

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
NORTHROP GRUMMAN SPACE AND MISSION SYSTEMS CORP.
(FORMERLY TRW INC.)
(BENCHMARK FACILITY)
NPDES Permit No.: CA0064114
Public Notice No.: 04-048

FACILITY ADDRESS

Northrop Grumman Space and Mission
Systems Corp
200 S. Turnbull Canyon Road
City of Industry, CA 91749

FACILITY MAILING ADDRESS

Northrop Grumman Space and Mission
Systems Corp
1840 Century Park East, 128/CC
Los Angeles, CA 90067
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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

To be fully responded to by staff and considered by the Regional Board, written comments should be received at the Regional Board offices by 5:00 p.m. on October 15, 2004.

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: November 4, 2004
Time: 9:00 a.m.
Location: Metropolitan Water District of Southern California, Board Room
700 North Alameda Street, Los Angeles, California.

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/rwqcb4 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 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

Northrop Grumman Space and Mission Systems Corp (hereinafter Northrop or Discharger) discharges treated groundwater from their Benchmark Facility (Facility) to a storm drain, which then conveys wastewater to San Jose Creek, a water of the United States. Wastes discharged from Northrop are regulated by WDRs and NPDES permit contained in Board Order No. 97-057 (NPDES Permit No. CA0064114). Order No. 97-057 expired on April 10, 2002.

Northrop filed a Report of Waste Discharge and applied for renewal of its WDRs and NPDES permit on November 29, 2001. The tentative Order is the reissuance of the WDRs and NPDES permit for discharges from Northrop. An NPDES permit compliance evaluation inspection (CEI) was conducted on March 26, 2004 that also served as a permitting site visit to observe operations and collect additional data to develop permit limitations and conditions.

II. Description of Facility and Waste Discharge

Effective December 18, 2002, the name of "TRW, Inc." was changed to Northrop Grumman Space and Mission Systems Corporation.

Northrop is the owner and operator of a site located at 200 S. Turnbull Canyon Road in the City of Industry, California. The Discharger formerly operated a manufacturing facility for printed circuit boards at the location from 1955 until its closure in 1989. Northrop owned and operated the Facility from 1968 to 1983. During this time, various industrial solvents were used, stored, and regenerated at the site. Chlorinated solvents and other chemicals were used as part of the manufacturing process. During the routine handling of these chemicals, accidental spills and leaks occurred. In 1990 and 1991, the buildings on the site were demolished and soil impacted by high levels of volatile organic compounds (VOCs) and metals was excavated. Pursuant to Cleanup and Abatement Order No. 89-034, Northrop is currently conducting groundwater remediation at the site for VOCs and 1,4-Dioxane. In 1995 the groundwater treatment facility was installed. The site is currently used as a warehousing facility for a furniture wholesaler.

The groundwater treatment system includes ten groundwater extraction wells. Also, purge water from all sampled wells is treated during the process. A permit compliance inspection conducted on March 26, 2004, revealed that the facility operates on an alternate monthly (one month on/one month off) schedule. Each extraction well is connected to a pipe manifold

in the treatment area. The extracted groundwater from the wells is pumped through an oxidation system that utilizes ozone and hydrogen peroxide for the treatment of 1,4-dioxane and VOCs and is then routed through an air stripper. The treated water can be pumped through a liquid-phase carbon adsorption vessel and ion exchange unit as tertiary treatment for VOC removal if additional treatment is required. This additional treatment step is not a common practice and has not occurred within the last five years of operation. The treated groundwater is discharged to a storm drain that discharges to San Jose Creek.

Northrop proposes to discharge up to 216,000 gpd of treated groundwater from the cleanup of VOCs and 1,4-dioxane, to a storm drain (Discharge Serial No. 001) that flows into the San Jose Creek.

Regional Board Order No. 97-057 permitted discharge up to 72,000 gpd of treated groundwater. The Facility is projected to increase the discharge to 216,000 gpd. The Facility is a component of the Puente Valley Operable Unit, within the San Gabriel Valley Groundwater Regional Cleanup.

Northrop discharges treated groundwater produced from the cleanup of VOCs and 1,4-dioxane into a storm drain, Discharge Serial No. 001, (Latitude 34° 01' 15" and Longitude 117° 58' 20"). The treated groundwater flows through the storm drain to the San Jose Creek, a water of the United States, and a tributary to San Gabriel River.

Northrop in an agreement with United States Environmental Protection Agency (U.S. EPA) has consented to clean up a portion of the shallow groundwater in the City of Industry. Up to five additional groundwater wells will be treated for volatile organic compounds and 1,4-dioxane. The new wells that have high background concentration of selenium will start operating in two years.

The Regional Board and the U.S. EPA have classified the Northrop Facility as a minor discharge.

The data submitted by the Discharger in form 2E of the NPDES permit application has been summarized in the following Table:

Constituent (units)	Maximum Daily Value	Average Daily Value
Discharge flow (gpd)	29,000	11,320
pH (S.U.)	8.5	8.18 – 8.5
Temperature (°C)	20.1 (winter) 25.6 (summer)	Not Applicable
Biochemical oxygen demand (mg/L)	4	4
Total suspended solids (mg/L)	<75	<75

Constituent (units)	Maximum Daily Value	Average Daily Value
Oil and grease (mg/L)	<15	<15

Discharge Monitoring Reports (DMRs) submitted to the Regional Board, were available for the period from 1997 through 2003. The available DMR data are summarized in the following Table:

Constituent (units)	Daily Maximum Effluent Limits	Range of Reported Values
Flow (gpd)	72,000	0 – 69,120
Temperature. (° F)	100	62.7– 76.6
pH (S.U.)	6.0 – 9.0	8.0 – 8.45
Oil and grease (mg/L)	15	<1 - <15 ¹
Oil and grease (lbs/d)	9.01	-
Total dissolved solids (mg/L)	-	430 – 1,050
Turbidity (NTU)	75	0.4 – 0.7 ²
Settleable solids (ml/L)	0.3	<0.03 - <0.3 ¹
Suspended solids (mg/L)	75	<5 - <75 ¹
Suspended solids (lbs/d)	45.04	-
BOD ₅ 20°C (mg/L)	30	<1 – 12 ³
BOD ₅ 20°C (lbs/d)	18.01	-
Sulfate (mg/L)	300	82 - 275
Chloride (mg/L)	150	32 - 140
Nitrate-N plus Nitrite N (mg/L)	-	2.7 – 12.6
Benzene (µg/L)	1.0	<1
Toluene (µg/L)	10.0	<10
Ethylbenzene (µg/L)	10.0	<0.5 - <10 ¹
Total xylene (µg/L)	10.0	<1.5 - <10 ¹
Carbon tetrachloride (µg/L)	0.5	<0.5 - <1 ¹
1,1,1-Trichloroethane (µg/L)	200	1 – 200 ⁴
Trichloroethylene (µg/L)	5.0	0.5 - <5 ¹
Tetrachloroethylene (µg/L)	5.0	<0.5 - 0.7 ⁵
1,4-Dichlorobenzene (µg/L)	5.0	<0.5 - <5 ¹
1,1-Dichloroethane (µg/L)	5.0	<0.5 - <5 ¹
1,2-Dichloroethane (µg/L)	0.5	<0.5 - <1 ¹
1,1-Dichloroethylene (µg/L)	6.0	<0.5 - <6 ¹
Vinyl chloride (µg/L)	0.5	<0.5 - <1 ¹
Acrolein (µg/L)	-	<5 - <100 ¹
Acrylonitrile (µg/L)	-	<1 - <50 ¹
Chlorobenzene (µg/L)	-	<0.05 - <1 ¹

Constituent (units)	Daily Maximum Effluent Limits	Range of Reported Values
Chloroform (µg/L)	-	<0.05 - <1 ¹
Trans-1,2-Dichloroethene (µg/L)	-	<0.5
1,2-Dichloropropane (µg/L)	-	<0.5
Trans-1,3-Dichloropropylene (µg/L)	-	<0.5 - <1 ¹
Methylene chloride (µg/L)	-	<0.5 - 27 ⁶
Methyl chloride (µg/L)	-	<0.5 - <1 ¹
Methyl bromide (µg/L)	-	<0.5 - <1 ¹
Bromoform (µg/L)	-	<0.5 - <1 ¹
Dichlorobromomethane (µg/L)	-	<0.5 - <1 ¹
Chlorodibromomethane (µg/L)	-	<0.5 - <1 ¹
1,1,2-Trichloroethane (µg/L)	-	0.5 - 1.6 ⁵
1,1,2,2-Tetrachloroethane (µg/L)	-	<1
Chloroethane (µg/L)	-	<0.5
2-Chloroethyl vinyl ether (µg/L)	-	<0.5 - <5000 ¹
Antimony (µg/L)	-	<100
Arsenic (µg/L)	50	<50
Beryllium (µg/L)	-	<5 - <100 ¹
Cadmium (µg/L)	10	<5
Chromium (µg/L)	50	<10 - <50 ¹
Copper (µg/L)	1,000	<10 - <1000 ¹
Lead (µg/L)	50	<10 - <15 ¹
Mercury (µg/L)	2	<0.2 - <2 ¹
Nickel (µg/L)	-	<20 - <100 ¹
Selenium (µg/L)	10	<10 - 26
Silver (µg/L)	50	<5 - <50 ¹
Thallium (µg/L)	-	<200 - <500 ¹
Zinc (µg/L)	5,000	<10 - <5000 ¹
Acute Toxicity (% survival)	⁶	100

¹ The detection limits varied between these two values for the effluent data submitted to the Regional Board.

² Non-detected values of <1 were also reported.

³ Non-detected values up to <20 were also reported.

⁴ Non-detected values up to <200 were also reported.

⁵ Non-detected values up to <5 were also reported.

⁶ Non-detected values up to <50 were also reported.

Data submitted to the Regional Board by the Discharger indicate that the Discharger has exceeded Water Quality Objectives established in the Basin Plan for TDS and Nitrate (as Nitrate-N plus Nitrite N). The Basin Plan establishes effluent limits for TDS and Nitrate (as Nitrate-N plus Nitrite N) at 750 mg/L and 10 mg/L, respectively. The Discharger has reported values for TDS and Nitrite (as Nitrate-N plus Nitrite N) of 1,050 mg/L and 12.6 mg/L, respectively. However, the existing permit does not contain limits for these constituents. Further, a review of the data indicate the Discharger has exceeded the maximum daily effluent limitation for selenium of 10 µg/L, once, at 26 µg/L (August 1998).

Discharge Monitoring Reports indicate that the Facility did not discharge effluent from the 2nd reporting period of 2000 through the 4th quarter of 2000 due to the addition of the advanced oxidation system to treat the groundwater for 1,4-dioxane.

The following is a summary of the reported detected values of the CTR sampling requirement; all other constituents were reported below detectable levels.

Constituent (µg/L)	Range of Reported Values
Beryllium	0.65 ¹
Chromium (III)	5.1 – 15
Copper	8.3 – 69
Nickel	3.5 – 30
Selenium	6.9 ¹
Silver	4.3 – 31
Zinc	26 – 320
Bromoform	0.8 ¹
1,2-Dichloroethane	0.81 ¹
1,1,1-Trichloroethane	0.91 – 1.8
1,1,2-Trichloroethane	0.7 ¹
Bis(2-Ethylhexyl)Phthalate	1.2 ¹
Di-n-Octyl phthalate	2 ¹
Endrin aldehyde	0.024 ¹

¹ Only one sample was detected.

Northrop discussed the usage of treated groundwater for irrigation with Suburban Water System, City of Industry, and San Gabriel Valley Water Company (potable water supplier). None of the entities have the capacity to take the treated groundwater for reclamation. Northrop intends to keep pursuing the reuse option.

Northrop is actively pursuing the option of discharging the treated groundwater to the municipal sanitary sewer of the County Sanitation Districts of Los Angeles County (CSDLAC). After obtaining the industrial discharge permit from CSDLAC, Northrop plan to request recession of the NPDES permit.

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 NORTHROP.
3. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (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 San Jose Creek.

Existing Uses: wildlife habitat

Intermittent Uses: non-contact water recreation, groundwater recharge, warm freshwater habitat

Potential Uses: municipal and domestic supply*, water contact recreation

4. Ammonia Basin Plan Amendment. The 1994 Basin Plan provided water quality objectives for ammonia to protect aquatic life, in Tables 3-1 through Tables 3-4. However, those ammonia objectives were revised on April 25, 2002, by the Regional Board with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (Including Enclosed Bays, Estuaries and Wetlands) with Beneficial Use Designations for Protection of Aquatic Life*. The ammonia Basin Plan amendment was approved by the State Board, the Office of Administrative Law, and U.S. EPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively. Although

the revised ammonia water quality objectives may be less stringent than those contained in the 1994 Basin Plan, they are still protective of aquatic life and are consistent with U.S. EPA's 1999 ammonia criteria update.

5. 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 temperature objectives for inland surface waters.
6. On May 18, 2000, the U.S. Environmental Protection Agency (U.S. EPA) 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, U.S. EPA 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 allows for 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 effluent limitations derived from the CTR criteria.
7. 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 U.S. EPA 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 U.S. EPA 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 U.S. EPA through the CTR. The SIP requires the dischargers' submittal of data sufficient to conduct the determination of priority pollutants requiring water quality-based effluent limits (WQBELs) and to calculate the effluent limitations. The CTR criteria for freshwater 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 the San Jose Creek.
8. 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 U.S. EPA criteria and supplemented, where necessary, by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses.

9. 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 sections 402(o) and 303(d)(4) 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.
10. On October 8, 1997, the State of California then Governor, Pete Wilson, signed Assembly Bill 592. Assembly Bill 592 requires the State of California, Department of Health Services (DHS) to adopt primary and secondary drinking water standards for MTBE. In January 1999, the DHS adopted 5 µg/L as the secondary standard for MTBE based on taste and odor threshold. In April 2000, the DHS adopted 13 µg/L as the primary Maximum Contaminant Level (MCL) for MTBE. This order includes a revised effluent limitation for MTBE of 13 µg/L.
11. Tertiary Butyl Alcohol (TBA) is a gasoline constituent, an impurity in commercial-grade MTBE, and/or a breakdown product of MTBE. In 1999, California's Office of Environmental Health Hazard Assessment (OEHHA) conducted an interim assessment based on preliminary calculations of the carcinogenicity of TBA, concluding that exposures to TBA via the oral route represent a one in a million excess cancer risk or 12 µg/L. Based on this assessment, OEHHA has set an Action Level for TBA at 12 µg/L.
12. The California Department of Health Services (DHS) establishes Action Levels (AL), or health-based advisory levels for chemicals in drinking water that lack maximum contaminant levels (MCLs). The Public Health Goal (PHG) for perchlorate was developed by Office of Environmental Health Hazard Assessment based on contemporary health risk assessment. This new information was provided to DHS and on March 11, 2004, the AL for perchlorate was set at 6 µg/L. The effluent limit for perchlorate (6 µg/L) is given in this WDR based on the AL value selected by DHS.
13. 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 San Jose Creek.
14. Existing waste discharge requirements contained in Board Order No. 97-057, were adopted by the Regional Board on May 12, 1997. In some cases, permit conditions (effluent limitations and other special conditions) established in the existing waste discharge requirements have been carried over to this permit.
15. 1,4-Dioxane is one of the primary contaminated hazardous substances in the groundwater. The DHS established an AL value of 3 µg/L for 1,4-Dioxane. The effluent

limit for 1,4-Dioxane is given in this WDR based on the AL value selected by DHS.

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:

1. 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.
2. 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.
3. 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.
4. 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 U.S. EPA 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 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.

Effluent limitations for Discharge Serial No. 001 in the previous permit were established for suspended solids, turbidity, settleable solids, sulfate, and chloride because they are parameters typically present in groundwater; therefore, they are expected to be in the discharge of treated groundwater and are considered pollutants of concern. Further, groundwater may contain constituents that contribute oil and grease and to biochemical oxygen demand (BOD₅); therefore, these parameters are considered pollutants of concern in this discharge. Metals (i.e., lead, arsenic, chromium, silver, cadmium, selenium, mercury, copper, and zinc) may be present in groundwater and are thus considered pollutants of concern in this discharge.

Effluent limitations for Discharge Serial No. 001 in the previous permit were established for benzene, toluene, total xylene, ethylbenzene, carbon tetrachloride, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, 1,4-dichlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, and vinyl chloride, because the groundwater was contaminated by historical spills and leaks that released chlorinated solvents and other chemicals used in the manufacturing of printed circuit boards into the groundwater. These constituents may still be present in the untreated groundwater and are therefore considered pollutants of concern.

The groundwater is currently impacted by 1,4-dioxane, a known carcinogen, and it is expected that 1,4-dioxane may be present in the groundwater. Therefore, the Regional Board has determined it to be a pollutant of concern for this discharge.

Treated groundwater has the potential to affect the pH and temperature of the receiving

water body; therefore, effluent limitations for pH and temperature are established in this permit.

2. Technology-Based Effluent Limits

There are currently no national ELGs for groundwater treatment systems. It should be noted that the previous Order stated that the current treatment system is considered to be the best available technology (BAT) economically achievable for the extracted groundwater.

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 U.S. EPA 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. The CTR criteria for freshwater or human health for consumption of organisms, whichever is more stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of the San Jose Creek.

Some water quality criteria are hardness dependent. The Discharger provided hardness data for the receiving water (San Jose Creek) as part of their required CTR monitoring for the period from October 2001 through January 2003; values ranged from 284 mg/L to 600 mg/L as CaCO₃. The hardness value assumed to determine applicable water quality criteria, 284 mg/L as CaCO₃, was collected on November 14, 2001.

a. *Reasonable Potential Analysis (RPA)*

The Regional Board analyzed 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 has 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:

- i. Trigger 1 – If the MEC is greater than or equal to the CTR water quality criteria or applicable objective (C), a limit is needed.
- ii. Trigger 2 – If $MEC < C$ and backgroundwater quality (B) $> C$, a limit is needed.
- iii. 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 RPA was performed for the priority pollutants for which effluent data were available. Data for Discharge Serial No. 001 were provided by the facility for seven samples collected between October 3, 2001 and January 29, 2003. In addition, samples for certain priority pollutants were collected as required by their existing permit and monitoring and reporting program. All these data were used to perform the RPA and are summarized in Attachment A.

Based on the RPA, there is reasonable potential to exceed water quality standards at Discharge Serial No. 001 for copper, silver, and zinc. Thus, effluent limitations and effluent monitoring requirements for copper, silver, and zinc have been established.

Detection levels for selenium were above the water quality criteria and therefore, it is determined the data are not representative of the discharge. The proposed Monitoring and Reporting Program requires the Discharger to achieve the lowest detection levels for laboratory analytical methods.

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:

- i. If applicable and available, use of the wasteload allocation (WLA) established as part of a total maximum daily load (TMDL).
- ii. Use of a steady-state model to derive maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).
- iii. Where sufficient effluent and receiving water data exist, use of a dynamic model which has been approved by the Regional Board.

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 U.S. EPA approved the State's 2002 303(d) list of impaired water bodies on July 25, 2003. 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 2002 303(d) list and have been scheduled for TMDL development.

The 2002 State Board's California 303(d) List classifies the San Jose Creek as impaired. The pollutants of concern include ammonia, algae, and high coliform count.

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 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. Acute toxicity data for the years 2002, 2001, and 1997 were submitted by the facility to the Regional Board. The facility was not in operation the second half of 1998, all of 1999, and all of 2000. All tests resulted in 100 percent survival rates.

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 requirements, this Order includes acute toxicity limitations.

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 re-issued permits are at least as stringent as in the existing permit. Therefore, existing effluent limitations for many of the regulated pollutants are carried over to this permit. The requirements in the proposed Order for conventional and non-conventional pollutants (suspended solids, BOD₅20° C, oil and grease, turbidity, settleable solids, sulfate, chloride, and total xylene) are based on effluent limitations specified in Northrop's existing permit. The effluent limitations for pH and temperature are based on the Basin Plan.

In addition to these limitations, the Regional Board is implementing the CTR and SIP, and additional effluent limitations are required for those regulated pollutants that show reasonable potential to exceed water quality standards. For those that do show reasonable potential and for which existing effluent limitations exist, a comparison between existing permit limitations and CTR-based WQBELs was made and the most stringent limitation included in the Order. Based on the RPA, there is reasonable potential to exceed water quality standards at Discharge Serial No. 001 for copper, selenium, silver, and zinc. For copper, selenium, silver, and zinc the existing permit limitations are less stringent; therefore, the CTR-based WQBELs will be included in this Order. Further, this Order will carry over the maximum daily effluent limitations (MDELs) for benzene, toluene, ethylbenzene, carbon tetrachloride, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, 1,4-dichlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, vinyl chloride, and arsenic

from Order No. 97-057. In addition, WQBELs have been established for cadmium, lead, and mercury. The previous effluent limitations for these parameters exceeded applicable water quality criterion from the CTR. WQBELs have been determined according to the procedures specified in the SIP, and are based on the criteria in the CTR. WQBELs were established assuming a hardness value of 284 mg/L as CaCO₃, sampled on November 14, 2001.

The San Gabriel Valley (Area 4) site is an area of contaminated groundwater that runs along San Jose Creek in La Puente. This site is one of four Superfund sites located in the 170-square-mile San Gabriel Valley. The Northrop Benchmark Facility is located in the San Gabriel Valley (Area 4) superfund area. US E.P.A. will be operating the PVOU (Puente Valley Operable Unit) to treat the VOCs which are the primary hazardous substances of concern. The selected remedy for the PVOU includes extraction, containment and treatment of contaminated groundwater in the shallow and intermediate zones at the mouth of Puente Valley. The selected treatment technology in the Record of Decision (ROD) is air stripping and adsorption of VOCs in the off-gas. Total Dissolved Solids (TDS) and nitrates at some contaminated wells are little higher the Basin Plan requirements. U.S EPA has obtained a waiver for the constituents for discharge from PVOU. Northrop has installed the same treatment technology to clean-up the contaminated groundwater as specified in ROD. No limits for TDS and nitrates are given for the Benchmark Facility.

San Jose Creek is intermittently used for groundwater recharge. There is a potential for MTBE, tertialry butyl alcohol, total petroleum hydrocarbons, and perchlorate to be present in the contaminated groundwater. Limits are given in the WDR for these pollutants based on BPJ and for the protection of the underlying groundwater.

In compliance with 40 CFR §122.45(d), permit limitations shall be expressed, unless impracticable, as both average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs). AMELs for oil and grease, turbidity, settleable solids, suspended solids, and BOD are based on recently Regional Board-adopted orders for groundwater treatment facilities in the Los Angeles Region. Due to the absence of AMELs in the existing permit for the priority pollutants and certain non-conventional pollutants, AMELs were calculated based on the ratios of MDEL:AMEL for those effluent limitations calculated according to the requirements in the CTR (i.e. cadmium, copper, lead, mercury, silver, and zinc). The average of the ratios of MDELs to AMELs for cadmium, copper, lead, mercury, silver, and zinc is 2.01.

1,4-Dioxane is one of the primary contaminated hazardous substance in the groundwater. The DHS established AL value of 3 µg/L for 1,4-Dioxane. The effluent limit for 1,4-Dioxane is given in this WDR based on the AL value selected by DHS.

The following Table presents the effluent limitations and specific rationales for

pollutants that are expected to be present in the discharge:

Constituent (units)	Maximum Daily Discharge Limitations	Average Monthly Discharge Limitations	Rationale ¹
Flow (gpd)	216,000		
PH (s.u.)	6.5 – 8.5 ²		BP
Total suspended solids (mg/L)	75	50	E, BPJ
Oil and grease (mg/L)	15	10	E, BPJ
BOD ₅ @ 20°C (mg/L)	30	20	E, BPJ
Turbidity (NTU)	75	50	E, BPJ
Settleable solids (mg/L)	0.3	0.1	E, BPJ
Sulfate (mg/L)	300		E
Chloride (mg/L)	150		E
Benzene (µg/L)	1.0	--	E
Toluene (µg/L)	10	--	E
Total xylene (µg/L)	10	--	E
Ethylbenzene (µg/L)	10	--	E
Carbon Tetrachloride (µg/L)	0.5	--	E
1,1,1-Trichloroethane (µg/L)	200	--	E
Trichloroethylene (µg/L)	5	--	E
Tetrachloroethylene (µg/L)	5	--	E
1,4-Dichlorobenzene (µg/L)	5	--	E
1,1-Dichloroethane (µg/L)	5	--	E
1,2-Dichloroethane (µg/L)	0.5	--	E
1,1-Dichloroethylene (µg/L)	6	--	E
Vinyl Chloride (µg/L)	0.5	--	E
Arsenic ³ (µg/L)	50	--	E

Constituent (units)	Maximum Daily Discharge Limitations	Average Monthly Discharge Limitations	Rationale ¹
Cadmium ³ (µg/L)	9.18	4.58	CTR, SIP
Total Chromium (µg/L)	50	--	E
Copper ³ (µg/L)	37.4	18.6	CTR, SIP
Lead ³ (µg/L)	19.7	9.8	CTR, SIP
Mercury ³ (µg/L)	0.102	0.051	CTR, SIP
Selenium ³ (µg/L)	8.2	4.1	CTR, SIP
Silver ³ (µg/L)	24.4	12.2	CTR, SIP
Zinc ³ (µg/L)	290.14	144.64	CTR, SIP
1,4-Dioxane (µg/L)	3	--	BPJ
Total petroleum hydrocarbons (µg/L)	100		BPJ
Perchlorate (µg/L)	6		BPJ
Methyl tertiary butyl ether (MTBE) (µg/L)	13		BPJ
Tertiary butyl alcohol (µg/L)	12		BPJ
Acute Toxicity	⁴		BP

1 BP – Basin Plan; CTR – California Toxic Rule, SIP – State Implementation Policy, E - Existing permit limit; BPJ – Best Professional Judgment.

2 The pH must remain within this range at all times.

3. Effluent limitations for these metals are expressed as total recoverable.

4. For any three consecutive 96-hour static or continuous flow bioassay tests must be at least 90%, with no single test producing less than 70% survival (more information can be found in Section I.B.3.a. of the tentative permit.)

5. Compliance Schedule

Based on effluent monitoring data submitted by the Discharger, a comparison between the MEC and calculated AMEL values shows that the Discharger may be unable to consistently comply with effluent limitations established in the proposed Order for copper, selenium, silver, and zinc. Hence, interim limits have been prescribed for these

constituents. As a result, the proposed Order contains a compliance schedule that allows the Discharger to comply with the revised effluent limitations. Within one year after the effective date of the Order, the Discharger must prepare and submit a compliance plan that describes the steps that will be taken to ensure compliance with applicable limitations.

40 CFR §131.38(e) provides conditions under which interim effluent limits and compliance schedules may be issued. The SIP allows inclusion of an interim limit with a specific compliance schedule included in a NPDES permit for priority pollutants if the limit for the priority pollutant is CTR-based. Because the CTR-based effluent limitations for copper, selenium, silver, and zinc appear infeasible for the Discharger to achieve at this time, interim limitations 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 and participate in the activities necessary to achieve the final effluent limitations. These interim limitations shall be effective until November 30, 2007, for copper, silver, and zinc and October 10, 2009, for selenium after which, the Discharger shall demonstrate compliance with the final effluent limitations.

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 or existing permit limitations, whichever is more stringent to maintain existing water quality. Order No. 97-057 contains effluent limitations for copper, selenium, silver, and zinc. There are insufficient data to conduct a statistical analysis to develop an interim effluent limitation for copper, selenium, silver, and zinc; therefore the MEC will serve as the interim effluent limit concentration for these constituents. It should be noted that the Board might take appropriate enforcement actions if interim limitations and requirements are not met.

Interim Effluent Limitations for Copper, Silver, and Zinc: From the effective date of the Order until November 30, 2007, the discharge of an effluent in excess of the following limitations is prohibited:

Constituents	Daily Maximum Concentration (µg/L) ²
Copper ¹	69
Silver ¹	31
Zinc ¹	320

¹ Discharge limitations for these metals are expressed as total recoverable.

² Limits are based on maximum effluent concentration (MEC).

Interim Effluent Limitations for Selenium: From the effective date of the Order until October 10, 2009, the discharge of an effluent in excess of the following limitations is prohibited:

Constituents	Daily Maximum Concentration (µg/L)
Selenium ¹	27 ²

¹ Discharge limitations for these metals are expressed as total recoverable

² The Discharger has not consistently met the existing selenium limitation. New wells that will start operating in two years have high background concentration of selenium. Limit is based on MEC in the new wells.

The Discharger will be required to develop and implement a compliance plan that will identify the measures that will be taken to reduce the concentrations of copper, selenium, silver, and zinc in their discharge. This plan should evaluate options to achieve compliance with the revised permit limitations for copper, selenium, silver, and zinc. These options can include, for example, evaluating and updating available treatment unit processes, upgrading the system if necessary, and maintaining proper operation and maintenance of the treatment system.

6. Monitoring Requirements

Monitoring requirements are discussed in greater detail in Section III of the Monitoring and Reporting Program No. 7531. As described in the Monitoring and Reporting Program, monitoring reports must be submitted quarterly.

a. Effluent Monitoring

To demonstrate compliance with effluent limitations established in the permit, and to assess the impact of the discharge on the beneficial uses of the receiving waters, this Order requires the Discharger to monitor conventional and priority pollutants. Monitoring for acute toxicity is required annually.

b. Receiving Water Monitoring Requirements

To conduct the RPA, receiving water monitoring data is required. The receiving water monitoring of priority pollutants shall be conducted for the first two years on an annual basis. The two time annual monitoring of the receiving water shall be

conducted at the same time as annual effluent monitoring of priority pollutants. Receiving water monitoring stations shall be located within 50 feet upstream from, or near, the discharge point (of storm drain) into Receiving Water.

c. Monitoring for TCDD Equivalents

The Regional Board is requiring, as part of the Monitoring and Reporting Program, that the Discharger conduct effluent/receiving water monitoring for the presence of the 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD or Dioxin) congeners. The monitoring shall be a grab sample with a minimum frequency of once during dry weather and once during wet weather in the first year after adoption of the permit. Compliance with the dioxin limitation shall be determined by the summation of the 17 individual TEQs.