Fluoride	mg/L	1.0 [cd]	1.0

From the Basin Plan notes:
[a] The water quality objectives do not apply westerly of the easterly boundary of Interstate Highway 5. The objectives for the remainder of the Hydrologic Area (Subarea) are shown.
[c] The recommended plan would allow for measurable degradation of groundwater in this basin to permit continued agricultural land use. Point sources, however, would be controlled to achieve effluent quality corresponding to the tabulated number.
[d] A portion of the Upper Mission Basin is being considered as an underground potable water storage reservoir for treated imported water. The area is located north of Highway 76 and the boundary of hydrologic subareas 3.11 and 3.12. If this program is adopted, local objectives approaching the quality of the imported water would be set and rigorously pursued.

13. A discharge in compliance with this Order is consistent with standards, policies, and regulations established in CCR, Title 22, Division 4, Chapter 3, *Reclamation Criteria*, and Water Code Division 7, Chapter 7, *Water Recycling Law*. The discharge of reclaimed water under this Order conforms to State Water Resources Control Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining the High*

Quality of Waters in California. The USMC submitted rules and regulations for recycled water use in the ROWD (see *Engineering Report for the Production, Distribution and Use of Recycled/Reused Water*) that are consistent with the State regulations.

14. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:

    a. Beneficial uses to be protected and the water quality objectives reasonably required for that purpose;
    b. Other waste discharges;
    c. The need to prevent nuisance;
    d. Past, present, and probable future beneficial uses of the hydrologic subunits under consideration;
    e. Environmental characteristics of the hydrologic subunits under consideration;
    f. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
    g. Economic considerations;
    h. The need for additional housing within the region; and
    i. Need to develop and use recycled water.

15. As specified by Water Code section 13523.2, this Order includes the following:

    a. Waste discharge requirements adopted pursuant to Water Code, Article 4, section 13260;
    b. Requirement that the discharger comply with the uniform statewide criteria established by the State Department of Health Services pursuant to Water Code section 13521 and other applicable permit conditions for the use of recycled water;
    c. Requirement that the discharger establish and enforce rules and regulations for recycled water users in accordance with statewide reclamation criteria;
    d. Requirement that the discharger submit quarterly recycled water use summary reports;
    e. Requirement that the discharger conduct periodic inspections of the recycled water use sites; and
    f. Other requirements determined to be appropriate by this Regional Board.

16. The Regional Board has notified the USMC at Camp Pendleton and all known interested parties of the intent to prescribe a master reclamation permit for the proposed discharge whereby the USMC is the recycled water agency.

17. The USMC, as a federal facility subject to the National Environmental Policy Act (NEPA) prepared the EIS (see Finding 7). The EIS satisfies the California Environmental Quality Act (CEQA) requirements and thereby serves as the Environmental Impact Report (EIR) in accordance with Title CCR, Title 14, Article 14, section 15221. The USMC circulated the EIS for public review as broadly as CEQA requires pursuant to CCR, Title 14, section 15087(a). The Regional Board circulated

a notice stating that the EIS meets the requirements of CEQA and stating that the Regional Board intends to rely on the EIS in place of an Environmental Impact Report pursuant to CCR, Title 14, section 15087. Public notice was published in the San Diego Union-Tribune on July 26, 2008, posted on the Regional Board web site on August 11, 2008, and attached to letters or emails sent to selected federal, state and local agencies on August 13, 2008.

18. The Regional Board received and considered written comments from the USMC dated August 27, 2008, November 4 and 6, 2008, and February 11, 2009, and the California Department of Public Health (CDPH) on September 15 and 17, 2008. The USMC submitted a *Tracer Test Report* dated September 3, 2008 and a revised *Engineering Report for the Production, Distribution and Use of Recycled/Reused Water* dated October 23, 2008 to address changes required by the CDPH. The Regional Board in a public meeting on March 11, 2009 heard and considered all comments pertaining to its proposed discharge.

IT IS HEREBY ORDERED THAT, United States Marine Corps, Camp Pendleton (hereinafter the discharger), for the Southern Region Tertiary Treatment Plant, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following for the treatment, storage and discharge of recycled wastewater at the "Irrigation Areas" identified in Finding 6 of this Order:

A. PROHIBITIONS

1. Discharges of recycled water, including runoff and spray, to lands which have not been specifically described in the ROWD, and for which valid waste discharge requirements are not in force, are prohibited.

2. Neither the treatment, nor storage, nor disposal of waste shall create a condition of pollution, contamination or nuisance, as defined by Water Code section 13050.

3. Discharges of treated or untreated solid or liquid waste into a navigable water or tributary of a navigable water are prohibited, unless as authorized by an NPDES permit issued by this Regional Board.

4. Impoundment of disinfected tertiary recycled water within 100 feet of any domestic water supply well is prohibited.

5. Irrigation with disinfected tertiary recycled water within 50 feet of any domestic supply well is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The 30-day average daily dry weather flow to the SRTTP shall not exceed the 5.0 mgd design capacity of the facility.

2. Recycled water effluent shall be treated to the level of disinfected tertiary recycled

water in compliance with CCR, Title 22, Division 4, Chapter 3, section 60301.230. Disinfection will provide 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. Peak dry weather flow 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. The water level at the exit of the chlorine contact basins during peak dry weather flow shall be a minimum of 10 feet. The minimum chlorine residual shall be 3.0 mg/l at all times.

The median concentration of total coliform bacteria measured in the disinfected effluent will not exceed a most probable number (MPN) of 2.2 total coliform bacteria 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 does not exceed an MPN of 23 total coliform bacteria 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.

3. Turbidity of the disinfected tertiary recycled water shall not exceed a daily average value of 2 NTU (nephelometric turbidity units) based on the average of turbidity measurement at 4-hour intervals over a 24-hour period. Turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period and shall not exceed 10 NTU at any time.

4. The recycled water discharged from SRTTP to the Irrigation Areas shall not contain constituents in excess of the following discharge specifications:

TABLE 4

Constituent	Units	30-Day Average [a]	Daily Maximum [b]
Biochemical Oxygen Demand (BOD at 20° C)	mg/l	30	45
Total Suspended Solids	mg/l	30	45
pH	pH Units	Within the limits of 6.5 to 8.5 at all times	
Chloride	mg/l	NA	325
Sulfate	mg/l	NA	325
Percent Sodium	%	NA	60
Iron	mg/l	NA	0.3
Manganese	mg/l	NA	0.05
Methylene Blue Active Substances	mg/L	NA	0.5
Boron	mg/l	NA	0.6
Color	Units	NA	15
Fluoride	mg/l	NA	0.7

Table 4 notes:

[a] The 30-day average discharge specification shall apply to the arithmetic mean of the results all samples collected during any 30 consecutive calendar day period.

[b] The daily maximum discharge specification shall apply to the results of a single composite or grab sample.

5. The recycled water discharged from SRTTP to the Irrigation Areas shall not contain TDS in excess of 1,200 mg/L as a 12-month average[2] or 1,300 mg/L as a daily maximum. From March 12, 2014 on, recycled water discharged from SRTTP to the Front Gate/Recreation Fields shall not contain TDS in excess of 800 mg/L as a daily maximum.

6. The recycled water discharged from SRTTP to the Irrigation Areas shall not contain total nitrogen (as N) in excess of 5.0 mg/L as a daily maximum. From March 12, 2014 on, recycled water discharged from SRTTP to the Front Gate/Recreation Fields shall not contain total nitrogen (as N) in excess of 4.1 mg/L as a daily maximum.

7. The Delivery Rate Design (ac-feet/yr) stated in Finding 6 shall be maintained near the evapotranspiration rate determined for recycled water discharges to the irrigation areas.

8. Collected screenings, sludge, other solids removed from liquid wastes, and filter backwash shall be disposed in a manner described in the Findings of this Order or as approved by the Regional Board. Sewage sludge treatment and disposal shall comply with all pertinent paragraphs of Part 503, Subchapter O, Chapter I of Title 40 Code of Federal Regulations under the U.S. Environmental Protection Agency's (USEPA's) jurisdiction.

C. RECYCLED WATER PURVEYANCE REQUIREMENTS

1. The discharger must do the following for all reuse sites:

   a. Enforce rules and regulations for recycled water use established in the ROWD (see *Engineering Report for the Production, Distribution and Use of Recycled/Reused Water*);
   b. Within 30 days of adoption of this Order, develop and submit a program to conduct compliance inspections of recycled water reuse sites to the Regional Board, CDPH and San Diego County Department of Environmental Health;
   c. Inspect recycled water reuse sites in accordance with the program submitted for requirement C.1.b. of this Order;
   d. Provide quarterly summary reports of recycled water use to the Regional Board;
   e. Maintain a current list of all on-site recycled water supervisors.
   f. All pipes that are designed to carry recycled water shall be colored purple or

[2] The 12-month average discharge specification shall apply to the arithmetic mean of the results of all samples collected during the current calendar month and the preceding 11 calendar months.

distinctively wrapped with purple tape. Underground piping may also be stenciled in purple with the words "RECYCLED WATER – DO NOT DRINK". The Lemon Grove Ponds, 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".

2. The discharger, within 30 days of adoption of this Order and prior to providing recycled water to a new use site, shall certify that the project conforms with what is described by the rules and regulations established in Requirement C.1.a of this order. A certification report shall document that all criteria described in rules and regulations have been submitted to and approved by the State Department of Public Health and County Department of Health Services.

3. The discharger, within 30 days of adoption of this Order, shall certify that the SRTTP can comply with Discharge Specifications in section B. The certification report shall document compliance with each specification individually.

4. The discharger, by March 11, 2013, shall submit a plan to achieve compliance with the phased total nitrogen discharge specification B.6. The discharger shall certify that the SRTTP will be in compliance with discharge specifications as of March 12, 2014. The nutrient management plan may include but is not limited to: enhanced treatment, source identification and removal, loading estimates, nutrient fate and transport, groundwater monitoring, and best management practices.

D. FACILITY DESIGN AND OPERATION SPECIFICATIONS

1. PROPER OPERATION

The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance of all treatment, monitoring and conveyance systems, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

2. OPERATION MANUAL

A copy of the facility operations manual shall be maintained at the Recycled Water Agency's facility and shall be available to operation personnel and Regional Board staff at all times. The following portions of the operations manual shall be posted at the treatment plant as a quick reference for treatment plant operators:

a. Alarm set points for secondary turbidity, tertiary turbidity, and chlorine residual once established in the Reliability Plan described in section D.3;
b. Levels at which flow will be diverted for secondary turbidity, tertiary turbidity, and chlorine residual once established in the Reliability Plan described in section D.3;
c. When to divert flow for high daily and weekly median total coliform,
d. When the authorities (CDPH, DEH, and Regional Board) will be notified of a diversion;
e. Names and numbers of those authorities to be notified in case of a diversion; and
f. Frequency of calibration for turbidimeters and chlorine residual analyzers.

3. ENGINEERING REPORT

Prior to any changes in the treatment facilities, the discharger shall prepare an engineering report conforming to section 60323, Article 7 of the CCR, Title 22, Division 4, Chapter 3. The engineering report shall be submitted to the State Department of Public Health - Office of Drinking Water, County Department of Health Services, and the Regional Board for review and response.

4. OPERATORS' CERTIFICATION

The discharger's wastewater treatment facilities shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to, CCR Title 23, Division 3, Chapter 26.

5. FLOOD PROTECTION

All waste treatment, containment, and disposal facilities, with the exception of landscape irrigation areas, shall be protected against 100-year peak stream flows as defined by the San Diego County flood control agency.

6. RUNOFF PROTECTION

All waste treatment, containment and disposal facilities with the exception of landscape irrigation areas, shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year frequency 24-hour storm.

7. CONTROL OF DISCHARGES

The discharger shall design, construct, operate, and maintain storage facilities and irrigation areas to prevent spray, surfacing or runoff of wastewater on property not owned or controlled by the discharger by implementing best management measures and practices.

8. CROSS-CONNECTIONS

The potable water supply shall not be used to supplement the reclaimed water supply except through an approved air gap. In other areas where the potable water supply is piped to premises where sewage is pumped, treated or reclaimed (e.g., sewage treatment plants or pumping stations, golf course, *etc.*), the potable water supply shall be protected at the property line in accordance with the State Department of Public Health's Regulations Relating to Cross-Connections.

9. CAPACITY NOTIFICATION

Whenever a publicly owned wastewater treatment plant will reach capacity within four years the discharger shall notify the Regional Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies and the press. The discharger must demonstrate that adequate steps are being taken to address the capacity problem. The discharger shall submit a technical report to the Regional Board showing how flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Board, or within 120 days after receipt of notification from the Regional Board, of a finding that the treatment plant will reach capacity within four years. The time for filing the required technical report may be extended by the Regional Board.

10. MONITORING AND REPORTING

The discharger shall comply with attached Monitoring and Reporting Program No. R9-2009-0021, and future revisions thereto as specified by the Regional Board. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. R9-2009-0021.

E. STANDARD PROVISIONS

1. DUTY TO COMPLY

The discharger must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the Water Code and is grounds for (a) enforcement action; (b) termination, revocation and reissuance, or modification of this Order; or (c) denial of a report of waste discharge in application for new or revised waste discharge requirements.

2. ENTRY AND INSPECTION

The discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
c. Inspect at reasonable times any facilities, equipment (including monitoring

and control equipment), practices, or operations regulated or required under this Order; and

d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the Water Code, any substances or parameters at any location.

3. ENDANGERMENT OF HEALTH AND ENVIRONMENT

The discharger shall report any noncompliance which may endanger health or the environment. Any sewage overflow or spill shall be immediately reported to the Department of Environmental Health as required by section 5411.5 of the California Health and Safety Code. In addition, any such information shall be provided orally to the Regional Board within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Regional Board, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrence(s) must be reported to the Regional Board within 24 hours:

a. Any bypass from any portion of the treatment facility;
b. Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances;
c. Any treatment plant upset which causes the discharge specifications of this Order to be exceeded;
d. Failure of chlorination equipment or loss of detectable chlorine residual; and
e. Effluent total coliform MPN greater than 1600/100 ml in more than one sample.

4. PLANT OVERLFOW EVENTS

The discharger shall report all overflow events that occur at the SRTTP. For purposes of this reporting requirement, an overflow event is defined as a discharge of treated or untreated wastewater at a location onsite not authorized by waste discharge requirements and/or NPDES permit which results from a pump station failure, line break, obstruction, surcharge, or any other operational dysfunction. Overflows of the kind identified under this provision shall be reported to the Regional Board with the monthly monitoring report in which the overflow occurs.

5. PRIOR NOTICE OF BYPASS

If a need for a discharge bypass is known in advance, the discharger shall submit prior notice and, if at all possible, such notice shall be submitted at least 10 days prior to the date of the bypass.

6. CORRECTIVE ACTION

The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

7. TREATMENT FAILURE

In an enforcement action, it shall not be a defense for the discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies for example, when the primary source of power of the treatment facility is failed, reduced, or lost.

8. HAZARDOUS RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, shall as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the State Board or the appropriate Regional Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of section 13271 of the Water Code unless the discharger is in violation of a prohibition in the applicable Water Quality Control Plan.

9. PETROLEUM RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Article 3.5 (commencing with section 8574.1) of Chapter 7 of Division 1 of Title 2 of the Government Code. This requirement does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to section 311 of the

Clean Water Act or the discharge is in violation of a prohibition in the applicable Water Quality Control Plan.

10. PERMIT REPOSITORY

A copy of this Order shall be maintained at the discharger's facilities and shall be available to operating personnel at all times.

11. RETENTION OF RECORDS

The discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board.

12. GENERAL REPORTING REQUIREMENT

The discharger shall furnish to the Regional Board, within a reasonable time, any information which the Regional Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The discharger shall also furnish to the Regional Board, upon request, copies of records required to be kept by this Order.

13. PERMIT REVISION

This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

a. Violation of any terms or conditions of this Order;
b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or
c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
d. The filing of a request by the discharger for the modification, revocation and reissuance, or termination of this Order, or notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

14. CHANGE IN DISCHARGE

The discharger shall file a new ROWD at least 120 days prior to the following:

a. Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the wastes;
b. Significant change in the treatment or disposal method (e.g., change in the

method of treatment which would significantly alter the nature of the waste.);

c. Change in the disposal area from that described in the findings of this Order;
d. Increase in flow beyond that specified in this Order;
e. Other circumstances which result in a material change in character, amount, or location of the waste discharge; or
f. Any planned change in the regulated facility or activity which may result in noncompliance with this Order.

15. CHANGE IN OWNERSHIP

This Order is not transferable to any person except after notice to the Regional Board. The discharger shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. The Regional Board may require modification or revocation and reissuance of this Order to change the name of the discharger and incorporate such other requirements as may be necessary under the Water Code.

16. INCOMPLETE REPORTS

Where the discharger becomes aware that it failed to submit any relevant facts in a ROWD or submitted incorrect information in a ROWD or in any report to the Regional Board, it shall promptly submit such facts or information.

17. REPORT DECLARATION

All applications, reports, or information submitted to the Regional Board shall be signed and certified as follows:

a. By the Commanding Officer for Marine Corps Base Camp Pendleton; or
b. By Direction of the person designated in paragraph a. of this provision only if:
    i. The authorization is made in writing by a person described in paragraph a. of this provision;
    ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and
    iii. The written authorization is submitted to the Regional Board.

c. Any person signing a document under this provision 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 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."

18. REGIONAL BOARD ADDRESS

The discharger shall submit reports required under this Order, or other information required by the Regional Board, to:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340

19. TECHNICAL REPORT

This Order hereby incorporates the *Technical Report for Order R9-2009-0021 Master Reclamation Permit for Southern Region Tertiary Treatment Plant, United States Marine Corps, Camp Pendleton, San Diego County* dated March 11, 2009.

F. NOTIFICATIONS

1. VESTED RIGHTS

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liability under federal, state or local laws, nor create a vested right for the discharger to continue the waste discharge.

2. U.S. EPA REVIEW

These requirements have not been officially reviewed by the United States Environmental Protection Agency and are not issued pursuant to section 402 of the Clean Water Act.

3. SEVERABILITY

The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

4. CIVIL MONETARY REMEDIES

The Water Code provides that any person who intentionally or negligently violates any

waste discharge requirements issued, reissued, or amended by this Regional Board is subject to a civil monetary remedy of up to 20 dollars per gallon of waste discharged or, if a cleanup and abatement order is issued, up to 15,000 dollars per day of violation or some combination thereof.

5. PENALTIES FOR INVESTIGATION, MONITORING OR INSPECTION VIOLATIONS

The Water Code provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or falsifying any information provided in the monitoring reports is guilty of a misdemeanor and is subject to a civil liability of up to $5,000 for each day in which the violation occurs.

6. ORDER BECOMES EFFECTIVE

This Order shall become effective the date of its adoption.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region on March 11, 2009.

JOHN H. ROBERTUS
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM FOR ORDER NO. R9-2009-0021 FOR THE SOUTHERN REGION TERTIARY TREATMENT PLANT UNITED STATES MARINE CORPS, CAMP PENDLETON SAN DIEGO COUNTY

A. MONITORING PROVISIONS

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this Monitoring and Reporting Program (MRP) and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Regional Board.

2. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurement is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 5 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring must be conducted according to U. S. Environmental Protection Agency (USEPA) test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act" as amended, unless other test procedures have been specified in this MRP.

4. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Public Health or a laboratory approved by the Regional Board.

5. Monitoring results must be reported on discharge monitoring report forms approved by the Regional Board.

6. If the USMC (the discharger) monitors any pollutants more frequently than required by this MRP, using test procedures approved under 40 CFR, Part 136, or as specified in this MRP, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.

7. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this MRP, and

records of all data used to complete the application for the Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board.

8. Records of monitoring information shall include:
   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or method used; and
   f. The results of such analyses.

9. All monitoring instruments and devices which are used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.

10. Monitoring or sampling shall be conducted at time intervals that are approximately equal to the prescribed monitoring or sampling frequency (e.g., sampling conducted approximately three months apart for a quarterly frequency).

11. The discharger shall identify missing or non-valid monitoring or sampling results in submitted reports accompanied by an explanation of their root cause and the steps the discharger has or will take to prevent future instances. Missing or non-valid results may be considered violations of the Order that could result in enforcement action depending on the frequency of such instances and efforts by the discharger to prevent such failures.

12. The discharger shall report all instances of noncompliance not reported under Standard Provision E.3 of this Order at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision E.3.

13. The monitoring reports shall be signed by an authorized person as required by Standard Provision E.17.

14. A composite sample is defined as a combination of at least eight sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

15. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.

16. Sampling and analysis shall, at a minimum, be conducted in accordance with Article 6 of California Code of Regulations, Title 22, Division 4, Chapter 3 (Reclamation Criteria).

B. INFLUENT MONITORING

The discharger shall monitor the flow rate of raw wastewater influent at a location upstream of return plant streams where a representative sample of the influent can be obtained. Cumulative 24-hour flow rates representing each calendar day in units of million gallons per day shall be reported monthly.

C. EFFLUENT MONITORING

1. The SRTTP effluent shall be monitored just past the chlorine contact basin. The flow (in mgd) and water level at each chlorine contact basin shall be measured.

2. The discharger is responsible for monitoring and reporting in accordance with the following schedule:

TABLE 1

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow Rate	MGD	Continuous	Continuous	Monthly
Total Chlorine Residual (minimum value)	mg/l	Continuous	Continuous	Monthly
Chlorine Contact Time (CT)	mg-min/l	Calculated	Continuous	Monthly
Total Coliform Bacteria	MPN/100 ml	Grab	Daily	Monthly
Turbidity	NTU	Continuous	Continuous	Monthly
Biochemical Oxygen Demand (BOD_5 @20°C)	mg/l	Composite	Weekly	Monthly
Total Suspended Solids	mg/l	Composite	Weekly	Monthly
pH	pH Units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/l	Composite	Monthly	Monthly
Chloride	mg/l	Composite	Monthly	Monthly
Sulfate	mg/l	Composite	Monthly	Monthly
Percent Sodium	mg/l	Composite	Monthly	Monthly
Total Nitrogen (as N)	mg/l	Composite	Monthly	Monthly
Iron	mg/l	Composite	Monthly	Monthly
Manganese	mg/l	Composite	Monthly	Monthly
Methylene Blue Active Substances	mg/l	Composite	Monthly	Monthly
Boron	mg/l	Composite	Monthly	Monthly
Color	mg/l	Composite	Monthly	Monthly
Fluoride	mg/l	Composite	Monthly	Monthly
Aluminum	mg/l	Composite	Annually	Annually
Arsenic	mg/l	Composite	Annually	Annually
Antimony	mg/l	Composite	Annually	Annually
Barium	mg/l	Composite	Annually	Annually

Beryllium	mg/l	Composite	Annually	Annually
Cadmium	mg/l	Composite	Annually	Annually
Chromium	mg/l	Composite	Annually	Annually
Copper	mg/l	Composite	Annually	Annually
Cyanide	mg/l	Grab	Annually	Annually
Lead	mg/l	Composite	Annually	Annually
Mercury	mg/l	Composite	Annually	Annually
Nickel	mg/l	Composite	Annually	Annually
Nitrate (as NO_3^-)	mg/l	Composite	Annually	Annually
Nitrite (as N)	mg/l	Composite	Annually	Annually
Selenium	mg/l	Composite	Annually	Annually
Silver	mg/l	Composite	Annually	Annually
Thallium	mg/l	Composite	Annually	Annually
Asbestos	Million fibers per liter	Composite	Annually	Annually
Benzene	mg/l	Grab	Annually	Annually
Carbon Tetrachloride	mg/l	Grab	Annually	Annually
1,2-Dichlorobenzene	mg/l	Grab	Annually	Annually
1,4-Dichlorobenzene	mg/l	Grab	Annually	Annually
1,1-Dichloroethane	mg/l	Grab	Annually	Annually
1,2-Dichloroethane	mg/l	Grab	Annually	Annually
1,1-Dichloroethylne	mg/l	Grab	Annually	Annually
cis-1,2-Dichloroethylene	mg/l	Grab	Annually	Annually
trans-1,2-Dichloroethylene	mg/l	Grab	Annually	Annually
Dichloromethane	mg/l	Grab	Annually	Annually
1,2-Dichloropropane	mg/l	Grab	Annually	Annually
1,3-Dichloropropene	mg/l	Grab	Annually	Annually
Ethylbenzene	mg/l	Grab	Annually	Annually
Methyl-*tert*-butyl ether	mg/l	Grab	Annually	Annually
Monochlorobenzene	mg/l	Grab	Annually	Annually
Styrene	mg/l	Grab	Annually	Annually
1,1,2,2-Tetrachloroethane	mg/l	Grab	Annually	Annually
Tetrachloroethylene	mg/l	Grab	Annually	Annually
Toluene	mg/l	Grab	Annually	Annually
1,2,4-Trichlorobenzene	mg/l	Grab	Annually	Annually
1,1,1-Trichloroethane	mg/l	Grab	Annually	Annually
1,1,2-Trichloroethane	mg/l	Grab	Annually	Annually
Trichloroethylene	mg/l	Grab	Annually	Annually
Trichlorofluoromethane	mg/l	Grab	Annually	Annually
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/l	Grab	Annually	Annually
Vinyl Chloride	mg/l	Grab	Annually	Annually
Xylenes	mg/l	Grab	Annually	Annually
Alachlor	mg/l	Grab	Annually	Annually
Atrazine	mg/l	Grab	Annually	Annually
Bentazon	mg/l	Grab	Annually	Annually
Benzo(a)pyrene	mg/l	Grab	Annually	Annually
Carbofuran	mg/l	Grab	Annually	Annually
Chlordane	mg/l	Grab	Annually	Annually
2,4-D	mg/l	Grab	Annually	Annually
Dalapon	mg/l	Grab	Annually	Annually
Dibromochloropropane	mg/l	Grab	Annually	Annually
Di(2-ethylhexyl)adipate	mg/l	Grab	Annually	Annually
Di(2-ethylhexyl)phthalate	mg/l	Grab	Annually	Annually

Dinoseb	mg/l	Grab	Annually	Annually
Diquat	mg/l	Grab	Annually	Annually
Endothall	mg/l	Grab	Annually	Annually
Endrin	mg/l	Grab	Annually	Annually
Ethylene Dibromide	mg/l	Grab	Annually	Annually
Glyphosate	mg/l	Grab	Annually	Annually
Heptachlor	mg/l	Grab	Annually	Annually
Heptachlor Epoxide	mg/l	Grab	Annually	Annually
Hexachlorobenezene	mg/l	Grab	Annually	Annually
Hexachlorocyclopentadiene	mg/l	Grab	Annually	Annually
Lindane	mg/l	Grab	Annually	Annually
Methoxychlor	mg/l	Grab	Annually	Annually
Molinate	mg/l	Grab	Annually	Annually
Oxamyl	mg/l	Grab	Annually	Annually
Pentachlorophenol	mg/l	Grab	Annually	Annually
Picloram	mg/l	Grab	Annually	Annually
Polychlorinated Biphenyls	mg/l	Grab	Annually	Annually
Simazine	mg/l	Grab	Annually	Annually
Thiobencarb	mg/l	Grab	Annually	Annually
Toxaphene	mg/l	Grab	Annually	Annually
2,3,7,8-TCDD (Dioxin)	mg/l	Grab	Annually	Annually
2,3,5-TP (Silvex)	mg/l	Grab	Annually	Annually

D. RECYCLED WATER USE SUMMARY REPORTING

The discharger shall submit a quarterly recycled water use summary report containing the following:

1. Total number of reclaimed water use sites;
2. The locations of reclaimed water use sites including the names of the underlying hydrologic subareas;
3. Total volume of reclaimed water supplied to each use site for each month of the reporting period;
4. Total volume of reclaimed water supplied to all recycled water users for each month of the reporting period;
5. Site supervisor name and contact information for each use site;
6. Number of inspections conducted for each use site; and
7. Number of violations for each use site including description of the noncompliance and its cause, including the period of noncompliance, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

E. ANNUAL RECYCLED WATER SUMMARY REPORT

The Regional Board regulates the production and discharge of recycled water to land using waste discharge requirements, Master Reclamation Permits, water reclamation requirements, and waivers of waste discharge requirements. The Regional Board is developing a standardized electronic form to promote consistent review and

enforcement of recycled water facilities as well as establish trends on recycled water production, delivery, and beneficial reuse throughout the San Diego Region. The Regional Board will provide the standard form in Microsoft Excel format in which the Recycled Water Agency shall provide information summarizing annual recycled water quantity, quality, and beneficial reuse. This electronic form shall be completed and submitted electronically by January 31 every year.

F. REPORTING SCHEDULE

Monitoring reports shall be submitted to the Regional Board in accordance with the following schedule:

Reporting Frequency	Report Period	Report Due
Monthly	January, February, March, April, May, June, July, August, September, October, November, December	By the 30th day of the following month (or 28th for February)
Quarterly	January – March April – June July – September October – December	April 30 July 30 October 30 January 30
Semiannually	January – June July – December	August 1 February 1
Annually	January – December	January 30

Monitoring reports shall be submitted to:

California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Ct, Suite 100
San Diego, CA 92123-4340
Attention: Northern San Diego County Ground Water Unit

Ordered by _____
JOHN H. ROBERTUS
Executive Officer

3/17/2009

TECHNICAL REPORT

ORDER NO. R9-2009-0021
MASTER RECLAMATION PERMIT

FOR

SOUTHERN REGION TERTIARY TREATMENT PLANT
UNITED STATES MARINE CORPS, CAMP PENDLETON
SAN DIEGO COUNTY

IN COMPLIANCE
WITH THE
CALIFORNIA WATER CODE SECTIONS 13263 AND 13523.1

March 11, 2009

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 Sky Park Court, Suite 100, San Diego, California 92123-4340
Phone • (858) 467-2952 • Fax (858) 571-6972
http://www.waterboards.ca.gov/sandiego.

To request copies of Order No. R9-2009-0021, Master Reclamation Permit for the Southern Region Tertiary Treatment Plant, please contact Robert Pierce, Water Resource Control Engineer at (858) 627-3935, rpierce@waterboards.ca.gov.

Documents also are available at: http://www.waterboards.ca.gov/sandiego.

STATE OF CALIFORNIA

ARNOLD SCHWARZENEGGER, Governor
LINDA S. ADAMS, Agency Secretary, California Environmental Protection Agency

California Regional Water Quality Control Board
San Diego Region

Richard Wright, *Chair*	County Government
David King, *Vice Chair*	Recreation/Wildlife
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Wayne Rayfield	Water Quality
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Kris Weber	Water Quality
Grant Destache	Industrial Water Use
George Loveland	Water Supply

John H. Robertus*, Executive Officer*
Michael P. McCann, P.E., *Assistant Executive Officer*

This report was prepared under the direction of

Julie A. Chan, P.G., *Supervising Engineering Geologist*
John R. Odermatt, P. G., *Senior Engineering Geologist*
Robert Morris, P.E., *Senior Water Resource Control Engineer*

by

Robert Pierce, *Water Resource Control Engineer*

1. INTRODUCTION

The U.S. Marine Corps (USMC)) submitted a written request February 14, 2008 for a Master Reclamation Permit to support its role as sole provider, purveyor and discharger of disinfected tertiary treated water for reuse as irrigation at Marine Corps Base Camp Pendleton (the Base). Order No. R9-2009-0021 includes Waste Discharge Requirements (WDR) that apply specifically to discharges from the Southern Region Tertiary Treatment Plant (SRTTP). The discharge of the treated wastewater (recycled water) could affect the quality of waters of the state. The Order No. R9-2009-0021 requires that the USMC meet applicable water quality standards as well as ensuring proper and effective operation of wastewater treatment and conveyance systems. The appropriate uses of recycled water will reduce the potable water consumption and contribute to the Base's effort to recycle as much disinfected tertiary treated wastewater as possible. This Technical Report provides the rationale and factual information supporting the findings and directives of Order No. R9-2009-0021, *"Master Reclamation Permit for Southern Region Tertiary Treatment Plant."*

2. BACKGROUND

The California Water Code sections 13511 and 13512 specifically describe the findings and intent of the State of California in the efficient use of water including conservation and reclamation. The State Water Resources Control Board (SWRCB) and California Regional Water Quality Control Board, San Diego Region (Regional Board) policies' encourage the development of recycled water facilities while recognizing the need to protect beneficial uses. Recycled water, resulting from adequate treatment of wastewater, is suitable for direct beneficial use. The Order establishes appropriate engineering and management controls for the discharge of tertiary treated wastewater at the Base.

In June 2004, the USMC announced its decision to consolidate sewage treatment operations of four formerly active Sewage Treatment Plants Numbers 1, 2, 3, and 13, for the purpose of producing tertiary treated wastewater. The SRTTP began operating in November 2006 and has been treating a portion of the wastewater flow for discharge to the ocean under a separate NPDES permit.

3. BASIS FOR FINDINGS AND DIRECTIVES

The basis for the findings and directives included in Order No. R9-2009-0021 is provided below. The finding or directive is first stated in italics followed by an explanation of the Regional Board's basis for the finding or directive.

Findings

Findings 1, 2 and 3:

1. *The United States Marine Corps (USMC), Camp Pendleton (Base) filed a Report of Waste Discharge (ROWD) dated February 14, 2008, including the*

Engineering Report for the Production, Distribution and Use of Recycled/Reused Water, as required by California Water Code section 13260(a) for persons discharging waste or proposing to discharge waste that could affect the quality of waters of the state. The ROWD also fulfills Water Code section 13522.5(a), which requires a report from any person recycling or proposing to recycle water, or using or proposing to use recycled water. The USMC was enrolled under Conditional Waiver No. 7-Discharges of Recycled Water to Land on October 1, 2008 limited to the period prior to issuance of this Order.

2. *The USMC submitted the appropriate filing fee also required by section 13260(a). For the purposes of determining the appropriate filing fee, the discharge regulated by this Order is considered to have a threat to water quality rating of 3, and a complexity rating of B, as defined in California Code of Regulations (CCR), Title 23, Section 2200. The threat to water quality is based on potential for minor impairment of designated beneficial uses and complexity is based on a discharge of nontoxic waste that has physical, chemical, or biological treatment systems.*

3. *The ROWD describes the necessary measures for the design and operation of a treatment and disposal system for municipal wastewater, which consists primarily of domestic sewage and minor quantities of industrial wastes. Municipal wastewater contains elevated concentrations of dissolved solids, suspended solids, biochemical oxygen demand, carbon, nitrogen, phosphorous, chlorides, alkalinity, and grease that must be adequately treated before discharging to the environment.*

Basis: Tertiary treated wastewater is a "waste", under the definition provided in the California Water Code (CWC), section 13050(d):

"(d) "Waste" includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

CWC Section 13260 requires:
"(a) All of the following persons shall file with the appropriate regional board a report of the discharge, containing the information which may be required by the regional board:
(1) Any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system.
(2) Any person who is a citizen, domiciliary, or political agency or entity of this state discharging waste, or proposing to discharge waste, outside the

boundaries of the state in a manner that could affect the quality of the waters of the state within any region.
(3) Any person operating, or proposing to construct, an injection well.

(b) No report of waste discharge need be filed pursuant to subdivision (a) if the requirement is waived pursuant to Section 13269.

(c) Every person subject to subdivision (a) shall file with the appropriate regional board a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge.
(d)(1)(A) Each person who is subject to subdivision (a) or (c) shall submit an annual fee according to a fee schedule established by the state board."

California Code of Regulations (CCR) Title 23, Section 2200 provides the Regional Board with criteria to use in assessing the threat to water quality and complexity of proposed projects involving discharges of wastes:
"(1) Threat to water quality TTWQ and complexity CPLX of the discharge is assigned by the Regional Board in accordance with the following definitions:
Threat to Water Quality

Category "1" - Those discharges of waste that could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of a beneficial use include the loss of drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish.

Category "2" - Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.

Category "3" - Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2.

Complexity

Category "A" - Any discharge of toxic wastes, any small volume discharge containing toxic waste or having numerous discharge points or ground water monitoring, or any Class 1 waste management unit.

Category "B" - Any discharger not included above that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.

Category "C" - Any discharge for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included as a Category "A" or Category "B" as described above. Included would be discharges having no waste treatment systems or that must comply with best management practices, discharges having passive treatment and

disposal systems, or dischargers having waste storage systems with land disposal."

The Regional Board assigned a threat to water quality for the proposed project as Category 3 because effluent could degrade water quality without violating water quality objectives. Secondary and tertiary treated effluent can be discharged through the Oceanside Ocean Outfall pursuant to the associated NPDES permit (see Finding 8). Approximately 93 percent of the discharge by volume will be to land in the Mission Hydrologic Subarea, where most water quality objectives are higher than the Ysidora Hydrologic Area. The Discharge Specifications in this Order account for the more stringent water quality objectives.

Finding 4:

The Southern Region Tertiary Treatment Plant (SRTTP) is designed to receive and treat wastewater flows currently being processed at the Base's sewage treatment plants Nos. 1, 2, 3, and 13 upon completion of necessary pumps and piping. The SRTTP treatment process includes an oil/water separator, mechanical and manual bar screens, grit collectors, sequencing batch reactors, cloth disk filters, disinfectant contact basins, aerobic digestion, dewatering press, drying beds, and air biofilter. Solid waste consisting of screenings and dried sludge is hauled to a properly permitted landfill appropriate for the waste characterization of the solids. The design capacity of the SRTTP is 5 million gallons per day (mgd) and the USMC reports the initial operating flow will be 2.7 mgd, with plans to increase to the maximum permitted flow of 3.75 mgd.

Basis:

The information in the finding was provided in the "Engineering Report for the Production, Distribution and Use of Recycled/Reused Water" (Engineering Report) prepared jointly by Camp, Dresser, McKee (CDM), Naval Facilities Engineering Command (NAVFAC) Southwest Division, and Marine Corps Base, Camp Pendleton and dated February 14, 2008 in section 1.0, p. 1 and section 1.3, p. 2-5.

Finding 5:

Groundwater wells are located in the Las Pulgas Canyon and Santa Margarita River watershed. Potable water supply wells in the Santa Margarita River watershed are generally in the Chappo and Upper Ysidora Hydrologic Subareas, which are located upgradient of the proposed recycled water discharge areas described in Finding 6. With the exception of San Mateo Point housing, the USMC obtains all drinking water supplies from underground aquifers or basins. The USMC monitors for regulated and unregulated contaminants in drinking water pursuant to California Department of Public Health requirements CCR Title 22, Division 4, Chapter 15, section 64416. The total dissolved solids (TDS) concentration in groundwater supply wells is approximately 755 milligrams per liter (mg/L), which is greater than the water quality objective (see Finding 12).

The USMC has authorized funding for a military construction project that will reduce TDS in the drinking water supply. The USMC expects a correlated reduction of TDS in the SRTTP effluent. The project could occur as early as fiscal year 2009 (beginning October 1, 2008). Under these conditions, the discharge of recycled water with TDS concentrations above Basin Plan objectives will be temporary and localized, thereby having a reasonable affect on beneficial uses. Approximately 93 percent of recycled water by volume will be discharged to the Mission Hydrologic Subarea (HSA) that generally has higher water quality objectives. The discharge location in the Ysidora Hydrologic Area (HA), adjacent to Interstate 5 (water quality objectives do not apply west of Interstate 5), is not a planned or anticipated source of ground water for beneficial use due to saltwater intrusion from the Ocean, which is the ultimate down-gradient fate of the discharge[1]. The design spray irrigation application rate (Finding 6) is less than the estimated evapotranspiration rate to limit the potential for recycled water to reach groundwater. Existing and planned vegetation exhibited normal growth with irrigation of 1,500 mg/L-TDS.

Footnote 1: The ground-water flow direction is based on data from nearby underground storage tank cases.

Basis:

San Mateo Point housing receives potable water from the South Coast Water District. The rest of the Base receives its water supply ground water. The background levels of TDS (755 mg/L) are approximately equal to the water quality objective for the Ysidora HA (see Findings 11 and 12). Therefore, in order to meet water quality objectives, the USMC plans to reduce the influent TDS by treating domestic supply water. See also the Basis for effluent limits in Specification B.4.

The information in the finding was provided in the Engineering Report (CDM 2008) in section 6, p. 22.

The information in the finding was provided in e-mail and telephone correspondence by Mr. Khalique Khan, Environmental Engineering Division Head, Assistant Chief of Staff, Environmental Security, Marine Corps Base Camp Pendleton, on July 15, 2008.

The requirements in this finding were established in CCR Title 22, Division 4, Chapter 3, section 64416.

Ground-water flow directions are based on underground storage tank case numbers T0607302930 (Building 21561), and T0607301679 (Building 21478). The gradient ranged from 0.004 to 0.024 toward the south-southwest. This information was provided in the Groundwater Monitoring Reports (Battelle 2007, Battelle 2008).

Finding 6:

The combined tertiary treated recycled water will be reused only for spray irrigation initially on 374 acres in the following areas on Base:

TABLE 1

Irrigation Site	***Area (acre)***	***Latitude (approx.)***	***Longitude (approx.)***	***Delivery Rate Design (acre-feet/yr)***
Front Gate/ Recreation Fields	*34*	*33°13'36" N*	*117°23'27" W*	*124*
Marine Memorial Golf Course	*180*	*33°15'53" N*	*117°22'26" W*	*963*
Horse Pasture	*142*	*33°17'15" N*	*117°18'24" W*	*517*
Mainside Parade Grounds	*18*	*33°18'18" N*	*117°18'36" W*	*66*

Basis:

The information in the finding was provided in the Engineering Report (CDM 2008) in section 10.0, p. 27.

Finding 7:

The USMC will recycle as much disinfected tertiary treated wastewater in the southern part of the Base as practically feasible. The USMC anticipates that the volume of wastewater will increase with the construction of planned housing units, which may necessitate additional areas for discharges of recycled water. Planned and potential recycled water discharge areas were analyzed in the Final Environmental Impact Statement for the Tertiary Treatment Plant and Associated Facilities, MCB Camp Pendleton *(EIS) prepared for the USMC in April 2004.*

Basis:

The Regional Board acknowledges that as wastewater flow increases in the future, the increased volume of recycled water may require additional reuse areas. An increased volume of irrigation could exceed the current ground-water recharge rates causing unauthorized discharge of runoff. Additional proposed reuse areas have been analyzed but not approved for discharges of recycled water by the Base or the Regional Board. Should the Base need additional reuse areas, an amended Report of Waste Discharge is required.

The information in the finding was provided in the EIS (MCBCP 2004) in section 1.2, p. 1-1; Section 2.2.3, p. 2-7 through 2-10.

Finding 8:

The SRTTP treated effluent currently is discharged to the Oceanside Ocean Outfall via the Lemon Grove Pump Station pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109347, Order No. R9-2003-0155, which the USMC renewed under Order R9-2008-0096. The

USMC currently discharges ~~secondary treated wastewater from Sewage Treatment Plant (STP) No. 1 (Headquarters Plant) and No. 2 (San Luis Rey Plant)~~ to the Marine Memorial Golf Course, Horse Pasture, and Mainside Parade Grounds under Conditional Waiver No. 7- Discharges of Recycled Water to Land. ~~pursuant to Order No. 2000-45.~~ The use of the Oceanside Ocean Outfall is the fail-safe discharge point in the event the capacity of the Lemon Grove Ponds and the permitted recycled water discharge areas are exceeded.

Basis:

The USMC has a storage capacity of 300 acre-feet (approximately 100 million gallons) in the Lemon Grove Ponds alone. The available volume is equivalent to approximately 84 days of wet-weather storage given the current peak influent of 2.7 mgd and the expected discharge rate of approximately 1.5 mgd. The maximum design influent of 3.75 mgd, and probable peak discharge of 1.72 mgd would allow approximately 50 days of storage. In anticipation of the expected influent increase, the USMC has evaluated additional discharge areas (noted in Finding 7). The USMC also retains the ability to discharge treated wastewater effluents into the Oceanside Ocean Outfall to augment to the available wet-weather storage volume.

The information in the finding was provided in the Engineering Report (CDM 2008) in section 1.0, p. 1.

Finding 9:

The USMC administers a Source Control Program ("Program", see Part D of Order No. R9-2003-0155) to identify, characterize, and eliminate sources of pollutants entering sewage treatment plants. The Program includes industrial waste surveys, a contract for inspection and maintenance of oil and water separators, a Base order informing and instructing food and hospitality services on proper practices, and public education for Base housing residents. The Program allows the USMC to limit oil and grease concentrations in effluent[2] despite being unable to reliably meet the influent concentration limit of 25 mg/L for oil and grease established Order No. R9-2003-0155, therefore the Regional Board removed the influent limitation for the renewal in Order No. R9-2008-0096.

Footnote: 2. The USMC reported two detections greater than 5 mg/L of oil and grease in monthly samples collected since September 2003.

Basis:

The information in the finding was provided in the Engineering Report (CDM 2008) in section 3.2-3.3, p. 12-14; Enclosure 1.

Finding 10:

The Regional Board, under authority of Water Code section 13244, adopted the Water Quality Control Plan for the San Diego Basin (9) (Basin Plan) on September 8, 1994. The State Water Resources Control Board (SWRCB)

subsequently approved the Basin Plan on December 13, 1994. Subsequent amendments to the Basin Plan have also been adopted by the Regional Board and approved by the SWRCB. The Basin Plan contains beneficial uses and water quality objectives, and a policy for regulating the discharge of reclaimed (or recycled) water to comply with water quality objectives. The requirements of this Order are consistent with those Basin Plan requirements for discharges of reclaimed water.

Basis:

The requirements of the Basin Plan were used to develop applicable waste discharge Prohibitions, Discharge Specifications, and Provisions in this Order.

Finding 11:

The Basin Plan establishes the following beneficial uses of groundwater for the affected Hydrologic Areas (HA) and Subareas (HSA) of the Santa Margarita Hydrologic Unit (HU) and the San Luis Rey HU:

TABLE 2

Hydrologic Area (Hydrologic Subarea)	***Basin Number***	***Designated Beneficial Uses***
Ysidora HA (Lower Ysidora HSA [a])	*902.10*	*Municipal (MUN), Agricultural (AGR), Industrial Service (IND) and industrial process (PROC)*
Lower San Luis HA (Mission HSA [b])	*903.10*	*Municipal (MUN), Agricultural (AGR) and Industrial Service (IND)*

[a] = Location of the Front Gate discharge area.
[b] = Location of the Golf Course, Horse Pasture, and Mainside Parade Grounds discharge areas.

Basis:

The information in the finding is from the Basin Plan (Chapter 2: Beneficial Uses) and provided in the Engineering Report (CDM 2008) in Figure 1-1.

Finding 12:

The Basin Plan establishes the following water quality objectives for the Ysidora Hydrologic Area of the Santa Margarita River watershed and Mission Hydrologic Subarea of the San Luis Rey River watershed:

TABLE 3

Constituent	***Concentration not to be exceeded more than 10% of the time in one year***		
	Units	***Mission HSA (903.11)[a]***	***Ysidora HA (902.10)[a]***
Total Dissolved Solids	*mg/L*	*1500 [cd]*	*750 [c]*
Chlorine	*mg/L*	*500 [cd]*	*300 [c]*
Sulfate	*mg/L*	*500 [cd]*	*300 [c]*
Percent Sodium	*%*	*60*	*60*
Nitrate	*mg/L*	*45 [cd]*	*10 [c]*

Iron	*mg/L*	*0.85[cd]*	*0.3[c]*
Manganese	*mg/L*	*0.15[cd]*	*0.05[c]*
Methylene Blue Active Substances	*mg/L*	*0.5[cd]*	*0.5*
Boron	*mg/L*	*0.75[cd]*	*0.75[c]*
Odor	*None*		
Turbidity	*NTU*	*5*	*5*
Color	*Units*	*15[cd]*	*15*
Fluoride	*mg/L*	*1.0[cd]*	*1.0*

From the Basin Plan notes:

[a] The water quality objectives do not apply westerly of the easterly boundary of Interstate Highway 5. The objectives for the remainder of the Hydrologic Area (Subarea) are shown.

[c] The recommended plan would allow for measurable degradation of groundwater in this basin to permit continued agricultural land use. Point sources, however, would be controlled to achieve effluent quality corresponding to the tabulated number.

[d] A portion of the Upper Mission Basin is being considered as an underground potable water storage reservoir for treated imported water. The area is located north of Highway 76 and the boundary of hydrologic subareas 3.11 and 3.12. If this program is adopted, local objectives approaching the quality of the imported water would be set and rigorously pursued.

Basis:

The information in the finding on water quality objectives for ground water was obtained from the Basin Plan (Table 3-3).

Finding 13:

A discharge in compliance with this Order is consistent with standards, policies, and regulations established in CCR, Title 22, Division 4, Chapter 3, Reclamation Criteria, and Water Code Division 7, Chapter 7, Water Recycling Law. The discharge of reclaimed water under this Order conforms to State Water Resources Control Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining the High Quality of Waters in California. The USMC submitted rules and regulations for recycled water use in the ROWD (see Engineering Report for the Production, Distribution and Use of Recycled/Reused Water) that are consistent with the State regulations.

Basis: The requirements in the finding are established in CCR Title 22, Division 4, Chapter 3, Section 60313 and the Water Code Division 7, Chapter 7, Article 7 and Resolution No. 68-16. The following narrative explains the basis for Finding 13:

1. The SRTTP reliability features comply with requirements found in CCR Title 22, Division 4, Chapter 3, sections 60333 to 60355 for general design, alarm systems for loss of power, and failure of treatment and

disinfection processes. Mechanical, electrical and control components are operated by automated equipment, and overseen by daytime operator staff and 24-hour emergency staff.

The information in this finding, concerning reliability features for wastewater treatment and distribution systems, was provided in the Engineering Report (CDM 2008) in section 1.3, p. 2-5; Section 4, p. 15-17; Section 5, p. 18-21; Section 6, p. 22; Section 8, p. 25.

2. The SRTTP, storage, and conveyance systems and all discharge points are located within the boundaries of the Base where public access is limited. The USMC is the sole user of recycled water produced by the SRTTP. The Base is a secure military facility that effectively restricts public access, thereby providing increased levels of control for the discharges/uses of recycled water. Only military personnel and families live on Base, providing a limited audience within which to focus public education about management and uses of recycled water.

   In addition, the golf course and recreational fields do not contain eating areas or drinking water fountains that would be exposed to fugitive spray or mist from the irrigation systems. This reduces the routes of exposure and human health risk for ingestion of recycled water. All areas that are accessible to the public, where recycled water is discharged, will be posted with signs that are visible to the public. The signage will be printed in a size no less than 4 inches high by 8 inches wide, that includes the following wording: "RECYCLED WATER - DO NOT DRINK". Each sign shall display an international symbol similar to that shown in figure 60310-A of CCR Title 22, Division 4, Chapter 3. These requirements are established in CCR Title 22, Division 4, Chapter 3, section 60310.

   The information in the finding was provided in the Engineering Report (CDM 2008) in section 11.3, p. 29-30.

3. Irrigation systems using recycled water exist at the golf course and Mainside Parade Grounds. The USMC ~~will~~ has installed additional piping to convey recycled water for use of recycled water for irrigation at the Front Gate and Horse Pasture. Tertiary treated water from the SRTTP will be pumped through Gooseneck Lake and Horse Lake before being discharged for irrigation uses at the golf course and Horse Pasture, and through Reservoir 16151 before being discharged for irrigation uses at the Mainside Parade Grounds. Tertiary treated water from the SRTTP will be stored in the Lemon Grove Ponds before being discharged for irrigation uses at the Front Gate.

The discharges of recycled water (tertiary treated wastewater from the SRTTP) will be used only for irrigation. Dual-plumbed installations are not necessary for the proposed project. The conveyance system is designed to prevent recycled water backflows from impacting potable water supplies.

The information in the finding was provided in the Engineering Report (CDM 2008) in section 11.0, p. 28; Section 12, p. 31.

Finding 14:

The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:

a. *Beneficial uses to be protected and the water quality objectives reasonably required for that purpose;*
b. *Other waste discharges;*
c. *The need to prevent nuisance;*
d. *Past, present, and probable future beneficial uses of the hydrologic subunits under consideration;*
e. *Environmental characteristics of the hydrologic subunits under consideration;*
f. *Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;*
g. *Economic considerations;*
h. *The need for additional housing within the region; and*
i. *Need to develop and use recycled water.*

Basis:

The Regional Board considered the factors in establishing water quality objectives in the Basin Plan, pursuant to Water Code section 13241 (relating to Finding 14d-i); and section 13263 for waste discharge requirements (relating to Finding 14a-c). Additional information for consideration of these issues was presented in the ROWD and Engineering Report (CDM 2008).

Finding 15:

As specified by Water Code section 13523.1, this Order includes the following:

a. *Waste discharge requirements adopted pursuant to Water Code, Article 4, section 13260;*
b. *Requirement that the discharger comply with the uniform statewide criteria established by the State Department of Health Services pursuant to Water Code section 13521 and other applicable permit conditions for the use of recycled water;*
c. *Requirement that the discharger establish and enforce rules and regulations for recycled water users in accordance with statewide reclamation criteria;*

d. Requirement that the discharger submit quarterly recycled water use summary reports;
e. Requirement that the discharger conduct periodic inspections of the recycled water use sites; and
f. Other requirements determined to be appropriate by this Regional Board.

Basis:

The information in the finding is established in the Water Code Division 7, Chapter 7, Chapter 7, sections 13523.2, and 13260, and the CCR Title 22, Division 4, Chapter 3, and the Basin Plan (Chapter 4: pp. 4-18 and 4-19). The requirements of the cited statutes were used to develop applicable waste discharge Prohibitions, Discharge Specifications, and Provisions in this Order.

Findings 16, 17, and 18:

16. The Regional Board has notified the USMC at Camp Pendleton and all known interested parties of the intent to prescribe a master reclamation permit for the proposed discharge whereby the USMC is the recycled water agency.

17. The USMC, as a federal facility subject to the National Environmental Policy Act (NEPA) prepared the EIS (see Finding 7). The EIS satisfies the California Environmental Quality Act (CEQA) requirements and thereby serves as the Environmental Impact Report (EIR) in accordance with CCR, Title 14, Article 14, section 15221. The USMC circulated the EIS for public review as broadly as CEQA requires pursuant to CCR, Title 14, section 15087(a). The Regional Board circulated a notice stating that the EIS meets the requirements of CEQA and stating that the Regional Board intends to rely on the EIS in place of an Environmental Impact Report pursuant to CCR, Title 14, section 15087. Public notice was published in the San Diego Union-Tribune on July 26, 2008, posted on the Regional Board web site on August 11, 2008, and attached to letters or emails sent to selected federal, state and local agencies on August 13, 2008.

18. The Regional Board received and considered written comments from the USMC dated August 27, 2008, November 4 and 6, 2008, and February 11, 2009, and the California Department of Public Health (CDPH) on September 15 and 17, 2008. The USMC submitted a Tracer Test Report *dated September 3, 2008 and a revised* Engineering Report for the Production, Distribution and Use of Recycled/Reused Water *dated October 23, 2008 to address changes required by the CDPH. The Regional Board in a public meeting on March 11, 2009 heard and considered all comments pertaining to its proposed discharge.*

Basis:

According to CCR, Title 14, Article 14, section 15221:"(a) When a project will require compliance with both CEQA and NEPA, state or local agencies

should use the EIS or Finding of No Significant Impact rather than preparing an EIR or Negative Declaration if the following two conditions occur:
(1) An EIS or Finding of No Significant Impact will be prepared before an EIR or Negative Declaration would otherwise be completed for the project; and
(2) The EIS or Finding of No Significant Impact complies with the provisions of these Guidelines.
(b) Because NEPA does not require separate discussion of mitigation measures or growth inducing impacts, these points of analysis will need to be added, supplemented, or identified before the EIS can be used as an EIR."

The Final EIS (MCBCP 2004) includes consideration of mitigation measures discussed in the Executive Summary in Table ES-2. The consideration of growth inducing impacts is discussed in the Final EIS section 6.5.

The Regional Board did not receive any comments during the public hearing.

IT IS HEREBY ORDERED THAT, *United States Marine Corps, Camp Pendleton (hereinafter the discharger), for the Southern Region Tertiary Treatment Plant, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following for the treatment, storage and discharge of recycled wastewater at the "Irrigation Areas" identified in Finding 6 of this Order:*

A. Prohibitions

Prohibition 1:

Discharges of recycled water, including incidental runoff and spray, to lands which have not been specifically described in the ROWD, and for which valid waste discharge requirements are not in force, are prohibited.

Basis:

The prohibition was established in the CCR Title 22, Division 4, Chapter 3, section 60310(e), Basin Plan waste discharge prohibitions (Chapter 4: p. 4-19), and by statutory requirements found in the Water Code, sections 13260 to 13264.

The ROWD describes engineering controls and best management practices for the given irrigation areas. These measures may not be protective of water quality if the discharge points are modified.

Prohibition 2:

Neither the treatment, nor storage, nor disposal of waste shall create a condition of pollution, contamination or nuisance, as defined by Water Code Section 13050.

Basis:

The prohibition was established in waste discharge prohibitions in the Basin Plan (Chapter 4: p. 4-20) using the definitions of pollution and nuisance found in the Water Code, section 13050.

Prohibition 3:

Discharges of treated or untreated solid or liquid waste into a navigable water or tributary of a navigable water are prohibited, unless as authorized by an NPDES permit issued by this Regional Board.

Basis:

The prohibition (including recycled water discharges) was established in waste discharge prohibitions in the Basin Plan (Chapter 4: p. 4-20).

Prohibition 4:

Impoundment of disinfected tertiary recycled water within 100 feet of any domestic water supply well is prohibited.

Basis:

The prohibition was established in the CCR Title 22, Division 4, Chapter 3, Section 60310(b).

Prohibition 5:

Irrigation with disinfected tertiary recycled water within 50 feet of any domestic supply well is prohibited.

Basis:

The prohibition was established in the CCR Title 22, Division 4, Chapter 3, Section 60310(a, c).

B. DISCHARGE SPECIFICATIONS

Specification 1:

The 30-day average daily dry weather flow to the SRTTP shall not exceed the 5.0 mgd design capacity of the facility.

Basis:

The Discharge Specification was established with consideration of a finding concerning dry weather flow, as provided in the EIS (MCBCP 2004) in section 2.2.1, p. 2-1 through 2-2.

Specification 2:

Recycled water effluent shall be treated to the level of disinfected tertiary recycled water in compliance with CCR, Title 22, Division 4, Chapter 3, section 60301.230. Disinfection will provide 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. Peak dry weather flow 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. The water level at the exit of the chlorine contact basins during peak dry weather flow shall be a minimum of 10 feet. The minimum chlorine residual shall be 3.0 mg/l at all times.

The median concentration of total coliform bacteria measured in the disinfected effluent will not exceed a most probable number (MPN) of 2.2 total coliform bacteria 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 does not exceed an MPN of 23 total coliform bacteria 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.

Basis:

The specification was established in the CCR Title 22, Division 4, Chapter 3, Section 60301.230. In letters dated September 15 and 17, 2008 the California Department of Public Health (CDPH 2008a, 2008b) provided additional requirements based on the testing methods used to determine the modal contact time. The method for sampling must remain consistent to provide reliable data.

Specification 3:

Turbidity of the disinfected tertiary recycled water shall not exceed a daily average value of 2 NTU (nephelometric turbidity units) based on the average of turbidity measurement at 4-hour intervals over a 24-hour period. Turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period and shall not exceed 10 NTU at any time.

Basis:

The specification was established in the CCR Title 22, Division 4, Chapter 3, Section 60301.320.

Specification 4:

The recycled water discharged from SRTTP to the Irrigation Areas shall not contain constituents in excess of the following discharge specifications:

TABLE 4

Constituent	*Units*	*30-Day Average* [a]	*Daily Maximum* [b]
Biochemical Oxygen Demand (BOD at 20° C)	*mg/l*	*30*	*45*

Total Suspended Solids	*mg/l*	*30*	*45*
pH	*pH Units*	*Within the limits of 6.5 to 8.5 at all times*	
Chloride	*mg/l*	*NA*	*325*
Sulfate	*mg/l*	*NA*	*325*
Percent Sodium	*%*	*NA*	*60*
Iron	*mg/l*	*NA*	*0.3*
Manganese	*mg/l*	*NA*	*0.05*
Methylene Blue Active Substances	*mg/L*	*NA*	*0.5*
Boron	*mg/l*	*NA*	*0.6*
Color	*Units*	*NA*	*15*
Fluoride	*mg/l*	*NA*	*0.7*

Table 4 notes:
[a] The 30-day average discharge specification shall apply to the arithmetic mean of the results all samples collected during any 30 consecutive calendar day period.
[b] The daily maximum discharge specification shall apply to the results of a single composite or grab sample.

Basis: The effluent limits in this Discharge Specification were developed based upon the following considerations:

1. BOD, total suspended solids and pH water quality objectives are based upon the minimum standards for secondary treatment as promulgated by the USEPA. The daily maximum is used in lieu of the 7-day average to reduce the redundancy of samples. See Code of Federal Regulations Title 40, Volume 19, Chapter 1, section 133.102.

2. The discharge specifications may be modified based on future data from the SRTTP, under authority of Water Code section 13263(e), and incorporated into Standard Provision E.13. of this Order. As detailed in Finding 5, the USMC has planned projects that are expected to improve the influent TDS concentrations.

3. The Basin Plan specifies that water quality objectives listed in Table 3 (Finding 12) are concentrations not to be exceeded more than 10 percent of the time in one year. This corresponds to 36 days, which is approximated by a calendar month. The concentration represents the 90 percent confidence limit, or the value at which 90 percent of the samples must be beneath. Daily samples would be required for calculations of a 30-day average concentration. Therefore, to reduce the amount of

redundant sampling, the daily maximum is taken to be the 99 percent confidence limit of the sample data.

4. The latest available nine months of data from STP 1 and 2 were used to approximate the average and standard deviation of effluent concentration for chloride, sulfate, fluoride, iron, manganese, and boron. Flow to these STPs is approximately 25 percent (by volume) of the wastewater to be diverted to the SRTTP while the remaining flow is derived from similar uses and processes, thereby providing a reasonable characterization of the wastewater. The SRTTP treatment processes include a greater level of treatment for wastewater, so effluent water quality will generally meet or be better than treated wastewater effluents from the STPs.

5. The average chloride and sulfate concentrations were above the 90 percent limit, so the 99 percent limit would not be protective of water quality. The expected average for these constituents was back-calculated by setting the Table 3 values as the 90 percent limit and using a proportional standard deviation. The expected average was then used to calculate the discharge specifications.

6. Fluoride, iron, manganese and boron's 99 percent confidence limits were lower than the water quality objective, so the 99 percent confidence limit was used. Percent sodium, methylene blue active substances and color did not have available data so the water quality objective was used.

Example calculations, chloride:

μ=Data Average=314.9; σ=Standard Deviation=26.1; 90th percentile probability score=z_{90}=1.65; 99th percentile probability score=z_{99}=2.58

WQO=Water Quality Objective = 300;

PSD = Proportional Standard Deviation = WQO *σ / μ = 24.9;

EA = Expected Average = WQO- z_{90}*PSD = 258.9

Daily Maximum = EA + z_{99}*PSD = 323.2 ~325

Similar calculations were used for sulfate, while one data point greater than three standard deviations was omitted from the set for each constituent.

Specification 5:

The recycled water discharged from SRTTP to the Irrigation Areas shall not contain TDS in excess of 1,200 mg/L as a 12-month average[2] or 1,300 mg/L as a daily maximum. From March 12, 2014 on, recycled water discharged from

SRTTP to the Front Gate/Recreation Fields shall not contain TDS in excess of 800 mg/L as a daily maximum.

Footnote: 2. The 12-month average discharge specification shall apply to the arithmetic mean of the results of all samples collected during the current calendar month and the preceding 11 calendar months.

Basis:

1. The discharge specifications may be modified based on future data from the SRTTP, under authority of Water Code section 13263(e), and incorporated into Standard Provision E.13. of this Order. As detailed in Finding 5, the USMC has planned projects that are expected to improve the influent TDS concentrations.

2. The latest available nine months of data from STP 1 and 2 were used to approximate the average and standard deviation of effluent concentration for TDS. The last twelve months of TDS data from the SRTTP (flow diverted from former STP 13) were also weighted into the TDS data. The SRTTP treatment processes include a greater level of treatment for wastewater, so effluent water quality will generally meet or be better than treated wastewater effluents from the STPs.

3. The Basin Plan specifies that water quality objectives listed in Table 3 (Finding 12) are concentrations not to be exceeded more than 10 percent of the time in one year. This corresponds to 36 days, which is approximated by a calendar month. The concentration represents the 90 percent confidence limit, or the value at which 90 percent of the samples must be beneath. Daily samples would be required for calculations of a 30-day average concentration. Therefore, to reduce the amount of redundant sampling, the daily maximum is taken to be the 99 percent confidence limit of the sample data.

4. Since the discharges to each hydrologic (sub)area will come from only one treatment system (source), discharge specifications are based on the more conservative values. Under the conditions of Finding 5, the discharge of recycled water with TDS concentrations above Basin Plan objectives will be temporary and localized, thereby having a reasonable affect on beneficial uses.

5. Operating data indicates that SRTTP treatment will easily comply with the water quality objective in the Lower San Luis HA. Therefore, the discharge specification is based on the established treatment capabilities. The average TDS concentration in potable water, derived from the southern portion of the Base water supply system, was approximately 755 mg/L. During an overlapping time period the average of the TDS concentration in effluent from the SRTTP was 993 mg/L, with a 99 percent

confidence limit of 1,123 mg/L that is 367 mg/L greater than ground-water supply for domestic use. Given the site specific conditions described in Finding 5 and the conservative assumptions made in considerations 1 through 4 above, an incremental increase of 450 mg/L over the water quality objective (WQO) for TDS is reasonable for the long term average to ensure precise treatment processes. The 1,300 mg/L daily maximum is reasonable to ensure accurate treatment processes. As of March 12, 2014 the discharge specification for the Front Gate/Recreation Fields will default to 800 mg/L, which is the 99% confidence limit of the WQO. This default limitation ensures the long-term protection of beneficial uses in the Ysidora HA by enforcing the temporary condition of the discharge of recycled water with TDS at concentrations above WQO. The discharges to the remaining Irrigation Areas are unaffected because the 1,200 mg/L discharge specification is already protective of long-term beneficial uses.

Specification 6:

The recycled water discharged from SRTTP to the Irrigation Areas shall not contain total nitrogen (as N) in excess of 5.0 mg/L as a daily maximum. From March 12, 2014 on, recycled water discharged from SRTTP to the Front Gate/Recreation Fields shall not contain total nitrogen (as N) in excess of 4.1 mg/L as a daily maximum.

Basis:

1. The discharge specifications may be modified based on future data from the SRTTP, under authority of Water Code section 13263(e), and incorporated into Standard Provision E.13. of this Order. As detailed in Finding 5, the USMC has planned projects that are expected to improve the influent nitrogen concentrations. The USMC will have 5 years to enact the plans.

2. The latest available seventeen months of data from SRTTP (flow diverted from former STP 13) were used to approximate the average and standard deviation of effluent concentration for total nitrogen. The waste streams are not expected to vary between STPs so the SRTTP data are a reasonable expectation for the combined flow when all flow is treated by the SRTTP.

3. The Basin Plan specifies that water quality objectives listed in Table 3 (Finding 12) are concentrations not to be exceeded more than 10 percent of the time in one year. This corresponds to 36 days, which is approximated by a calendar month. The concentration represents the 90 percent confidence limit, or the value at which 90 percent of the samples must be beneath. Daily samples would be required for calculations of a 30-day average concentration. Therefore, to reduce the amount of redundant sampling, the daily maximum is taken to be the 99 percent confidence limit of the sample data.

4. The effluent numerical objective for total nitrogen is based on the groundwater quality objective for nitrate (10 mg/L as NO_3^- or 2.3 mg/L as N) with considerations for the transformation of nitrogen species. Nitrogen in treated effluent may be in nitrate form or in other forms that eventually convert to nitrate. Once in nitrate form, some nitrogen is lost through denitrification in the unsaturated soil zone (vadose zone), but the majority remains as nitrate which may eventually reach groundwater. A typical denitrification rate of 30% has been applied in deriving the total nitrogen effluent discharge specification which is equivalent to stating that 70% of nitrates are expected to reach groundwater. Consequently, as an example, the effluent numerical objective for total nitrogen is 2.3 mg/L divided by the factor 0.7 which equals 3.3 mg/L. The effluent numerical objective was used to determine the daily maximum with the 99 percent confidence interval based on the standard deviation of existing operating data. The amount of nitrate that reaches groundwater may be further reduced by vegetation uptake of nitrogen if followed by removal or harvesting of the vegetation; however, the total nitrogen discharge specification was derived with the assumption that vegetation is not removed from recycled water use sites.

5. Since the discharges to each hydrologic (sub)area will come from only one treatment system (source), discharge specifications are based on the more conservative values. The initial phase total nitrogen (as N) discharge specification of 5.0 mg/L was provided as requested by the USMC. As of March 12, 2014, the discharge specification for the Front Gate/Recreation Fields will default to 4.1 mg/L, which is the 99% confidence limit of the WQO. The phasing period allows the USMC to develop and implement the nutrient management plan required in requirement C.4, while the default limitation protects long-term beneficial uses. Under the conditions of Finding 6, the discharge of recycled water with nitrogen/nitrate concentrations above Basin Plan objectives will be temporary and localized, thereby having a reasonable affect on beneficial uses.

Specification 7:

The Delivery Rate Design (ac-feet/yr) stated in Finding 6 shall be maintained near the evapotranspiration rate determined for recycled water discharges to the irrigation areas.

Basis:

The irrigation delivery rate is limited to prevent the TDS from reaching groundwater and affecting beneficial uses. The delivery rate must be modified as actual recycled water discharges evapotranspiration data is determined in the field. TDS will remain in the soil and accumulate although the rate of accumulation will decrease after the default discharge specification

in Specification 5 takes effect. As stated in Finding 5, the irrigated vegetation is salt tolerant at 1,500 mg/l. The long-term effect of salt accumulation will be managed by the discharger in the future through alternative land use or other appropriate method.

Specification 8:

Collected screenings, sludge, other solids removed from liquid wastes, and filter backwash shall be disposed in a manner described in the Findings of this Order. Sewage sludge treatment and disposal shall comply with all pertinent paragraphs of Part 503, Subchapter O, Chapter I of Title 40 Code of Federal Regulations under the U.S. Environmental Protection Agency's (USEPA's) jurisdiction.

Basis:

The Base will use dumpsters to collect screenings for landfill disposal. Sludge will be processed through dewatering belt presses and drying beds before landfill disposal. The receiving facility must be in compliance with Clean Water Act 405(d) requirements. Since the State of California, hence the SWRCB and Regional Board, has not been delegated the authority by the USEPA to implement the sludge program, enforcement of sludge requirements of CFR Part 503 is under USEPA's jurisdiction. Once sludge leaves the SRTTP, it is subject to all applicable local, state and federal laws and regulations.

The information in the finding was provided in the Engineering Report (CDM 2008) in section 1.3, p. 4. Also see the requirements established in the Code of Federal Regulations Title 40, Volume 19, Chapter 1, Part 133.

C. RECYCLED WATER PURVEYANCE REQUIREMENTS

Requirement 1:

The discharger must do the following for all reuse sites:

a. Enforce rules and regulations for recycled water use established in the ROWD (see Engineering Report for the Production, Distribution and Use of Recycled/Reused Water);

b. Within 30 days of adoption of this Order, develop and submit a program to conduct compliance inspections of recycled water reuse sites to the Regional Board, CDPH and San Diego County Department of Environmental Health;

c. Inspect recycled water reuse sites in accordance with the program submitted for Section C.1.b. of this Order;

d. Provide quarterly summary reports of recycled water use to the Regional Board;

e. Maintain a current list of all on-site recycled water supervisors.

f. All pipes 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". The Lemon Grove Ponds, 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".

Basis:

The Base is the "recycled water agency" as defined by CCR Title 22, section 60301.700 which owns and operates the recycled water system, and that delivers or proposes to deliver recycled water. As a recycled water agency, the Base is able to enforce this specification required for a master reclamation permit. The base provided the rules and regulations in the Engineering Report.

Requirements 2 and 3:

2. The discharger, within 30 days of adoption of this Order and prior to providing recycled water to a new use site, shall certify that the project conforms with what is described by the rules and regulations established in requirement C.1.a of this order. A certification report shall document that all criteria described in rules and regulations has been submitted to and approved by the State Department of Public Health and County Department of Environmental Health.

3. The discharger, within 30 days of adoption of this Order, shall certify that the SRTTP can comply with Discharge Specifications in section B. The certification report shall document compliance with each specification individually.

Basis:

The discharger must certify that the requirements of the master reclamation permit can be met by the existing facility and recycled water reuse site. The certification serves as the USMC acknowledgement of this master reclamation permit.

Requirement 4:

The discharger, by March 11, 2013, shall submit a plan to achieve compliance with the phased total nitrogen discharge specification B.6. The discharger shall certify that the SRTTP will be in compliance with phased discharge specifications as of March 12, 2014. The nutrient management plan may include but is not limited to: enhanced treatment, source identification and removal, loading estimates, nutrient fate and transport, groundwater monitoring, and best management practices.

Basis:

The discharger must certify that the requirements of the master reclamation permit can be met by the existing facility and/or implementation of the nutrient

management plan. The plan must be submitted 1 year before the phased total nitrogen specification to allow time for Regional Board review.

See also: Basis for Specification 6.

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