California Regional Water Quality Control Board
Santa Ana Region

ORDER NO. R8-2004-0107

Amending Order No. 01-95, NPDES No. CA8000326
Waste Discharge and Producer/User Recycling Requirements

for

Irvine Ranch Water District
Michelson Water Reclamation Plant
Orange County

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter, Board), finds that:

1. On December 19, 2001, Regional Board adopted Order No. 01-95, NPDES No. CA8000326, prescribing waste discharge and producer/user water recycling requirements for the Michelson Water Reclamation Plant, owned and operated by the Irvine Ranch Water District (hereinafter discharger or IRWD). This Order authorizes IRWD to store tertiary treated recycled water in Sand Canyon Reservoir and Rattlesnake Reservoir prior to distribution for recycling purposes.

2. In June 2003, IRWD certified the Environmental Impact Report (EIR) and filed a Notice of Determination (NOD) for the San Joaquin Reservoir Conversion Project, restoring the Reservoir and converting storage from potable to recycled water.

3. The San Joaquin Reservoir is located within the City of Newport Beach in the San Joaquin Hills, near IRWD's southwestern boundary. This reservoir was originally constructed as a drinking water reservoir with highly controlled inputs and outputs. Runoff from the surrounding watershed was diverted around the Reservoir. The Reservoir was constructed with asphalt and clay liners to minimize the potential for groundwater intrusion into the reservoir and exfiltration from the reservoir to soil below it.

4. The project to restore the reservoir and convert it from potable to recycled water storage includes maintenance of the diversion of surface water around the reservoir and enhancement of the integrity of the asphalt and clay liners within the reservoir.

5. The converted San Joaquin Reservoir will provide seasonal storage of recycled water during wet weather periods, when recycled water supply exceeds the irrigation demand. During dry weather periods, recycled water stored in the Reservoir will be used to meet peak irrigation demands.

6. Currently, to meet high demand for irrigation water during the summer time, IRWD supplements available recycled water supply with potable water from the State Water Project and local groundwater sources. Storage of up 2,500 acre-feet per year of recycled water will reduce the need to use these potable sources to meet irrigation demands.

7. It is estimated that potential seepage from San Joaquin Reservoir could be up to 80 gallons per minute (gpm). Seepage that does not percolate into the ground downstream of the Reservoir would flow to an unnamed creek that is tributary to Bonita Creek and thence San Diego Creek and Upper Newport Bay. Potential seepage from San Joaquin Reservoir could have nitrate concentrations in the order of 2 to 3 mg/l of nitrate as nitrogen. However, due to natural riparian processes in the creeks, the nitrate concentration can reasonably be expected to be reduced to less than 1 mg/l. As such, the seepage would not have a significant effect on the quality of Newport Bay and would conform to the established San Diego Creek/Newport Bay Nutrient TMDL, which specifies a 1 mg/l total inorganic nitrogen trigger for the issuance of waste discharge requirements for nutrient discharges in the watershed. In any case, as part of efforts outside the scope of this Order, IRWD operates the San Joaquin Marsh wetlands ponds treatment system. Flows diverted from San Diego Creek are treated in the ponds and then re-enter the Creek. The pond treatment system results in significant reductions in nitrogen entering Newport Bay via San Diego Creek, the Bay's major tributary. The nitrogen removed by the wetlands treatment system significantly more than offsets nitrogen inputs to the Creek and Newport Bay that would result from seepage from the Reservoir.

8. On September 3, 2004, IRWD requested amendment of Order No. 01-95 to add San Joaquin Reservoir as an additional recycled water storage reservoir in the distribution system.

9. In accordance with Water Code Section 13389, amending the waste discharge requirements for this discharge is exempt from those provisions of the California Environmental Quality Act contained in Chapter 3 (commencing with Section 21100), Division 13 of the Public Resources Code.

10. The Board has notified the discharger and other interested agencies and persons of its intent to amend waste discharge requirements for the discharge and has provided them with an opportunity to submit their written views and recommendations.

11. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. 01-95 be amended as follows:

1. Replace Finding 8 of Order No. 01-95 with the following:

   8. Outside of the discharger's recycled water storage and delivery system, wastewater is discharged at the following discharge points:

Discharge Serial	Location of Discharge		Description of discharge
	Latitude	Longitude	
001	33°39'48"	117°50'15"	Pumped groundwater discharged into San Diego Creek
002	33°39'53"	117°50'24"	Pumped groundwater discharged into San Joaquin Marsh
003	33°38'44"	117°47'49"	Recycled water discharge into Sand Canyon Reservoir
004	33°43'40"	117°44'34"	Recycled water discharge into Rattlesnake Reservoir
005	33°37'13"	117°50'35"	Recycled water discharge into San Joaquin Reservoir

2. Replace Finding 21 of Order No. 01-95 with the following:

   21. The discharger's recycled water reservoirs and recycled water use areas overlie the Irvine Forebay I & II and Irvine Pressure Groundwater Subbasins. The total dissolved solids (TDS) objectives of these groundwater subbasins and reservoirs are:

Groundwater Subbasin/ Reservoirs	TDS Objective (mg/l)
Irvine Forebay I Subbasin	1,000
Irvine Forebay II & Irvine Pressure Subbasins, Sand Canyon, Rattlesnake, and San Joaquin Reservoirs	720

3. Finding Section of Order No. 01-95, replace the first paragraph of Finding 26 with the following:

   26. Recycled water from the MWRP is distributed to the Sand Canyon, Rattlesnake, and San Joaquin Reservoirs for storage. Super-chlorination of the recycled water is necessary to prevent fouling of the recycled water distribution lines. As such, discharges of recycled water into the reservoirs contain concentrations of residual chlorine that may be toxic to aquatic organisms. However, the residual chlorine present in the discharges dissipates within the reservoirs such that the reservoirs support aquatic life, including fish. The discharge of chlorinated recycled water to Sand Canyon and Rattlesnake reservoirs does not compromise the beneficial uses of these reservoirs, which include warm water aquatic habitat. The discharge of chlorinated recycled water to the reservoirs is necessary to accommodate wastewater reclamation and water conservation. It is in the public interest to accommodate these activities.

4. Discharge Specifications Section of Order No. 01-95, replace Discharge Specifications A.1. with the following:

   1. These effluent limits are applicable to discharges to the reservoirs and recycled water use. These limits shall be met at each discharge point (Discharge Serial Nos. 003, 004, and 005 and recycled water main trunkline before the first lateral transmission line). The discharge of treated wastewater or the use of recycled water containing constituent concentrations in excess of the following limits is prohibited: (Section A.1. a., b., and c. of Order No. 01-95, shall remain unchanged)

5. All other conditions and requirements of Order No. 01-95, as amended, shall remain unchanged.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the forgoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on December 20, 2004.

Gerard J. Thibeault
Executive Officer

California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501-3348

December 20, 2004

STAFF REPORT

ITEM: 7

SUBJECT: Order No. R8-2004-0107, Amending Order No. 01-95, NPDES No. CA8000326, Waste Discharge and Producer/User Water Recycling Requirements for Irvine Ranch Water District's Michelson Water Reclamation Plant, Orange County

DISCUSSION:

On December 19, 2001, the Regional Board adopted Order No. 01-95, NPDES No. CA8000326, prescribing waste discharge and producer/user water recycling requirements for Irvine Ranch Water District's (IRWD) Michelson Water Reclamation Plant. This Order authorizes IRWD to store tertiary treated recycled water in Sand Canyon Reservoir and Rattlesnake Reservoir prior to distribution for recycling purposes. This Order also includes requirements intended to reduce the potential for overflows of recycled water from the reservoirs into downstream surface waters.

In June 2003, IRWD certified the Environmental Impact Report (EIR) and filed the Notice of Determination for the San Joaquin Reservoir Conversion Project, converting storage in the Reservoir from potable water to recycled water.

The San Joaquin Reservoir is located within the City of Newport Beach in the San Joaquin Hills, near IRWD's southwestern boundary (Attachment A). This reservoir was originally constructed as a drinking water reservoir with highly controlled inputs and outputs. Surface runoff from the watershed tributary to the Reservoir was diverted around the Reservoir. The Reservoir was constructed with asphalt and clay liners to minimize the potential for groundwater intrusion into the reservoir and exfiltration from the reservoir to the soil below it.

In the restoration of the reservoir and its conversion from drinking water to recycled water storage, IRWD maintained the diversion of surface water runoff around the reservoir and enhanced the integrity of the asphalt and clay liners within the reservoir.

The converted San Joaquin Reservoir will provide seasonal storage of recycled water during wet weather periods when the supply of recycled water exceeds the irrigation demand. During dry weather periods, recycled water stored in the Reservoir will be used to serve peak irrigation demands.

IRWD's Michelson Water Reclamation Plant supplies recycled water to the District's existing recycled water users. Currently, to meet high demands for irrigation water during the summer time, IRWD supplements available recycled water supply with potable water from the State Water Project and local groundwater sources. Storage of up to 2,500 acre-feet per year of recycled water in the San Joaquin Reservoir will reduce the need to use these potable sources to meet irrigation demands.

It is estimated that the potential seepage from San Joaquin Reservoir could be up to 80 gallons per minute (gpm). Seepage that does not percolate into the ground would likely flow to an unnamed creek that is tributary to Bonita Creek, and thence San Diego Creek. San Diego Creek is a tributary of Upper Newport Bay.

Potential seepage from San Joaquin Reservoir could have nitrate concentrations on the order of 2 to 3 mg/l of nitrate as nitrogen. However, 70 to 80 percent of this nitrate may be reduced by natural riparian processes. Therefore, the nitrate concentrations in the seepage could be reduced to less than 1 mg/l. The water quality effects of the seepage are expected to be insignificant. In any case, as part of efforts outside the scope of this Order, IRWD operates the San Joaquin Marsh wetlands ponds treatment system. Flows diverted from San Diego Creek are treated in the ponds and then re-enter the Creek. The pond treatment system results in significant reductions in nitrogen entering Newport Bay via San Diego Creek, the Bay's major tributary. The nitrogen removed by the wetlands treatment system significantly more than offsets nitrogen inputs to the Creek and Newport Bay that would result from seepage from the Reservoir.

On September 3, 2004, IRWD requested that Order No. 01-95 be amended to add San Joaquin Reservoir as recycled water storage reservoir.

Board staff believes that the discharger's request to add San Joaquin Reservoir is reasonable.

The following show the proposed changes to the Order. Additions are bold and highlighted. Deletions are stricken-out.

1. Modify Finding 8 of Order No. 01-95 as follows:

   8. Outside of the discharger's recycled water storage and delivery system, wastewater is discharged at the following discharge points:

Discharge Serial	Location of Discharge		Description of discharge
	Latitude	Longitude	
001	33°39'48"	117°50'15"	Pumped groundwater discharged into San Diego Creek
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Discharge Serial	Location of Discharge		Description of discharge
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005	**33°37'13"**	**117°50'35"**	**Recycled water discharge into San Joaquin Reservoir**

2. Modify Finding 21 of Order No. 01-95 as follows:

   21. The discharger's recycled water reservoirs and recycled water use areas overlie the Irvine Forebay I & II and Irvine Pressure Groundwater Subbasins. The total dissolved solids (TDS) objectives of these groundwater subbasins and reservoirs are:

Groundwater Subbasin/ Reservoirs	TDS Objective (mg/l)
Irvine Forebay I Subbasin	1,000
Irvine Forebay II & Irvine Pressure Subbasins, Sand Canyon, Rattlesnake, **and San Joaquin** Reservoirs	720

3. Finding Section of Order No. 01-95, modify the first paragraph of Finding 26 as follows:

   26. Recycled water from the MWRP is distributed to the Sand Canyon, Rattlesnake, and **San Joaquin** Reservoirs for storage. Super-chlorination of the recycled water is necessary to prevent fouling of the recycled water distribution lines. As such, discharges of recycled water into the reservoirs contain concentrations of residual chlorine that may be toxic to aquatic organisms. However, the residual chlorine present in the discharges dissipates within the reservoirs such that the reservoirs support aquatic life, including fish. The discharge of chlorinated recycled water to the **Sand Canyon and Rattlesnake** reservoirs does not compromise the beneficial uses of these reservoirs, which include warm water aquatic habitat. The discharge of chlorinated recycled water to the reservoirs is necessary to accommodate wastewater reclamation and water conservation. It is in the public interest to accommodate these activities.

4. Discharge Specifications Section of Order No. 01-95, modify Discharge Specifications A.1. as follows:

    1. These effluent limits are applicable to discharges to the reservoirs and recycled water use. These limits shall be met at each discharge point (Discharge Serial Nos. 003, ~~and~~ 004, **and 005** and recycled water main trunkline before the first lateral transmission line). The discharge of treated wastewater or the use of recycled water containing constituent concentrations in excess of the following limits is prohibited: (Section A.1. a., b., and c. of Order No. 01-95, shall remain unchanged.)

RECOMMENDATION:

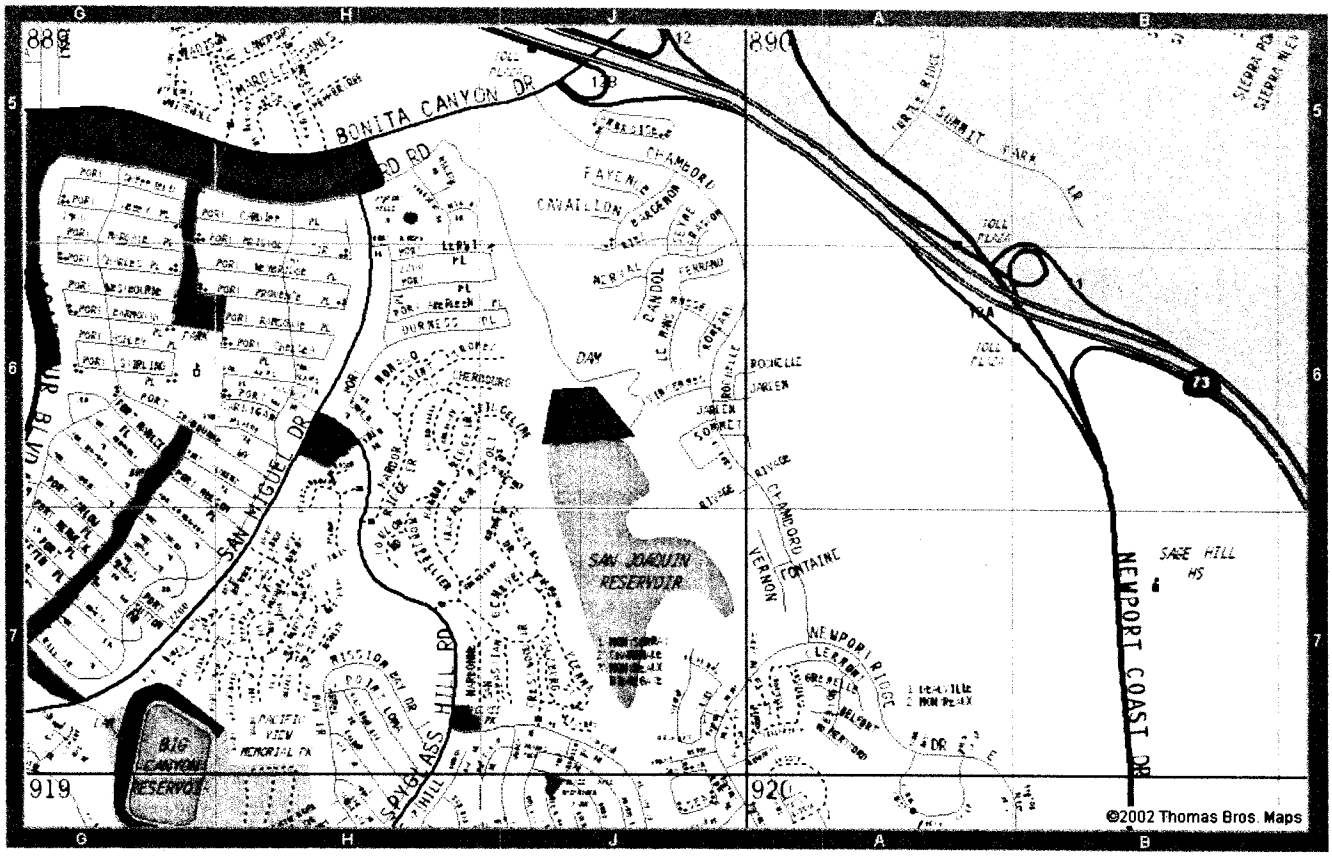
Adopt Order No. R8-2004-0107, NPDES No. CA8000326, as presented.

COMMENTS SOLICITED:

Comments were solicited from the following persons and agencies:

U.S. Environmental Protection Agency, Permits Issuance Section (WTR-5) – Doug Eberhardt
U.S. Army District, Los Angeles, Corps of Engineers, Regulatory Branch
U.S. Fish and Wildlife Service - Carlsbad
State Water Resources Control Board, Office of the Chief Counsel – Jorge Leon
State Water Resources Control Board, Division of Water Quality - James Maughan
California Department of Health Services, Carpenteria – John Curphey
California Department of Health Services, Carpenteria – Jeff Stone
California Department of Health Services, Santa Ana – Cor Shaffer
State Department of Water Resources - Glendale
State Department of Fish and Game - Long Beach
Orange County Water District - Nira Yamachika
Southern California Association of Governments – Mark A. Pisano
University of California, Irvine - Bill Bretz
The Irvine Company – Sat Tamaribuchi
Orange County Development Management Department, Harbors, Beaches and Parks
City of Newport Beach – City Manager
City of Irvine – City Manager
Defend the Bay – Bob Caustin
Orange County Water District - Nira Yamachika
Orange County Coastkeeper- Garry Brown
Lawyers for Clean Water C/c San Francisco Baykeeper
Dr. Jack Skinner

Attachment 1 Location of San Joaquin Reservoir



California Regional Water Quality Control Board
Santa Ana Region

Terry Tamminen
Secretary for Environmental Protection

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Arnold Schwarzenegger
Governor

December 29, 2004

Paul Jones, General Manager
Irvine Ranch Water District
Michelson Water Reclamation Plant
P. O. Box 57000
Irvine, CA 92619-7000

TRANSMITTAL OF ADOPTED ORDER NO. R8-2004-0107

Dear Mr. Jones

At the regular Board Meeting held on Monday, December 20, 2004, the Regional Board adopted Order No. R8-2004-0107. A certified copy is enclosed for your records.

Sincerely,

CATHERINE EHRENFELD
Staff Services Analyst

Enclosure: Adopted Order No. R8-2004-0107

c. Tetra Tech, Inc., Lee Solomon
United States Environmental Protection Agency, WTR 5, Permits Section, Doug Eberhardt

/cae