STATE OF CALIFORNIA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 W. 4th Street, Suite 200, Los Angeles

FACT SHEET
WASTE DISCHARGE REQUIREMENTS
for
U.S. BORAX, INCORPORATED
(Wilmington Refinery)

NPDES Permit No.: CA0000787
Public Notice No.: R4-2003-0037

FACILITY ADDRESS	FACILITY MAILING ADDRESS
300 Falcon Street	300 Falcon Street
Wilmington, CA 90744	Wilmington, CA 90744
	Contact: Charles St. John
	Telephone: (310) 522-5332

I. Public Participation

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the above-referenced facility. As an initial step in the WDR process, the Regional Board staff has developed tentative WDRs. The Regional Board encourages public participation in the WDR adoption process.

A. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to:

Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

B. Public Hearing

The Regional Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: September 11, 2003
Time: 9:00 A.M.
Location: Metropolitan Water Districts of Southern California
700 North Alameda Street
Los Angeles, CA

Interested persons are invited to attend. At the public hearing, the Regional Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is www.swrcb.ca.gov/rqcb4 where you can access the current agenda for changes in dates and locations.

C. Waste Discharge Requirements Appeals

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Board's action to the following address:

State Water Resources Control Board
Office of the Chief Counsel
ATTN: Elizabeth Miller Jennings
Senior Staff Counsel
1001 I Street, 22nd Floor
Sacramento, CA 95814

D. Information and Copying

The Report of Waste Discharge (ROWD), related documents, tentative effluent limitations and special conditions, comments received, and other information are on file and may be inspected at 320 West 4th Street, Suite 200, Los Angeles, California 90013, at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Los Angeles Regional Board by calling (213) 576-6600.

E. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Board, reference this facility, and provide a name, address, and phone number.

II. Introduction

The U.S. Borax, Incorporated (hereinafter Discharger or Borax) Wilmington Refinery discharges single-pass, non-contact cooling seawater under waste discharge requirements (WDRs) contained in Order No. 97-004 (NPDES No. CA0000787, CI-1449) adopted by the Regional Board on January 27, 1997. Order 97-004 serves as the National Pollutant Discharge Elimination System (NPDES) permit (CA0000787).

The Discharger has filed a report of waste discharge (ROWD) and has applied for renewal of its WDRs and NPDES permit. The tentative Order is the reissuance of the WDRs and NPDES permit. A site visit was conducted on January 13, 2003, to observe operations and collect additional data to develop permit limits and conditions.

Storm water discharges are not regulated by this permit. The Discharger has filed a Notice of Intent and is subject to the requirements of the General Permit for Storm Water Discharges Associated with Industrial Activity [State Water Resources Control Board (State Board) Order No. 97-03-DWQ, NPDES Permit No. CAS000001].

III. Description of Facility and Waste Discharge

The Borax Wilmington Refinery is located at 300 Falcon Street in Wilmington, California (Figure 1). The facility produces boron-based compounds. Boron is processed into boric acid, zinc borates, sodium tetraborate and other products. Uses for these products include wood preservatives, fire retardants, pesticides, fertilizers, for pharmaceutical applications, and as nuclear grade boric acid.

The facility utilizes a seawater cooling system to produce specialty boron-based compounds. The cooling water system consists of seawater, cooling coils, a pump system, and a treatment system (chlorine dioxide generating system). Muriatic Acid (hydrochloric acid), SB Chlorinate, and Di-Oxy Chlor are used in the chlorine dioxide generating system to chlorinate the seawater. The chlorination retards marine growth inside the cooling system. The cooling system is a closed system and the cooling water does not make contact with any of the process materials. The process streams, which are cooled by the system, are aqueous solutions of borate chemicals in non-pressurized tanks. The cooling water causes the product to be taken out of solution in the tanks. The non-contact cooling water is not de-chlorinated prior to discharge to the receiving water.

The facility has previously had a maximum of twenty-nine outfalls, all of which discharged directly to the Los Angeles Harbor. Twenty-eight of them have been previously closed in place or removed. The intake water source for the cooling system is taken from the Los Angeles Harbor. There are two intake structures for the cooling system, that merge into a single water line. The line then diverges into two separate cooling systems. Each cooling system was previously equipped with a designated outfall pipe, Discharge Serial Nos. 003 and 009. In June 2001, the Discharger modified the cooling water system and consolidated the two outfalls into one outfall. Discharge Serial No. 003 has been removed and all flow is consolidated into

Discharge Serial No. 009, which will be renamed Discharge Outfall 001. Figure 2 shows the location of Discharge Outfall 001 (previously referred to as Outfall 009) and the Borax facility. Only the seawater wastewater used in the cooling system is discharged through the outfall; all other industrial wastewater is discharged through the sanitary sewer system.

This permit regulates the discharge of single-pass, non-contact cooling seawater through Discharge Serial No. 001 into Slip No. 1 of Los Angeles Inner Harbor, a water of the United States, at Berth 166, Latitude 33°45'28" North, Longitude 118°16'02" West.

The mass effluent limitations in the existing permit are based on the recirculation and discharge of up to 2,160,000 gallons per day (or 2.16 million gallons per day (mgd)) of non-contact cooling water drawn from the Los Angeles Harbor.

The *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) defines a major discharger an industrial source with a yearly average flow of 0.1 MGD and those with lesser flows but with acute or potential adverse environmental impacts. Based on the estimated flow rate of 2.16 mgd, the Regional Board and the United States Environmental Protection Agency (USEPA) have classified the U.S. Borax Wilmington Refinery as a major discharge.

Effluent limits contained in the existing permit and representative monitoring data are presented in the following table. Monitoring data for Discharge Serial No. 003 are shown for October 1996 to June 2001 when discharge from this outfall was occurring. Data for Discharge Serial No. 009 are available from October 1996 to September 2002.

Constituent (units)	**Maximum Daily Effluent Limitation**	**Range of Reported Values**	**Range of Reported Values**
		Outfall 003 (10/96-6/01)	**Outfall 009 (10/96-9/02)**
pH (s.u.)	Between 6.0 – 9.0	6.8 – 8.1	6.8 – 8.3
Residual Chlorine (mg/L)	0.1	0 – 0.15	0.01 – 0.2
Temperature (° F)	100	55 – 94	53 – 79
Toxicity – Acute (% survival)	[1]	70 - 100	70 - 100

[1] Average survival in effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test producing less than 70% survival.

The Discharger has exceeded the existing maximum daily effluent limitation for residual chlorine in the discharge from Discharge Serial No. 003 on two occasions; January 27, 2000 and March 27, 2000 (both values were 0.15 mg/L); and from Discharge Serial No. 009 on July 8, 1997 with a concentration of 0.2 mg/L. The Discharger is required to monitor acute toxicity on a quarterly basis. For the period from May 2000 through February 2001, the Discharger did not achieve the 90% survival rate in three consecutive quarterly analyses at Discharge Serial No. 003, however these results were attributed to a fresh water test species (flathead minnow, Pimephales promelas). On November 15, 2001, the Regional Board modified the acute toxicity testing requirements by replacing the test species with topsmelt, *Atherinops affinis*. Following the change

in test sepcies, the facility has maintained compliance with all acute toxicity requirements. Since the flows have been consolidated to Discharge Serial No. 009, the Discharger has been in compliance with existing permit limitations and requirements.

IV. Applicable Plans, Policies, and Regulations

The requirements contained in the proposed Order are based on the requirements and authorities contained in the following:

1. The federal Clean Water Act (CWA). The federal Clean Water Act requires that any point source discharges of pollutants to a water of the United States must be done in conformance with an NPDES permit. NPDES permits establish effluent limitations that incorporate various requirements of the CWA designed to protect water quality.

2. Code of Regulations, Title 40 (40 CFR) – Protection of Environment, Chapter I, Environmental Protection Agency, Subchapter D, Water Programs, Parts 122-125 and Subchapter N, Effluent Guidelines. These CWA regulations provide effluent limits for certain dischargers and establish procedures for NPDES permitting, including how to establish effluent limits for certain pollutants discharged by Borax.

3. On June 13, 1994, the Regional Board adopted a revised Basin Plan. The Basin Plan contains water quality objectives and beneficial uses for inland surface waters and for the Pacific Ocean. The Basin Plan contains beneficial uses and water quality objectives for the Los Angeles Inner Harbor includes.

   Existing: industrial water supply, navigation, non-contact water recreation, preservation of rare and endangered species, commercial and sport fishing, and marine habitat.

   Potential: contact water recreation and shellfish harvesting.

   The State Water Resources Control Board (State Board) adopted a *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 a narrative limit for existing discharges to enclosed bays. The limit reads:

   > "Elevated temperature waste discharges shall comply with limitations necessary to assure protection of the beneficial uses."

   Best professional judgment was used to transfer this narrative limit into a numeric limit.

4. On May 18, 2000, the U.S. Environmental Protection Agency (USEPA) promulgated numeric criteria for priority pollutants for the State of California [known as the *California Toxics Rule* (CTR) and codified as 40 CFR § 131.38]. In the CTR, USEPA promulgated criteria that protect the general population at an incremental cancer risk level of one in a million (10^{-6}), for all priority toxic pollutants regulated as carcinogens. The CTR also provides a schedule of

compliance not to exceed 5 years from the date of permit renewal for an existing discharger if the Discharger demonstrates that it is infeasible to promptly comply with the CTR criteria.

5. On March 2, 2000, State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP*).* The SIP was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through National Toxics Rule (NTR) and to the priority pollutant objectives established by the Regional Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP was effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR*.* The SIP requires the dischargers' submittal of data sufficient to conduct the determination of priority pollutants requiring WQBELs and to calculate the effluent limitations. The CTR criteria for saltwater or human health for consumption of organisms, whichever is more stringent, are used to develop the effluent limitations in this Order to protect the beneficial uses of Los Angeles Inner Harbor.

6. 40 CFR section 122.44(d)(vi)(A) requires the establishment of numeric effluent limitations to attain and maintain applicable narrative water quality criteria to protect the designated beneficial uses. Where numeric water quality objectives have not been established in the Basin Plan, 40 CFR section 122.44(d) specifies that water quality-based effluent limits (WQBELs) may be set based on USEPA criteria and supplemented, where necessary, by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses.

7. State and Federal antibacksliding and antidegradation policies require that Regional Board actions to protect the water quality of a water body and to ensure that the waterbody will not be further degraded. The antibacksliding provisions are specified in section 402(o) of the CWA and in the Title 40 of the Code of Federal Regulations (40 CFR), section 122.44(l). Those provisions require a reissued permit to be as stringent as the previous permit with some exceptions where effluent limitations may be relaxed.

8. Effluent limitations are established in accordance with sections 301, 304, 306, and 307 of the federal CWA, and amendments thereto. These requirements, as they are met, will maintain and protect the beneficial uses of the Los Angeles Inner Harbor.

9. Existing waste discharge requirements contained in Board Order No. 97-004, adopted by the Regional Board on January 27, 1997. In some cases, permit conditions (effluent limits and other special conditions) established in the existing waste discharge requirements have been carried over to this permit.

V. Regulatory Basis for Effluent Limitations

The CWA requires point source discharges to control the amount of conventional, nonconventional, and toxic pollutants that are discharged into the waters of the United States.

The control of the discharge of pollutants is established through NPDES permits that contain effluent limitations and standards. The CWA establishes two principal bases for effluent limitations. First, dischargers are required to meet technology-based effluent limitations that reflect the best controls available considering costs and economic impact. Second, they are required to meet water quality-based effluent limitations (WQBELs) that are developed to protect applicable designated uses of the receiving water.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and nonconventional pollutants.

- Best conventional pollutant control technology (BCT) is a standard for the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) that represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BCT, BAT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR 125.3 of the NPDES regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern.

If a reasonable potential exists for pollutants in a discharge to exceed water quality standards, WQBELs are also required under 40 CFR 122.44(d)(1)(i). WQBELs are established after determining that technology-based limitations are not stringent enough to ensure that state water quality standards are met for the receiving water. WQBELs are based on the designated use of the receiving water, water quality criteria necessary to support the designated uses, and the state's antidegradation policy. For discharges to inland surface waters, enclosed bays, and estuaries, the SIP establishes specific implementation procedures for determining reasonable potential and establishing WQBELs for priority pollutant criteria promulgated by USEPA through the CTR and NTR, as well as the Basin Plan.

There are several other specific factors affecting the development of limitations and requirements in the proposed Order. These are discussed as follows:

1. Pollutants of Concern

The CWA requires that any pollutant that may be discharged by a point source in quantities of concern must be regulated through an NPDES permit. Further, the NPDES regulations and SIP require regulation of any pollutant that (1) causes; (2) has the reasonable potential to cause; or (3) contributes to the exceedance of a receiving water quality criteria or objective. The SIP includes provisions for priority pollutant criteria promulgated by USEPA in the CTR and NTR, and for those priority pollutants outlined in the Basin Plan.

Effluent limitations for Discharge Serial Nos. 003 and 009 in the current permit were established for residual chlorine because the intake seawater is chlorinated prior to use as a cooling water to retard marine growth within the cooling system. Residual chlorine is considered a pollutant of concern. Effluent limitations were also established for pH and temperature in the existing permit. The chlorine solution added to the intake water is generated from the reaction with an acid that may contribute to the discharge; therefore pH is a pollutant of concern. Temperature may be affected as the intake cooling water passes through the system and transfers heat from the products being cooled, and thus may be a concern in the discharge. Thus residual chlorine, pH, and temperature are considered pollutants of concern in this discharge and effluent limitations for these parameters have been established in this permit.

2. Technology-Based Effluent Limits

The 1972 amendments to the Federal Water Pollution Control Act (P.L. 92-500) require in section 316(b) that:

> "Any standard established pursuant to section 301 or section 306 of this Act and applicable to a point source shall require that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact."

Sections 301 and 306 refer to the development of effluent limitations and dates for achievement of various standards of performance for existing and new sources of waste discharges. The steam-electric generating point source category is the largest user of cooling water in the United States and the *Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316 (b) P.L. 92-500* (dated May 1, 1977) is directed primarily at this category.

40 CFR Parts 9, et al. (*National Pollutant Discharge Elimination System – Proposed Regulations to Establish Requirements for Cooling Water Intake Structures Phase II Existing Facilities* Proposed Rule) implements section 316 (b) of the Clean Water Act (CWA) for certain existing power producing facilities. The proposed rule constitutes Phase II in EPA's development of section 316 (b) regulations and would establish national requirements applicable to the location design construction, and capacity of

cooling water intake structures for facilities that withdraw 50 million gallons per day (MGD) or more of water from river, streams, lakes, reservoirs, estuaries, oceans, or other waters of the United States, and uses more than 25% of this water for cooling purposes.

Phase III of EPA's development of section 316 (b) regulations will address facilities that withdraw less than fifty MGD of cooling water and may include smaller-flow power plants and other industrial sectors. The final action on Phase III is scheduled for June 1, 2006. These requirements will likely be used to evaluate the cooling water intake structure at U.S. Borax.

Effluent guidelines have been established for process wastewater discharges from inorganic chemical manufacturing point sources and are published at 40 CFR Part 415, Subpart AB. However the discharges regulated by this permit are not included in these effluent guidelines.

Due to the lack of national ELGs for discharges of non-contact cooling water from boron-based compounds manufacturing facilities and the absence of data available to apply BPJ, and pursuant to 40 CFR 122.44(k), the Regional Board will require the Discharger to develop and implement a *Best Management Practices Plan* (BMPP). The purpose of the BMPP will be to establish site-specific procedures that will ensure proper operation and maintenance of equipment and cooling systems, and will include requirements for the Discharger to periodically conduct integrity checks of the cooling system, to ensure there are no leaks in the system. The combination of the BMPP and existing permit limitations based on past performance and reflecting BPJ will serve as the equivalent of technology-based effluent limitations, in the absence of established ELGs, in order to carry out the purposes and intent of the CWA.

3. Water Quality-Based Effluent Limits

As specified in 40 CFR § 122.44(d)(1)(i), permits are required to include WQBELs for toxic pollutants (including toxicity) that are or may be discharged at levels which cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses for the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria (that are contained in other state plans and policies, or USEPA water quality criteria contained in the CTR and NTR). The specific procedures for determining reasonable potential, and if necessary for calculating WQBELs, are contained in the SIP.

The CTR contains both saltwater and freshwater criteria. According to 40 CFR § 131.38(c)(3), freshwater criteria apply at salinities of 1 part per thousand (ppt) and below at locations where this occurs 95 percent or more of the time; saltwater criteria apply at salinities of 10 ppt and above at locations where this occurs 95 percent or more of the time; and at salinities between 1 and 10 ppt the more stringent of the two apply. The receiving water is the Los Angeles Inner Harbor, a coastal water body. The CTR criteria for saltwater or human health for consumption of organisms only, whichever is more

stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of the Los Angeles Inner Harbor.

(a) Reasonable Potential Analysis (RPA)

The Regional Board will conduct a reasonable potential analysis for each priority pollutant with an applicable criterion or objective to determine if a WQBEL is required in the permit. The Regional Board would analyze effluent data to determine if a pollutant in a discharge has a reasonable potential to cause or contribute to an excursion above a state water quality standard. For all parameters that have a reasonable potential, numeric WQBELs are required. The RPA considers water quality objectives outlined in the CTR, NTR, as well as the Basin Plan. To conduct the RPA, the Regional Board must identify the maximum observed effluent concentration (MEC) for each constituent, based on data provided by the Discharger.

Section 1.3 of the SIP provides the procedures for determining reasonable potential to exceed applicable water quality criteria and objectives. The SIP specifies three triggers to complete a RPA:

1) Trigger 1 – If the MEC is greater than or equal to the CTR water quality criteria or applicable objective (C), a limit is needed.

2) Trigger 2 – If MEC<C and background water quality (B) > C, a limit is needed.

3) Trigger 3 – If other related information such as CWA 303(d) listing for a pollutant, discharge type, compliance history, etc. indicates that a WQBEL is required.

Sufficient effluent and ambient data are needed to conduct a complete RPA. If data are not sufficient, the Discharger will be required to gather the appropriate data for the Regional Board to conduct the RPA. Upon review of the data, and if the Regional Board determines that WQBELs are needed to protect the beneficial uses, the permit will be reopened for appropriate modification.

The Regional Board issued a letter on February 21, 2002 that required Borax to monitor for priority pollutants regulated in the CTR. These data were used to perform the RPA and are summarized in Attachment A.

Based on the RPA, six constituents had reasonable potential to exceed WQBELs. The six constituents are 4,4-DDT, alpha-BHC, beta-BHC, copper, lead, and zinc. Effluent limitations for these constituents were calculated and are included in the attached Order.

(b) Calculating WQBELs

If a reasonable potential exists to exceed applicable water quality criteria or objectives, then a WQBEL must be established in accordance with one of three procedures contained in Section 1.4 of the SIP. These procedures include:

1) If applicable and available, use of the wasteload allocation (WLA) established as part of a total maximum daily load (TMDL).

2) Use of a steady-state model to derive maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).

3) Where sufficient effluent and receiving water data exist, use of a dynamic model, which has been approved by the Regional Board.

Attachment A includes the results of the Reasonable Potential Assessment, and the WQBELs Calculation Summary for the discharges from the Wilmington Refinery. The analysis was completed using the California Permit Writer and Training Tool and the data submitted by the Discharger.

(c) Impaired Water Bodies in 303 (d) List

Section 303(d) of the CWA requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. For all 303(d)-listed water bodies and pollutants, the Regional Board plans to develop and adopt TMDLs that will specify WLAs for point sources and load allocations (LAs) for non-point sources, as appropriate.

The USEPA has approved the State's 303(d) list of impaired water bodies. Certain receiving waters in the Los Angeles and Ventura County watersheds do not fully support beneficial uses and therefore have been classified as impaired on the 1998 303(d) list and have been scheduled for TMDL development.

The Los Angeles/Long Beach Harbors are located in the southern portion of the Los Angeles Basin in the greater San Pedro Bay. These Harbors receive discharges from highly industrialized areas. The 1998 State Board's California 303(d) List classifies the Los Angeles Inner Harbor, and several water bodies, within the Harbor as impaired. These water bodies include: Consolidated Slip, Southwest Slip, a portion of Main Channel, Fish Harbor, Cabrillo Pier, and the breakwater. The pollutants of concern, detected in the water column, in the sediment, and in the fish tissue, include: copper, lead, ammonia, coliform, chromium, zinc, DDT, PAHs, sediment toxicity, aldrin, benthic community effects, Chem A [refers to the sum of aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, HCH (including lindane), endosulfan, and toxaphene], chlordane, PCBs, and tributyltin.

(d) Whole Effluent Toxicity

Whole Effluent Toxicity (WET) protects the 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 measures mortality, reproduction, and growth.

The Basin Plan specifies a narrative objective for toxicity, requiring that all waters be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alterations in population, community ecology, or receiving water biota. The existing permit contains acute toxicity limitations and monitoring requirements. As mentioned previously, for the period from May 2000 through February 2001, the Discharger did not achieve the 90% survival rate in three consecutive quarterly analyses at Discharge Serial No. 003, however these results were attributed to a fresh water test species (flathead minnow, Pimephales promelas). On November 15, 2001 the Regional Board modified the acute toxicity testing requirements by replacing the test species with topsmelt, Antherinops affinis. Following the change in test species, the facility has maintained compliance with all acute toxicity requirements.

In accordance with the Basin Plan, acute toxicity limitations dictate that the average survival in undiluted effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival. Consistent with Basin Plan and existing permit requirements, this Order includes acute toxicity limitations.

In addition to the Basin Plan requirements, Section 4 of the SIP states that a chronic toxicity effluent limitation is required in permits for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters.

The discharges from the facility occur continuously and could contribute to long-term toxic effects. However, no chronic toxicity data is available for the discharge. Therefore, the Discharger will be required to conduct chronic toxicity testing in order to determine reasonable potential and establish WQBELs as necessary. In addition, the Order includes a chronic testing trigger hereby defined as an exceedance of 1.0 toxic units chronic (TU_c) in a critical life stage test for 100% effluent. (The monthly median for chronic toxicity of 100% effluent shall not exceed 1.0 TU_c in a critical life stage test.)

If the chronic toxicity of the effluent exceeds 1.0 TU_c, the Discharger will be required to immediately implement accelerated chronic toxicity testing according to Monitoring and

Reporting Program, Item IV.D.1. If the results of two of the six accelerated tests exceed 1.0 TU_c, the Discharger shall initiate a toxicity identification evaluation (TIE).

4. Specific Rationale for Each Numerical Effluent Limitation

Section 402(o) of the Clean Water Act and 40 CFR 122.44(l) require that effluent limitations standards or conditions in reissued permits be at least as stringent as those in the existing permit. The Regional Board has determined that reasonable potential exists for six priority pollutants based on CTR and the implementation of SIP. These constituents along with several other conventional pollutants routinely included in all individual NPDES permits have been included in the Order. The requirements in the proposed Order for residual chlorine, temperature, and pH (shown in the table below) are based on limits specified in Borax's existing permit.

Effluent limitations are established in this Order that are applicable to single-pass, non-contact cooling seawater to the NPDES Discharge Serial No. 009 at Berth 166, Slip 1 of the Los Angeles Inner Harbor (Latitude 33°45'28", Longitude 118°16'02").

Constituent	Discharge Limitations				Rationale
	Monthly Average		Daily Maximum		
	Concentration	Mass	Concentration	Mass	
pH (standard units)	--	--	6.5 – 8.5	--	BP
Temperature	--	--	86[3]	--	BPJ
Total suspended solids (mg/L)	50	901	75	1,351	BPJ
Turbidity (NTU)	50	--	75	--	BPJ
Settleable solids (ml/L)	0.1	--	0.3	--	BPJ
$BOD_5 20^oC$ (mg/L)	20	360	30	540	BPJ
Oil and Grease (mg/L)	10	180	15	270	BPJ
Phenols (mg/L)	--	--	1	18	BPJ
Total residual chorine (mg/L)	--	--	0.1	1.8	E
4-4-DDT(μg/L)	0.00059	0.01	0.0012	0.02	CTR
Alpha-BHC (μg/L)	0.013	0.23	0.026	0.47	CTR
Beta-BHC (μg/L)	0.05	0.9	0.09	1.6	CTR
Copper (μg/L)	2.4	43	4.8	77.5	CTR
Lead (μg/L)	6.6	119	13.3	240	C TR
Zinc (μg/L)	45	811	90	1,621	CTR

[1] BP = Basin Plan, E = Existing Permit, BPJ = Best Professional Judgment, CTR= California Toxics Rule.
[2] The mass-based effluent limitations are based on a maximum discharge flow rate of 2.16 mgd.
[3] The limit from the Thermal Plan reads "Elevated temperature waste discharges shall comply with limitations necessary to assure protection of the beneficial uses." BPJ was used to establish the more stringent temperature limit (from 100°F to 86°F) for discharges into the Los Angeles Inner Harbor.

5. Compliance Schedule

A comparison between the MEC and calculated AMEL and MDEL values shows that the Discharger will be unable to consistently comply with effluent limitations established in the proposed Order for the following constituents: copper and DDT. As a result, the proposed

Order contains interim limits and a compliance schedule for submitting progress reports and complying with the final effluent limitation by September 11, 2006.

40 CFR 131.38(e) and SIP provides conditions under which interim effluent limits and a compliance schedule may be issued. The SIP does allow inclusion of interim limits with specific compliance schedules included in a NPDES permit for priority pollutants if the limits for the priority pollutants are CTR-based. Since the WQBELs for copper and DDT are not feasible for the Discharger, interim limits for these analytes are contained in this Order.

The SIP requires that the Regional Board establish other interim requirements such as requiring the discharger to develop a pollutant minimization plan and/or source control measures. Those requirements are outlined in the Order.

Pursuant to the SIP (Section 2.2.1, Interim Requirements under a Compliance Schedule), when compliance schedules are established in an Order, interim limitations must be included based on current treatment facility performance, existing permit limitations or the maximum detected effluent limitation, whichever is more stringent. The current US Borax permit does not include effluent limits for copper or DDT. Five samples have been collected for both of these constituents. The Discharger has concerns that future samples may yield higher results and proposed the interim limits of 15 and 0.03 μg/L respectively for copper and DDT. No interim monthly average effluent limits have been proposed for these two constituents.

Interim Effluent Limitations. From the effective date of this Order until September 11, 2006 the discharge of an effluent in excess of the following limitations is prohibited:

	Discharge Limitations			
	Daily Maximum		**Monthly Average**	
Constituents	**Concentration (μg/L)**	**Mass[1] (lbs/day)**	**Concentration (μg/L)**	**Mass[1] (lbs/day)**
Copper[2]	15	0.27	---	---
DDT	0.03	0.0005	---	---

[1] The mass-based effluent limitations are based on a flow rate of 2.16 mgd for daily maximum. There are no monthly average limits prescribed.
[2] Discharge limitation expressed as total recoverable.

6. Monitoring Requirements

For regulated parameters, the previous permit required daily monitoring of total waste flow, temperature, and residual chlorine. Weekly monitoring was required for pH. In addition, quarterly monitoring for acute toxicity was required under the previous permit. The Regional Board also issued a Water Code Section 13267 letter on February 21, 2002 that required U.S. Borax to monitor for priority pollutants regulated in the CTR, and submit the data by April 15, 2003. The data requested has been submitted.

(a) Effluent Monitoring

To demonstrate compliance with effluent limitations established in the permit, daily monitoring of total waste flow, temperature, and residual chlorine, and weekly monitoring for pH is required. In addition, this Order carries over the quarterly monitoring requirement for acute toxicity.

This Order also includes quarterly monitoring for 4,4-DDT, alpha-BHC, beta-BHC, copper, lead, and zinc which are the constituents with reasonable potential; and other conventional pollutants including total suspended solids (TSS), turbidity, settleable solids, $BOD_5 20^oC$, sulfides, oil and grease, and phenols. Quarterly monitoring for chronic toxicity and annual monitoring for priority pollutants are also required.

***(b)* Receiving Water Monitoring**

U.S. Borax will be required to perform general observations of the receiving water when discharges occur and report the observations in the quarterly monitoring report. The Regional Board in assessing potential impacts of future discharges will use data from these observations. If no discharge occurred during the monitoring period, a report shall be submitted indicating that no discharge has occurred.

***(c)* Storm Water Monitoring**

The facility has filed a Notice of Intent and is subject to the requirements of the General Permit for Storm Water Discharges Associated with Industrial Activity [State Water Resources Control Board (State Board) Order No. 97-03-DWQ, NPDES Permit No. CAS000001].