

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-_____

NPDES NO. CA 0084255

WASTE DISCHARGE REQUIREMENTS
FOR
LINCOLN CENTER ENVIRONMENTAL REMEDIATION TRUST
GROUNDWATER TREATMENT SYSTEM
SAN JOAQUIN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

BACKGROUND

1. As part of a settlement of legal proceedings in the United States District Court, Eastern District of California, the Lincoln Center Environmental Remediation Trust was created to manage environmental remediation activities at the Lincoln Center Site in the city of Stockton, San Joaquin County, California. The Lincoln Center Environmental Remediation Trust (hereafter Discharger) submitted a Report of Waste Discharge, dated 14 February 2003, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES). Supplemental information was submitted on 6 February 2004.
2. The Discharger owns and operates a ground water extraction and treatment system to remove volatile organic compounds (VOCs), petroleum products and lead from ground water (Attachment A). The treatment system also treats residual fluids generated during the continuing investigation, remediation, and monitoring activities at the site. Treated effluent is discharged into a storm drain in San Joaquin County that flows to Fourteen Mile Slough and subsequently the San Joaquin River, waters of the United States, at a point defined as latitude 37°59'58" N, longitude 121°20'38" W, as shown on Attachment B, which is attached hereto and made part of this Order by reference.
3. Pumped groundwater is treated by air stripping and granular activated carbon. The activated carbon is regenerated or disposed of off-site. The treatment system is designed for a flow of 430,000 gpd of extracted groundwater. Based on data provided in the Report of Waste Discharge and on quarterly monitoring data provided by the Discharger between the period of January 1999 and March 2004 the discharge can be described as follows:

<u>Constituents</u>	<u>Units</u>	<u>Average</u>	<u>High</u>	<u>Low</u>
Discharge Flow	mgd	0.25	0.42	--
pH	pH units	--	8.94	7.1
Temperature	°C	21.0	39.0	17.6
Specific conductance	µmhos/cm	833	1600	133
Lead	µg/l	0.52 ¹	<100 ²	<0.5 ³
Tetrachloroethylene (PCE)	µg/l	0.79	2.2	0.27

<u>Constituents</u>	<u>Units</u>	<u>Average</u>	<u>High</u>	<u>Low</u>
Trichloroethene (TCE)	µg/l		<0.5 ²	
1,1-Dichloroethene (DCE)	µg/l		<0.5 ²	
Dichloromethane (Methylene Chloride)	µg/l		<0.5 ²	
1,2-Dichloroethane (1,2-DCA)	µg/l		<1.0 ²	<0.5 ³
Total VOCs	µg/l	0.94	2.2	0.6
Benzene	µg/l		<1.0 ²	<0.5 ³
Toluene	µg/l		<1.0 ²	<0.5 ³
Ethylbenzene	µg/l		<1.0 ²	<0.5 ³
Xylene	µg/l		<1.0 ²	<0.5 ³
Methyl tertiary-butyl ether (MTBE)	µg/l	0.84	4.1	0.1
<u>Total Petroleum Hydrocarbons (TPH)</u>	µg/l	17.5	23	15

¹ Detected once in 53 sampling events at a concentration of 0.52 ug/L.

² No detected concentrations reported, highest "less than" MDL value reported

³ Lowest "less than" MDL value reported.

4. Based on data provided in monitoring reports provided by the Discharger between May 2003 and February 2004 the receiving water, Fourteen Mile Slough, can be described as follows:

<u>Constituents</u>	<u>Units</u>	<u>Average</u>	<u>High</u>	<u>Low</u>
Hardness	mg/L	174	390	58
pH	pH units	7.8	8.3	7.0
Temperature	°C	20.8	23.9	18.3

Applicable receiving water hardness, pH, and temperature data were used in the consideration and evaluation of limitations for this Order.

5. Trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE), benzene, toluene, xylene, ethylbenzene, PCE, MTBE and TPH as gasoline have been identified in the groundwater as constituents of concern. The treatment plant has demonstrated an ability to treat these constituents to non-detectable levels (as defined by the PQLs specified in Order 98-062).
6. Other VOCs are reported to be present in the untreated groundwater at trace concentrations, below MCLs or NTR/CTR criteria. This Order establishes effluent limitations for total VOCs that will address these trace constituents.
7. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.

8. The State Water Resources Control Board adopted a *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (hereafter Delta Plan) on 22 May 1995. The Delta Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters within the Delta. The Delta Plan supplements the Basin Plan requirements that cover the Delta; together they include all necessary elements of water quality control plans in accordance with Water Code Sections 13241 and 13424 and federal requirements. The requirements of this Order implement the Delta Plan.
9. The U.S. Environmental Protection Agency (USEPA) adopted the *National Toxics Rule* (NTR) on 22 December 1992, which was amended on 4 May 1995 and 9 November 1999, and the *California Toxics Rule* (CTR) on 18 May 2000, which was amended on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP) on 2 March 2000, which contains policies and procedures for implementation of the NTR and the CTR.

BENEFICIAL USES AND CHARACTERISTICS OF THE RECEIVING WATER

10. Treated groundwater is discharged to the storm sewer system that is owned and operated by San Joaquin County. The storm sewer system discharges to the Fourteen Mile Slough. Fourteen Mile Slough is tributary to the San Joaquin River. These waters are within the boundaries of the Sacramento-San Joaquin Delta (Delta). The existing beneficial uses of the Delta as identified in Table II-1 of the Basin Plan are domestic and municipal supply (MUN), agricultural supply irrigation and stock watering (AGR), industrial service supply (IND), industrial process supply (PRO), water contact recreation (REC-1), non-contact water recreation (REC-2); navigation (NAV); warm freshwater habitat (WARM), cold freshwater habitat (COLD), migration of aquatic organisms (MIGR), spawning (SPWN), and wildlife habitat (WILD).
11. The beneficial uses of the underlying ground water are municipal and domestic (MUN), industrial service (IND), industrial process (PRO) and agricultural supply (AGR).
12. The federal Clean Water Act (CWA) Section 303(d) addresses waters that have not attained the CWA national goal of “fishable, swimmable” by requiring states to identify these impaired water bodies and develop total maximum daily loads (TMDLs) for them, with oversight from USEPA. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water.
13. Fourteen Mile Slough is within the Eastern Portion of the Delta that is listed as an impaired water body pursuant to Section 303(d) of the CWA. The list of pollutants for which the Sacramento-San Joaquin Delta (eastern portion) is impaired appears on a list (the “California 303(d) List”), which was updated in 2002 and approved by the State Board in February 2003. Pollutants identified on the California 303(d) List as impairing are: chlorpyrifos, DDT, diazinon, Group A Pesticides (aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor

epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene), mercury and unknown toxicity. The Discharger analyzed its effluent and receiving waters for all these constituents except chlordane and unknown toxicity. All of the monitored constituents were not detected in either the effluent or receiving water with the exception of mercury, DDT and diazinon. Mercury was detected in the effluent and receiving water, DDT and diazinon were in detectable concentrations in the receiving water. In accordance with the SIP, this Order establishes effluent limitations for mercury and DDT and includes a monitoring and reporting program that requires monitoring for mercury, DDT and chlordane

14. Regional Board staff is currently in the process of developing TMDLs for some of the 303(d) listed constituents for the Delta waterways. When completed, the TMDLs will allocate waste loads to the various dischargers within the appropriate watersheds. This Order contains effluent limits necessary to protect the beneficial uses of the receiving waters until such time as TMDLs are completed for all constituents of concern on the 303(d) list and loads can be allocated. A Provision of this Order contains a reopener to modify and/or include effluent limits as necessary when load allocations for any 303(d) listed constituents are implemented.

*EFFLUENT LIMITATIONS, RECEIVING WATER LIMITATIONS
AND REASONABLE POTENTIAL ANALYSIS*

15. Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.
16. The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law. (33 USC, § 1311(b)(1)(C); 40 CFR, § 122.44(d)(1)) NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that “*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, including state narrative criteria for water quality.*” Federal Regulations, 40 CFR, Section 122.44(d)(1)(vi), further provide that “[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.”
17. The Regional Board’s Basin Plan, page IV-17.00, contains an implementation policy (“Policy for Application of Water Quality Objectives”) that specifies that the Regional Board “*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*” This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative

objectives, the Regional Board must establish effluent limitations using one or more of three specified sources, including USEPA's published water quality criteria, a proposed state criterion (*i.e.*, water quality objective), or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1) (vi) (A), (B) or (C)). The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*". The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The beneficial uses include municipal and domestic supply, agricultural irrigation supply, water contact and non-contact recreation and aquatic habitat and migration. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCLs) prescribed by the California Code of Regulations Title 22 (CCR Title 22). The Basin Plan further states that, to protect all beneficial uses, the Regional Board may apply limits more stringent than MCLs. When a reasonable potential exists for exceeding a narrative objective, Federal Regulations mandate numerical effluent limitations and the Basin Plan narrative criteria establish a procedure for translating the narrative objectives into numerical effluent limitations.

18. Fourteen Mile Slough is a dead end, tidally influenced slough. As part of the Eastern Portion of the Delta, Fourteen Mile Slough is listed as impaired for numerous pollutants, including unknown toxicity as noted above. If limited or no dilution is available, effluent limitations may be set equal to the applicable water quality criteria or objectives, which are applied at the point of discharge so the discharge will not cause the receiving water to exceed water quality objectives established to protect the beneficial uses. In situations where receiving water flows are substantially greater than effluent flows, dilution may be considered in establishing effluent limitations. However, when a receiving water is impaired by a particular pollutant or stressor, limited or no pollutant assimilative capacity may be available in spite of the available dilution. In these instances, and depending upon the nature of the pollutant, effluent limitations may be set equal to or less than the applicable water quality criteria or objectives that are applied at the point of discharge such that the discharge will not cause or contribute to a receiving water excursion above water quality objectives established to protect the beneficial uses. The storm drain outfall which conveys the treated groundwater effluent discharges to Fourteen Mile Slough via the San Joaquin County Storm Pump Station #1 (SJCPS #1). Regional Board staff observed some pooled water but no discernable receiving water flow immediately downgradient in the vicinity of this outfall location during a site visit in November 2004. Further downgradient, staff observed increasing volumes of water in Fourteen Mile Slough, likely under tidal influence. Considering the hydraulic characteristics of the receiving water, results of effluent and ambient receiving water monitoring, and the location of the discharge

outfall to Fourteen Mile Slough, the Regional Board has evaluated the need for water quality-based effluent limitations for pollutants without benefit of dilution in this Order. These water quality-based effluent limitations are based on the application of water quality criteria or objectives at the point of discharge. The Discharger may elect to conduct a dilution study to evaluate seasonal or flow based assimilative capacity of the receiving water for particular pollutants. If requested, the Regional Board will review such studies and if warranted, may reopen this permit to make appropriate changes.

19. The Regional Board has considered the factors specified in CWC Section 13263, including considering the provisions of CWC Section 13241 where appropriate. The Regional Board is not required to consider the factors in CWC Section 13241 in applying existing water quality objectives, including adopting new effluent limitations in this Order.
20. The Regional Board must implement the CWC consistent with the CWA. The CWA precludes the consideration of costs when developing effluent limitations for NPDES permits necessary to implement water quality standards (See *Ackels v. EPA* (9th Cir. 1993) 7 F.3d 862, 865-66). The Regional Board may consider costs in developing compliance schedules. The Regional Board finds, on balance, that these requirements are necessary to protect the beneficial uses of the Delta.
21. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for: arsenic, copper, hexavalent chromium (chromium VI), lead, mercury, zinc, 4,4-DDT, 4,4-DDE, 4,5-DDD, Delta-BHC, barium, iron, manganese, ammonia, and specific conductance. Effluent limitations for these constituents are included in this Order.

PRIORITY POLLUTANTS

22. For Priority Pollutants a Reasonable Potential Analysis (RPA) was conducted in accordance with either the SIP or the *Technical Support Document for Water Quality Based Toxics Control* (EPA/505/2-90-001) (TSD). The USEPA adopted the NTR and the CTR, which contains water quality standards applicable to this discharge and the SIP contains guidance on implementation of the NTR and CTR. As noted in Section 1.1 of the SIP, "Designated beneficial uses to which (federal) aquatic life criteria or objectives would apply include, but are not necessarily limited to warm freshwater habitat (WARM), cold freshwater habitat (COLD), and estuarine habitat (EST). Designated beneficial uses to which (federal) human health criteria/objectives would apply include, but are not necessarily limited to, municipal and domestic supply (MUN) and water contact recreation (REC-1)." Section 1.3 of the SIP requires a water quality based effluent limitation when the maximum effluent concentration (MEC) or observed maximum receiving water background concentration (B) of a priority

pollutant exceeds an appropriate CTR/NTR pollutant criterion or more stringent criterion as described in Section 1.1 of the SIP. When considering other pollutant criteria outside the CTR/NTR and scope of the SIP, the Regional Board has considered that the TSD recommends a water quality-based effluent limit when the projected MEC (see Finding 36) exceeds an applicable and appropriate pollutant criterion.

23. When required, Section 1.4 of the SIP provides four methods that may be used to develop effluent limitations. These four methods include: (1) assigning a loading allocation based upon a completed TMDL; (2) use of a steady state model; (3) use of a dynamic model; or, (4) establishing effluent limitations that consider intake water pollutants. Section 5.4 of the TSD also describes the use of a steady state model for development of effluent limitations. Water quality-based effluent limitations have been developed in this Order using the steady state model described in Section 1.4 of the SIP or the TSD where appropriate.

24. ***Arsenic*** - The CTR did not establish a human health criterion for arsenic. However, the Basin Plan includes a water quality objective that “*waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses*” (chemical constituents objective) and also contains a narrative toxicity objective. MUN is a beneficial use of the Delta. Based on information included in analytical laboratory reports submitted by the Discharger, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary Maximum Contaminant Level (MCL) of 10 µg/L for arsenic. Pursuant to the Safe Drinking Water Act, the California Department of Health Services (DHS) must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Applying the Basin Plan’s “Policy for Application of Water Quality Objectives”, to protect future municipal and domestic water use, it is reasonable to apply the USEPA MCL for arsenic to the receiving stream. Monitoring conducted by the Discharge indicates the MEC for arsenic was 21µg/L. The maximum observed ambient background receiving water arsenic concentration was 15 µg/L. Considering the arsenic MEC, the lack of assimilative capacity, and the MUN beneficial use of the Delta, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard. Therefore, this Order includes an average monthly effluent limitation (AMEL) for arsenic considering the USEPA recommendations for permitting for human health protection provided in Section 5.4.4 of the TSD. The AMEL was set equal to the Waste Load Allocation (WLA), or in this case, the MCL (10 µg/L, total recoverable). Additionally, the Basin Plan, in Table 111-1, at page III-3.00 establishes a Trace Element Water Quality Objective for arsenic that applies to waters in the Delta. This objective is expressed as a maximum dissolved concentration of 10 µg/L. When converting from total recoverable to dissolved for comparison with the arsenic objective, these concentrations have the reasonable potential to exceed the Basin Plan objective for arsenic considering even a liberal translator. Therefore, this Order also includes a maximum daily effluent limitation (MDEL) for arsenic of 10 µg/L considering protection of the Basin Plan Objective and lack of assimilative capacity, expressed in the dissolved form. While NPDES regulations at 40 CFR 122.45(c) typically require effluent limitations for metals to be expressed as total recoverable, they do allow use of a dissolved limitation if a standard is expressed in the dissolved form. It is unknown whether the Discharger can meet this new effluent limitation for arsenic. Where the

Regional Board determines that it is infeasible to achieve immediate compliance with an adopted water quality objective, the Board may establish in NPDES permits a schedule of compliance. However, schedules of compliance are only authorized for those water quality objectives adopted after September 1995. The Basin Plan chemical constituents and toxicity objectives were established prior to 1995; therefore this Order does not contain a compliance schedule for arsenic. A separate Time Schedule Order shall be proposed for compliance with the arsenic effluent limitations.

25. **Copper** - Copper can be toxic to freshwater aquatic life in concentrations that exceed acute and chronic water quality criteria contained in the CTR. Aquatic habitat is a beneficial use of the Delta. The CTR includes freshwater, acute and chronic aquatic life ambient water quality criteria for copper of 8.4 µg/L and 5.9 µg/L respectively (expressed as total recoverable), based upon the minimum observed receiving water hardness of 58 mg/L (as CaCO₃). Monitoring indicates the MEC for copper was 1.3 µg/L, and the maximum ambient background receiving water concentration (B) for copper was 28 µg/L. In accordance with Section 1.3, Step 6 of the SIP, whenever the observed maximum ambient background concentration of a pollutant exceeds an applicable priority pollutant criterion, a water quality-based effluent limitation is required. The observed maximum ambient background concentration of copper exceeds both the acute and chronic criteria established by the CTR. Therefore, this Order includes a MDEL and AMEL for copper, developed in accordance with Section 1.4 of the SIP. Because copper was not detected in effluent samples at concentrations exceeding the most stringent water quality criterion, the Discharger is expected to be able to comply with final limitations for copper upon adoption of this Order. Interim limits and a compliance schedule for copper are not justified and are not included in this Order.
26. **Chromium VI** - The CTR includes freshwater, acute and chronic aquatic life criteria for chromium VI of 16.3 µg/L and 11.4 µg/L respectively. Aquatic habitat is a beneficial use of the Delta. Monitoring indicates the chromium VI MEC was 17 µg/L and the maximum ambient background concentration was reported as 1.8 µg/L. The reported chromium VI MEC exceeds both the acute and chronic CTR aquatic life criteria. As noted previously, the characteristics of Fourteen Mile Slough may result in minimal mixing at the point of discharge and the zone of initial dilution, or no dilution whatsoever. Therefore, this Order includes a MDEL and AMEL for chromium VI considering the acute and chronic wasteload allocations without consideration of dilution. As these effluent limitations for chromium VI are new requirements in this Order, interim limits and a compliance schedule for chromium VI are established in this Order.
27. **Lead** - The CTR includes freshwater, acute and chronic aquatic life ambient water quality criteria for lead of 41 µg/L and 1.6 µg/L respectively (expressed as total recoverable), based upon the minimum observed receiving water hardness of 58 mg/L (as CaCO₃). Monitoring indicates the MEC for lead was 0.52 µg/L, and the maximum ambient background receiving water concentration (B) for lead was 71 µg/L. In accordance with Section 1.3, Step 6 of the SIP, whenever the observed maximum ambient background concentration of a pollutant exceeds an applicable priority pollutant criterion, a water quality-based effluent limitation is

required. The observed maximum ambient background concentration of lead exceeds both the acute and chronic criteria established by the CTR. Therefore, this Order includes effluent limitations for lead, developed in accordance with Section 1.4 of the SIP. Because lead was not detected in effluent samples at concentrations exceeding the most stringent water quality criterion, the Discharger is expected to be able to comply with final limitations for lead upon adoption of this Order. Interim limits and a compliance schedule for lead are not justified and are not included in this Order.

28. **Mercury** - Aquatic habitat and MUN are existing beneficial uses of the Delta. The current USEPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species. Both values are controversial and subject to change. In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date. The reported mercury MEC was 0.11 µg/L, and the maximum observed ambient background concentration was 0.13 µg/L, both of which exceed the CTR human health criterion (consumption of water and organisms) for mercury (0.050 µg/L). Additionally, the Delta, to which the Fourteen Mile Slough is a part, has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. The California DHS has issued health warnings regarding the consumption of fish from Delta waterways. Mercury bioaccumulates in fish tissue and additional loading resulting from the discharge has the potential to cause or contribute to the impairment resulting from mercury bioaccumulation in the Delta. Therefore, discharge of mercury to the receiving water is likely to contribute to exceedances of the narrative toxicity objective, impacts on beneficial uses, and violation of a water quality standard.

At Section 2.1.1 the SIP states: "For bioaccumulative priority pollutants for which the receiving water has been included on the CWA Section 303(d) list, the RWQCB should consider whether the mass loading of the bioaccumulative pollutant(s) should be limited to representative, current levels pending TMDL development in order to implement the applicable water quality standard". Since mercury is a bioaccumulative pollutant included on the CWA 303(d) list for the Delta, the intent of this Order is to include an interim performance based effluent limitation for mercury.

Current mercury data are not sufficient for establishment of an interim performance based limitation. This Order requires the Discharger to collect data necessary to establish an interim performance based effluent mass limitation.

Performance-based effluent limits for mercury are typically established as follows: 1) The average monthly effluent mercury concentration is calculated by adding all detected concentrations and one-half of the reported detection levels of all non-detectable mercury concentration results; 2) From the average monthly mercury concentration and average

monthly flow, a monthly mercury mass discharge is calculated; and 3) A total mass for all months is then totaled, and an average annual mass discharge is calculated.

Following the establishment of the interim limit, the mass of mercury discharged shall not exceed the interim mercury mass limit twelve months on a running average. In calculating for compliance, the Discharger shall count all non-detect measures at one-half of the detection level and apply the monthly average flow from the sampled discharge. If compliance with the effluent limit is not attained due to the non-detect contribution, the Discharger will be directed to improve and implement available analytical capabilities and compliance will be evaluated with consideration of the detection limits. For each calendar month, the Discharger shall calculate twelve-month mass loadings. For monthly measures, monthly loadings shall be calculated using the average monthly flow and the average of all mercury analyses conducted that month. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each self-monitoring report. Compliance will be determined based on the previous 12-month moving averages over the previous twelve months of monitoring.

The SIP, Section 1.3, requires the establishment of an effluent limitation for a constituent when the MEC and/or the maximum observed ambient background concentrations exceed an applicable criterion or objective. This Order contains a final MDEL and AMEL for mercury based on the CTR human health criterion of 0.050 µg/L. This Order may be reopened, and alternative final effluent limitations may be established for mercury upon completion of the TMDL, or promulgation of new criteria.

Upon completion of the Interim Mercury Mass Limitation Study required by this Order, this Order shall be reopened and an interim performance based mercury mass effluent limitation established.

29. **Zinc** - The CTR includes freshwater, acute and chronic aquatic life ambient water quality criteria for zinc of 76 µg/L and 76 µg/L respectively (expressed as total recoverable), based upon the minimum observed receiving water hardness of 58 mg/L (as CaCO₃). Monitoring indicates the MEC for zinc was less than detectable levels, and the maximum ambient background receiving water concentration (B) for zinc was 160 µg/L. In accordance with Section 1.3, Step 6 of the SIP, whenever the observed maximum ambient background concentration of a pollutant exceeds an applicable priority pollutant criterion, a water quality-based effluent limitation is required. The observed maximum ambient background concentration of zinc exceeds both the acute and chronic criteria established by the CTR. Therefore, this Order includes effluent limitations for zinc, developed in accordance with Section 1.4 of the SIP. Because zinc was not detected in effluent samples at concentrations exceeding the most stringent water quality criterion, the Discharger is expected to be able to comply with final limitations for zinc upon adoption of this Order. Interim limits and a compliance schedule for zinc are not justified and are not included in this Order.
30. **Organochlorine Pesticides** - Ambient background receiving water data provided by the Discharger indicate that organochlorine pesticides (including DDT, DDE, DDD and Delta-

BHC) were present in detectable concentrations (0.06 µg/L, 0.08 µg/L, 0.8 µg/L. and 0.07 µg/L respectively). Of these pollutants, the CTR includes acute and chronic freshwater aquatic life criteria for DDT only of 1.1 µg/L and 0.001 µg/L, respectively. However, the Basin Plan page III-6.00 contains a narrative objective stating: “total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the United States Environmental Protection Agency or the Executive Officer.” In addition the Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of DDT. Since the results of monitoring indicate the receiving water lacks assimilative capacity, and any discharge of these pesticides would contribute to this existing violation of a water quality standard, this Order includes new MDEL’s for DDT, DDE, DDD and Delta-BHC set at Non-detectable (ND) concentrations. Because these pesticides have not been detected in effluent samples, the Discharger is expected to be able to comply with these final effluent limitations upon adoption of this Order.

31. ***Bis(2-Ethylhexyl)Phthalate (DEHP)*** - DEHP is used in the production of polyvinyl chloride (PVC). The USEPA has classified DEHP as a Group B2, probable human carcinogen. USEPA has found phthalate to potentially cause mild gastrointestinal disturbances, nausea, and vertigo when people are exposed to it at levels above the MCL for relatively short periods of time. Phthalate has the potential to cause damage to liver and testes; reproductive effects; and cancer from a lifetime exposure (long-term exposure) at levels above the MCL. DEHP has a strong tendency to adsorb to soil and sediments. In water, microbes in a matter of weeks will degrade DEHP. DEHP does have a tendency to accumulate in aquatic organisms. Monitoring data provided indicated a maximum concentration of the background receiving water for DEHP at 2.9 µg/L. This exceeds the applicable, most restrictive CTR human health criteria of 1.8 µg/L. However, because DEHP is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected DEHP may be from plastics used for sampling or analytical equipment, the Regional Board is not establishing effluent limitations for DEHP at this time. The Regional Board is directing the discharger to conduct a study to determine if DEHP is present in the receiving water, and if it is, if it above the water quality criterion for DEHP. This Order includes a reopener to allow the Regional Board to incorporate appropriate effluent limitations for DEHP if needed pending the results of this study.
32. ***BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes)*** - Order 98-062 established an effluent limitation for BTEX of 1 µg/L (daily maximum), a technology-based limit that was developed using best professional judgment. The most stringent water quality criterion for benzene is 1.2 µg/L, the CTR criterion for Human Health, Water and Organism. The most stringent water quality criteria for toluene, ethylbenzene, and xylenes based on Taste and Odor Threshold are 42 µg/L, 29 µg/L and 17 µg/L, respectively. As the existing effluent limitation is less than the most restrictive criterion of 1.2 µg/L for Benzene, this limit is adequate to protect water quality. This Order carries over the MDEL for BTEX established in the previous Order.
33. ***Volatile Organic Compounds (PCE, TCE, DCE, methylene chloride, benzene, toluene, ethylbenzene and xylene) (VOCs)*** - VOCs have been detected in influent groundwater, prior to

treatment. The groundwater treatment system is designed and operated in part to remove VOC's from groundwater. Previous Order 98-062 established technology-based effluent limitations for each of these pollutants of not to exceed 0.5 µg/L (monthly median) based on the technology utilized by the treatment system to dependably remove VOCs to concentrations that are less than the practical quantitation limits (PQLs) for laboratory analytical methods for these pollutants. The PQLs utilized in Order 98-062 are the same as current analytical technology Minimum Levels (ML's) specified by the SIP (ML is defined in Appendix 1 to the SIP). The concentration of the ML of 0.5 µg/L is less than the most stringent water quality criteria for any of these constituents. Therefore, technology-based effluent limitations are protective of water quality and still apply to the discharge. Effluent limitations not to exceed 0.5 µg/L (monthly median) for PCE, TCE, DCE, methylene chloride, benzene, toluene, ethylbenzene and xylene have been included in this Order.

34. ***1,2-Dichloroethane (1,2-DCA)*** - Previous Order 98-062 established an effluent limitation for 1,2-DCA, also a volatile organic compound, of <0.38 µg/L (30-day average), which is equal to the most stringent water quality criterion established in the CTR for the protection of human health for consumption of water and organisms. This Order carries forward the effluent limitation for 1,2-DCA to ensure the protection of water quality for this constituent.
35. ***Total Volatile Organic Compounds (Total VOCs)*** - Order 98-062 established an effluent limitation for Total VOCs of 1 µg/L (daily maximum), a technology-based limit developed using best professional judgment and based upon the technically achievable treatment levels for air strippers. These technology based effluent limitations still apply to the discharge; therefore the daily maximum effluent limitation for total VOCs are carried over to this Order.

OTHER POLLUTANTS

36. For non-priority pollutants, a Reasonable Potential Analysis (RPA) was conducted in accordance with the *Technical Support Document for Water Quality Based Toxics Control* (EPA/505/2-90-001) (TSD). For each pollutant, a projected MEC was determined by multiplying the maximum observed effluent concentration in the data set by a reasonable potential multiplying factor that accounts for statistical variation. The multiplying factor (for 99% confidence level and 99% probability basis) was dependent on the coefficient of variation (CV) and number of reported effluent sample results. This projected MEC was then compared to the appropriate water quality criterion.

Basin Plan Objectives

37. ***Barium*** - A Trace Element Water Quality Objective for barium listed in Table 111-1, at page III-3.00 of the Basin Plan applies to waters in the Delta. This objective is expressed as a maximum dissolved concentration of 100 µg/L. Results of monitoring conducted by the discharger indicate a MEC for barium of 340 µg/L, a projected MEC for barium of 1,598 µg/L, and receiving water concentrations ranging from 52 µg/L to 390 µg/L, all measured as total recoverable. When converting from total recoverable to dissolved for comparison with the

barium objective, these concentrations have the reasonable potential to exceed the Basin Plan objective for barium considering even the most liberal of translators. Therefore, this Order includes a MDEL for barium of 100 µg/L considering protection of the Basin Plan Objective and lack of assimilative capacity, expressed in the dissolved form. While NPDES regulations at 40CFR 122.45(c) typically require effluent limitations for metals to be expressed as total recoverable, they do allow use of a dissolved limitation if a standard is expressed in the dissolved form. It is unknown whether the Discharger can meet this new effluent limitation for barium. As the Basin Plan objective for barium is not a new objective, a schedule of compliance for barium is not included in this Order. A separate Time Schedule Order shall be proposed for compliance with the barium effluent limitations.

MUN Beneficial Use, Basin Plan Chemical Constituents Objective

38. For Chemical Constituents at page III-3.00, the Basin Plan states '*At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations...*' Federal regulations at 40 CFR Section 122.44(d)(1)(vi)(A) allow the state to establish effluent limitations using an explicit state policy interpreting its narrative objectives. Use of MCL's is appropriate to implement the chemical constituents objective of the Basin Plan. As noted previously, the MUN use applies to the Delta.

39. **Iron** - Title 22 of the California Code of Regulations (CCR Title 22), Table 64449-A, establishes a secondary MCL of 300 µg/L for iron. As MUN is an existing use of the Delta, the MCL for iron is applicable to this Order. Results of monitoring conducted by the discharger indicate a MEC for iron of 1,100 µg/L, a projected MEC for iron of 5,170 µg/L, and receiving water concentrations ranging from 320 µg/L to 1,900 µg/L. Considering the MEC and projected MEC, the lack of assimilative capacity, and the MUN beneficial use of the Delta, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard. Therefore, this Order includes an AMEL for iron considering the USEPA recommendations for permitting for human health protection provided in Section 5.4.4 of the TSD. The AMEL was set equal to the Waste Load Allocation (WLA), or in this case, the MCL (300 µg/L). Additionally, the Basin Plan, in Table 111-1, at page III-3.00 establishes a Trace Element Water Quality Objective for iron that applies to waters in the Delta. This objective is expressed as a maximum dissolved concentration of 300 µg/L. When converting from total recoverable to dissolved for comparison with the iron objective, these concentrations have the reasonable potential to exceed the Basin Plan objective for iron considering even a liberal translator. Therefore, this Order also includes a maximum daily effluent limitation (MDEL) for iron of 300 µg/L considering protection of the Basin Plan Objective and lack of assimilative capacity, expressed in the dissolved form. While NPDES regulations at 40 CFR 122.45(c) typically require effluent limitations for metals to be expressed as total recoverable, they do allow use of a dissolved limitation if a standard is expressed in the dissolved form. It is unknown whether the Discharger can meet this new effluent limitation for iron. Where the Regional Board determines that it is infeasible to achieve immediate compliance with an

adopted water quality objective, the Board may establish in NPDES permits a schedule of compliance. However, schedules of compliance are only authorized for those water quality objectives adopted after September 1995. The Basin Plan chemical constituents objective was established prior to 1995; therefore this Order does not contain a compliance schedule for iron. A separate Time Schedule Order shall be proposed for compliance with the iron effluent limitations.

40. ***Manganese*** - CCR Title 22, Table 64449-A, establishes a secondary MCL of 50 µg/L for manganese. As MUN is an existing use of the Delta, the MCL for manganese is applicable to this Order. Results of monitoring conducted by the discharger indicate a MEC for manganese of 88 µg/L, a projected MEC for manganese of 413 µg/L, and receiving water concentrations ranging from 7.5 µg/L to 170 µg/L. Considering the MEC and projected MEC, the lack of assimilative capacity, and the MUN beneficial use of the Delta, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard. Therefore, this Order includes an AMEL for manganese considering the USEPA recommendations for permitting for human health protection provided in Section 5.4.4 of the TSD. The AMEL was set equal to the Waste Load Allocation (WLA), or in this case, the MCL (50 µg/L). Additionally, the Basin Plan, in Table 111-1, at page III-3.00 establishes a Trace Element Water Quality Objective for manganese that applies to waters in the Delta. This objective is expressed as a maximum dissolved concentration of 50 µg/L. When converting from total recoverable to dissolved for comparison with the manganese objective, these concentrations have the reasonable potential to exceed the Basin Plan objective for manganese considering even a liberal translator. Therefore, this Order also includes a maximum daily effluent limitation (MDEL) for manganese of 50 µg/L considering protection of the Basin Plan Objective and lack of assimilative capacity, expressed in the dissolved form. While NPDES regulations at 40 CFR 122.45(c) typically require effluent limitations for metals to be expressed as total recoverable, they do allow use of a dissolved limitation if a standard is expressed in the dissolved form. It is unknown whether the Discharger can meet this new effluent limitation for manganese. Where the Regional Board determines that it is infeasible to achieve immediate compliance with an adopted water quality objective, the Board may establish in NPDES permits a schedule of compliance. However, schedules of compliance are only authorized for those water quality objectives adopted after September 1995. The Basin Plan chemical constituents objective was established prior to 1995; therefore this Order does not contain a compliance schedule for manganese. A separate Time Schedule Order shall be proposed for compliance with the manganese effluent limitations.
41. ***Sulfate*** - CCR Title 22, Table 64449-B, establishes a secondary MCL of 250 mg/L for sulfate. As MUN is an existing use of the Delta, the MCL for sulfate is applicable to this Order. Results of monitoring conducted by the discharger indicate a MEC for sulfate of 68 mg/L, a projected MEC for sulfate of 319 mg/L, and receiving water concentrations ranging from 8.9 mg/L to 56 mg/L. Considering the projected MEC and the MUN beneficial use of the Delta, it is unknown if the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard. Therefore, this Order includes routine monitoring requirements for sulfate.

42. ***Methyl Tert Butyl Ether (MTBE)*** - MUN is a beneficial use of the Delta. Order 98-062 established a MTBE effluent limit of 35 µg/L (30-day average). The Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit for MTBE is 5 µg/l. A total of 57 samples were reported for MTBE, of these seven were in detectable concentrations. The median concentration was less than 0.5 µg/L, the average concentration of the detected concentrations was 1.2 µg/L and the highest concentration was 4.1 µg/L. Utilizing the TSD approach, the projected MEC for MTBE is 4.1 µg/L. Based on the monitoring data the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for MTBE; however, the limitation for MTBE established in Order 98-062 of 35 µg/L (30-day average) could allow discharges of MTBE in concentrations that could cause an exceedance of the 5 µg/L. This Order revises the limit to 5 µg/L (daily maximum) to ensure the protection of water quality.

AGR/MUN Beneficial Use, Basin Plan Chemical Constituents Objective

43. ***Specific Conductance (EC @ 25 °C) and Total Dissolved Solids(TDS)*** - In addition to the Basin Plan reference in Finding 34, the Basin Plan states, on Page III-3.00 Chemical Constituents, that “[w]aters shall not contain constituents in concentrations that adversely affect beneficial uses.” The Basin Plan’s “Policy for Application of Water Quality Objectives” provides that in implementing narrative water quality objectives, the Regional Board will consider numerical criteria and guidelines developed by other agencies and organizations. This application of the Basin Plan is consistent with Federal Regulations, 40 CFR 122.44(d).

AGR is an existing beneficial use of the Delta. Several active water rights permits for irrigation use exist downstream of the discharge point, at the confluence of Fourteen Mile Slough and Disappointment Slough, and the San Joaquin River. For EC, *Ayers R.S. and D.W. Westcott, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985) (hereafter Ayers/Wescott Report)*, reports levels above 700 µmhos/cm will reduce crop yield for sensitive plants. The University of California, Davis Campus, Agricultural Extension Service, published a paper, dated 7 January 1974, stating that there will not be problems to crops associated with salt if the EC remains below 750 µmhos/cm.

MUN is also an existing beneficial use of the Delta. CCR Title 22, Table 64449-B, recommends a secondary MCL of 900 µmhos/cm for EC.

EC has been monitored by the Discharger under the previous Order 98-062. The maximum effluent value reported was 1,600 µmhos/cm recorded on 31 October 2001, and the average effluent value was 851 µmhos/cm for the monitoring period January 1999 through September 2003. Results of monitoring from October 2002 through February 2004 indicate receiving water EC levels ranged from 150 µmhos/cm to 680 µmhos/cm. Considering the MUN beneficial use of Fourteen Mile Slough and the results of monitoring, this Order includes an effluent limitation for EC considering the USEPA recommendations for permitting for human

health protection provided in Section 5.4.4 of the TSD. The AMEL was set equal to the WLA, or in this case, the MCL (900 $\mu\text{mhos/cm}$). As the chemical constituents objective is not a new objective, a schedule of compliance for specific conductance is not included in this Order. A separate Time Schedule Order shall be proposed for compliance with the new EC effluent limitations.

While the EC levels of the discharge have, at times, exceeded levels which will reduce crop yields for sensitive plants, EC levels in the receiving water have not. This Order requires the Discharger to conduct a site specific study which assesses the impact of the discharge on background water quality and irrigation water users and municipal supply downstream of the discharge.

Aquatic Life Beneficial Use, Basin Plan Narrative Toxicity Objective

44. **Ammonia (as N)** - Ammonia can be toxic to aquatic organisms in surface waters. Aquatic habitat is a beneficial use of the receiving stream. USEPA has developed Ambient Water Quality Criteria for ammonia. Applying 40 CFR section 122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms. The acute criterion for ammonia is dependent on pH and fish species present, and the chronic criterion is dependent on pH and temperature. In general, ammonia toxicity increases with increases in pH and temperature. At lower temperatures, the chronic criterion is also dependent on the presence or absence of early life stages of fish (ELS).

The beneficial uses of the Delta include warm freshwater aquatic habitat (WARM), cold freshwater aquatic habitat (COLD), migration of aquatic organisms (MIGR) in warm habitat, warm and cold habitat spawning, and reproduction, and/or early development (SPWN). The early life stages of fish are likely present during the permitted period of discharge.

Based on monitoring data provided by the Discharger, the highest pH value reported for the receiving water as 8.3 pH units, and the highest temperature of the receiving water was reported as 24°C. Using the maximum pH value allowed in the receiving water (8.5 pH Units) and the highest reported temperature of 24°C, the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, 30 day average chronic criteria, or criterion continuous concentration for ammonia is 591 $\mu\text{g as N (Nitrogen)/L}$. Additionally, the highest 4 day average concentration within the 30 day period should not exceed 2.5 times this criterion ($2.5 \times 591 = 1,478 \mu\text{g as N/L}$). Considering the maximum pH value of 8.5 pH Units and the presence of salmonids, the USEPA Recommended Ambient Water Quality Criterion for Fresh Water Aquatic Life, maximum 1-hour acute criteria, or criteria maximum concentration for ammonia is 2,140 $\mu\text{g as N/L}$.

Ammonia was detected in three of four samples of the Discharger's effluent at concentrations of 110 $\mu\text{g/L}$, 2500 $\mu\text{g/L}$ and 190 $\mu\text{g/L}$. Using the TSD reasonable potential analysis procedure, the projected MEC of ammonia in the effluent is 11,750 $\mu\text{g/L}$; therefore, there is a reasonable

potential that the discharge may exceed the USEPA chronic and acute criteria for ammonia and cause or contribute to an excursion above the narrative toxicity objective. This Order contains an AMEL and 4 day average effluent limitation for ammonia considering the USEPA chronic criteria, and a one hour maximum effluent limitation considering USEPA's acute ammonia criteria. As the Basin Plan toxicity objective is not a new water quality objective, a schedule of compliance for ammonia is not included in this Order. A separate Time Schedule Order shall be proposed for compliance with the new ammonia effluent limitations.

Other

45. **pH**— The Basin Plan includes numeric water quality objectives that the pH “...not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.” The Delta is designated as having both COLD and WARM beneficial uses. And effluent limitation for pH is included in this Order based on the Basin Plan objectives for pH.
46. **Total Petroleum Hydrocarbons (TPH)** - Previous Order No. 98-062 included 100 µg/L (daily maximum) and < 50µg/L (30-day median) effluent limitations for TPH, consistent with General Order 92-150, which regulates discharges of petroleum contaminated groundwater to surface waters. On 16 June 2000, General Order 92-150 was rescinded, and renewed General Order No. 5-00-119 was adopted. Renewed General Order No. 5-00-119 retained the effluent limitations for TPH of the previous Order based upon a combination of technology and water quality criteria. The monthly median limitation of < 50 µg/L was established based upon commonly available treatment and analytical technology. The daily maximum effluent limitation of 100 µg/L was established based upon taste and odor water quality criteria. These criteria still apply to the discharge; therefore, the daily maximum and monthly median effluent limitations for TPH have been retained and included in this Order.
47. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.
48. USEPA adopted the NTR and the CTR, which contains water quality standards applicable to this discharge and the SIP contains guidance on implementation of the NTR and CTR. Interim limitations are established when compliance with NTR- and CTR-based effluent limitations cannot be achieved by the existing discharge. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must: 1) be based on current treatment plant performance or existing permit limitations, whichever is more stringent; 2) include interim compliance dates separated by no more than one year, and; 3) be included in the permit provisions.

Concerning the development of interim effluent limitations, USEPA's effluent database suggests that effluent concentrations are best characterized as a lognormal distribution.

USEPA has developed a statistical approach that combines the knowledge of effluent variability, as estimated by a coefficient of variation (CV), with the uncertainty due to a limited number of data, to project an estimated maximum concentration for the effluent. This estimated maximum pollutant effluent concentration can be calculated as the upper bound of the expected lognormal distribution of effluent concentrations at a high confidence level. This statistical approach is outlined in USEPA's *Technical Support Document for Water Quality Based Toxics Control* ((EPA/505/2-90-001) TSD).

In developing interim limitations, the Regional Board has considered the recommendations of the *TSD*. Where applicable, interim maximum daily effluent limitations have been established in this Order based upon the estimated maximum effluent pollutant concentration developed considering representative historical effluent data and the *TSD* statistical approach described in Chapter 3 (Box 3-2, Table 3.1). Where data sets are small and/or where a CV cannot be calculated, a CV of 0.6 may be used as a default measure of the relative variability in these calculations. When calculating a CV from a particular effluent pollutant data set where concentrations were reported as less than detectable, one half of the detection limit was used in the calculation.

The SIP, Section 1.2, states, "When implementing the provisions of the Policy, the Regional Board shall use all available, valid, relevant, representative data and information, as determined by the Regional Board. The Regional Board shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy." The Board will review all data relevant to establishing an interim effluent limitation and determine on a constituent-by-constituent basis the validity of each data set in representing "the current treatment plant performance."

The interim limitations in this Order are based on the current treatment plant performance and the Order includes a time schedule for compliance with final effluent limitations. However, discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. For example, USEPA states in the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for copper, that it will take an unstressed system approximately three years to recover from a pollutant in which exposure to copper exceeds the recommended criterion. The interim limitations establish an enforceable maximum effluent concentration until compliance with the final effluent limitations can be achieved.

49. CWA Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; "The numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to

regional waters in order to protect the beneficial uses.” This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Bacteria, Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Pesticides, Radioactivity, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity, and Turbidity.

GENERAL

50. Monitoring is required by this Order for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional limitations.
51. Section 13267 of the California Water Code states, in part, “(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the regional board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267. The groundwater monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements.
52. The SIP, Section 2.1, provides that: “Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.” Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ... “(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control and/or pollution minimization efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.” This Order requires the Discharger to provide this information. The new water quality-based effluent limitations for **chromium VI** and **mercury** become effective on **1 June 2005** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality-based effluent limitations for **chromium VI** and **mercury** become effective **1 March 2010**.
53. The Regional Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The Fact Sheet, Monitoring and Reporting Program No. R5-2005-_____, Attachments A, B, C, and D (Tables 1, 2, and 3) and the Standard Provisions (*Standard*

Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES) February 2004) are a part of this Order.

54. The discharge is presently governed by Waste Discharge Requirements Order No. 98-062, adopted by the Regional Board on 17 April 1998.
55. The USEPA and the Regional Board have classified this discharge as a minor discharge.
56. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.
57. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
58. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
59. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing provided USEPA has no objections.

IT IS HEREBY ORDERED that Order No. 98-062 is rescinded and Lincoln Center Environmental Remediation Trust, their its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of treated groundwater at a location or in a manner different from that described in the Findings is prohibited.
2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached “Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)”].
3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations:

1. Effluent shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Monthly Median</u>	<u>Monthly Average (AMEL)</u>	<u>Daily Maximum (MDEL)</u>	<u>One Hour Average</u>
Tetrachloroethene (PCE)	µg/L	<0.5 ¹	--	--	--
Trichloroethene (TCE)	µg/L	<0.5 ¹	--	--	--
1,1-Dichloroethene (DCE)	µg/L	<0.5 ¹	--	--	--
Dichloromethane (Methylene Chloride)	µg/L	<0.5 ¹	--	--	--
1,2-Dichloroethane (1,2- DCA)	µg/L	<0.38	--	--	--
Total VOCs	µg/L	--	--	1.0 ²	--
Benzene	µg/L	<0.5 ¹	--	--	--
Toluene	µg/L	<0.5 ¹	--	--	--
Ethylbenzene	µg/L	<0.5 ¹	--	--	--
Xylene	µg/L	<0.5 ¹	--	--	--
BETX	µg/L	--	--	1.0 ³	--
TPH	µg/L	<50 ¹	--	100	--
Methyl-tert-butyl ether (MTBE)	µg/L	--	--	5 ¹	--
Arsenic (total recoverable)	µg/L	--	10	--	--
	lbs/day ⁵	--	0.036	--	--
Arsenic (dissolved)	µg/L	--	--	10	--
	lbs/day ⁵	--	--	0.036	--
Chromium VI ⁴ (total recoverable)	µg/L	--	8	16	--
	lbs/day ⁵	--	0.029	0.057	--
Copper (total recoverable)	µg/L	--	4.2	8.4	--
	lbs/day ⁵	--	0.015	0.03	--
Lead (total recoverable)	µg/L	--	1.3	2.6	--
	lbs/day ⁵	--	0.005	0.009	--
Mercury ⁴ (total recoverable)	µg/L	--	--	0.05	--
	lbs/day ⁵	--	--	0.0002	--
Zinc (total recoverable)	µg/L	--	38	76	--
	lbs/day ⁵	--	0.14	0.27	--
Delta-BHC	µg/L	--	--	ND	--
4,4-DDT	µg/L	--	--	ND	--
4,4-DDE	µg/L	--	--	ND	--
4,4-DDD	µg/L	--	--	ND	--
Specific Conductance (EC at 25°C)	µmhos/cm	--	900	--	--
Barium (dissolved)	µg/L	--	--	100	--
	lbs/day ⁵	--	--	0.36	--
Iron (total recoverable)	µg/L	--	300	--	--
	lbs/day ⁵	--	1.2	--	--
Iron (dissolved)	µg/L	--	--	300	--
	lbs/day ⁵	--	--	1.2	--

<u>Constituents</u>	<u>Units</u>	<u>Monthly Median</u>	<u>Monthly Average (AMEL)</u>	<u>Daily Maximum (MDEL)</u>	<u>One Hour Average</u>
Manganese	µg/L	--	50	--	--
(total recoverable)	lbs/day ⁵	--	0.18	--	--
Manganese (dissolved)	µg/L	--	--	50	--
	lbs/day ⁵	--	--	0.18	--
Ammonia as N	mg/L	--	0.59	--	2.1
	lbs/day ⁵	--	2.1	--	--
	lbs/day ⁵	--	--	--	7.5

Footnotes

- ¹ Based on Minimum Levels contained Appendix 4, Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, 2000. Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML represents the lowest quantifiable concentration in a sample based on the proper application of all method-based analytical procedures and the absence of any matrix interferences.
- ² The sum of the concentrations of volatile organic compounds in any single sample shall not exceed 1.0 µg/L.
- ³ The sum of the concentrations of benzene, toluene, ethylbenzene and xylene in any single sample detected shall not exceed 1.0 µg/L.
- ⁴ See Provision 2 of this Order for the effective compliance date for final chromium VI and mercury limitations.
- ⁵ Mass-based limits based on design flow from the facility of 0.43 mgd

2. Until final effluent limitations for chromium VI become effective, the effluent shall not exceed the following interim effluent limits for chromium VI:

<u>Constituents</u>	<u>Units</u>	<u>Daily Maximum (MDEL)</u>
Chromium VI ^{1,3} (total recoverable)	µg/L	80
	lbs/day ²	0.29

Footnotes

- ¹ See Provision 2 of this Order for the effective compliance date for final chromium VI limitations.
- ² Based on a design flow of 0.43 mgd
- ³ Limit established as described in Finding 48.

3. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
4. The average daily discharge flow shall not exceed 430,000 gallons (0.43 mgd).
5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay - - - - - 70%

Median for any three or more consecutive bioassays - - - 90%

C. Solids Disposal

Collected screenings, sludges, and other solids removed from the treated groundwater, or generated as the result of groundwater treatment, shall be disposed of in a manner approved by the Executive Officer.

D. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit.

Upon adoption of any applicable water quality standard for receiving waters by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder, this permit may be reopened and receiving water limitations added.

The discharge shall not cause the following in the receiving water:

1. *Bacteria*: The fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
2. *Dissolved Oxygen*: Discharge shall not cause the concentrations of dissolved oxygen to fall below 7.0 mg/L
3. *Oil and Grease*: Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the water surface or on objects in the water, or otherwise adversely affect beneficial uses.
4. *Color*: Discoloration that causes nuisance or adversely affects beneficial uses
5. *pH*: The ambient pH to be depressed below 6.5, nor raised above 8.5, nor changes in normal ambient pH levels to be exceeded by more than 0.5 units.
6. *Temperature*: The natural receiving water temperature to increase more than 5°F.
7. *Settleable Matter*: Substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
8. *Radioactivity*: Radionuclides to be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.

Concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

9. *Toxicity*: Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.
10. *Biostimulatory Substances*: Biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
11. *Floating Material*: Floating material in amounts that cause nuisance or adversely affect beneficial uses.
12. *Sediment*: Suspended sediment load and suspended sediment discharge rate altered in such a manner to cause nuisance or adversely affect beneficial uses.
13. *Suspended Sediment*: Suspended sediment concentrations that cause nuisance or adversely affect beneficial uses.
14. *Taste and Odor*: Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
15. *Chemical constituents*: Chemical constituents contained in Table III-1, at page III-3.00 of the Basin Plan to exceed the following concentrations:

<u>Constituent</u>	<u>Unit</u>	<u>Limitation</u>
Dissolved Cyanide	mg/l	0.01
Dissolved Silver	mg/l	0.01

16. *Turbidity*: Changes in turbidity that cause nuisance or adversely affect beneficial uses. Turbidity attributable to controllable water quality factors to exceed the following:
 - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.

17. *Pesticides*^a:
 - a. Pesticides in individual or combined concentrations that adversely affect beneficial uses.
 - b. Pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.
 - c. Total identifiable persistent chlorinated hydrocarbon pesticides in concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer.
 - d. Concentrations exceeding those allowable by applicable antidegradation policies (see State Water Resources Control Board Resolution No. 68-16 and 40 C.F.R. Section 131.12.)
 - e. Concentrations exceeding the lowest levels technically and economically achievable.
 - f. Concentrations exceeding the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15.
 - g. Concentrations of thiobencarb in excess of 1.0 µg/l
18. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
19. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted there under.

E. Provisions:

1. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

a The term pesticide shall include: (1) any substance, or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever, or (2) any spray adjuvant, or (3) any breakdown products of these materials that threaten beneficial uses. Note that discharges of "inert" ingredients included in pesticide formulations must comply with all applicable water quality objectives.

2. **Chromium VI and Mercury Compliance Schedule:** This Order contains new final effluent limitations based on water quality criteria contained in the CTR for chromium VI and mercury. By **1 June 2005**, the Discharger shall complete and submit a compliance schedule justification for chromium VI and mercury. The compliance schedule justification shall include all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. The new water quality based effluent limitations for chromium VI and mercury become effective on **1 June 2005** if a compliance schedule justification meeting the requirements of Section 2.1 of the SIP is not completed and submitted by the Discharger. Otherwise, the new final water quality based effluent limitations for chromium VI and mercury required by this Order shall become effective on **1 March 2010**. As this compliance schedule is greater than one year, the Discharger shall submit semi-annual progress reports on **15 January** and **15 July** of each year until the Discharger achieves compliance with the final water quality based effluent limitations for chromium VI and mercury.

3. **Interim Mercury Mass Limitation Report:** The Discharger shall submit within eighteen (18) months of adoption of this Order an *Interim Mercury Mass Limitation Report* which summarizes flow and effluent mercury data collected pursuant to MRP No. R5-2005-____. As necessary, this Order may be reopened and an interim mass limit included for mercury.

4. **Mercury TMDL Reopener:** This Order shall be reopened, as necessary, and alternative final effluent limitations established for mercury based upon a waste load allocation derived from the Delta waterways TMDL, a site-specific water quality objective, or based upon new criteria.

5. There are indications that background receiving waters may contain constituents in concentrations that exceed water quality objectives for **bis (2-ethylhexyl) phthalate**. The Discharger shall comply with the following time schedule in conducting a study for each of these constituents in surface waters.

Task

Compliance
Date

Submit a Workplan and Time schedule to perform monitoring study of sample collection, handling, and analytical procedures for the Bis (2-ethylhexyl) phthalate to identify opportunities for contamination and to identify corrective action steps to be implemented to prevent such contamination in the future.

6 months after adoption of this Order

Implement corrective action steps and collect and analyze four receiving water samples for bis (2-ethylhexyl) phthalate. Receiving water samples shall grab samples, collected quarterly. One sampling event shall occur in the dry season, and one shall occur in the wet season.

18 months after adoption of this Order

<u>Task</u>	<u>Compliance Date</u>
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Submit a summary report, including analytical data, to the Regional Board that describes results of the four monitoring events performed under Task 2, above.	24 months after adoption of this Order
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The Discharger shall submit to the Regional Board on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

If after review of the study results it is determined that the background receiving water exceeds water quality objective this Order will be reopened and effluent limitations added for the subject constituents.

6. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

7. **Salt Study:** This Order requires the Discharger to conduct a site specific study which assesses ambient receiving water flows and associated EC levels, TDS, and chloride concentrations and the impact of the discharge on local soil salinity, background water quality, and irrigation water users and municipal supply users downstream of the discharge. This study shall be conducted in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
Submit Workplan and Time Schedule	1 January 2006
Begin Study	1 January 2006
Complete Study	1 July 2008
Submit Study Report	1 December 2008

The Discharger shall submit to the Regional Board on or before each compliance due

date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective to protect the AGR beneficial use, this Order may be reopened and effluent limitations added for the subject constituents.

8. **SIP Revisions:** The SWRCB is considering proposed revisions to Section 1.3 Step 6 of the SIP. These revisions include considering monitoring requirements only in lieu of an effluent limitation where a particular pollutant was detected in the background receiving water above an appropriate criterion, but not detected in the effluent. If these revisions to the SIP are adopted by the SWRCB, this Order may be reopened to remove the effluent limitations for copper, zinc, and the organochlorine pesticides DDT, DDE, DDD and Delta-BHC.
9. The Board may modify or reopen this Order prior to its expiration date if present or future investigations demonstrate that the discharge governed by this Order has a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters based on the following circumstances
 - a. New or revised water quality objectives (WQOs) come into effect for the receiving water. In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications.
 - b. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified the Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and anti-backsliding analysis.
 - c. Modify and/or include effluent limits as necessary when TMDLs for the eastern portion of the Delta are approved and load allocations applicable to this discharge for 303(d) listed constituents are implemented.
10. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-_____, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

11. This Order expires on **1 March 2010** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.
12. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Quality and Water Rights)
13. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

I, THOMAS R. PINKOS, 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, Central Valley Region, on _____.

THOMAS R. PINKOS, Executive Officer