State of California
California Regional Water Quality Control Board
Central Coast Region

FACT SHEET AND STAFF REPORT FOR REGULAR MEETING OF JULY 6, 2007

Prepared June 11, 2007

ITEM:

SUBJECT: **Revision of Waste Discharge Requirements for Carmel Area Wastewater District and Local Sewering Entity of Pebble Beach Community Services District, Monterey County--Order No. R3-2002-026, NPDES Permit No. CA0047996**

KEY INFORMATION

Location:	Carmel, west of Highway 1, along the Carmel River
Discharge Type:	Disinfected tertiary effluent from Municipal WWTP
Current Flow Rate:	1.6 MGD
Design Capacity:	3.00 MGD
Disposal:	Discharge to Carmel River Lagoon Habitat
Recycling:	Up to 1.8 MGD can be diverted to a water recycling plant
Existing Order:	WDR Order No. R3-2003-026

SUMMARY

Order No. R3-2002-026, Waste Discharge Requirements for Carmel Area Wastewater District (NPDES Permit No. CA0047996), was originally adopted by the Regional Board at the March 22, 2002 Board meeting. The revision considered by the Board today authorizes the Discharger to discharge tertiary treated wastewater to a new location, the Carmel River Estuary. This discharge will help maintain water levels in the estuary during the dry season, enhancing habitat for species of concern, including the steelhead trout.

The Board is only considering the proposed modifications to the Order, shown in underlined text. All other portions of Order No. R3-2002-026 remain unchanged.

Staff anticipates bringing a complete reissuance of this Order to the Board in December 2007; however, approval of these modifications today will allow discharges to the estuary during the 2007 dry season.

BACKGROUND

Over the past several years the Carmel River Steelhead Association, along with the National Marine Fisheries Service, California Department of Fish and Game, and State Parks, have lobbied the Discharger and Central Coast Water Board to provide and allow a discharge of tertiary treated wastewater to the estuary habitat during critical periods of declining water levels to protect endangered steelhead smolt returning to the Pacific Ocean. On July 23, 2004, the Executive Officer authorized an indirect discharge to the estuary via percolation within the adjacent habitat. The proposed permit modifications allow a direct discharge to the estuary that is consistent with NPDES requirements. It is uncertain how frequently this discharge will be implemented as it is based on a potential seasonal need for habitat management and the availability of excess recycled water.

DISCUSSION

General Background

The Carmel Area Wastewater District (District) and the Pebble Beach Community Services District (Pebble Beach) collect municipal wastewater within their respective service areas. The collected wastewater is transported to the District's treatment, recycling, and disposal facility located just south of the City of Carmel-by-the-Sea, west of Highway 1, along the Carmel River.

Facility Description

Three variable-speed, raw-sewage pumps convey influent wastewater from an influent wet well to an influent manhole, where wastewater can be pre-chlorinated. Influent then flows by gravity through a flow meter, mechanically cleaned bar screens, barminutors, and an aerated grit tank, to two parallel primary clarifiers.

Primary effluent flows by gravity to an anoxic selector structure where it is mixed by coarse bubble diffused air with return activated sludge. Wastewater is then split into two streams and distributed to aeration basins nos. 1 and 2 or to aeration basins nos. 3 and 4. The activated sludge process is typically operated in a plug flow mode at the aeration basins, where aeration is accomplished using flexible membrane fine bubble diffusers.

Mixed liquor from the aeration basins flows by gravity to a distribution structure where polymer is added and flow is split to two secondary clarifiers. Secondary clarified effluent is metered, chlorinated and dechlorinated, and is diverted to tertiary treatment or discharged via two variable-speed pumps to Carmel Bay.

Waste activated sludge is thickened by dissolved air flotation and blended with primary solids before anaerobic digestion. Digested sludge is dewatered by belt filter press and hauled offsite for composting at McCarthy Farms in Lost Hills, Kern County. Sludge beds provide backup dewatering capability.

The facility's tertiary treatment system provides reclaimed wastewater for irrigation of seven local golf courses and some smaller landscaped areas. Tertiary treatment is currently accomplished by eight upflow, continuous backwash sand filters, which are being replaced by microfiltration and reverse osmosis.

Discharge Points and Receiving Waters

The principal point of discharge from the wastewater treatment facility is through an outfall and diffuser system that terminates in Carmel Bay in the Pacific Ocean.

The proposed modifications to the Order authorize a second outfall, where tertiary quality effluent is discharged to the Carmel River Estuary, south of and immediately adjacent to the wastewater treatment facility. The outfall is located at 36° 32′ 20″ N. latitude, 121° 55′ 11″ W. longitude and results in the discharge of effluent onto the surface of the habitat area. The discharge travels overland and via the subsurface to the portion of the Carmel River Estuary known as the Carmel Lagoon. Discharges at this point, totaling 10 to 20 million gallons annually, typically occur during the dry season, when low water levels in the Lagoon threaten populations of steelhead trout and other wildlife. Some tertiary treated effluent will also be discharged through this outfall during intermittent periods of reduced demand for reclaimed water. Discharges of reverse osmosis concentrate

through this outfall are prohibited by the Order.

Applicable Plans, Policies, and Regulations

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It serves as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Pursuant to Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21000 - through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted *Water Quality Control Plan for the Central Coast Region* (the Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for receiving waters within the Region. To address ocean waters, the Basin Plan incorporates by reference the *Water Quality Control Plan for Ocean Waters of California* (the Ocean Plan). The most recent amendment to the Ocean Plan was adopted by the State Water Resources Control Board (the State Water Board) on April 21, 2005, and became effective on February 14, 2006.

   The Basin Plan implements State Water Board Resolution No. 88-63, which establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of very high levels of total dissolved solids (TDS) in the Pacific Ocean and the marine influence on receiving waters of the Carmel River Estuary, the receiving waters for discharges from the Carmel Area Wastewater District's treatment facility meet an exception to Resolution No. 88-63, which precludes waters with TDS levels greater than 3,000 mg/L from the MUN designation. Beneficial uses established by the Basin Plan for the Carmel River Estuary are described in Finding 29 of the Order.

   Requirements of this Order implement the Basin Plan.

2. **Thermal Plan.** The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains the following temperature objectives for estuarine and coastal waters.

   New Discharges to Estuarine Waters

- Maximum temperature of discharges to estuarine waters shall not exceed the natural receiving water temperature by more than 20° F.

- Discharges of elevated temperature wastes, either individually or combined with other discharges, shall not create a zone, defined by water temperatures of more than 1° F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

- No discharge shall cause a surface water temperature rise greater than 4° F above the natural temperature of the receiving water at any time or place.

Requirements of this Order implement the Thermal Plan.

RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. NPDES regulations establish two principal bases for effluent limitations. At 40 CFR 122.44 (a) permits are required to include applicable technology-based limitations and standards; and at 40 CFR 122.44 (d) permits are required to include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. When numeric water quality objectives have not been established, but a discharge has the reasonable potential to cause or contribute to an excursion above a narrative criterion, WQBELs may be established using one or more of three methods described at 40 CFR 122.44 (d) - 1) WQBELs may be established using a calculated water quality criterion derived from a proposed State criterion or an explicit State policy or regulation interpreting its narrative criterion; 2) WQBELs may be established on a case-by-case basis using U.S. EPA criteria guidance published under CWA Section 304 (a); or 3) WQBELs may be established using an indicator parameter for the pollutant of concern.

A. Discharge Prohibitions

1. Discharge Prohibition 5 (No discharge to the Carmel River Estuary at a location other than as described by the Order). The Order authorizes a single, specific point of discharge to the Carmel River Estuary; and this prohibition reflects CWA section 402's prohibition against discharges of pollutants except in compliance with the Act's permit requirements, effluent limitations, and other enumerated provisions.

2. Discharge Prohibition 6 (Discharge of reverse osmosis (RO) concentrate to the Carmel River Estuary is prohibited). The Carmel River Estuary is a sensitive aquatic environment, which is seasonally isolated from the Ocean; and as such, pollutants will concentrate within the receiving water during those periods when the tides are not providing a flushing effect. The RO process, as contemplated by the Discharger, will treat secondary effluent to tertiary quality and produce a waste stream – RO reject or concentrate. The RO system will likely operate at 50 – 75 percent recovery (e.g., for every 100 gallons of secondary effluent that is treated by RO, 50 – 75 gallons of tertiary treated product water and 25 – 50 gallons of RO concentrate will be produced) and at a 95 percent rate of rejection (i.e., approximately 95 percent of all dissolved solids in secondary effluent will be concentrated in the RO concentrate stream). The net result will be concentration of dissolved solids by a factor of 2 to 4 in the RO concentrate. Because the chemistry of RO concentrate can be significantly different than secondary

effluent, and to adhere to the policy established by the State Water Board in Resolutions Nos. 74-43 and 95-84 (*Water Quality Control Policy for the Enclosed Bays and Estuaries of California*), the Order prohibits the discharge of RO concentrate to the Estuary. The prohibition may be reconsidered in the future as the RO concentrate is better characterized.

B. Technology-Based Effluent Limitations

1. Scope and Authority

NPDES regulations at 40 CFR 122.44 (a) require that permits include applicable technology-based limitations and standards. This Order includes such limitations based on the minimum level of effluent quality attainable by secondary treatment, as established at 40 CFR 133. This Secondary Treatment Regulation includes requirements for BOD_5, suspended solids, and pH.

Where the USEPA has not yet developed technology based standards for a particular industry or a particular pollutant, CWA Section 402 (a) (1) and USEPA regulations at 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis. When BPJ is used, the permit writer must consider specific factors outlined at 40 CFR 125.3. Since the Discharger is proposing to discharge tertiary treated wastewater, technology-based limitations for tertiary treatment apply to the discharge.

2. Applicable Technology-Based Effluent Limitations

The following table summarizes technology-based effluent limitations established by the Order.

Summary of Technology-Based Effluent Limitations

Parameter	Units	Effluent Limitations	
		5-Day Mean	Maximum Daily
BOD_5 [1]	mg/L	10	25
	lbs/day	125	208
	kg/day	57	170
TSS	mg/L	10	25
	lbs/day	125	208
	kg/day	57	170
Settleable Solids	mL/L/hr		0.1
Turbidity	NTUs	2	5
Oil & Grease	mg/L	5.0	10
pH	pH units	6.0 – 9.0 at all times	

[1] The average monthly percent removal of BOD_5 shall not be less than 85 percent.

Concentration-based limitations for BOD_5, TSS, pH, settleable solids, turbidity, and oil and grease, described above, are established using BPJ and reflect pollutant removals attainable by tertiary treatment.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

NPDES regulations at 40 CFR 122.44 (d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards, including numeric and narrative objectives within a standard.

The process for determining "reasonable potential" and calculating WQBELs, when necessary, is intended to protect the designated uses of receiving waters as specified in the Basin and Ocean Plans, and achieve applicable water quality objectives and criteria that are contained in the Basin Plan and in other applicable State and federal rules, plans, and policies, including applicable water quality criteria from the CTR and the NTR.

Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established in accordance with the requirements of 40 CFR 122.44 (d) (1) (vi), using (1) USEPA criteria guidance under CWA section 304 (a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

Beneficial uses for the Carmel River Estuary are established by the Basin Plan and are described by Finding 29 of the Order. Water quality criteria applicable to this receiving water are established by the CTR and the NTR, and by Tables 3-5 (Toxic Metal Concentrations not to be Exceeded in Aquatic Life Habitats) and 3-6 (Toxic Metal Concentrations not to be Exceeded in Marine Habitats) of the Basin Plan. Where these sources have established water quality criteria for both fresh water and marine environments, because this receiving water is an estuarine environment, the Water Board has used the more stringent of fresh water and marine criteria to determine reasonable potential and to calculate WQBELs, if necessary.

3. Determining the Need for WQBELs

NPDES regulations at 40 CFR 122.44 (d) require effluent limitations to control all pollutants which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard.

The State Implementation Policy (SIP), statewide policy that became effective on May 22, 2000, establishes procedures to implement water quality criteria from the National Toxics Rule (NTR) and California Toxics Rule (CTR) and for priority, toxic pollutant objectives established in the Basin Plan. The implementation procedures of the SIP include methods to determine reasonable potential (for pollutants to cause or contribute

to excursions above State water quality standards) and to establish numeric effluent limitations, if necessary, for those pollutants which show reasonable potential.

The SIP Section 1.3 requires the Water Board to use all available, valid, relevant, and representative receiving water and effluent data and information to conduct a reasonable potential analysis. Here, the Discharger has collected secondary effluent data in four monitoring events between 2002 and 2005. This data was used to perform the Reasonable Potential Analysis (RPA).

Some freshwater water quality criteria for metals are hardness dependent; i.e., as hardness decreases, the toxicity of certain metals increases and the applicable water quality criteria become correspondingly more stringent. Here a receiving water hardness of 100 mg/L $CaCO_3$ was used to conduct the RPA. This figure is representative of the Carmel River near Carmel with minimal influence by seawater and is based on data generated by the United States Geological Survey between October 1953, and April 1997, at USGS Monitoring Station 11143250.

To conduct the reasonable potential analysis, the Water Board identified the maximum observed effluent (MEC) and background (B) concentrations for each priority, toxic pollutant from receiving water and effluent data provided by the Discharger and compared this data to the most stringent applicable water quality criterion (C) for each pollutant from the NTR, CTR, and the Basin Plan. Section 1.3 of the SIP establishes three triggers for a finding of reasonable potential.

Trigger 1. If the MEC is greater than C, there is reasonable potential, and an effluent limitation is required.

Trigger 2. If B is greater than C, and the pollutant is detected in effluent (MEC > ND), there is reasonable potential, and an effluent limitation is required.

Trigger 3. After reviewing other available and relevant information, a permit writer may decide that a WQBEL is required. Such additional information may include, but is not limited to: the facility type, the discharge type, solids loading analyses, lack of dilution, history of compliance problems, potential toxic impact of the discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303 (d) listing for the pollutant, and the presence of endangered or threatened species or their critical habitat.

The RPA for the Carmel Area Wastewater District facility demonstrates reasonable potential for discharges to the Carmel River Estuary to cause or contribute to exceedances of applicable water quality criteria for copper, mercury, nickel, zinc, and cyanide. The following table summarizes the RPA for each priority, toxic pollutant that was measured in secondary effluent in samples collected between December 2002 and December 2005. No other pollutants with applicable, numeric water quality criteria from the NTR, CTR, and the Basin Plan were measured above detectable concentrations during the four monitoring events conducted by the Discharger in that time period.

RPA Results for Discharges to the Carmel River Estuary

Pollutant	C	MEC	B	RPA Result
Antimony	4300 µg/L, human health criterion from the CTR	0.3 µg/L (2004)	No Data Available	No
Chromium (III)	50 µg/L, freshwater aquatic life and marine habitats criteria from the Basin Plan	8.7 µg/L (2004)		No
Chromium (VI)	11 µg/L, freshwater aquatic life, chronic criteria from the CTR	5 µg/L (2004)		No
Copper	3.7 µg/L, saltwater aquatic life, chronic criteria from the CTR	72 µg/L (2002)		Yes (MEC > C)
Lead	3.2 ug/L, freshwater aquatic life, chronic criteria from the CTR based on receiving water hardness of 100 mg/L $CaCO_3$	0.2 µg/L (2004)		No
Mercury	0.05 µg/L, human health criterion from the CTR	0.3 µg/L (2004)		Yes (MEC > C)
Nickel	2.0 µg/L, marine habitats criteria from the Basin plan	3.9 µg/L (2004)		Yes (MEC > C)
Silver	2.2 µg/L, saltwater aquatic life, acute criterion from the CTR	0.12 µg/L (2004)		No
Zinc	20 µg/L, marine habitats criteria from the Basin Plan	760 µg/L (2002)		Yes (MEC > C)
Cyanide	1.0 µg/L, saltwater aquatic life, chronic and acute criterion from the CTR	5.4 µg/L (2003)		Yes (MEC > C)
Chlorodibromomethane	34 µg/L, human health criterion from the CTR	10 µg/L (2003)		No
Chloroform	No Criteria	35 µg/L (2003)		No Criteria
Dichlorobromomethane	46 µg/L, human health criterion from the CTR	1.8 µg/L (2003)		No
2,4,6-Trichlorophenol	6.5 µg/L, human health criterion from the CTR	0.95 µg/L (2002)		No
Bis(2-Chloroisopropyl)Ether	170, 000 µg/L, human health criterion from the CTR	2.8 µg/L (2002)		No
Bis(2-Ethylhexyl)Phthalate	5.9 µg/L, human health criterion from the CTR	4.7 µg/L (2002)		No
Di-n-Butyl Phthalate	12,000 µg/L, human health criterion from the CTR	55 µg/L (2002)		No
1,2-Diphenylhydrazine	0.54 µg/L, human health criterion from the CTR	0.12 µg/L (2002)		No

4. WQBEL Calculations

Final WQBELs for copper, mercury, nickel, zinc, and cyanide have been determined using the methods described in Section 1.4 of the SIP.

Step 1: For each water quality criterion/objective, an effluent concentration allowance (ECA) is calculated from the following equation to account for dilution and background levels of each pollutant.

ECA = C + D (C - B), where

C = the applicable water quality criterion (adjusted for receiving water hardness and expressed as total recoverable metal, if necessary)

D = the dilution credit (here D = 0, as the Water Board has no information with which to justify credit for dilution)

B = the background concentration

Step 2: For each ECA based on aquatic life criterion/objective (copper, nickel, zinc, and cyanide), the long-term average discharge condition (LTA) is determined by multiplying the ECA times a factor (multiplier), which adjusts the ECA to account for effluent variability. The multiplier varies depending on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the value of the CV. When the data set contains less than 10 sample results (as for the Carmel Area Wastewater District's facility), or 80 percent or more of the data are reported as non-detect (ND), the CV is set equal to 0.6. Derivation of the multipliers is presented in Section 1.4 of the SIP.

From Table 1 of the SIP, multipliers for calculating LTAs at the 99th percentile occurrence probability are 0.321 (acute multiplier) and 0.527 (chronic multiplier). Long-term average discharge conditions (LTAs) are determined as follows.

Long-Term Average Discharge Conditions

Pollutant	ECA		ECA Multiplier		LTA (µg/L)	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Copper	5.8	3.7	0.321	0.527	1.86	1.96
Nickel	2.0	8.3	0.321	0.527	0.64	4.4
Zinc	20	86	0.321	0.527	6.4	45
Cyanide	1.0	1.0	0.321	0.527	0.32	0.53

Step 3: WQBELs, including an average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) are calculated using the most limiting (the lowest) LTA. The LTA is multiplied times a factor that accounts for averaging periods and exceedance frequencies of the effluent limitations, and for the AMEL, the effluent monitoring frequency. Here, the CV is set equal to 0.6, and the sampling frequency is set equal to 4 (n = 4). The 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. From Table 2 of the SIP the MDEL multiplier is 3.11 and the AMEL multiplier is 1.55. Final WQBELs for copper, nickel, zinc, and cyanide are calculated as follows.

WQBELs for Protection of Aquatic Life

Pollutant	LTA	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
Copper	1.86	3.11	1.55	5.8	2.9
Nickel	0.64	3.11	1.55	2.0	1.0
Zinc	6.4	3.11	1.55	20	9.9
Cyanide	0.32	3.11	1.55	1.0	0.5

Step 4: When the most stringent water quality criterion/objective is a human health criterion/objective (mercury), the AMEL is set equal to the ECA, and the MDEL is calculated by multiplying the ECA times the ratio of the MDEL multiplier to the AMEL multiplier.

From Table 2 of the SIP, when CV = 0.6 and n = 4, the MDEL multiplier at the 99th percentile occurrence probability equals 3.11, and the AMEL multiplier at the 95th percentile occurrence probability equals 1.55. Final WQBELs for mercury are determined as follows.

WQBELs for Protection of Human Health

Pollutant	ECA	MDEL/AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
Mercury	0.051	2.01 (3.11/1.55)	0.10	0.05

Chlorine. Water quality based effluent limitations are established for chlorine at the minimum levels of detection and are based on the following water quality criteria recommended by the USEPA in *Quality Crieria for Water 1986* (the Gold Book, EPA 440/5-86-001).

Water Quality Criteria for Chlorine

Water Type	Recommended Water Quality Criteria	
	Chronic	Acute
Fresh Water	0.011 µg/L	0.019 µg/L

Bacteria. Effluent limitations for bacteria established by the Order for discharges to the Carmel River Estuary are based on criteria for bacteriological quality of coastal waters established by USEPA at 40 CFR 131.41. The limitations established by the Order reflect specific standards for moderate use, fresh, recreation waters, which are applied directly as effluent limitations.

Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Chlorine	µg/L	When continuously monitored, total residual chlorine shall not exceed an average of 19 µg/L for more than 1 hour; nor shall total residual chlorine exceed an average of 11 µg/L for more than 4 days. When continuous monitoring is not being used, total residual chlorine shall be less than 10 µg/L at all		

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
		times.		
Acute Toxicity	% Survival	Survival of test organisms exposed to 100 percent effluent shall not be significantly less, when compared using a t-test, to the survival of control organisms.		
Chronic Toxicity	TUc	---	---	1.0
Bacteria	MPN / 100 mL	The number of total coliform bacteria in effluent shall not exceed a geometric mean of 126 per 100 mLs,; nor shall the number of coliform bacteria in any single sample exceed 298 per 100 mLs. (Values are based on use of analytical methods 1103.1, 1603, or 1604, or any equivalent method that measures viable bacteria.) The number of enterococci bacteria in effluent shall not exceed a geometric mean of 33 per 100 mLs, nor shall the number of enterococci bacteria in any single sample exceed 78 per 100 mLs. (Values are based on use of analytical methods 1106.1 or 160 or any equivalent method that measures viable bacteria.)		
Copper	µg/L	2.9	---	5.8
Mercury	µg/L	0.05	---	0.10
Nickel	µg/L	1.0	---	2.0
Zinc	µg/L	9.9	---	20
Cyanide	µg/L	0.5	---	1.0

5. Whole Effluent Toxicity (WET)

Whole effluent toxicity (WET) limitations protect receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative "no toxics in toxic amounts" criterion while implementing numeric criteria for toxicity. There are two types of WET tests - acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth.

The Basin Plan specifies a narrative objective for (acute) toxicity, requiring that all waters be maintained free of toxic substances in concentrations that are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life. Survival of aquatic organisms in surface waters subjected to a waste discharge or other controllable water quality conditions shall not be less than that for the same water body in areas unaffected by the waste discharge or for another control water. Section 4.0 of the Basin Plan also requires a chronic toxicity limitation for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters. Because the discharge to the Carmel River Estuary is a new discharge, and the receiving water is a sensitive estuarine environment, the Water Board is establishing effluent limitations for both acute and chronic toxicity for this discharge.

The Discharger must also maintain a Toxicity Reduction Evaluation (TRE) Workplan, which describes steps that the Discharger intends to follow in the event that acute and/or chronic toxicity limitations are exceeded. When monitoring measures WET in the effluent above the limitations established by the Order, the Discharger must resample, if the discharge is continuing, and retest. The Executive Officer will then determine whether to initiate enforcement action, whether to require the Discharger to implement a Toxicity Reduction Evaluation, or to implement other measures.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water quality is a result of many factors, some unrelated to the discharge. This Order considers these factors and is designed to minimize the influence of the discharge on the receiving water. Receiving water limitations within the proposed Order reflect all applicable, general water quality objectives of the Basin Plan for inland surface waters. Receiving water limitations for the Carmel River Estuary include applicable water quality objectives of the Basin Plan established specifically for water contact and non-contact water recreation activities; cold and warm freshwater habitats; marine habitats; fish spawning habitats; as well as specific water quality objectives for shellfish harvesting.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

NPDES regulations at 40 CFR 122.48 require that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 also authorize the Water Board to require technical and monitoring reports. Rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program (MRP), which is attached to this Order, is presented below.

A. Effluent Monitoring

The Order establishes the following effluent monitoring requirements for the discharge to the Carmel River Estuary.

- Flow monitoring is necessary for basic knowledge of the discharge.
- Monitoring for BOD_5; TSS; settleable solids; turbidity; oil and grease; pH; chlorine; acute and chronic toxicity; coliform and exterococci bacteria; chromium^{+6}; copper; mercury; nickel; zinc; cyanide; chlorodibromomethane; and bis(2-ethylhexy)phthalate are necessary to determine compliance with effluent limitations established by section IV. A. 2 of the Order.
- Temperature monitoring is necessary to determine compliance with receiving water limitations for temperature, established for new discharges to estuaries of the State, by the Thermal Plan.
- Monitoring for ammonia, nitrate, nitrite, and ortho and total phosphorous is necessary to assess potential nutrient loading to the Carmel River Estuary. As an estuary that is isolated from the ocean during periods of the year, this water body may be particularly susceptible to the eutrophication effects of elevated nutrient levels.

- Monitoring for the CTR pollutants is required one time per year to allow better characterization of this discharge and on-going assessment of its toxicity to aquatic life.

B. Whole Effluent Toxicity Testing Requirements

Whole effluent toxicity (WET) limitations protect receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. Acute toxicity testing measures mortality in 100 percent effluent over a short test period, and chronic toxicity testing is conducted over a longer period of time and may measure mortality, reproduction, and/or growth. This Order establishes limitations and monitoring requirements for acute and chronic toxicity for the discharge to Carmel River Estuary.

C. Receiving Water Monitoring

The Order establishes requirements to monitor background levels of the CTR pollutants in the Carmel River Estuary. This monitoring is necessary to conduct reasonable potential analyses in accordance with methods required by the *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.* Monitoring for hardness in this receiving water enables determination of appropriate water quality criteria for the metals whose toxicity is hardness dependent.

EFFECTIVE DATE OF MODIFICATION

Clean Water Act regulations require a 30-day public comment period for modifications of NPDES permits. Staff provided a public draft of the modification on June 12, 2007 so the comment period will remain open until July 12, 2007. The modification will not take effect until after the close of the comment period. If the Water Board receives any significant comments after the hearing that were not presented before or at the hearing, the modification will not take effect until a future Board meeting so the Board may consider all significant comments.

COMMENTS AND RESPONSES

Water Board staff solicited comments from the following interested agencies and parties:

- U.S. EPA
- Monterey Bay National Marine Sanctuary
- U.S. Fish & Wildlife Service
- Dept. of Health Services
- State Dept. of Fish & Game
- AMBAG
- Mont. Co. Water Resources Agency
- Monterey Co. Health Dept.
- Monterey Co. Planning Dept.
- Monterey Co. Public Works

RECOMMENDATION

Adopt Modified Order No. R3-2002-026 as proposed.

ATTACHMENT

Proposed Modified Order No. R3-2002-026 (with Monitoring and Reporting Program No. R3-2002-026)

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