PERMIT/ORDER
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

FACILITY AND ORDER INFORMATION

The following owner/operator shall comply with the Waste Discharge Requirements set forth in this Order:

Site Owner/Operator	Southern California Edison Company
Name of Facility	San Onofre Nuclear Generating Station, Unit 3
Facility Address	5000 Pacific Coast Highway
	San Clemente, CA 92672
	San Diego County
Mailing Address	P.O. Box 128 (W-44)
	San Clemente, CA 92674-0128

The owner/operator discharges wastes from the following outfalls as set forth below:

Outfall	Description	Latitude	Longitude	Receiving Water Body
003	SONGS Unit 3 Combined Discharge	33º 20' 55.84" north	117º 34' 13.5" west	Pacific Ocean
004	Fish Return System Discharge	33º 21' 50" north	117º 33' 31" west	Pacific Ocean
005	Across-the-Beach Discharge	33º 22' 0" north	117º 33' 21" west	Pacific Ocean

In addition to the outfalls to the Pacific Ocean, described above, this Order establishes effluent limitations and monitoring requirements for the following internal outfalls:

Internal Outfall	Description
	Cooling Water and Other Wastestreams Routed from Unit 1 to the 003 Outfall
001	Cooling Water Flows
001-A	Unit 1 Sewage Treatment Plant
001-B	Mesa Complex Sewage Treatment Plant
001-C	Metal Cleaning Wastes
001-D	Radwaste System
001-E	Plant Drains
001-F	Yard Drains
001-G	Dewatering
	In-Plant Wastestreams Routed from Unit 3 to the 003 Outfall
003-A	Chemical Metal Cleaning Wastes (Steam Generator)
003-B	Non-Chemical Metal Cleaning Wastes (Steam Generator and Feedwater Piping Sludge Lancing)
003-C	Blowdown Processing
003-D	Makeup Demineralizer
003-E	Radwaste System
003-F	Polishing Demineralizer System
003-G	Steam Generator Blowdown
003-H	Hotwell Overboard
003-I	Plant Drains
003-J	Intake Structure Sump
003-K	Thermophilic Digester
003-L	Concrete Cutting Water

This Order/Permit was adopted by the Regional Board on:	March 9, 2005
This Order/Permit shall become effective on:	March 19, 2005
This Order/Permit shall expire on:	March 9, 2010
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Board have classified this discharge as a **major** discharge.	
The Discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that Order No. 99-48 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA, and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements herein.

I, John H. Robertus, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Water Resources Control Board, San Diego Region, on March 9, 2005.

TENTATIVE
JOHN H. ROBERTUS
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

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Attachment B – SONGS Unit 3 Wastewater Flow Schematic

Attachment C – State and Federal Standard Provisions

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Attachment G – Time-Temperature Mortality Curve for the Bay Mussel

I. PERMIT FINDINGS

The California Regional Water Quality Control Board, San Diego Region (hereinafter the Regional Board), finds:

A. **Facility Description and Background**. The San Onofre Nuclear Generating Station (SONGS) is a nuclear-fueled electric power generating facility located within the boundaries of Camp Pendleton, a United States Marine Corps Base. SONGS Unit 1 is owned by the Southern California Edison Company (SCE) and San Diego Gas and Electric (SDG&E) and is operated solely by SCE (the Discharger). SONGS Unit 3 is owned by SCE, SDG&E, and the cities of Anaheim and Riverside, and is operated solely by the Discharger. Unit 3 began commercial operation in 1984 and has a generating capacity of 1,087 megawatts.

On February 17, 2004, the Regional Board received an NPDES Permit Renewal Application from the Discharger for SONGS Unit 3. In response to a letter of March 1, 2004 from the Regional Board requesting clarifications and/or additional information, the Discharger provided supplemental application renewal information that was received by the Regional Board on March 30, 2004. In response to a letter of April 22, 2004 requesting further clarifications and/or additional information, the Discharger provided supplemental information, received by the Regional Board on June 8, 2004, to complete the NPDES permit renewal application for SONGS Unit 3.

A series of large pumps pass 1,219 MGD seawater through the condenser of Unit 3. Upon passage through the condenser, the temperature of seawater increases approximately 20ºF. During this circuit, a number of in-plant waste streams are co-mingled with the cooling water flow. These include regeneration water from water purification systems, wastewater plant effluent, and the waterside of an oil water separator. However, many of the low-volume waste discharges are periodic and only occur during unusual conditions such as maintenance outages. The combined cooling water and low-volume waste discharges (for a total of volume of up to 1,287 mgd) are routed through Outfall 003 for discharge to the Pacific Ocean. The point of discharge through Outfall 003 is latitude 33° 20' 55.84" North, longitude 117° 34' 13.5" West.

SONGS Unit 2, co-located with Unit 3, is covered under a separate NPDES permit (Permit No. CA0108073, Order No. R9-2005-0005). The effluent limitations, provisions, and prohibitions in the NPDES permit for Unit 2 are identical to those for Unit 3.

Unit 1 is currently being decommissioned and does not generate electricity, up to 37 MGD of seawater is utilized at Unit 1 to remove waste heat from the spent fuel pool and to dilute various low-volume waste streams still generated by the plant. SCE also operates a domestic wastewater treatment plant inside the Unit 1 premises. Up to 0.1 mgd of secondarily treated effluent is discharged from the treatment plant. The combined effluent from Unit 1 is currently discharged via an ocean outfall (Outfall 001) to the Pacific Ocean at latitude 33°21'43" north, longitude 117°33'46" west. SONGS Unit 1 is subject to waste discharge requirements established by Order No. 2000-04 (NPDES Permit No. CA0001228, adopted on February 16, 2000), which was preceded by Order No. 95-02 (adopted on February 9, 1995) and Order No. 88-001 (adopted on February 8, 1988). Order No. 2000-04 will expire on February 16, 2005. Currently SCE is permitted to discharge the effluent from Unit 1 to Outfall 001 or route the effluent to the Unit 2 or Unit 3 outfalls (Outfalls 002 or 003). SCE has indicated that it plans

to terminate the use of the Outfall 001 sometime in 2005. At that time all effluent from Unit 1 will be routed to exclusively to Outfalls 002 or 003. The Regional Board has determined that it would be appropriate not to renew the NPDES permit for Unit 1 when it expires on February 2005. Order No. 2000-04 will instead continue to be enforced administratively until such time that the Discharger notifies the Regional Board that it has terminated the use of Outfall 001.

Order No. R9-2005-0006 acknowledges the impending termination of flows from Unit 1 to Outfall 001 and the routing of flows from Unit 1 to Outfall 003. The Order has been structured to account for effluent limitations and monitoring requirements as a result of the potential routing of Unit 1 flows to Outfall 003.

B. **Legal Authorities.** Pursuant to Section 402 of the Federal Clean Water Act (CWA) and Section 13370 of the California Water Code (CWC), the U.S. EPA approved the California state program to issue and enforce National Pollutant Discharge Elimination System (NPDES) permits for pollutant discharges to surface waters of the State. The Regional Board is responsible for implementing the NPDES permit program pursuant to the CWA at the facility regulated under this Order. Pursuant to Section 13263, Article 4, Chapter 4 of the CWC, the Regional Boards are required to issue Waste Discharge Requirements for discharges that could affect the quality of the State's waters. Limitations, prohibitions and provisions of this Order were established pursuant to Sections 208 (b), 257, 258, 301, 302, 303 (d), 304, 306, 307, 316, 403, 405, and/or 503 of the CWA and implementing regulations in Title 40 of the Code of Federal Regulations (40 CFR), including the NPDES program implementing regulations. This Order, including Attachments A - G, which are hereby incorporated into this Order, shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect ten (10) days after its adoption provided the Regional Administrator, U.S. EPA, has no objection.

C. **CEQA.** This action to adopt an NPDES permit is exempt from the requirements of the California Environmental Quality Act (CEQA, Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

D. **Technology-based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR § 122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Effluent Limitations Guidelines and Standards for the *Steam Electric Power Generating Point Source Category* in 40 CFR 423 and/or Best Professional Judgment (BPJ) in accordance with 40 CFR 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment E).

E. **Water Quality-based Effluent Limitations.** Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR § 122.44(d) specifies that WQBELs may be established using U.S. EPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter.

F. **Water Quality Control Plans.** The *Water Quality Control Plan for the San Diego Basin* designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters within the region. The specific legal requirements and detailed rationale for the applicable designated uses and objectives for the receiving water(s) identified in this Order are contained in Attachment E, Fact Sheet, as part of this Order. Requirements of this Order specifically implement the applicable Water Quality Control Plan(s) named below.

Water Quality Control Plan for the San Diego Basin (the Basin Plan, 1994)
Water Quality Control Plan for Ocean Waters of California (the Ocean Plan, 2001)
Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (the Thermal Plan, 1975)

G. **Anti-Degradation Requirements.** CWA regulations require that state water quality standards include an anti-degradation policy consistent with federal policy (40 CFR 131.12). The State Water Resources Control Board (the State Board) established California's anti-degradation policy in State Board Resolution No. 68-16, which incorporates the requirements of the federal anti-degradation policy. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The permitted discharges are consistent with the anti-degradation provision of 40 CFR 131.12 and State Board Resolution No. 68-16.

H. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR § 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

I. **Monitoring and Reporting.** Section 122.48 of 40 CFR requires all NPDES permits to specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the boards to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment D and is hereby incorporated into this Order.

J. **Rationale for Requirements.** The Regional Board developed the requirements in this Order based on information submitted as part of the Report of Waste Discharge, through monitoring and reporting programs, and through special studies. The specific legal requirements and detailed rationale for the requirements contained in this Order are provided in the attached Fact Sheet (Attachment E).

K. **Notification of Interested Parties.** The Regional Board has notified the permittee and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet, Attachment E of this Order.

L. **Consideration of Public Comment.** The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the public hearing are provided in the Fact Sheet, Attachment E of this Order.

II. DISCHARGE PROHIBITIONS

A. Discharge of waste in a manner or to a location that has not been specifically described to the Regional Board or for which valid waste discharge requirements are not in force is prohibited.

B. Discharge of oil or any residuary product of petroleum to waters of the State, except in accordance with waste discharge requirements or other provisions of Division 7 of the CWC, is prohibited.

C. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into the ocean is prohibited.

D. The discharge of polychlorinated biphenyl compounds, such as those commonly used for transformer fluid, is prohibited.

E. The discharge of waste to Areas of Special Biological Significance[1/], as designated by the State Board, is prohibited.

F. The discharge of sludge to the ocean by pipeline is prohibited; the discharge of municipal and industrial waste sludge directly to the ocean or into a waste stream that discharges to the ocean is prohibited. The discharge of sludge digester supernatant directly to the ocean or to a waste stream that discharges to the ocean without further treatment is prohibited.

G. The bypassing of untreated wastes containing concentrations of pollutants in excess of those in Tables A or B of the California Ocean Plan (2001)[2/] is prohibited, except under upset conditions, as described in *State and Federal Standard Provisions – Permit Compliance,* A.8 (see Attachment C of this Order)

H. A discharge flow rate (30-day running average) in excess of the following is prohibited:

SONGS Outfall	**Maximum Discharge, Million Gallons Per Day (mgd)[3/]**
003	1,287

I. Total residual oxidants (chlorine, bromine, or others used for control of fouling within the main condenser cooling system) may not be discharged from Unit 3 for more than a total of two hours per day unless the Discharger demonstrates to the Regional Board that discharge for more than two hours is required for macroinvertebrate control.

J. The discharge of sewage treatment plant effluent from the Unit 1 and/or the Mesa sewage treatment plants, through Outfalls 004 or 005, is prohibited.

III. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Final Effluent Limitations – All Discharges Through Outfalls 003, 004, and 005

The discharge of wastewaters from Outfalls 003, 004, and 005 to the Pacific Ocean shall not exceed the following limitations:

1. The SONGS waste management systems that discharge to the ocean through Outfalls 003, 004, and 005 must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.

2. Waste discharged to the ocean through Outfalls 003, 004, and 005 must be essentially free of:

   a. Material that is floatable or will be come floatable upon discharge.

   b. Settleable material or substances that may form sediments, which will degrade benthic communities or other aquatic life.

   c. Substances, which will accumulate to toxic levels in marine waters, sediments, or biota.

   d. Substances that significantly decrease the natural light to benthic communities and other marine life.

   e. Materials that result in aesthetically undesirable discoloration of the ocean surface.

3. Wastewater must be discharged through Outfalls 003, 004, and 005 in a manner that provides sufficient initial dilution to minimize the concentrations of substances not removed in treatment processes.

4. The location of waste discharges from Outfalls 003, 004, and 005 shall assure that:

   a. Pathogenic organisms and viruses are not present in areas where shellfish are harvested for human consumption or in areas used for swimming or other body contact sports.

   b. Natural water quality conditions are not altered in areas designated as being Areas of Special Biological Significance or areas that existing marine laboratories use as a source of seawater.

   c. Maximum protection is provided to the marine environment.

5. Waste that contains pathogenic organisms or viruses should be discharged from Outfalls 003, 004, and 005 a sufficient distance from shellfishing and water contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided.

Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

6. Sewage sludge shall be handled and disposed of in accordance with applicable federal, state and local laws and guidance, including 40 CFR Parts 257, 258, and 503.

7. Elevated temperature wastes (that are discharged at a temperature higher than the natural temperature of the receiving water) shall comply with all limitations necessary to assure protection of the beneficial uses of the receiving water and Areas of Special Biological Significance.

8. Except for Outfall 005, elevated temperature wastes shall be discharged to the open ocean away from the shoreline to achieve vertical dispersion through the vertical water column.

9. Elevated temperature wastes shall be discharged a sufficient distance from areas of special biological significance to assure the maintenance of natural temperatures in these areas.

10. At all times except during heat treatment operations (see *Heat Treatment Discharge Specifications*, III.I) the maximum temperature of the discharge through Outfall 003 to the ocean shall not exceed the natural temperature of receiving waters by more than 25°F.

11. Discharges through Outfalls 003, 004, and 005 shall be within the pH range of 6.0 to 9.0 at all times.

B. Final Effluent Limitations – Combined Discharges[4/, 5/] Through Outfall 003

Combined discharges through Outfall 003 shall represent all cooling water flows and in-plant wastestreams from Unit 3. Combined discharges through Outfall 003 shall also include cooling water flows, in-plant wastestreams, and treated sewage effluent from Unit 1, when these flows are routed to Outfall 003.

1. The combined discharge of wastewaters from Outfall 003 to the Pacific Ocean shall not exceed the following limitations:

   a. Whole Effluent Toxicity

Constituent	Units	Daily Max.[6/]
Chronic Toxicity	TUc	11

   b. Total Residual Chlorine[7/]

6-Month Median	Daily Max.	Instantaneous Max.
24 µg/L	88 µg/L	176 µg/L

   c. Toxic Pollutants

Limitations For Protection of Marine Aquatic Life

Constituent	Units	Instantaneous Max.[8/]
Arsenic	µg/L	850.
Cadmium	µg/L	110.
Chromium (hexavalent)[9/]	µg/L	220.
Copper	µg/L	310.
Lead	µg/L	220.
Mercury	µg/L	4.4
Nickel	µg/L	550.
Selenium	µg/L	1,700.
Silver	µg/L	75.
Zinc	µg/L	2,100.
Cyanide[10/]	µg/L	110.
Ammonia	µg/L	66,000.
Non-Chlorinated Phenolic Compounds	µg/L	3,300.
Chlorinated Phenolics	µg/L	110.
Endosulfan	µg/L	0.30
Endrin	µg/L	0.066
HCH	µg/L	0.13

d. Residual Heat

At all times except during heat treatment operations, the maximum temperature of the discharge through Outfall 003 to the Pacific Ocean shall not exceed the natural temperature of the receiving water by more than 25º F.

C. Final Effluent Limitations – Combined Low Volume, In-Plant Wastewaters[11/] from Unit 3 (Internal Outfalls 003-C through 003-L) and Unit 1 (Internal Outfalls 001-D through 001-G)

All low volume, in-plant wastewaters from Unit 3 (i.e. Internal Outfalls 003-C through 003-L) shall be composited on a flow-weighted basis. All low-volume, in-plant wastewaters from Unit 1 (Internal Outfalls 001-D through 001-G) shall be included in the composite sample whenever the discharger routes the Unit 1 flows to Outfall 003. The composite sample shall not exceed the following limitations:

[Mass-based limitations for TSS, oil and grease, and toxics are based on a total, maximum low volume wastewater flows of 13.2 mgd. Compliance determination will account for the actual low volume wastewater flow rate on the day of sampling; i.e., the actual limitation shall be determined for the period of sampling in accordance with the following equation:

$L_f = (Q_a / Q_m) L_t$; where

L_f = the final limitation, in lbs/day, used for compliance determination
Q_a = the combined discharge flow rate, in mgd, of all low volume, in-plant, wastewaters from Units 1 and 2 at the time of sampling
Q_m = 13.2 mgd, the maximum possible combined flow of low volume, in-plant, wastewaters for Outfall 003.
L_t = the appropriate, maximum limitation, in lbs/day, shown in the tables below]

1. The pH of all discharges shall be within the range of 6.0 to 9.0.

2. Total Suspended Solids (TSS), and Oil and Grease (O&G)

	30-Day Average[12/]		**Daily Max.[6/]**	
Constituent	**mg/L**	**lbs/day**	**mg/L**	**lbs/day**
TSS	30	3,300	100	11,000
O&G	15	1,700	20	2,200

3. Toxics

Limitations For Protection of Marine Aquatic Life

Constituent	**Units**	**6-Month Median[13/]**	**Daily Max.[6/]**
Arsenic	lbs/day	6.4	35.
Cadmium	lbs/day	1.2	4.8
Chromium (hexavalent)[9/]	lbs/day	2.4	9.7
Copper	lbs/day	1.4	12.
Lead	lbs/day	2.4	9.7
Mercury	lbs/day	0.048	0.19
Nickel	lbs/day	6.1	24.
Selenium	lbs/day	18.	73.
Silver	lbs/day	0.67	3.2
Zinc	lbs/day	15.	88.
Cyanide[10/]	lbs/day	1.2	4.8
Ammonia	lbs/day	730.	2,900.
Non-Chlorinated Phenolic Compounds	lbs/day	36.	145.
Chlorinated Phenolics	lbs/day	1.2	4.8
Endosulfan	lbs/day	0.011	0.022
Endrin	lbs/day	0.0024	0.0048
HCH	lbs/day	0.0048	0.0097

Limitations For Protection of Human Health – Non Carcinogens

Constituent	**Units**	**30-Day Average[12/]**

Limitations For Protection of Human Health – Non Carcinogens

Constituent	Units	30-Day Average[12/]
Acrolein	lbs/day	270.
Antimony	lbs/day	1,500.
Bis (2-chloroethoxy) methane	lbs/day	5.3
Bis (2-chloroisopropyl) ether	lbs/day	1,500.
Chlorobenzene	lbs/day	690.
Chromium (trivalent)	lbs/day	230,000.
Di-n-butyl phthalate	lbs/day	4,200.
Dichlorobenzenes	lbs/day	6,200.
Diethyl phthalate	lbs/day	40,000.
Dimethyl phthalate	lbs/day	1,000,000.
4,6-dinitro-2-methylphenol	lbs/day	270.
2,4-dinitrophenol	lbs/day	4.8
Ethylbenzene	lbs/day	5,000.
Fluoranthene	lbs/day	18.
Hexachlorocyclopentadiene	lbs/day	70.
Nitrobenzene	lbs/day	5.9
Thallium	lbs/day	2.4
Toluene	lbs/day	100,000.
1,1,1-trichloroethane	lbs/day	650,000.
Tributyltin	lbs/day	0.0017

Limitations For Protection of Human Health – Carcinogens

Constituent	Units	30-Day Average[12/]
Acrylonitrile	lbs/day	0.12
Aldrin	lbs/day	0.000027
Benzene	lbs/day	7.1
Benzidine	lbs/day	0.000084
Beryllium	lbs/day	0.040
Bis (2-chloroethyl) ether	lbs/day	0.054
Bis (2-ethylhexyl) phthalate	lbs/day	4.2
Carbon tetrachloride	lbs/day	1.1
Chlordane	lbs/day	0.000028
Chlorodibromomethane	lbs/day	10.
Chloroform	lbs/day	160.
DDT	lbs/day	0.00021
1,4-dichlorobenzene	lbs/day	22.
3,3’-dichlorobenzidine	lbs/day	0.0098
1,2-dichloroethane	lbs/day	34.
1,1-dichloroethylene	lbs/day	1.1
Dichlorobromomethane	lbs/day	7.5

Limitations For Protection of Human Health – Carcinogens

Constituent	Units	30-Day Average[12/]
Dichloromethane	lbs/day	540.
1,3-dichloropropene	lbs/day	11.
Dieldrin	lbs/day	0.000048
2,4-dinitrotoluene	lbs/day	3.1
1,2-diphenylhydrazine	lbs/day	0.19
Halomethanes	lbs/day	160.
Heptachlor	lbs/day	0.000061
Heptachlor epoxide	lbs/day	0.000024
Hexachlorobenzene	lbs/day	0.00025
Hexachlorobutadiene	lbs/day	17.
Hexachloroethane	lbs/day	3.
Isophorone	lbs/day	880.
N-nitrosodimethylamine	lbs/day	8.8
N-nitrosodi-N-propylamine	lbs/day	0.46
N-nitrosodiphenylamine	lbs/day	3.
PAHs	lbs/day	0.011
PCBs	lbs/day	0.000023
TCDD equivalents	lbs/day	0.0000000047
1,1,2,2-tetrachloroethane	lbs/day	2.8
Tetrachloroethylene	lbs/day	2.4
Toxaphene	lbs/day	0.00025
Trichloroethylene	lbs/day	33.
1,1,2-trichloroethane	lbs/day	11.
2,4,6-trichlorophenol	lbs/day	0.35
Vinyl chloride	lbs/day	44.

D. Final Effluent Limitations – Once Through Cooling Discharges[14/] Through Outfall 003

The discharge of once through cooling water from Unit 3 to Outfall 003 shall not exceed the following limitations:

1. Total residual chlorine and/or bromine may not be discharged from SONGS Unit 3 for more than two hours per day unless the Discharger demonstrates to the Regional Board that discharge for more than two hours is required for macroinvertebrate control. The duration of each chlorination cycle shall not exceed 25 minutes.

E. Final Effluent Limitations – Metal Cleaning Discharges[15/](Chemical and Non-Chemical) Through Outfalls 003-A, 003-B, and 001-C

The following effluent limitations (concentration-based and mass-based) shall be applicable to discharges of metal cleaning (chemical and non-chemical) wastewaters from Unit 3 (Internal Outfalls 003-A and 003-B). The effluent limitations in this Section shall also be applicable to Unit 1 metal cleaning wastewaters (Internal Outfall 001-C) whenever the metal cleaning discharges from Unit 1 are routed to Outfall 003:

[Mass-based limitations for TSS, oil and grease, copper and iron in the tables below are based on maximum chemical/non-chemical metal cleaning flows. Compliance determination will account for the actual low volume wastewater flow rate on the day of sampling; i.e., the actual limitation shall be determined for the period of sampling in accordance with the following equation:

$L_f = (Q_a / Q_m) L_t$; where

L_f = the final limitation, in lbs/day, used for compliance determination
Q_a = actual metal cleaning flows (chemical and non-chemical), in mgd, at the time of sampling
Q_m = maximum metal cleaning flows (chemical and non-chemical), in mgd, shown in the tables below
L_t = the appropriate, maximum limitations, in lbs/day, shown in the tables below]

Constituent	Units	30-Day Avg.[12/]	Daily Max.[6/]
TSS	mg/L	30.	100.
O&G	mg/L	15.	20.
Total Copper	mg/L	1.0	1.0
Total Iron	mg/L	1.0	1.0

Outfall Number	Low Volume Source	Flow (mgd)	Units	TSS		Oil/Grease		Copper		Iron	
				30-Day Avg.	Daily Max.	30- Day Avg.	Daily Max.	30-Day Avg.	Daily Max.	30- Day Avg.	Daily Max.
003-A	Unit 3 – Chemical Metal Cleaning	0.20	lbs/day	50.	170.	25.	33.	1.7	1.7	1.7	1.7
003-B	Unit 3 – Non-Chemical Metal Cleaning	0.04	lbs/day	10.	33.	5.0	6.7	0.33	0.33	0.33	0.33
001-C*	Unit 1 – Metal Cleaning	0.08	Ibs/day	20.	67.	10.	13.	0.7	0.7	0.7	0.7

* Effluent limitations for Outfall 001-C are only applicable when metal cleaning wastewater from Unit 1 is routed to Outfall 003.

F. Final Effluent Limitations – Individual, Low Volume, In-Plant, Wastewaters[11/] from Unit 3 (Internal Outfalls 003-C through 003-L) and Unit 1 (Internal Outfalls 001-D through 001-G)

The following effluent limitations (concentration-based and mass-based) shall be applicable to discharges of all individual, low-volume, in-plant wastewaters from Unit 3 (Internal Outfalls 003-C through 003-L). The effluent limitations in this Section shall also be applicable to discharges of individual, low-volume, in-plant wastewaters from Unit 1 (Internal Outfalls 001-D through 001-G) whenever these discharges are routed from Unit 1 to Outfall 003:

[Mass-based limitations for TSS and oil and grease for individual low-volume, in-plant wastewaters, in the tables below, are based on maximum flows. Compliance determination will account for the actual low-volume wastewater flow rate, for each individual wastestream on the day of sampling; i.e., the actual limitation shall be determined for the period of sampling in accordance with the following equation:

$L_f = (Q_a / Q_m) L_t$; where

L_f = the final limitation, in lbs/day, used for compliance determination
Q_a = actual individual low-volume, in-plant wastewater flow-rate, in mgd, at the time of sampling
Q_m = maximum flow-rate of each individual, in-plant wastewater stream, in mgd, shown in the tables below
L_t = the appropriate, maximum limitations, in lbs/day, shown in the tables below]

Constituent	Units	30-Day[12/] Ave.	Daily[6/] Max.	Instantaneous[8/] Max.
TSS	mg/L	30.	100.	100.
Oil/Grease	mg/L	15.	20.	20.

Outfall Number	Low Volume Wastewater Source	Max Flow (mgd)	Units	TSS		Oil/Grease	
				30-Day Avg.	Daily Max	30-Day Avg.	Daily Max
003-C	Blowdown Processing	0.085	lbs/day	21.	71.	11.	14.
003-D	Makeup Demineralizer	0.670	lbs/day	170.	560.	84.	110.
003-E	Radwaste System	0.432	lbs/day	110.	360.	54.	72.
003-F	Polishing Demineralizer System	1.4	lbs/day	350.	1,200.	180.	230.
003-G	Steam Generator Blowdown	0.720	lbs/day	180.	600.	90.	120.
003-H	Hotwell Overboard	7.20	lbs/day	1,800.	6,000.	900.	1,200.
003-I	Plant Drains	0.8	lbs/day	200.	670.	100.	130.
003-J	Intake Structure Sump	0.288	lbs/day	72.	240.	36.	48.
003-K	Thermophilic Digester	0.010	lbs/day	2.5	8.3	1.0	1.7
003-L	Concrete Cutting Water	0.2	lbs/day	50.	170.	25.	33.
001-D*	Radwaste	0.144	lbs/day	36.	120.	18.	24.
001-E*	Plant Drains	0.014	lbs/day	4.	12.	2.	2.
001-F*	Yard Drains	0.360	lbs/day	90.	300.	45.	60.
001-G*	Dewatering	0.864	lbs/day	220.	720.	110.	140.

* Effluent limitations for Outfalls 001-D through 001-G are applicable only when individual low-volume, in-plant wastewater discharges from Unit 1 are routed to Outfall 003.

G. Final Effluent Limitations – Treated Domestic Wastewater from Unit 1 (Internal Outfalls 001-A and 001-B)

The following effluent limitations shall be applicable whenever treated domestic wastewaters from the Unit 1 and Mesa Facility Complex sewage treatment plants (Internal Oufalls 001-A and 001-B) are routed to Outfall 003:

1. Discharges shall not exceed the following limitations.

Treated Domestic Wastewater

Parameter	Units	30-Day[12/] Avg.	7-Day Avg.[16/]	Instantaneous[8/] Max.
O&G (Unit 1 STP)	mg/L	25.	40.	75.
	lbs/day[17/]	21.	-	-
O&G (Mesa STP)	mg/L	25.	40.	75.
	lbs/day[18/]	9.4	-	-
TSS*	mg/L	Not more than 25% of influent TSS		
Settleable Solids*	ml/L	1.0	1.5	3.0
Turbidity*	NTUs	75.	100.	225.
pH*	S.U.	Within the limits of 6.0 to 9.0 at all times		

* Effluent limitations for these constituents are the same for both Unit 1 STP and Mesa STP.

2. Discharge of sewage treatment plant effluent through Outfall 003 may occur only when Unit 3 once-through main condenser cooling water is also being discharged through Outfall 003.

H. Final Effluent Limitations – Fish Return System and Across-the-Beach Discharges (Outfall 004 and 005)

Effluent from the Fish Return System (Outfall 004) and Across-the-Beach discharges (Outfall 005) shall not contain toxic substances in concentrations greater than the water quality objectives for ocean waters established by Table B of the 2001 Ocean Plan.

I. Heat Treatment Discharge Specifications[19/]

The Discharger may raise the temperature of the cooling water discharge to the Pacific Ocean in excess of the temperature otherwise specified in this Order (see *Final Effluent Limitations – Combined Discharges*, III.B.1.d) in accordance with the following specifications during periods of heat treatment for Unit 3.

1. The frequency of heat treatment shall be determined, in part, by a *Growth Model for the Bay Mussel, Mytilus edulis*, as described in Attachment F (*Heat Treatment Decision Flow Chart*). Measurements and observations of biological material from the conduit and observation of cooling water system parameters shall also be used. System operational constraints may require that a heat treatment be conducted prior to the time scheduled using the parameters above, typically during the prior weekend.

2. Heat treatment temperature and duration shall be based on the *Time-Temperature Mortality Curve for the Bay Mussel, Mytilus Edulis* (Attachment G), which includes an additional amount of time added to account for temperature measurement inaccuracy, non-homogeneity of temperature in the cooling water system, and other unknown factors. The

highest temperature consistent with plant operating requirements shall be selected to keep the heat treatment time to a minimum. Target times shall be rounded up to the nearest five minutes.

3. The target temperature and time is subject to the precision that can be practicably attained by station operators. Consequently, during the temperature rise period, before initiating heat treatment, and as the influent temperature varies, temperatures may be inadvertently increased above the target temperature due to equipment limitations; however, the target temperature shall not be exceeded by more than 10°F or more than fifteen (15) minutes.

4. Heat treatment of the intake conduit, fish return system and screenwell shall be performed at 100°F (as measured in the screenwell) for 2.1 hours. 100°F represents the presently expected, maximum temperature capability of each unit. The heat treatment temperature will be adjusted upward or downward to the highest temperature compatible with station operation during initial operation of the units. A corresponding change shall be made to the heat treatment duration in accordance with the *Time-Temperature Mortality Curve for the Bay Mussel, Mytilus Edulis* (Attachment G). (Heat treatment duration represents the period of time at the target temperature, and not the time required to reach 100°F, nor the time to return to normal operation.)

5. Heat treatment of the intake conduit, fish return system and screenwell shall be conducted at intervals predicted by a growth model, which is based on ambient water temperature. Heat treatments shall be scheduled using the *Heat Treatment Decision Flow Chart* (Attachment F). Heat treatments may also be conducted prior to or following a station outage, if the outage period is anticipated to extend beyond the time of the next (growth model) predicted heat treatment.

6. As long as normal operating discharge temperatures exceed 80°F for a minimum of 1000 hours, 85°F for 150 hours or 90°F for 31 hours, the discharge conduit will not require heat treatment. Unless these conditions are met, it must be assumed that settling and growth of biofouling organisms has occurred. When these conditions are not met, growth calculations, based on ambient intake water temperatures, shall be used to schedule a discharge conduit heat treatment.

7. When required, the discharge conduit for Unit 3 may be heat treated at a discharge temperature of 105°F for 1.1 hours. This time is the onshore heat treatment time required to treat the furthest point offshore for 0.58 hours, the time indicated by the *Time-Temperature Mortality Curve for the Bay Mussel, Mytilus Edulis* (Attachment G).

8. During heat treatment, heat added to the cooling water shall not cause the temperature of the discharge from the intake conduit to the Pacific Ocean to exceed 125°F, except as specified in *Heat Treatment Discharge Specification*, III.I.3, above.

9. During heat treatment, heat added to the cooling water shall not cause the temperature of the discharge from the discharge conduit to the Pacific Ocean to exceed 105°F, except as specified in *Heat Treatment Discharge Specification*, III.I.3, above. During Unit 2 heat

treatments, the difference between intake and discharge water temperatures for Unit 3 may exceed 25°F due to crossover connections with Unit 2.

IV. RECEIVING WATER LIMITATIONS

Receiving water limitations are based upon water quality objectives contained in the Ocean Plan and Thermal Plan. As such, they are a required part of this Order. Unless specifically excepted by this Order, the discharge shall not cause the following in the receiving waters of the Pacific Ocean:

A. Water Quality Objectives Established by the Thermal Plan

Discharges from SONGS Units 1 and 2 through Outfalls 003, 004, and 005 to the Pacific Ocean shall not, by themselves or jointly with any other discharge or discharges, cause violation of the following water quality objective for coastal waters established by the Thermal Plan:

The discharges of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at (a) the shoreline, (b) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation shall be maintained at least 50 percent of the duration of any complete tidal cycle.

B. Water Quality Objectives Established by the Ocean Plan

Discharges from SONGS Units 1 and 2 through Outfalls 003, 004, and 005 to the Pacific Ocean shall not, by themselves or jointly with any other discharge or discharges, cause violation of the following receiving water quality objectives established by the Ocean Plan. Compliance with these objectives shall be determined by samples collected at stations representative of the area within the waste field where initial dilution is completed.

1. Bacterial Characteristics

   a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board, but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column.

   b. Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).

      i. The fecal coliform density, based on a minimum of not less than five samples for any 30-day period, shall not exceed a geometric mean of 200 per 100 ml nor shall

more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

ii. The Initial Dilution Zone of wastewater outfalls shall be excluded from designation as kelp beds for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the State Board (for consideration as Areas of Special Biological Significance/State Water Quality protection Areas). Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds for purposes of bacterial standards.

c. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the median total coliform density shall not exceed 70 per 100 ml throughout the water column, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

2. Physical Characteristics

a. Floating particulates and grease and oil shall not be visible.

b. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

c. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.

d. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

3. Chemical Characteristics

a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.

b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.

d. The concentration of substances set forth in Chapter II, Table B, of the 2001 Ocean Plan shall not be increased in marine sediments to levels that would degrade indigenous biota.

e. The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.

f. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.

g. Numerical water quality objectives established in Chapter II, Table B, of the 2001 California Ocean Plan shall not be exceeded as a result of discharges from SONGS Units 1 and 2 through Outfalls 003, 004, and 005.

4. Biological Characteristics

a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

5. Radioactivity

Discharge of radioactive waste, which meets the definition of "pollutant" at 40 CFR 122.2, shall not degrade marine life.

V. PROVISIONS

A. Standard Provisions

1. **State and Federal Standard Provisions.** The Discharger shall comply with all *State and Federal Standard Provisions* included in Attachment C of this Order.

2. **Regional Board Standard Provisions.** The Discharger shall comply with the following provisions:

a. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the CWC.

b. The Discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

c. This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following.

   i. Violation of any terms or conditions of this Order;

   ii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts, or;

   iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

d. In addition to any other grounds specified herein, this permit may be modified or revoked at any time if, on the basis of any data, the Regional Board determines that continued discharges may cause unreasonable degradation of the marine environment.

e. If an effluent standard or discharge prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307 (a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and such standard or prohibition is more stringent than any limitation for that pollutant in this Order, this Order may be modified or revoked and reissued to conform to the effluent standard or discharge prohibition.

f. This discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Board as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA or amendments thereto, the Regional Board may modify this Order in accordance with the more stringent standards.

g. If only one sample is collected during the time period associated with an effluent limitation (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.

h. All analytical data shall be reported uncensored with detection limits and quantitation limits identified. For any effluent limitation, compliance shall be determined using appropriate statistical methods to evaluate multiple samples. Sufficient sampling and analysis shall be conducted to determine compliance.

i. The provisions of this Order are severable, and if any provisions of this Order, or the application of any provision of this Order to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

B. Monitoring and Reporting Program Requirements

The discharger shall comply with Monitoring and Reporting Program No. R9-2005-0006, and future revisions thereto as specified by the Regional Board, found in Attachment D of this Order.

C. Special Provisions

1. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Unit 3 CWA Section 316 (b) Comprehensive Demonstration Study[20/]

The Discharger shall comply with applicable requirements of U.S. EPA regulations pertaining to cooling water intake structures, which implement section 316 (b) of the CWA and are codified at 40 CFR Part 125, Subpart J - *Requirements Applicable to Cooling Water Intake Structures for Phase II Existing Facilities under Section 316 (b) of the Clean Water Act*. To the extent that the requirements of this Order are inconsistent with or are not as comprehensive as the requirements presented by the U.S. EPA regulations just cited, the requirements of 40 CFR Part 125, Subpart J will apply.

The Discharger shall satisfy the following requirements pertaining to Section 316 (b) of the CWA.

i. Within 180 days of the effective date of this Order, submit to the Regional Board a *Proposal for Information Collection*, as described at 40 CFR 125.95(b)(1). The *Proposal for Information Collection* shall include:

(1) A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the *Comprehensive Demonstration Study*;

(2) A list and description of historical studies characterizing impingement mortality and entrainment and/or physical and biological conditions in the vicinity of the cooling water intake structure and their relevance to the proposed study. If existing data will be used, the Discharger shall demonstrate the extent to which the data are representative of current conditions and that the data were collected using appropriate quality assurance/quality control procedures;

(3) A summary of past and on-going consultations with appropriate federal, state, and tribal fish and wildlife agencies that are relevant to the *Comprehensive Demonstration Study* and copies of written comments received as a result of the consultations;

(4) A sampling plan for any new field studies proposed to develop scientifically valid estimates of impingement mortality and entrainment.

ii. Before January 9, 2008, submit to the Regional Board a *Comprehensive Demonstration Study* to characterize impingement mortality and entrainment, to describe the operation of the SONGS Unit 3 cooling water intake structure, and to confirm that the technologies, operational measures, and/or restoration measure selected and installed, or planned for installation, will meet the applicable requirements of 40 CFR 125.94. The *Comprehensive Demonstration Study* will form the basis for the Regional Board's determination of specific requirements, for inclusion into Unit 3's NPDES permit, that establish best technology available to minimize adverse environmental impacts associated with the use of the SONGS Unit 3 cooling water intake structure. The Study shall include the following components, if applicable.

- *Source Waterbody Flow Information*, as described at 40 CFR 125.95(b)(2);
- *Impingement Mortality and/or Entrainment Characterization Study*, as described at 40 CFR 125.95(b)(3), to support development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment;
- *Design and Construction Technology Plan* and a *Technology Installation and Operation Plan*, as described at 40 CFR 125.95(b)(4);
- *Restoration Plan*, as described at 40 CFR 125.95(b)(5);
- Information to Support Site-Specific Determination of BAT, as described at 40 CFR 125.95 (b)(6);
- *Verification Monitoring Plan*, as described at 40 CFR 125.95(b)(6).

2. Best Management Practices and Pollution Prevention

Within 90 days of the effective date of this Order, the Discharger shall develop and implement a Best Management Practices (BMP) Plan in accordance with 40 CFR 125.100-104. If necessary, an existing BMP Plan shall be updated to address any changes in operation and/or management of the facility. Notification that a BMP Plan has been updated shall be submitted to the Regional Board within 30 days of the update. The BMP Plan shall prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants from ancillary activities to waters of the United States. The BMP Plan shall be consistent with the general guidance contained in the U.S. EPA *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA 833-B-93-004). The Discharger shall maintain the BMP Plan in an up-to-date condition and shall update the BMP Plan in accordance with 40 CFR 125.100 - 125.104 whenever there is a change in facility design, construction, operation, or maintenance, which materially affects the potential for discharge from SONGS Units 1 and 2 of significant amounts of hazardous or toxic pollutants into waters of the United States. The BMP Plan and any updates thereto, shall be subject to the approval of the Regional Board and shall be modified as

directed by the Regional Board. The Discharger shall submit the BMP Plan and any updates thereto to the Regional Board upon request of the Regional Board. A copy of the up-to-date BMP Plan shall be maintained at SONGS Units 1 and 2 and shall be readily available to operating personnel at all times.

VI. ENDNOTE REFERENCES

1. An Area of Special Biological Significance may also be known as a State Water Quality Protection Area, in accordance with Section 36700 of the California Public Resources Code.

2. The California Ocean Plan (Water Quality Control Plan for Ocean Waters of California adopted by the State Water Resources Control Board, 2001) includes two tables of numeric water quality objectives for ocean waters. Tables A and B of the Ocean Plan contain, respectively:

   - Effluent limitations for publicly owned treatment works and industrial dischargers to the ocean for which Effluent Limitations Guidelines have not been established pursuant to sections 301, 302, 304, or 306 of the CWA.

   - Water quality objectives for chemical characteristics in ocean waters for protection of aquatic life and human health.

3. Flow rates are based on information provided by the Discharger in materials submitted for application to renew Waste Discharge Requirements.

4. "Combined discharges through Outfall 003" are the combined flows of once through main condenser cooling water, low volume wastewaters, and all other wastewater flows from Unit 3 that are discharged to the Pacific Ocean through Outfall 003. "Combined discharges through Outfall 003" shall also include cooling water, low-volume wastewaters, and treated domestic wastewaters from Unit 1 whenever the discharger routes these Unit 1 flows through Outfall 003.

5. All numeric effluent limitations established by this Order for the "Combined Discharges through Outfall 003" were derived from the water quality objectives of the California Ocean Plan for chronic toxicity, total residual chlorine, and toxic pollutants (the Table B pollutants) and methods required by the Ocean Plan. A minimum probable initial dilution of 10 to 1 for discharges through Outfall 003 was used in the calculations.

   The following equation from Section III.C.3.a of the Ocean Plan was used to calculate all concentration-based, effluent limitations, for Table B pollutants (except for instantaneous maximum total residual chlorine) with instantaneous maximum water quality objectives for protection of marine aquatic life applicable to the "Combined Discharges through Outfall 003":

   $$Ce = Co + Dm (Co - Cs)$$

Where:
Ce = the effluent concentration limit, µg/L
Co = the concentration (water quality objective) to be met at the completion of initial dilution, µg/L
Cs = background seawater concentration, µg/L
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater

Background concentrations for all Table B parameters were assumed to be zero (Cs = 0), except for the following five metals.

Constituent	**Background Concentration (µg/L)**
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.

6. Daily maximum limitation is the highest allowable discharge of a pollutant over a calendar day.

7. The limitations for total residual chlorine for the "Combined Discharges through Outfall 003" are water quality based effluent limitations derived from the following Ocean Plan (Table B) water quality objectives for total residual chlorine:

Total Residual Chlorine – Water Quality Objectives (µg/L)		
6-Month Median	**Daily Max.**	**Instantaneous Max.**
2	8	60

6-month median and daily maximum effluent limitations were calculated in accordance with procedures established in Section III.C.3.a of the Ocean Plan (and described in Endnote Reference 5, above). The instantaneous maximum limitation was calculated for intermittent discharges of chlorine in accordance with Table B, note c, of the 2001 Ocean Plan. SONGS Units 1 and 2 discharge chlorine intermittently, four times per day for 25-minute durations. The appropriate instantaneous maximum water quality objective for intermittent discharges is determined using the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where:
y = the water quality objective, in µg/L, to apply when chlorine is being discharged
x = the duration of uninterrupted chlorine discharge in minutes

For SONGS Unit 3, which discharges for 25-minute maximum uninterrupted durations, the appropriate water quality objective for intermittent discharges is 16 µg/L. Then, using the

equation from Section III.C.3.a of the Ocean Plan, the instantaneous maximum effluent limitation is determined to be 176 µg/L.

8. Instantaneous maximum limitation is the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

9. Dischargers may meet this limitation as a total chromium limitation.

10. If a discharger can demonstrate to the satisfaction of the Regional Board (subject to U.S. EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR Part 136, as revised May 14, 1999.

11. "Low volume wastewaters", as defined in the Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category at 40 CFR 423.11, means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in the Effluent Limitations Guidelines.

    The individual, low volume wastewaters identified by this Order for Unit 3 are:

    - Blowdown Processing
    - Makeup Demineralizer
    - Radwaste System
    - Polishing Demineralizer System
    - Steam Generator Blowdown
    - Hotwell Overboard
    - Plant Drains
    - Intake Structure Sump
    - Thermophilic Digester
    - Concrete Cutting Water

    The individual, low volume wastewaters that may be routed from Unit 1 to Oufall 003 are:

    - Plant Drains
    - Yard Drains
    - Radwaste System
    - Dewatering

12. A 30-day average limitation is the highest allowable average of daily discharges over a running 30-day average, calculated as the sum of all daily discharges measured during a running 30-day period divided by the number of daily discharges measured during that 30-day period.

13. A 6-month median limitation is the highest allowable moving median of all daily discharges for any 180-day period.

14. "Once through cooling water," as defined in the Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category at 40 CFR 423.11, means water passed through the main cooling condensers in one or two passes for the purpose of removing waste

heat.

15. "Metal cleaning waste," as defined in the Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category at 40 CFR 423.11, means any wastewater resulting from cleaning (with or without chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning.

16. A 7-day average limitation is the highest allowable average of daily discharges over a running 7-day average, calculated as the sum of all daily discharges measured during a running 7-day period divided by the number of daily discharges measured during that 7-day period.

17. Mass based effluent limitations for the Unit 1 Sewage Treatment Plant were calculated based on a discharge flow rate of 0.1 mgd.

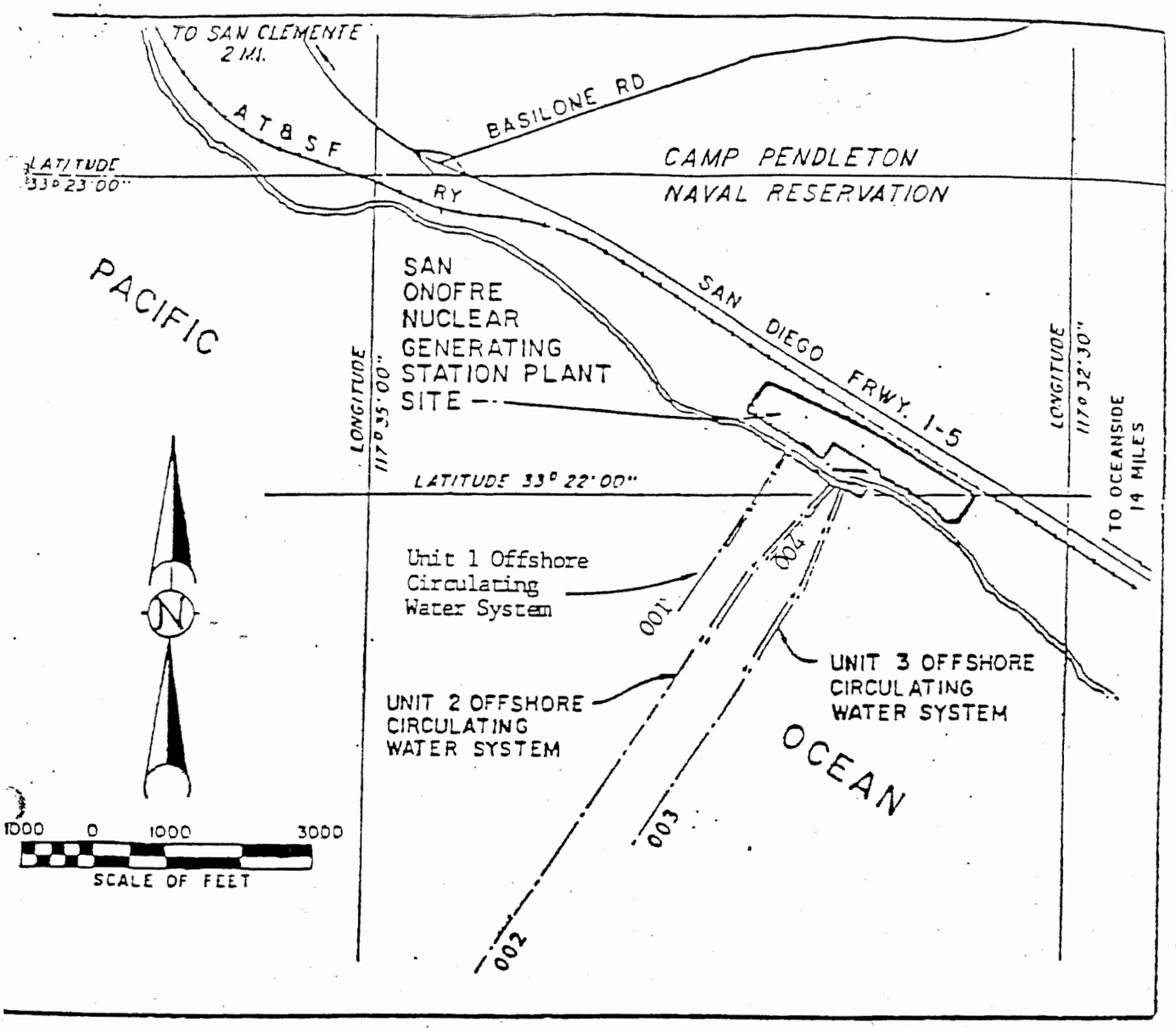
18. Mass based effluent limitations for the Mesa Complex Sewage Treatment Plant were calculated based on a discharge flow rate of 0.045 mgd.

19. Heat Discharge Specifications reflect operating conditions approved by the State Board in Resolution No. 80-95. The Resolution required the incorporation of these operating conditions into the Waste Discharge Requirements for SONGS Unit 3.

20. 40 CFR Part 125.91(a)(3) defines an existing facility, for the purposes of 316(b) Cooling Water Intake Structure regulations, as a facility that, as part of its primary activity, "both generates and transmits electric power…". Because Unit 1 ceased generation of electric power in 1992, it is not subject to new regulations concerning the minimization of adverse impacts associated with cooling water withdrawals. Unit 3, as an active steam electric generation facility, is subject to the new regulations.

ATTACHMENT A – SONGS LOCATION MAP AND FACILITY DIAGRAM

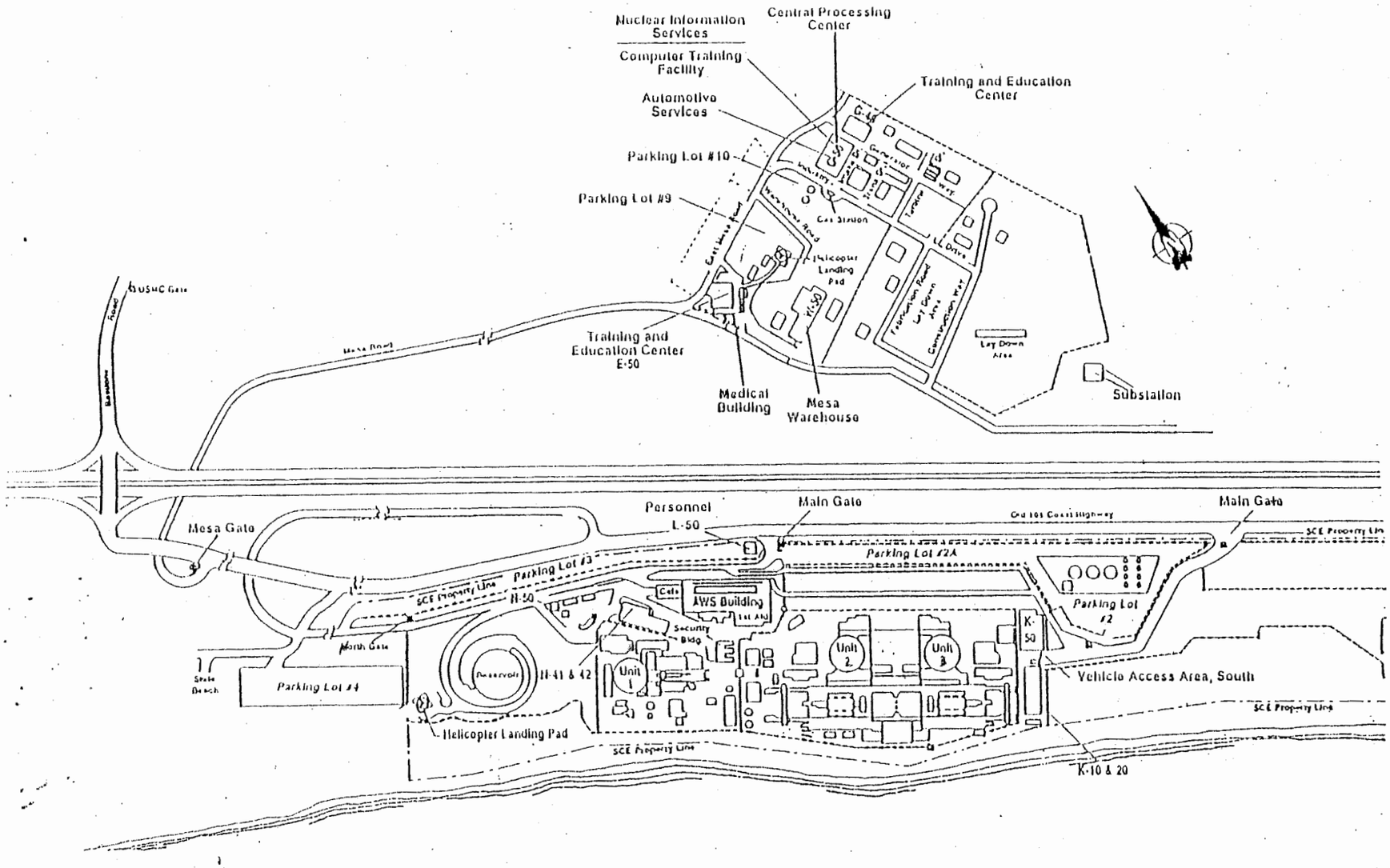
NPDES NO. CA0108181
ORDER NO. R9-2005-0006



"LOCATION MAP"
Based on U.S.G.S. Quad Map San Onofre Bluff, Calif.
San Diego County, California

Southern California Edison Company

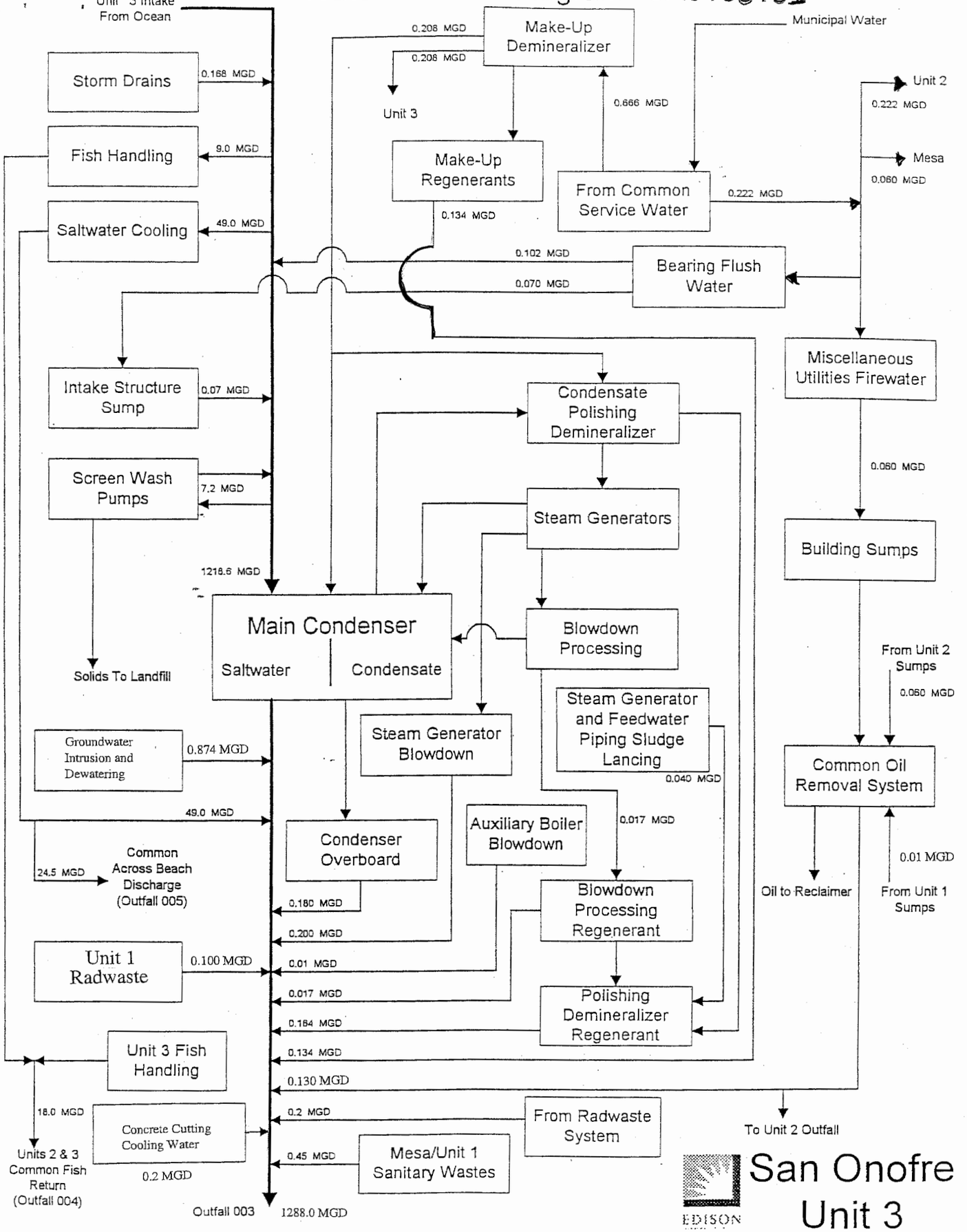
SAN ONOFRE NUCLEAR GENERATION SITE



ATTACHMENT B – SONGS UNIT 3 WASTEWATER FLOW SCHEMATIC

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

Water Balance Diagram CA0108181



ATTACHMENT C – STATE AND FEDERAL STANDARD PROVISIONS

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

A. Standard Provisions – Permit Compliance

1. Duty to Comply

a. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application. [40 CFR 122.41(a)]

b. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement. [*40 CFR 122.41(a)(1)*]

2. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. [*40 CFR 122.41(c)*]

3. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. [*40 CFR 122.41(d)*]

4. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. [*40 CFR 122.41(e)*]

5. Property Rights

a. This Order does not convey any property rights of any sort or any exclusive privileges. [*40 CFR 122.41(g)*]

b. No discharge of waste into the waters of the State, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge. All discharges of waste into waters of the state are privileges, not rights. [*CWC 13263(g)*]

c. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. [*40 CFR 122.5(c)*]

6. Inspection and Entry

The Discharger shall allow the Regional Board, the State Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [*40 CFR 122.41(i)*] [*CWC 13383(c)*]:

a. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [*40 CFR 122.41(i)(1)*];

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [*40 CFR 122.41(i)(2)*];

c. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [*40 CFR 122.41(i)(3)*];

d. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the Clean Water Act or the Porter-Cologne Water Quality Control Act, any substances or parameters at any location. [*40 CFR 122.41(i)(4)*]

7. Bypass

a. Definitions

(1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. [*40 CFR 122.41(m)(1)(i)*]

(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in

the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. [*40 CFR 122.41(m)(1)(ii)*]

b. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance, A.7.c. and A.7.e, below [*40 CFR 122.41(m)(2)*]

c. Prohibition of bypass – Bypass is prohibited, and the Regional Board may take enforcement action against a Discharger for bypass, unless [*40 CFR 122.41(m)(4)(i)*]:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; [*40 CFR 122.41(m)(4)(A)*];

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; [*40 CFR 122.41(m)(4)(B)*]; and

(3) The Discharger submitted notice to the Regional Board as required under Federal Standard Provision, A.7.e, below. [*40 CFR 122.41(m)(4)(C)*]

d. The Regional Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance, A.7.c., above. [*40 CFR 122.41(m)(4)(ii)*]

e. Notice

(1) Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. [*40 CFR 122.41(m)(3)(i)*]

(2) Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Federal Standard Provisions – Reporting, E.5, below. [*40 CFR 122.41(m)(3)(ii)*]

8. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment

facilities, lack of preventive maintenance, or careless or improper operation. [*40 CFR 122.41(n)(1)*]

a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 10.b of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [*40 CFR 122.41(n)(2)*]

b. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [*40 CFR 122.41(n)(3)*]:

(1) An upset occurred and that the Discharger can identify the cause(s) of the upset [*40 CFR 122.41(n)(3)(i)*];

(2) The permitted facility was, at the time, being properly operated [*40 CFR 122.41(n)(3)(i)*];

(3) The Discharger submitted notice of the upset as required in Standard Provisions – Reporting, E.5.b(2). [*40 CFR 122.41(n)(3)(iii)*]; and

(4) The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance, A.3, above. [*40 CFR 122.41(n)(3)(iv)*].

c. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [*40 CFR 122.41(n)(4)*].

B. Standard Provisions – Permit Action

1. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. [*40 CFR 122.41(f)*]

2. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. [*40 CFR 122.41(b)*]

3. Transfers

This Order is not transferable to any person except after notice to the Regional Board. The Regional Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the Clean Water Act and the Porter-Cologne Water Quality Control Act. [*40 CFR 122.41(l)(3)* and [*40 CFR 122.61*]

C. Standard Provisions – Monitoring

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. [*40 CFR 122.41(j)(1)*]

2. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the-case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. [*40 CFR 122.41(j)(4)*] [*40 CFR 122.44(i)(1)(iv)*]

D. Standard Provisions – Records

1. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Board at any time. [*40 CFR 122.41(j)(2)*]

2. Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements [*40 CFR 122.41(j)(3)(i)*];

b. The individual(s) who performed the sampling or measurements [*40 CFR 122.41(j)(3)(ii)*];

c. The date(s) analyses were performed [*40 CFR 122.41(j)(3)(iii)*];

d. The individual(s) who performed the analyses [*40 CFR 122.41(j)(3)(iv)*];

e. The analytical techniques or methods used [*40 CFR 122.41(j)(3)(v)*]; and

f. The results of such analyses [*40 CFR 122.41(j)(3)(vi)*]

3. Claims of confidentiality for the following information will be denied [*40 CFR 122.7(b)*]:

a. The name and address of any permit applicant or Discharger [*40 CFR 122.7(b)(1)*];

b. Permit applications and attachments, permits and effluent data [*40 CFR 122.7(b)(2)*].

E. Standard Provisions – Reporting

1. Duty to Provide Information

The Discharger shall furnish to the Regional Board, the State Board, or U.S. EPA within a reasonable time, any information which the Regional Board, the State Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Board, the State Board, or U.S. EPA copies of records required to be kept by this Order. [*40 CFR 122.41(h)*] [*CWC 13267*]

2. Signatory and Certification Requirements

a. All applications, reports, or information submitted to the Regional Board, the State Board, and/or U.S. EPA shall be signed and certified in accordance with paragraph (b) and (c) of this provision. [*40 CFR 122.41(k)*]

b. All permit applications shall be signed as follows:

(1) For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. [*40 CFR 122.22(a)(1)*]

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; [*40 CFR 122.22(a)(2)*] or

(3) For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a

principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). [*40 CFR 122.22(a)(3)*]

c. All reports required by this Order and other information requested by the Regional Board, the State Board, or U.S. EPA shall be signed by a person described in paragraph (b) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (b) of this provision [*40 CFR 122.22(b)(1)*];

(2) The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position); [*40 CFR 122.22(b)(2)*] and,

(3) The written authorization is submitted to the Regional Board, the State Board, or U.S. EPA. [*40 CFR 122.22(b)(3)*]

d. If an authorization under paragraph (c) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (c) of this provision must be submitted to the Regional Board, the State Board or U.S. EPA prior to or together with any reports, information, or applications, to be signed by an authorized representative. [40 CFR 122.22(c)]

e. Any person signing a document under paragraph (b) or (c) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [*40 CFR 122.22(d)*]

3. Monitoring Reports

a. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment D) of this Order. [*40 CFR 122.41(l)(4)*]

b. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Board or the State Board for reporting results of monitoring of sludge use or disposal practices. [*40 CFR 122.41(l)(4)(i)*]

c. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR part 136 or, in the case of sludge use or disposal, approved under 40 CFR part 136 unless otherwise specified in 40 CFR part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Board. [*40 CFR 122.41(l)(4)(ii)*]

d. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. [*40 CFR 122.41(l)(4)(iii)*]

4. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each schedule date. [*40 CFR 122.41(l)(5)*]

5. Twenty-four Hour Reporting

a. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [*40 CFR 122.41(l)(6)(i)*]

b. The following shall be included as information that must be reported within 24 hours under this paragraph [*40 CFR 122.41(l)(6)(ii)*]:

(1) Any unanticipated bypass that exceeds any effluent limitation in this Order. [*40 CFR 122.41(l)(6)(ii)(A)*]

(2) Any upset that exceeds any effluent limitation in this Order. [*40 CFR 122.41(l)(6)(ii)(B)*]

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours. [*40 CFR 122.41(l)(6)(ii)(C)*]

c. The Regional Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. [*40 CFR 122.41(l)(6)(iii)*]

6. Planned Changes

The Discharger shall give notice to the Regional Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [*40 CFR 122.41(l)(1)*]:

a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b). [*40 CFR 122.41(l)(1)(i)*] or;

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42(a)(1) (see Standard Provisions – Additional Provisions, G.1.a). [*40 CFR 122.41(l)(1)(ii)*] or;

c. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. [*40 CFR 122.41(l)(1)(iii)*]

7. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Board or the State Board of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements. [*40 CFR 122.41(l)(2)*]

8. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting, E.3, E.4, and E.5, at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision, E.5. [*40 CFR 122.41(l)(7)*]

9. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Board, the State Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. [*40 CFR 122.41(l)(8)*]

F. Standard Provisions – Enforcement

1. The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions. [*40 CFR 122.41(a)(2)*] [*CWC Sections 13385 and 13387*]

2. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day

during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000. [*40 CFR 122.41(a)(3)*]

3. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. [*40 CFR 122.41(j)(5)*].

4. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [*40 CFR 122.41(k)(2)*]

G. Standard Provisions – Additional Provision (Notification Levels)

1. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Board as soon as they know or have reason to believe [*40 CFR 122.42(a)*]:

a. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR 122.42(a)(1)*]:

(1) 100 micrograms per liter (µg/l) [*40 CFR 122.42(a)(1)(i)*];

(2) 200 µg/l for acrolein and acrylonitrile; 500 µg/l for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/l) for antimony [*40 CFR 122.42(a)(1)(ii)*];

(3) Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR 122.42(a)(1)(iii)*]; or

(4) The level established by the Board in accordance with 40 CFR 122.44(f). [*40 CFR 122.42(a)(1)(iv)*]

b. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [*40 CFR 122.42(a)(2)*]:

(1) 500 micrograms per liter (µg/l) [*40 CFR 122.42(a)(2)(i)*];

(2) 1 milligram per liter (mg/l) for antimony [*40 CFR 122.42(a)(2)(ii)*];

(3) Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [*40 CFR 122.42(a)(2)(iii)*]; or

(4) The level established by the Board in accordance with 40 CFR 122.44(f). [40 CFR 122.42(a)(2)(iv)]

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

SOUTHERN CALIFORNIA EDISON
SAN ONOFRE NUCLEAR GENERATING STATION
UNIT 3

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ATTACHMENT D – MONITORING AND REPORTING PROGRAM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

40 CFR 122.48 requires all NPDES permits to specify requirements for recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement the CFR and CWC.

I. MONITORING PROVISIONS

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Regional Board.

2. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ±10 percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration and operation of acceptable flow measurement devices can be obtained from the following references:

   a. *A Guide to Methods and Standards for the Measurement of Water Flow*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 96 pp. (Available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by SD Catalog No. C13.10:421.)

   b. *Water Measurement Manual*, U.S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U.S. Government Printing Office, Washington D.C. 20402. Order by Catalog No. 172.19/2:W29/2, Stock No. S/N 24003-0027.)

   c. *Flow Measurement in Open Channels and Closed Conduits*, U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 982 pp. [Available in paper copy or microfiche from National Technical Information Services (NTIS) Springfield, VA 22151. Order by NTIS No. PB-273 535/5ST.]

   d. *NPDES Compliance Sampling Manual*, U.S. Environmental Protection Agency,

Office of Water Enforcement, Publication MCD-51, 1977, 140 pp. [Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, CO 80225.]

3. Monitoring must be conducted according to United States Environmental Protection Agency (U.S. EPA) test procedures approved at 40 CFR Part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act as amended, unless other test procedures are specified in Order No. R9-2005-0006 and/or in this MRP and/or by the Regional Board.

4. Duplicate copies of the monitoring reports, signed and certified as required by *State and Federal Standard Provisions - Reporting*, E.2 (see Attachment C of Order No. R9-2005-0006) must be submitted to the SWRCB and Regional Board at the addresses listed in *Reporting Requirement*, XIII. 8, below, of this MRP.

5. If the discharger monitors any pollutant more frequently than required by Order No. R9-2005-0006 or by this MRP, using test procedures approved under 40 CFR Part 136, or as specified in Order No. R9-2005-0006 or this MRP or by the Regional Board, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.

6. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by Order No. R9-2005-0006 and this MRP, for a period of at least five years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Board at any time.

7. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in Order No. R9-2005-0006 or this MRP.

8. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Regional Board.

9. The Discharger shall report all instances of noncompliance not reported under *State and Federal Standard Provisions - Reporting*, E.3, E.4, and E.5 (see Attachment C of Order No. R9-2005-0006) at the time monitoring reports are submitted. The reports shall contain the information listed in *State and Federal Standard Provisions – Reporting*, *E*.5. [40 CFR 122.41(l)(7)]

10. Records of monitoring information shall include:

    a. The date, exact place, and time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

In addition, records of all cooling water intake monitoring, effluent monitoring, and receiving water monitoring shall include:

a. The applicable tide table for the days on which sampling/monitoring was conducted; and

b. The moon phase (in days after the new moon) for the days on which sampling/monitoring was conducted.

11. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices.

12. The discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. Duplicate chemical analyses must be conducted on a minimum of ten percent of the samples or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. When requested by U.S. EPA or the Regional Board, the discharger will participate in the NPDES discharge monitoring report QA performance study. The discharger should have a success rate equal or greater than 80 percent.

13. Analysis for pollutants with effluent limitations based on water quality objectives of the California Ocean Plan (2001) shall be conducted in accordance with procedures described in Attachment 2 of this MRP.

14. Toxicity Provisions

a. Chronic toxicity monitoring shall be conducted in accordance with procedures described in Attachment 3 of this MRP.

b. Toxicity Reopener

This permit may be modified in accordance with the requirements set forth at 40 CFR Parts 122 and 124, to include appropriate conditions or limits to address demonstrated

effluent toxicity based on newly available information, or to implement any U.S. EPA approved, new, state water quality standards applicable to effluent toxicity.

15. Monitoring results shall be reported at intervals and in a manner specified in Order No. R9-2005-0006 or in this MRP.

16. Revisions of the monitoring program by the Regional Board are appropriate to ensure that the discharger is in compliance with requirements and provisions contained in this Order. Revisions may be made by the Regional Board at any time during the term of this Order, and may include a reduction or increase in the number of parameters to be monitored, the frequency of monitoring, or the number and size of samples collected.

II. MONITORING LOCATIONS

Samples from SONGS Unit 3 shall be collected at the facility locations specified in the table below (see Attachment 4, for sampling point locations on the SONGS Facility Gridmap). The monitoring locations of wastestreams from Unit 1 (applicable only when the discharger routes Unit 1 wastewaters to Outfall 003) are also specified below. If no location is specified, sampling shall be conducted at the most representative sampling location available:

Water/Wastewater to be Monitored from SONGS Unit 3	***Outfalls***	***Monitoring Location on SONGS Facility Gridmap***
Receiving Water	-	All receiving water samples shall be collected at monitoring stations as described by Attachment 1 of this MRP.
Cooling Water Intake	-	K-70
Combined Discharge	003	K-70
Chemical and Non-Chemical Metal Cleaning Wastes	003-A and 003-B	I-74
Blowdown Processing	003-C	I-71
Makeup Demineralizer	003-D	D-81
Radwaste System	003-E	F-69, 70
Polishing Demineralizer System	003-F	I-74
Steam Generator Blowdown	003-G	G-69
Hotwell Overboard	003-H	I-72
Plant Drains (Building Sump)	003-I	J-70
Intake Structure Sump	003-J	I-71
Thermophilic Digester	003-K	N/A
Concrete Cutting Water	003-L	N/A
Across-the-Beach Discharges	005	N/A

Water/Wastewater to be Monitored from SONGS Unit 1	***Outfalls***	***Monitoring Location on SONGS Facility Gridmap***
Unit 1 Sewage Effluent	001-A	I-62
Mesa Complex Sewage Effluent	001-B	Q-19
Metal Cleaning Waste (Chemical and Non-chemical)	001-C	Q-19
Radwaste System	001-D	N/A
Plant Drains	001-E	N/A
Yard Drains	001-F	N/A
Dewatering	001-G	N/A

III. COOLING WATER INTAKE MONITORING

1. FISH IMPINGEMENT/ENTRAINMENT MONITORING

During heat treatments and for at least one continuous 24-hour period per quarter during normal operation, the following shall be obtained:

a. Total weight and number of each species of fish removed from the traveling bar racks and screens

b. Standard length and sex of select species in a representative sample removed from the traveling bar racks and screens.[1/]

A report containing detailed analysis of the previous calendar year's fish entrainment monitoring data shall be submitted by August 1 of each year. The report shall contain a narrative and graphical summary of all historical data with the goal of displaying long-term trends.

2. Main condenser cooling water inflow shall be monitored and analyzed in accordance with the following schedule:

Constituent	**Units**	**Sample[2/] Type**	**Minimum Frequency of Analysis**	**Reporting Frequency**
Flow (Avg. and Max Daily)	mgd	meter or estimate	continuous	monthly
Turbidity	NTU	grab	monthly	monthly
Temperature (Avg. and Max Daily)[3/]	º F	-	Once every 2 hrs	monthly
pH	pH units	grab	monthly	monthly

IV. COMBINED DISCHARGE MONITORING (Outfall 003) [4/, 5/]

Samples of combined discharge through Outfall 003 shall be collected and analyzed in accordance with the following schedule:

Monitoring Parameters and Reporting Frequency for Combined Discharge

Constituent	Units	Sample Type[2/, 8/]	Frequency of Analysis	Reporting Frequency
Flow (Avg. and Max Daily)	mgd	meter or estimate	continuous	monthly
Temperature (Avg. and Max Daily)[3/]	º F	measurement	Once every 2 hrs	monthly
Total Residual Chlorine[6/]	mg/L	grab	weekly	monthly
Turbidity	NTUs	grab	monthly	monthly
pH	pH units	grab	monthly	monthly
Hydrazine	µg/L	grab	monthly	monthly
Chronic Toxicity*	TUc[7/]	composite	quarterly	quarterly
Chronic Toxicity (Metal Cleaning)**	TUc[7/]	composite	as needed	quarterly
Arsenic	µg/L	grab	semiannually	semiannually
Cadmium	µg/L	grab	semiannually	semiannually
Chromium (VI)	µg/L	grab	semiannually	semiannually
Copper	µg/L	grab	semiannually	semiannually
Lead	µg/L	grab	semiannually	semiannually
Mercury	µg/L	grab	semiannually	semiannually
Nickel	µg/L	grab	semiannually	semiannually
Selenium	µg/L	grab	semiannually	semiannually
Silver	µg/L	grab	semiannually	semiannually
Zinc	µg/L	grab	semiannually	semiannually
Cyanide	µg/L	grab	semiannually	semiannually
Ammonia	mg/L	grab	semiannually	semiannually
Non-Chlorinated Phenolic Compounds	µg/L	grab	semiannually	semiannually
Chlorinated Phenolics	µg/L	grab	semiannuall	semiannuall

			y	y
Endosulfan	µg/L	grab	semiannually	semiannually
Endrin	µg/L	grab	semiannually	semiannually
HCH	µg/L	grab	semiannually	semiannually

***** Chronic toxicity monitoring for the combined discharge shall be conducted based on the procedures derived from the California Ocean Plan (2001), as presented in Attachment 3 to this MRP.
**Additional chronic toxicity tests shall be conducted at the combined discharge sampling location whenever metal cleaning wastes (from Internal Outfalls 003-A, 003-B, or 001-C) are routed to Outfall 003.

V. COMBINED LOW VOLUME, IN-PLANT WASTEWATERS FROM UNIT 3[9/, 10/] (INTERNAL OUTFALLS 003-C THROUGH 003-L) AND UNIT 1[9/, 10/] (INTERNAL OUTFALLS 001-D THROUGH 001-G)

Low volume, in-plant wastewaters from Unit 3 (Internal Outfalls 003-C through 003-L) shall be monitored in accordance with the schedule below. Reported values shall result from individual grab samples of in-plant waste streams that are collected and composited on a flow-weighted basis. Measurements or estimates of flows of individual in-plant waste streams used as a basis for compositing shall be reported as well as the names of all waste streams sampled. The final sample shall include as many wastewaters as possible. The highest priority waste streams are radwaste, full flow condensate polishing demineralizer regenerants, and makeup demineralizer regenerants. The flow rate used to determine the proportion of each waste stream in the composited sample shall be the actual (preferred) or estimated flow rate for the day on which samples are collected. Low-volume, in-plant wastewaters from Unit 1 (Internal Outfalls 001-D through 001-G) shall be included in the composite sample whenever the discharger routes the Unit 1 flows to Outfall 003.
The composite sample representing combined low volume, in-plant wastewaters from Unit 3 and Unit 1 shall be analyzed for the following constituents and shall comply with the following analysis and reporting frequency:

Monitoring Parameters and Reporting Frequency for *Combined Low-Volume*, In-Plant Wastewaters from Units 2 and 1

Constituent	Units[11/]	Minimum Frequency of Analysis	Reporting Frequency
Arsenic	lbs/day	annual	annual
Cadmium	lbs/day	annual	annual
Chromium (VI)	lbs/day	annual	annual
Copper	lbs/day	annual	annual
Lead	lbs/day	annual	annual
Mercury	lbs/day	annual	annual
Nickel	lbs/day	annual	annual
Selenium	lbs/day	annual	annual

Monitoring Parameters and Reporting Frequency for *Combined Low-Volume*, In-Plant Wastewaters from Units 2 and 1

Constituent	Units[11/]	Minimum Frequency of Analysis	Reporting Frequency
Silver	lbs/day	annual	annual
Zinc	lbs/day	annual	annual
Cyanide	lbs/day	annual	annual
Ammonia	lbs/day	annual	annual
Non-chlorinated phenolic compounds	lbs/day	annual	annual
Chlorinated phenolics	lbs/day	annual	annual
Endosulfan	lbs/day	annual	annual
Endrin	lbs/day	annual	annual
HCH	lbs/day	annual	annual
Acrolein	lbs/day	annual	annual
Antimony	lbs/day	annual	annual
Bis (2-chloroethoxy) methane	lbs/day	annual	annual
Bis (2-chloroisopropyl) ether	lbs/day	annual	annual
Chlorobenzene	lbs/day	annual	annual
Chromium (trivalent)	lbs/day	annual	annual
Di-n-butyl phthalate	lbs/day	annual	annual
Dichlorobenzenes	lbs/day	annual	annual
Diethyl phthalate	lbs/day	annual	annual
Dimethyl phthalate	lbs/day	annual	annual
4,6-dinitro-2-methylphenol	lbs/day	annual	annual
2,4-dinitrophenol	lbs/day	annual	annual
Ethylbenzene	lbs/day	annual	annual
Fluoranthene	lbs/day	annual	annual
Hexachlorocyclopentadiene	lbs/day	annual	annual
Nitrobenzene	lbs/day	annual	annual
Thallium	lbs/day	annual	annual
Toluene	lbs/day	annual	annual
1,1,1-trichloroethane	lbs/day	annual	annual
Tributyltin	lbs/day	annual	annual

Monitoring Parameters and Reporting Frequency for *Combined Low-Volume*, In-Plant Wastewaters from Units 2 and 1

Constituent	Units[11/]	Minimum Frequency of Analysis	Reporting Frequency
Acrylonitrile	lbs/day	annual	annual
Aldrin	lbs/day	annual	annual
Benzene	lbs/day	annual	annual
Benzidine	lbs/day	annual	annual
Beryllium	lbs/day	annual	annual
Bis (2-chloroethyl) ether	lbs/day	annual	annual
Bis (2-ethylhexyl) phthalate	lbs/day	annual	annual
Carbon tetrachloride	lbs/day	annual	annual
Chlordane	lbs/day	annual	annual
Chlorodibromomethane	lbs/day	annual	annual
Chloroform	lbs/day	annual	annual
DDT	lbs/day	annual	annual
1,4-dichlorobenzene	lbs/day	annual	annual
3,3'-dichlorobenzidine	lbs/day	annual	annual
1,2-dichloroethane	lbs/day	annual	annual
1,1-dichloroethylene	lbs/day	annual	annual
Dichlorobromomethane	lbs/day	annual	annual
Dichloromethane	lbs/day	annual	annual
1,3-dichloropropene	lbs/day	annual	annual
Dieldrin	lbs/day	annual	annual
2,4-dinitrotoluene	lbs/day	annual	annual
1,2-diphenylhydrazine	lbs/day	annual	annual
Halomethanes	lbs/day	annual	annual
Heptachlor	lbs/day	annual	annual
Heptachlor epoxide	lbs/day	annual	annual
Hexachlorobenzene	lbs/day	annual	annual
Hexachlorobutadiene	lbs/day	annual	annual
Hexachloroethane	lbs/day	annual	annual
Isophorone	lbs/day	annual	annual
N-nitrosodimethylamine	lbs/day	annual	annual
N-nitrosodi-N-propylamine	lbs/day	annual	annual
N-nitrosodiphenylamine	lbs/day	annual	annual
PAHs	lbs/day	annual	annual
PCBs	lbs/day	annual	annual
TCDD equivalents	lbs/day	annual	annual
1,1,2,2-tetrachloroethane	lbs/day	annual	annual
Tetrachloroethylene	lbs/day	annual	annual

Monitoring Parameters and Reporting Frequency for *Combined Low-Volume*, In-Plant Wastewaters from Units 2 and 1

Constituent	Units[11/]	Minimum Frequency of Analysis	Reporting Frequency
Toxaphene	lbs/day	annual	annual
Trichloroethylene	lbs/day	annual	annual
1,1,2-trichloroethane	lbs/day	annual	annual
2,4,6-trichlorophenol	lbs/day	annual	annual
Vinyl chloride	lbs/day	annual	annual

VI. INDIVIDUAL LOW VOLUME, IN-PLANT WASTEWATERS FROM UNIT 3[9/] (INTERNAL OUTFALLS 003-C THROUGH 003-L) AND UNIT 1[9/](INTERNAL OUTFALLS 001-D THROUGH 001-G)

Each individual, low-volume, in-plant wastestream from Unit 3 (Internal Outfalls 003-C through 003-L) shall be collected and analyzed separately in accordance with the following schedule (the following monitoring schedule shall also be applicable to discharges of individual, low-volume, in-plant wastewaters from Unit 1 (Internal Outfalls 001-D through 001-G) whenever these discharges are routed from Unit 1 to Outfall 003):

Monitoring Parameters and Reporting Frequency for *Individual Low-Volume*, In-Plant Wastewaters from Units 2 and 1

Constituent	Units	Sample[2/] Type	Frequency of Analysis	Reporting Frequency
Flow (Avg and Daily Max)	mgd	meter or estimate	continuous	monthly
Total Suspended Solids	mg/L lbs/day[11/]	grab	monthly	monthly
Oil and Grease	mg/L lbs/day[11/]	grab	monthly	monthly

VII. CHEMICAL AND NON-CHEMICAL METAL CLEANING WASTES FROM UNIT 3 (INTERNAL OUTFALLS 003-A, 003-B) AND UNIT 1 (INTERNAL OUTFALL 001-C)

Chemical and non-chemical, metal cleaning waste streams from Unit 3 (Internal Outfalls 003-A

and 003-B) shall be sampled and analyzed in accordance with the following monitoring schedule (the following monitoring schedule shall also be applicable Unit 1 metal cleaning wastewaters (Internal Outfall 001-C) whenever the metal cleaning discharges from Unit 1 are routed to Outfall 003):

Monitoring Parameters and Reporting Frequency for Metal Cleaning Wastes from Units 2 and 1

Constituent	Units	Sample[2/, 8/] Type	Frequency of Analysis[12/]	Reporting Frequency
TSS	mg/L lbs/day[11/]	grab	prior to discharge	quarterly
O&G	mg/L lbs/day[11/]	grab	prior to discharge	quarterly
Total Iron	mg/L lbs/day[11/]	grab	prior to discharge	quarterly
Total Copper	mg/L lbs/day[11/]	grab	prior to discharge	quarterly

VIII. UNIT 1 AND MESA COMPLEX SEWAGE TREATMENT PLANTS (OUTFALLS 001-A AND 001-B)

The following monitoring shall be conducted whenever treated domestic wastewaters from the Unit 1 and Mesa Facility Complex sewage treatment plants (Internal Outfalls 001-A and 001-B) are routed to Outfall 003:

1. Influent Monitoring:

   Wastewater influent at the Unit 1 and the Mesa Complex Sewage Treatment Plants shall be monitored in accordance with the following schedule:

Constituent	Units	Type of[2/] Sample	Minimum Frequency of Analysis	Reporting Frequency
TSS	mg/L	grab	monthly	monthly

2. Effluent Monitoring (Outfalls 001-A and 001-B):

   Treated wastewater at the Unit 1 (001-A) and the Mesa Complex (001-B) Sewage Treatment Plants shall be monitored in accordance with the following schedule:

Monitoring Parameters and Reporting Frequency for Treated Wastewater from the Unit 1 and Mesa Complex Sewage Treatment Plants

Constituent	Units	Type of[2/] Sample	Minimum Frequency of Analysis	Reporting Frequency
Flow (Avg and Max Daily)	mgd	meter or estimate	daily	monthly
Oil & Grease	mg/L lbs/day[11/]	grab	monthly	monthly
TSS	mg/L	grab	monthly	monthly
Settleable Solids	ml/L	grab	monthly	monthly
pH	pH units	grab	monthly	monthly

IX. ACROSS-THE-BEACH DISCHARGE MONITORING (OUTFALL 005)

All incidents of across-the-beach discharges from Unit 3 through Outfall 005 shall be recorded and reported for the month during which the discharge occurred. The discharger shall report the date, time, and duration of each discharge; the source (system) of the wastewater that is discharged; an estimate of the volume discharged; and any other monitoring data that is generated during the discharge.

X. RECEIVING WATER MONITORING[13/]

Receiving water monitoring shall be conducted as specified below. Station location, sampling, sample preservation, and analysis, when not specified by this MRP, shall be by methods described in the discharger's previous annual reports (Marine Environmental Analysis and Interpretation, San Onofre Nuclear Generating Station, 2001, 2002, and 2003 Annual Reports) submitted to the Regional Board. The receiving water monitoring requirements may be modified by the Regional Board at any time.

1. CONTINUOUS TEMPERATURE MONITORING

   Continuously recording thermographs will be employed at Stations C2S, F2S, C22S (see Attachment 1, Figure 1 of this MRP). Measurements will be obtained from the surface, 5 m, 10 m and near-bottom. Measurements will be reported as hourly data.

2. TURBIDITY

   Quarterly aerial photographic surveys will be conducted in the area of the Units 2 and 3 diffuser systems.

3. FISH POPULATIONS

   Quarterly trawling surveys will be conducted at three stations (Attachment 1, Figure 2 of

this MRP) located offshore of San Mateo Point, SONGS and Don Light. Daylight sampling by otter trawl will be conducted at the 20, 40 and 60 ft. isobaths at each station. Each trawl will be of five-minute duration. Collected fishes will be identified and enumerated, and sex determined for selected species.

4. KELP DENSITIES

Fixed Quadrant Sampling
Individual giant kelp plants and the number of associated stipes greater than 2 m will be counted tri-annually at fixed quadrants associated with six station (Stations 10, 14-15, 16-17, 18-19, 22, and 23) located in the San Onofre Kelp (see Attachment 1, Figure 3 of this MRP). The composition of the substrate will be qualitatively described and percent cover information will be collected at each of the fixed quadrant sites.

Random Quadrant Sampling
Semiannual sampling shall also be conducted at ten 10-m^2 circular quadrants randomly selected within 30-m radius of each of the six stations in the San Onofre Kelp. The random sampling shall include the enumeration of giant kelp, and an estimate of the substratum composition (i.e. percent of sand, cobble, and boulder) within each of the random quadrants.

5. KELP BED MONITORING

Kelp bed monitoring is conducted to assess the extent to which the discharge of wastes may affect the areal extent and health of coastal kelp beds. The discharger shall participate with other ocean dischargers in the San Diego Region in an annual regional kelp bed photographic survey. Kelp beds shall be monitored annually by means of vertical aerial infrared photography to determine the maximum areal extent of the region's coastal kelp beds within the calendar year. Surveys shall be conducted as close as possible to the time when kelp bed canopies cover the greatest area, which ordinarily occurs in August or September in the San Diego Region. The entire San Diego Region coastline, from the International Boundary to the San Diego Region/Santa Ana Region boundary, shall be photographed on the same day. The date of each annual survey shall be approved by a Regional Board. Verbal approval (with email confirmation) will be sufficient, so that the survey will not be delayed while written approval is prepared and distributed.

The images produced by the surveys shall be presented in the form of a 1:24,000 scale photo-mosaic of the entire San Diego Region coastline. Onshore reference points, locations of all ocean outfalls and diffusers, and the 30-foot (MLLW) and 60-foot (MLLW) depth contours shall be shown.

The area/extent of the various kelp beds photographed in each survey shall be compared to that noted in surveys of previous years. Any significant losses which persist for more than one year shall be investigated by divers to determine the probable reason for the

loss.

6. TEMPERATURE PROFILES

Temperature profiles from the surface to the bottom will be measured quarterly at the following designated Impact and Control Stations (see Attachment 1, Figure 4 of this MRP):

Impact Stations:
X0, C1N, C2N, C1S, C2S, F2N, F2S, H0, H2N, H2S, J0, J2N, J4N, J8N, J2S, J4S, J8S, M0, M2N, M4N, M8N, M2S, M4S, and M8S.

Control Stations:
C22S, F22S, H22S, J22S, and M22S.

7. WATER QUALITY MEASUREMENTS

Dissolved oxygen concentrations and pH will be measured quarterly at the surface of the following designated Impact and Control Stations (see Attachment 1, Figure 4 of this MRP):

Impact Stations:
X0, C1N, C2N, C1S, C2S, J2N, J2S, and J4S

Control Stations:
C22S and F22S

8. REPORTING

a. A report containing detailed analyses of the previous calendar year's receiving water monitoring data shall be submitted to the Regional Board by August 1 of each year. Each section of the report shall contain a graphical and written summary of historical data with the goal of displaying long term trends.
b. The annual summary report requirement in Section XI of this MRP will not apply to receiving water monitoring.

XI. ANNUAL SUMMARY OF MONITORING DATA

By February 1 of each year, the Discharger shall submit an annual report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements of this Order.

XII. OTHER MONITORING REQUIREMENTS

In addition to the Core (Intake, Effluent, and Receiving Water Monitoring) requirements (see Sections III through X) the Discharger shall comply with the following monitoring requirements:

a. Regional Watershed/Ocean Monitoring

The Discharger shall participate and coordinate with state and local agencies and other dischargers in the San Diego Region in development and implementation of a regional watershed or ocean-monitoring program for the Pacific Ocean as directed by this Regional Board. The intent of a regional monitoring program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled resources of the region. During the coordinated monitoring effort, the discharger's monitoring program may be expanded to provide a regional assessment of the impact of discharges to the watershed or Pacific Ocean.

b. Special Studies

Special studies are intended to be short-term and designed to address specific research or management issues that are not addressed by the routine core-monitoring program. The Discharger shall implement special studies as directed by this Regional Board. This includes conducting and implementing a *Comprehensive Demonstration Study* as required by the CWA Section 316(b) Phase II Rule (40 CFR 125.91). The Study is due no later than January 9, 2008.

XIII. REPORTING REQUIREMENTS

1. The discharger shall comply with all *State and Federal Standard Provisions* (see Attachment C of Order No. R9-2005-0006) regarding monitoring, reporting, and recordkeeping.
2. The discharger shall present data in tabular form so that the required information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with waste discharge requirements.

3. The discharger shall report with each sample result the applicable Minimum Level (ML) and the laboratory current Method Detection Limit (MDL) as determined by the procedure in 40 CFR 136.

4. The discharger shall attach a cover letter to the Discharge Monitoring Report. The information contained in the cover letter shall clearly identify violations of the WDRs,

discuss corrective actions taken or planned and the proposed time schedule of corrective actions. Identified violations should include a description of the requirement that was violated and a description of the violation.

5. Monitoring reports shall be submitted in accordance with the following schedule:

Monitoring Frequency	Report Due
Monthly	First day of second month after the month of sampling.
Quarterly	First day of the second month after the quarter ends – May 1, August 1, November 1, February 1.
Semiannually	First day of the second month after the 6 month period –August 1 and February 1.
Annually	February 1 (Annual Discharge Monitoring Data Summary Report)
	August 1 (Annual Receiving Water Report)

6. Copies of all reports submitted by the discharger to the Nuclear Regulatory Commission pertaining to monitoring of radioactive materials in wastewaters released from SONGS Unit 3 shall be transmitted to the Regional Board.

7. Other reports, as required by Order No. R9-2005-0006 shall be submitted to the Regional Board according to the following schedule:

   a. *Proposal for Information Collection* regarding Clean Water Act Section 316 (b) *Comprehensive Demonstration Study* will be due no later than 180 days after the effective date of Order No. R9-2005-0006.

   b. Clean Water Act Section 316 (b) *Comprehensive Demonstration Study* will be due no later than January 9, 2008.

   c. Receiving Water Monitoring Report is due by August 1 of each year following the previous calendar year's receiving water monitoring activity.

8. Monitoring results must be reported on forms approved by this Regional Board. Duplicate copies of the monitoring reports, signed and certified, as required by Attachment D of Order No. R9-2005-0006, must be submitted to the addresses listed below:

Submit monitoring reports to:	**With a copy sent to:**
Industrial Compliance Unit California Regional Water Quality Control Board San Diego Region 9174 Sky Park Court, Suite 100 San Diego, California 92123-4340	State Water Resources Control Board Discharge Monitoring Report Processing Center P.O. Box 671 Sacramento, California 95812

XIV. ENDNOTE REFERENCES

1. For fish length, where up to 125 individuals of a species are removed, the "representative sample" shall consist of all the individuals removed. Where more than 125 individuals of a species are removed, the "representative sample" shall consist of not less than 125 individuals. For determination of fish sex, the procedure shall be the same as for fish length, except the number of individuals shall be 50.

2. A grab sample is an individual sample of at least 100 mLs collected at a randomly selected time over a period not exceeding 15 minutes.

3. Temperature shall be recorded at a minimum frequency of once every two hours. The average and maximum temperature for each 24-hour period shall be reported. Insignificant figures shall be rounded to the nearest significant figures. The daily average difference (ΔT) and the maximum daily difference (ΔTm) between the intake and discharge temperatures shall also be reported.

4. Combined discharge monitoring shall be conducted at a point in the circulating water system downstream of the condenser, downstream of the point(s) at which the component cooling and turbine plant cooling water streams reenter the circulating water stream, and downstream of the point(s) at which all in-plant and/or low volume waste streams enter the circulating water stream. Combined discharge samples shall be collected immediately following collection of cooling water intake samples.

5. Analyses for pollutants with effluent limitations based on water quality objectives from Table B of the California Ocean Plan (2001) shall conform to the requirements of Attachment 2 of this MRP.

6. Samples shall be collected and analyzed for total residual chlorine and free available chlorine at times when the concentration of total residual chlorine and free available chlorine in the combined discharge is greatest. The times of uninterrupted chlorine discharges on the days the samples are collected and the times at which samples are collected shall be reported.

7. Chronic Toxicity Units:

   $$TUc = 100/NOEC$$

   Compliance with chronic toxicity will be expressed as TUc, which equals 100/NOEC. NOEC (No Observed Effect Concentration) is the highest concentration of toxicant, in terms of percent effluent, to which the test organisms are exposed that causes no observable adverse effect.

8. A composite sample is defined as a combination of 24 aliquots of at least 100 mLs each,

collected hourly over a 24-hour period. Each individual aliquot must consist of 4 samples taken at 15-minute intervals. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time off sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

9. For the purposes of monitoring, the following wastewaters are considered low volume wastewaters from Unit 3:

- Blowdown Processing
- Makeup Demineralizer
- Radwaste System
- Polishing Demineralizer System
- Steam Generator Blowdown
- Hotwell Overboard
- Plant Drains
- Intake Structure Sump
- Thermophilic Digester
- Concrete Cutting Water

For the purposes of monitoring, the following wastewaters are considered low volume wastewaters from Unit 1:

- Plant Drains
- Yard Drains
- Radwaste System
- Dewatering

10. A composite sample shall be created from as many individual low volume wastewaters as possible. The following example shows how to create a flow-weighted composite sample.

For example, say that the following individual low volume wastewaters are sampled. The flow rate for each individual wastewater is determined for that day, and the relative amount/volume, in percent, of each individual waste stream in the total flow for that day is determined. Using the percentages of each individual waste stream in the total, the amount of each individual waste stream to be composited in a five-gallon (18,927 mls) sample is calculated. In the example, below, on the day of sample collection, condenser overboard flow accounts for 69 percent of the total flow of the low volume wastewaters that are sampled. 69 percent of five gallons equals 0.69 x 18,927 milliliters, which equals 13,060 milliliters. (There are 3,785 mLs per gallon and 18,927 mLs per five gallons.)

Low Volume Wastewater	**Flow**	**Percent of Total Flow**	**mLs to be Composited in a 5 Gal Sample**
Condenser Overboard	6.5 mgd	69	13,060
Makeup Demineralizer System	0.58 mgd	6	1,136
Radwaste System	0.25 mgd	3	568
Steam Generator Blowdown	0.43 mgd	5	946
Polishing Demineralizer	1.5 mgd	16	3,028

System			
Concrete Cutting Cooling Water	0.10 mgd	1	189
Total	9.45 mgd	100 percent	18,927 mls

11. Mass emissions (lbs/day) are calculated by the following equation. The flow rate used for calculation shall be the flow rate of the individual waste stream at the time of sampling.

    lbs/day = 8.34 x Ce x Q where:

    Ce = the effluent concentration limit, mg/l
    Q = flow rate, million gallons per day (MGD)

12. After the initial discharge of metal cleaning wastes, monitoring shall be weekly, if the discharge continues. Monitoring results shall be summarized and included in the next quarterly monitoring report, which covers the 3-month period in which the discharge occurred.

13. Reports of marine monitoring surveys conducted to meet receiving water monitoring requirements of the MRP shall include, as a minimum, the following information.

    a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, wind speed and direction swell or wave action, time of sampling, tide height, etc.).

    b. A description of sampling stations, including difference unique to each station (e.g., station location, sediment grain size, distribution of bottom sediments, rocks, shell litter, calcareous worm tubes, etc.).

    c. A description of the sample collection and preservation procedures used in the survey.

    d. A description of the specific method used for laboratory analysis.

    e. An in-depth discussion of the results of the survey. The discussion shall compare data from the reference station(s) with data from the stations located in the area of the discharge. All tabulations and computations shall be explained.

ATTACHMENT 1 TO MONITORING AND REPORTING PROGRAM

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

SONGS RECEIVING WATER MONITORING STATIONS

Figure 1: Continuous Temperature Monitoring Stations
Figure 2: Otter Trawl Stations for Fish Population Surveys
Figure 3: San Onofre Kelp Site Sampling Stations
Figure 4: Temperature Profile and Water Quality Measurement Stations

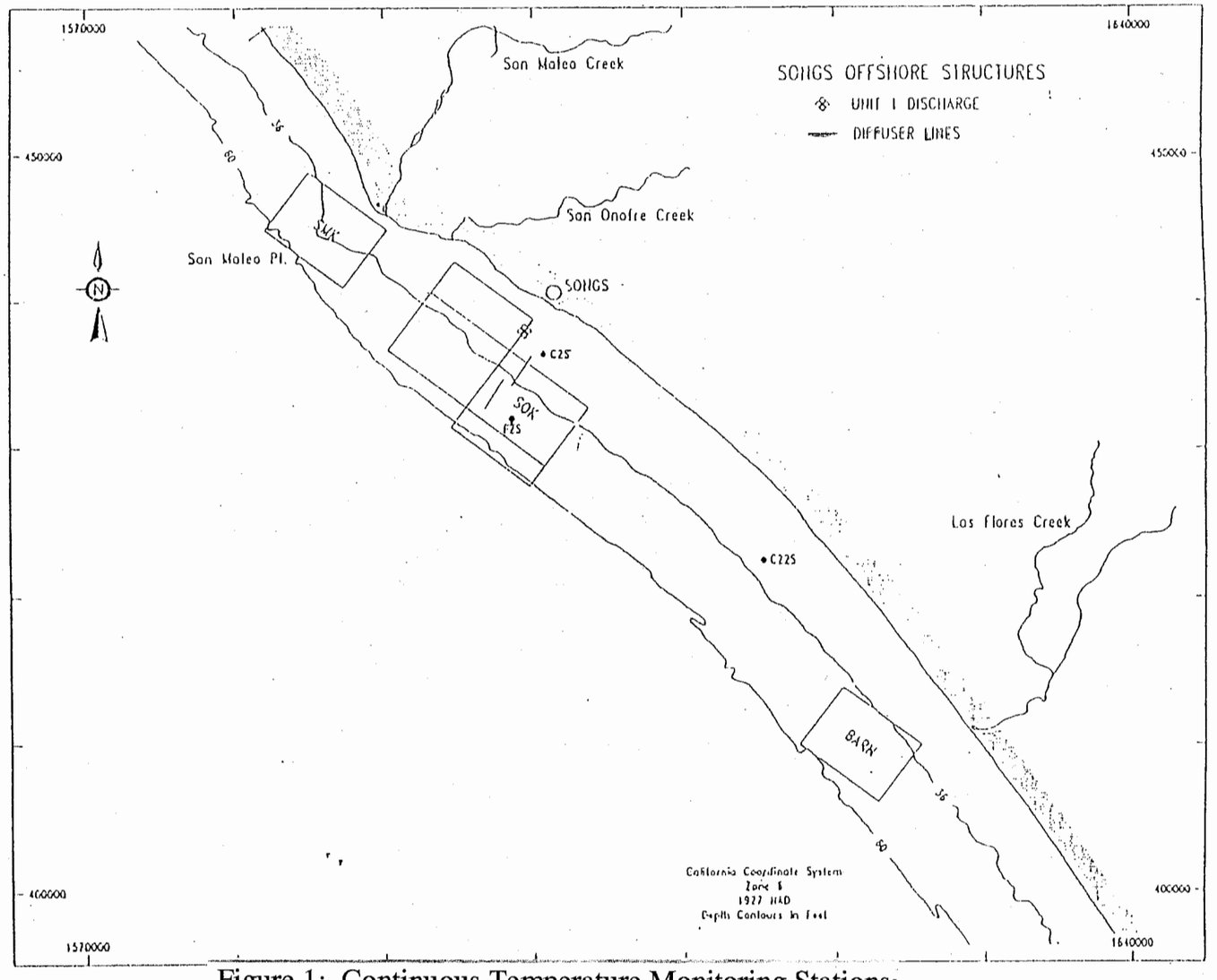


Figure 1: Continuous Temperature Monitoring Stations;

C2S, F2S, and C22S offshore of San Onofre.

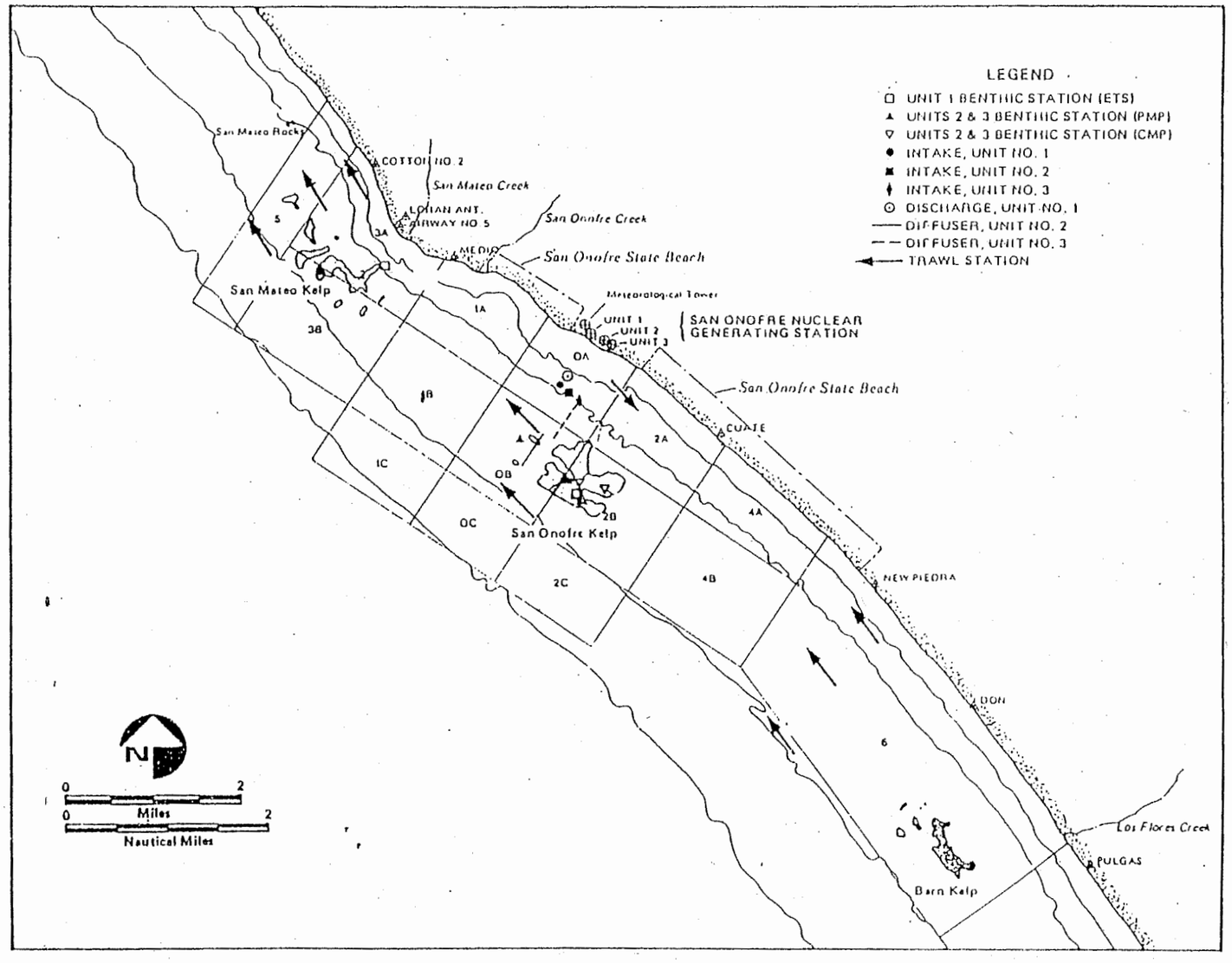


Figure 2: Otter Trawl Stations for Fish Population Study

Figure 3: San Onofre Kelp Site Sampling Stations

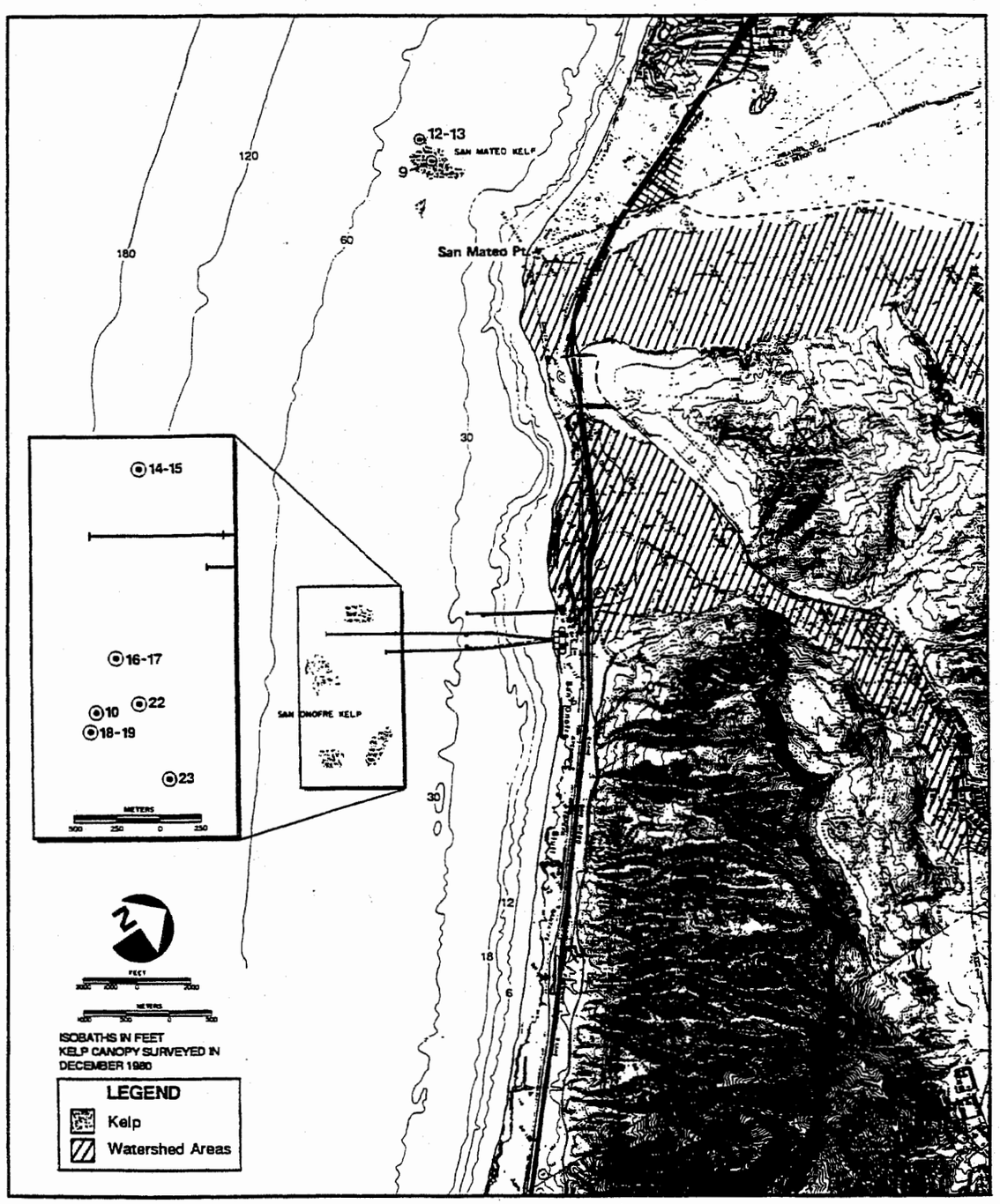
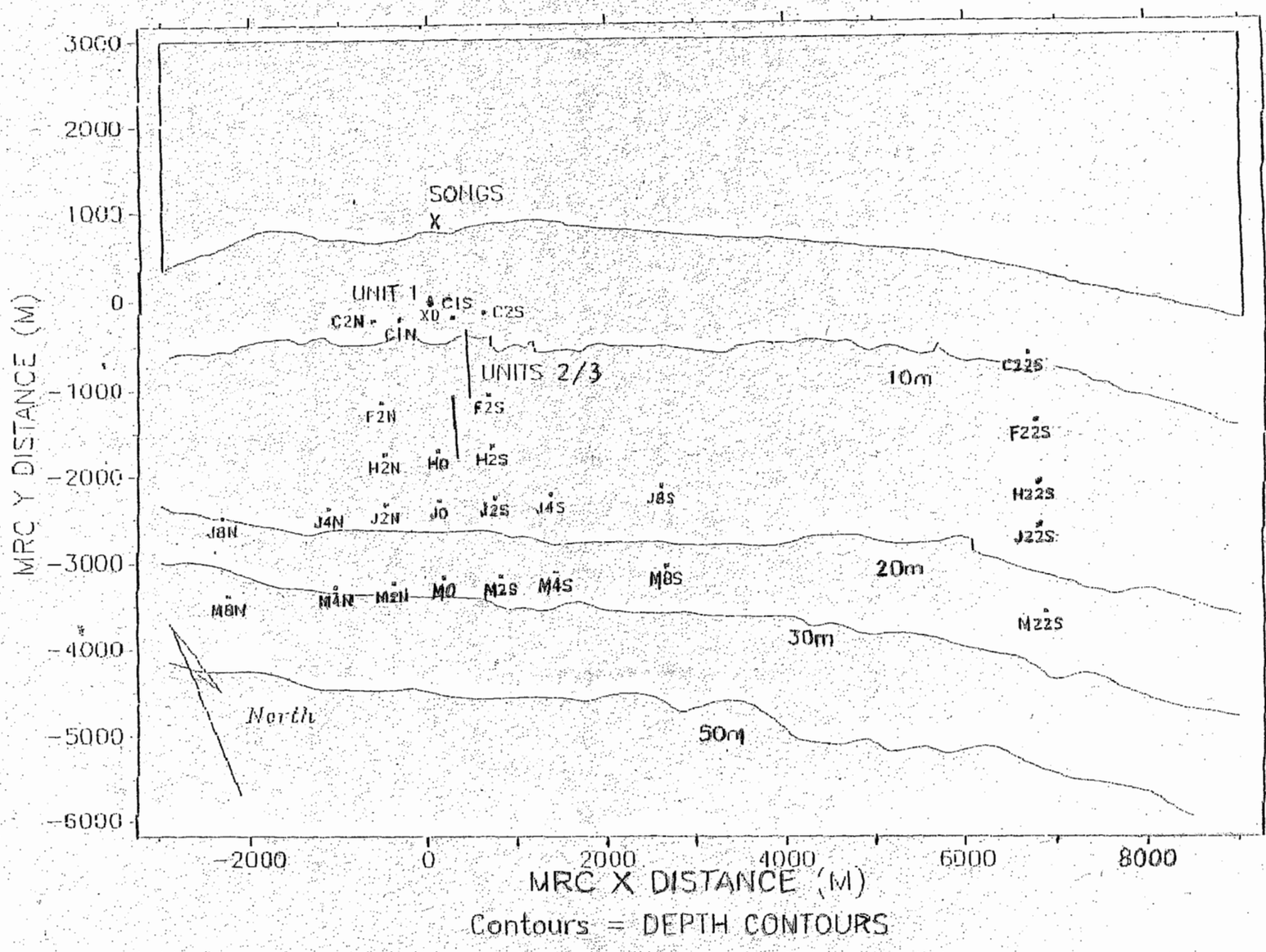


Figure 4: Temperature Profile and Water Quality Measurement Stations



ATTACHMENT 2 TO MONITORING AND REPORTING PROGRAM

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

ANALYSIS OF POLLUTANTS WITH EFFLUENT LIMITATIONS BASED ON WATER QUALITY OBJECTIVES FROM TABLE B OF THE 2001 OCEAN PLAN MINIMUM LEVELS

1. Pollutants with effluent limitations, based on water quality objectives of Table B of the 2001 Ocean Plan, shall be analyzed by one of the analytical methods identified below. The Discharger shall use the Minimum Level, corresponding to the method used for analysis, for reporting and compliance determination.

   Minimum Levels represent the lowest quantifiable concentration in a sample based on the proper application of method specific analytical procedures and the absence of matrix interferences. Minimum Levels also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method specific factors.

   Common analytical practices may require different treatment of the sample relative to the calibration standard. Some examples are given below:

Substance or Grouping	**Method-Specific Treatment**	**Most Common Factor**
Volatile Organics	No differential treatment	1
Semi-Volatile Organics	Samples concentrated by extraction	1000
Metals	Samples diluted or concentrated	½, 2, and 4
Pesticides	Samples concentrated by extraction	100

   Other factors may be applied to the Minimum Level depending on the specific sample preparation steps used. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, the additional factor must be applied during the computation of the reporting limit. Application of such factors will alter the reported Minimum Level.

   The Discharger shall instruct its laboratory to establish calibration standards so that the Minimum Level (or its equivalent, if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

Minimum Levels and Analytical Methods - Volatile Chemicals

Constituent	CAS Number	Minimum Level (µg/l)	
		GC Method	GCMS Method
Acrolein	107028	2	5
Acrylonitrile	107131	2	2
Benzene	71432	0.5	2
Bromoform	75252	0.5	2
Carbon tetrachloride	56235	0.5	2
Chlorobenzene	108907	0.5	2
Chlorodibromomethane	124481	0.5	2
Chloroform	67663	0.5	2
1,2-dichlorobenzene (volatile)	95501	0.5	2
1,3-dichlorobenzene (volatile)	541731	0.5	2
1,4-dichlorobenzene (volatile)	106467	0.5	2
Dichlorobromomethane	75274	0.5	2
1,1-dichloroethane	75343	0.5	1
1,2-dichloroethane	107062	0.5	2
1,1-dichloroethylene	75354	0.5	2
Dichloromethane	75092	0.5	2
1,3-dichloropropene	542756	0.5	2
Ethyl benzene	100414	0.5	2
Methyl bromide	74839	1	2
Methyl chloride	74873	0.5	2
1,1,2,2-tetrachloroethane	79345	0.5	2
Tetrachloroethylene	127184	0.5	2
Toluene	108883	0.5	2
1,1,1-trichloroethane	71556	0.5	2
1,1,2-trichloroethane	79005	0.5	2
Trichloroethylene	79016	0.5	2
Vinyl chloride	75014	0.5	2

Minimum Levels and Analytical Methods - Semi Volatile Chemicals

Constituent	CAS Number	Minimum Level (µg/l)			
		GC Method	GCMS Method	HPLC Method	Color Method
Acenapthylene	208968		10	0.2	
Anthracene	120127		10	2	
Benzidine	92875		5		
Benzo(a)anthracene	56553		10	2	
Benzo(a)pyrene	50328		10	2	
Benzo(b)fluoranthene	205992		10	10	
Benzo(g,h,i)perylene	191242		5	.1	

Minimum Levels and Analytical Methods - Semi Volatile Chemicals

Constituent	CAS Number	Minimum Level (µg/l)			
		GC Method	GCMS Method	HPLC Method	Color Method
Benzo(k)fluoranthene	207089		10	2	
Bis 2-(1-chloroethoxy) methane	111911		5		
Bis (2-chloroethyl) ether	111444	10	1		
Bis (2-chloroisopropyl) ether	39638329	10	2		
Bis(2-ethylhexyl) phthalate	117817	10	5		
2-chlorophenol	95578	2	5		
Chrysene	218019		10	5	
Di-n-butyl phthalate	84742		10		
Dibenzo(a,h)anthracene	53703		10	.1	
1,2-dichlorobenzene (semivolatile)	95504	2	2		
1,3-dichlorobenzene (semivolatile)	541731	2	1		
1,4-dichlorobenzene (semivolatile)	106467	2	1		
3,3-dichlorobenzidine	91941		5		
2,4-dichlorophenol	120832	1	5		
1,3-dichloropropene	542756		5		
Diethyl phthalate	84662	10	2		
Dimethyl phthalate	131113	10	2		
2,4-dimethylphenol	105679	1	2		
2,4-dinitrophenol	51285	5	5		
2,4-dinitrotoluene	121142	10	5		
1,2-diphenylhydrazine	122667		1		
Fluoranthene	206440	10	1	.05	
Fluorene	86737		10	.1	
Hexachlorobenzene	118741	5	1		
Hexachlorobutadiene	87683	5	1		
Hexachlorocyclopentadien e	77474	5	5		
Hexachloroethane	67721	5	1		
Indeno(1,2,3-cd)pyrene	193395		10	.05	
Isophorone	78591	10	1		
2-methyl-4,6-dinitrophenol	534521	10	5		
3-methyl-4-chorophenol	59507	5	1		
N-nitrosodi-n-propylamine	621647	10	5		
N-nitrosodimethylamine	62759	10	5		
N-nitrosodiphenylamine	86306	10	1		
Nitrobenzene	98953	10	1		
2-nitrophenol	88755		10		
4-nitrophenol	100027	5	10		

Minimum Levels and Analytical Methods - Semi Volatile Chemicals

Constituent	CAS Number	Minimum Level (µg/l)			
		GC Method	GCMS Method	HPLC Method	Color Method
Pentachlorophenol	87865	1	5		
Phenanthrene	85018		5	.05	
Phenol	108952	1	1		50
Pyrene	129000		10	.05	
2,4,6-trichlorophenol	88062	10	10		

Minimum Levels and Analytical Methods - Inorganics

Constituent	CAS Number	Minimum Level (µg/l)								
		Color Method	DCP Method	FAA Method	GFAA Method	HYDRIDE Method	ICP Method	ICPMS Method	SPGFAA Method	CVAA Method
Antimony	7440360		1000	10	5	.5	50	.5	5	
Arsenic	7440382	20	1000		2	1	10	2	2	
Beryllium	7440417		1000	20	.5		2	.5	1	
Cadmium	7440439		1000	10	.5		10	.2	.5	
Chromium (total)			1000	50	2		10	.5	1	
Chromium (VI)	18540299	10		5						
Copper	7440508		1000	20	5		10	.5	2	
Cyanide	57125	5								
Lead	7439921		10000	20	5		5	.5	2	
Mercury	7439976							.5		.2
Nickel	7440020		1000	50	5		20	1	5	
Selenium	7782492		1000		5	1	10	2	5	
Silver	7440224		1000	10	1		10	.2	2	
Thallium	7440280		1000	10	2		10	1	5	
Zinc	7440666		1000	20			20	1	10	

Minimum Levels and Analytical Methods - Pesticides and PCBs

Constituent	Minimum Level (µg/l)	
	CAS Number	GC Method
Aldrin	309002	.005
Chlordane	57749	.1
4,4'-DDD	72548	.05
4,4'-DDE	72559	.05
4,4'-DDT	50293	.01
Dieldrin	60571	.01
a-Endosulfan	959988	.02
b-Endosulfan	33213659	.01
Endosulfan Sulfate	1031078	.05
Endrin	72208	.01
Heptachlor	76448	.01
Heptachlor Epoxide	1024573	.01
a-Hexachlorocyclohexane	319846	.01
b-Hexachlorocyclohexane	319857	.005
d-Hexachlorocyclohexane	319868	.005
g-Hexachlorocyclohexane (Lindane)	58899	.02
PCB 1016		.05
PCB 1221		.05
PCB 1232		.05
PCB 1242		.05
PCB 1248		.05
PCB 1254		.05
PCB 1260		.05
Toxaphene	8001352	.05

2. Reporting Protocols

The Discharger shall adhere to the following reporting protocols, for pollutants with effluent limitations based on water quality objectives from Table B of the Ocean Plan (2001), unless stated otherwise in the Order No. R9-2005-0006 or this MRP.

a. The Discharger must report with each sample result the Minimum Level, which corresponds to the analytical method employed, and the laboratory's current method detection limit (MDL).

b. The Discharger must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following protocols:

i. Sample results greater than or equal to the reported Minimum Level must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).

ii. Sample results less than the reported Minimum Level, but greater than or equal to the laboratory's MDL, must be reported as "detected, but not quantified" or DNQ. The laboratory must write the estimated concentration next to DNQ, as well as the words "estimated concentration," which may be shortened to "est. conc."

iii. Sample results less than the laboratory's MDL must be reported as "not detected" or ND.

3. Compliance Determination

a. Compliance with single constituent effluent limitations:

Discharges are out of compliance with the effluent limitation, if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level.

b. Compliance with effluent limitations expressed as a sum of several constituents:

Discharges are out of compliance with an effluent limitation, which applies to the sum of a group of chemicals (e.g., PCBs), if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero, if the constituent is reported as ND or DNQ.

c. Multiple sample data reduction:

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses, when all sample results are quantifiable. (i.e., greater than or equal to the reported Minimum Level). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

ATTACHMENT 3 TO MONITORING AND REPORTING PROGRAM

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

MONITORING OF CHRONIC TOXICITY AND IMPLEMENTATION OF LIMITATIONS

1. Chronic Toxicity Monitoring

The Discharger shall conduct semiannual toxicity tests on 24-hour composite effluent samples. Testing shall be performed using methods outlined in "Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms" or "SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ."

Combined discharge samples shall be taken during a period when low volume wastes are being discharged. Samples shall be taken at the NPDES sampling location of the combined discharge. At the time of the first toxicity test immediately following adoption of this permit, the Discharger shall conduct toxicity tests with an invertebrate, Haliotis rufescens, a plant Macrocystis pyrifera, and a vertebrate Atherinops Affinis. After this screening period, monitoring will be conducted on the most sensitive species. Every two years the Discharger shall re-screen to determine the most sensitive species. This screening shall be performed on a different month than previous species screenings. The most sensitive species shall then be used.

At least five concentrations of effluent (one concentration must bracket the initial dilution of 10% effluent) plus a control, shall be tested. A minimum of four replicates is required per concentration. The effluent tests must be conducted with concurrent reference toxicant tests. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manuals. If the test acceptability criteria is not achieved, then the Discharger must re-sample and re-test within 14 days.

The summary report submitted to the Regional Board must follow the guidelines specified in Chapter 10 of Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. Section 10.2 and section 10.3.2 of that chapter is not required.

Compliance shall be determined from TUc, which equals 100/NOEC. NOEC (No Observed Effect Concentration) is the highest concentration of toxicant, in terms of percent effluent, to which the test organisms are exposed that causes no observable adverse effect. The chronic toxicity limitation is: 1) a monthly median expressed as 10 TUc or 2) any one test that demonstrates a 50% toxic effect.

2. Implementation of Chronic Toxicity Limitations

If the results of an acute or chronic toxicity test exceeds the limits specified in this Order, the Discharger shall:

a. Take all reasonable measures necessary to immediately minimize toxicity; and

b. Increase the frequency of the toxicity test(s) that violated the effluent limitation to at least two times per month until the results of at least three consecutive toxicity tests meet the required standard. Resampling should occur under conditions that mimic the conditions of the initial non-compliant toxicity test.

If the Regional Board determines that toxicity testing shows a consistent violation of the limits specified in this Order, the Discharger shall conduct a Toxicity Reduction Evaluation (TRE), which includes all reasonable steps to identify the source of the toxicity. Once the source of toxicity is identified, upon the Regional Board's request, the Discharger shall take all reasonable steps to reduce the toxicity to meet the toxicity limitations contained in this Order. The TRE shall be conducted based on the procedures established by the U.S. EPA in guidance manuals EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 (Phase III), and EPA/600/2-88/070 (TRE protocols for industrial discharges).

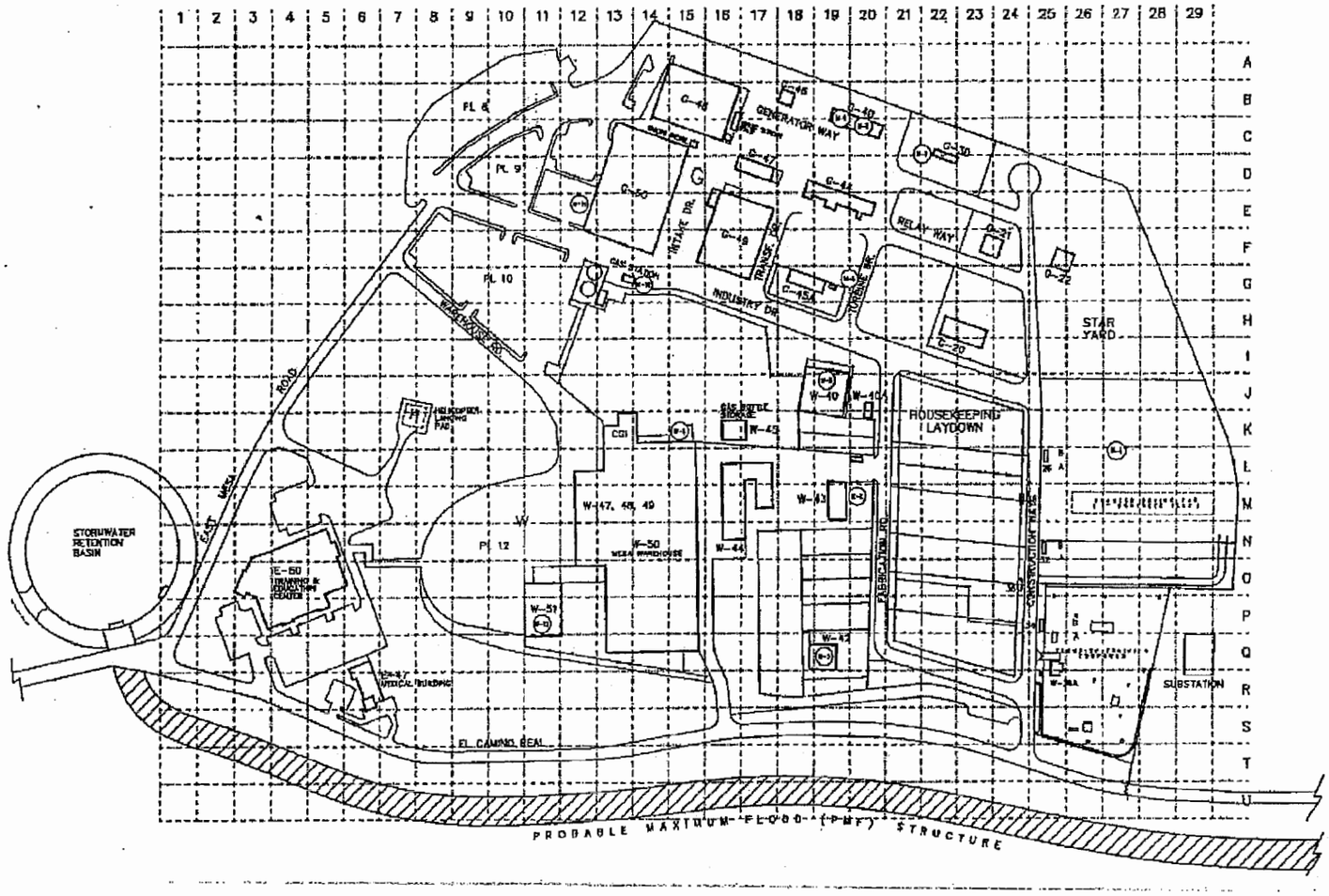
Within 14 days of completion of the TRE, the Discharger shall submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with this Order and prevent future violations, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the discretion of the Regional Board.

ATTACHMENT 4 TO MONITORING AND REPORTING PROGRAM

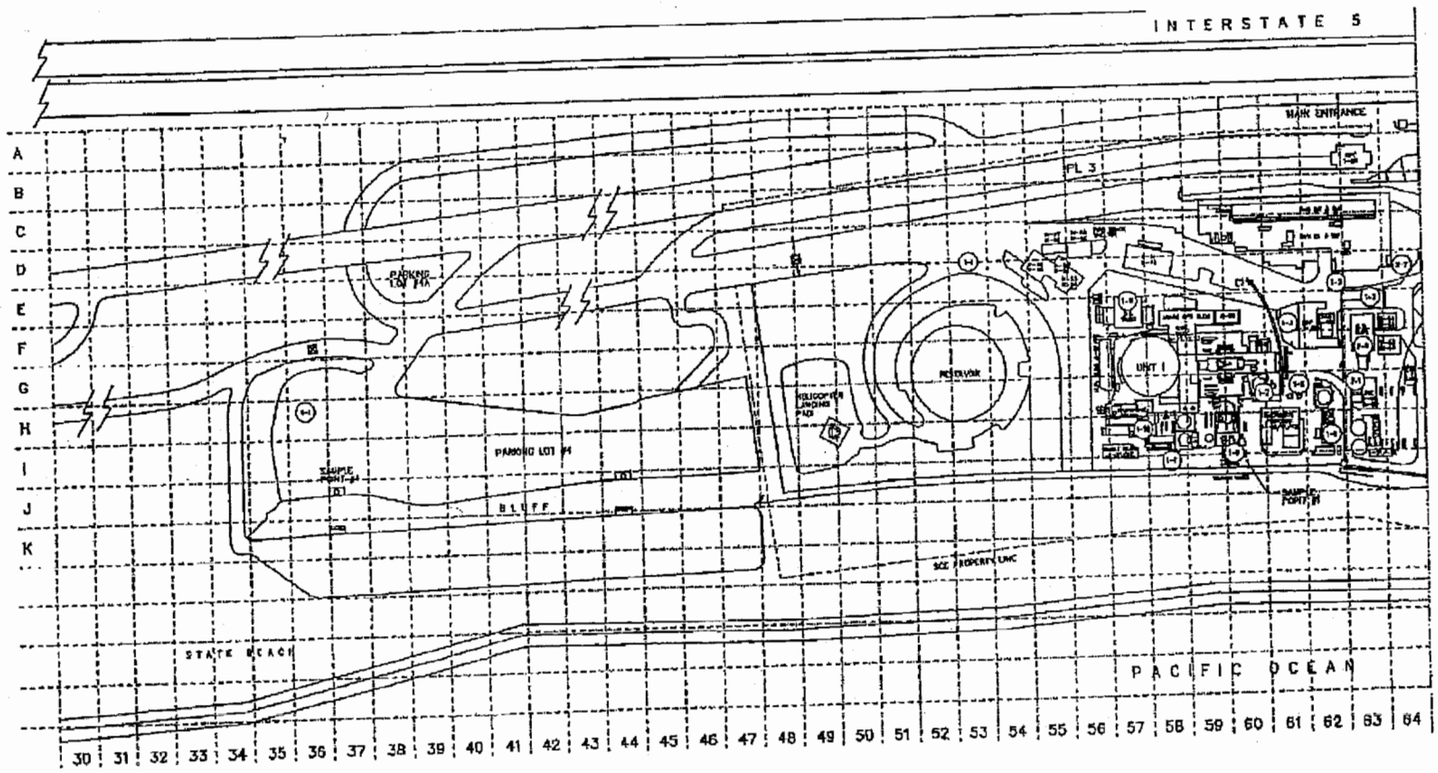
NPDES NO. CA0108181
ORDER NO. R9-2005-0006

SONGS FACILITY GRIDMAPS

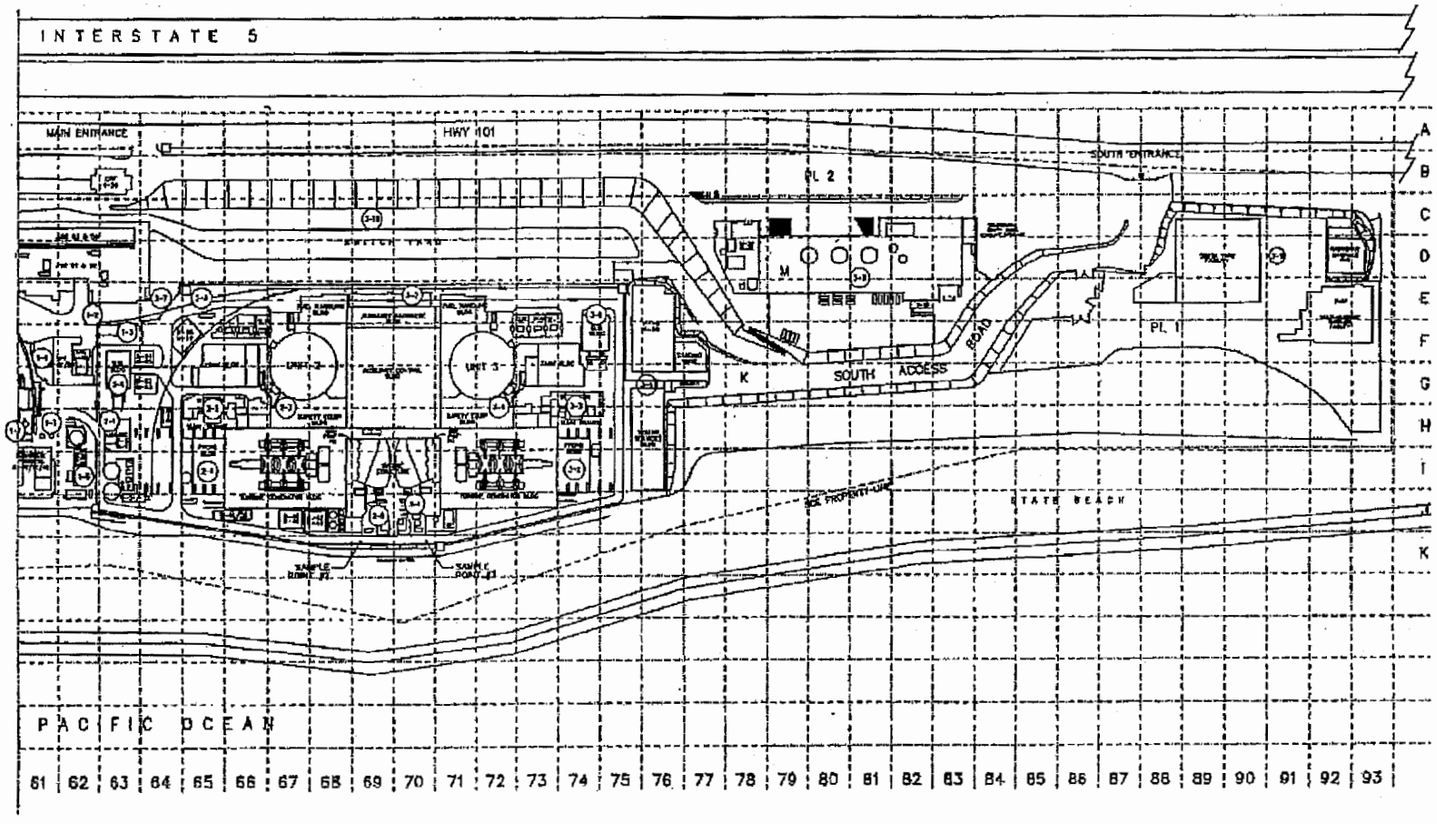
NPDES SITE PLAN (Continued)



NPDES SITE PLAN



NPDES SITE PLAN (Continued)



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION

NPDES NOs. CA0108073 and CA0108181
ORDER NOS. R9-2005-0005 and R9-2005-0006

SOUTHERN CALIFORNIA EDISON
SAN ONOFRE NUCLEAR GENERATING STATIONS
UNITS 2 AND 3

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ATTACHMENT E – FACT SHEET

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 9, SAN DIEGO REGION
9174 Sky Park Court, San Diego, CA 92123-4340

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
NPDES NOs. CA0108073 and CA0108181
ORDER NOS. R9-2005-0005 and R9-2005-0006

INTRODUCTION:

This Fact Sheet includes the specific legal requirements and detailed rationale that serve as the basis for the requirements of tentative Order Nos. R9-2005-0005 and R9-2005-0006.

San Onofre Nuclear Generating Station (SONGS) is a nuclear-fueled electrical power generating facility located in San Diego County immediately adjacent to the Pacific Ocean, approximately two and one-half miles southeast of San Mateo Point, within the boundaries of the United States Marine Corps Base, Camp Pendleton. SONGS is located in Section 24, T9S, R7W, SBBM, approximately two and one-half miles southeast of the City of San Clemente and approximately 12 miles northwest of the City of Oceanside. The two currently operational Units (Units 2 and 3) are owned by Southern California Edison (SCE), San Diego Gas and Electric Company (SDG&E) and the Cities of Anaheim and Riverside. However, SCE is solely responsible for the operation of SONGS Units 2 and 3. Consequently these permits are issued to SCE, pursuant to the United States Environmental Protection Agency (USEPA) Consolidated Permit Regulations, 40 CFR Part 122.4(b). Unit 1, located adjacent to Units 2 and 3, is no longer operational. Unit 1, like Units 2 and 3, was a nuclear-fueled electrical power generating facility. Unit 1 began commercial operation in 1968 and terminated power generation in November of 1992. SCE began formal decommissioning of the plant in September 1999.

Unit 2 has an electrical output of 1,087 MW and began operation in 1983. Unit 3 is virtually identical to Unit 2; it too has an electrical output of 1,087 MW and began operation on April 1, 1984. However, the two Units do have separate discharge conduits. A series of large pumps pass 1,219 million gallons per day (mgd) of seawater through the condenser of each plant. Upon passage through the condenser, the temperature of seawater increases approximately 20ºF. During this circuit, a number of in-plant waste streams are co-mingled with the cooling water flow. These include wastewaters from the following operations/processes:

- Blowdown Processing
- Makeup Demineralizer
- Radwaste System
- Polishing Demineralizer System
- Steam Generator Blowdown
- Hotwell Overboard
- Plant Drains
- Intake Structure Sump
- Thermophilic Digester
- Concrete Cutting Water

However, many of the low volume waste discharges are periodic and only occur during unusual conditions such as maintenance outages.

The effluent from Units 2 and 3 is discharged to the Pacific Ocean via individual ocean outfalls (i.e. Outfalls 002 and 003). The point of discharge from Unit 2 is latitude 33° 21' 11.74" North, longitude 117° 34' 13.5" West. The point of discharge from Unit 3 is latitude 33° 21' 11.74" North, longitude 117° 33' 51.61" West. Effluent from both Units consists primarily of once-through cooling water, with small volumes of other waste streams. The outfalls use extensive diffuser structures several thousand feet in length, thereby maximizing mixing upon release to the ocean. The maximum cooling water flow rate of each Unit is approximately 1,287 million gallons per day (MGD). Discharges from the SONGS Units 2 and 3 fish return system for the cooling water intake structure and across-the beach discharges are also regulated by these permits.

Although Unit 1 is currently being decommissioned and does not generate electricity, up to 37 MGD of seawater is utilized at Unit 1 to remove waste heat from the spent fuel pool and to dilute various low-volume waste streams still generated by the plant. SCE also operates a domestic wastewater treatment plant inside the Unit 1 premises. Up to 0.1 mgd of secondarily treated effluent is discharged from the treatment plant. The combined effluent from Unit 1 is currently discharged via an ocean outfall (i.e. Outfall 001) to the Pacific Ocean at latitude 33°21'43" north, longitude 117°33'46" west.

SONGS Unit 1 is subject to waste discharge requirements established by Order No. 2000-04 (NPDES Permit No. CA0001228, adopted on February 9, 2000), which was preceded by Order No. 95-02 (adopted on February 9, 1995) and Order No. 88-001 (adopted on February 8, 1988). Order No. 2000-04 will expire on February 9, 2005. Currently SCE is permitted to discharge the effluent from Unit 1 to Outfall 001 or route the effluent to Outfalls 002 or 003. SCE has indicated that it plans to terminate the use of the Outfall 001 sometime in 2005. At that time all effluent from Unit 1 will be routed exclusively to Outfalls 002 or 003. The Regional Board has determined that it would be appropriate not to renew the NPDES permit for Unit 1 when it expires on February 9, 2005. Order No. 2000-04 will instead continue to be enforced administratively until such time that the Discharger notifies the Regional Board that it has terminated the use of Outfall 001. The Regional Board will consider rescinding Order No. 2000-04 at that time.

SONGS Unit 2 is currently subject to waste discharge requirements established by Order No. 99-47 (NPDES Permit No. CA0108073, adopted on August 11, 1999), which was preceded by Order No. 94-49 (adopted on August 11, 1994) and Order No. 85-11 (adopted March 4, 1985).

SONGS Unit 3 is currently subject to waste discharge requirements established by Order No. 99-48 (NPDES Permit No. CA0108181, adopted on August 11, 1999), which was preceded by Order No. 94-50 (adopted on August 11, 1994) and Order No. 85-12 (adopted March 4, 1985).

The existing Orders (Nos. 99-47 and 99-48) for Units 2 and 3 expired on August 11, 2004. Pursuant to 40 CFR Part 122.46, tentative Order Nos. R9-2005-0005 and R9-2005-0006, if adopted, will renew the NPDES permits for Units 2 and 3 for another five years and update the waste discharge requirements. Pursuant to 40 CFR 122.6, Order Nos. 99-47 and 99-48 will

continue to be administratively enforced until the Regional Board adopts tentative Order Nos. R9-2005-0005 and R9-2005-0006.
On February 17, 2004, the Regional Board received an NPDES Permit Renewal Application from the Discharger for SONGS Units 2 and 3. In response to a letter of March 1, 2004 from the Regional Board requesting clarifications and/or additional information, the Discharger provided supplemental application renewal information that was received by the Regional Board on March 30, 2004. And, in response to a letter of April 22, 2004 requesting further clarifications and/or additional information, the Discharger provided supplemental information, received by the Regional Board on June 8, 2004, to complete the NPDES permit renewal application for SONGS Units 2 and 3. A site visit was conducted on March 30, 2004 to observe operations and collect additional data to develop permit limits and conditions.

Tentative Order Nos. R9-2005-0005 and R9-2005-0006 acknowledge the impending termination of flows from Unit 1 to Outfall 001 and the routing of flows from Unit 1 to Outfalls 002 or 003. Both tentative Orders are structured to account for effluent limitations and monitoring requirements as a result of the potential routing of Unit 1 flows to Outfalls 002 or 003.

I. FACILITY DESCRIPTION

A. Cooling Water Intake Structures

UNITS 1, 2, AND 3

Cooling water for SONGS Unit 2 is withdrawn 3,183 feet offshore from the Pacific Ocean via a submerged intake structure at a depth of approximately 32 feet. Cooling water for SONGS Unit 3 is withdrawn 3,183 feet offshore from the Pacific Ocean via a submerged intake structure at a depth of approximately 32 feet.

The submerged structures for both Units 2 and 3 are fitted with velocity caps to reduce entrainment of motile fishes through the conduit to the on-shore screen wells. Velocity caps function by altering the direction of the incoming flow, thereby triggering a flight response in many types of fish. At the intake structures located near shore, vertical traveling screen assemblies are angled approximately 30º to the incoming flow. These screen assemblies, together with a series of vertical louvers in the screen forebay, serve to direct entrapped motile organisms to a quiescent zone located at the far end of the forebay. Fish elevators periodically empty entrapped organisms into a four-foot diameter conduit that transports fish to a submerged discharge point approximately 1,900 feet offshore. Organisms impinged on the traveling screens are removed during periodic rotations and cleanings for disposal at a landfill.

The fish return conduit is common to both the Unit 2 and Unit 3 intake structures and is referred to as the SONGS Units 2 and 3 Fish Return System Outfall, or Outfall 004.

Cooling water for SONGS Unit 1 is withdrawn 2,980 feet offshore from the Pacific Ocean at a depth of approximately 27 feet. When Unit 1 was in operation, the average flow rate of water in the intake conduit was 460.8 mgd with a velocity of approximately 7 feet per second. Currently, cooling water withdrawn at Unit 1 is used to remove waste heat generated by the spent fuel pond and to dilute the various low-volume waste streams still generated at the facility. SCE reports a maximum intake of approximately 35 mgd via Unit 1 and does not anticipate the need for significantly greater flows during the remainder of the decommissioning process.

B. Discharge Points and Receiving Waters

UNITS 2 AND 3

Once-though cooling water and other waste streams are discharged from SONGS Unit 2 to the Pacific Ocean through 63 underwater diffusers ranging from 5,888 ft. to 8,350 ft. offshore and ranges in depth from 39 ft. to 49 ft. The offshore end of the diffuser system for the Unit 2 combined outfall (Outfall 002) is located at latitude 33º 21' 00" north and longitude 117º 34' 14" west.

Once-though cooling water and other waste streams are discharged from SONGS Unit 3 to the Pacific Ocean through an underwater diffuser that is 2,500 feet long and ends 5,900 feet offshore at a depth of approximately 39 feet. The offshore end of the diffuser system for the Unit 3 combined outfall (Outfall 003) is located at latitude 33º 20' 55.84" north and longitude 117º 34' 13.5" west.

The Discharger's Report of Waste Discharge indicates that Unit 2 and 3 each discharge approximately 1,287 mgd of wastewater to their respective ocean outfalls. The discharges from Units 2 and 3 are made up of the following cooling water and inplant low-volume waste streams:

Outfall Numbers Associated with Unit 2	Outfall Numbers Associated with Unit 3	Wastewater Discharge	Maximum Flow (mgd)
002*	003*	Once Through Condenser Cooling	1,219.0
002*	003*	Saltwater Cooling	27.0
002*	003*	Pump Bearing Flush	0.17
002*	003*	Turbine Plant Cooling	22.0
002*	003*	Yard Drains	0.17
002*	003*	Screen Wash	7.2
002-A**	003-A**	Chemical Metal Cleaning Wastes (Steam Generator)	0.2
002-B**	003-B**	Non-Chemical Metal Cleaning Wastes (Steam Generator and Feedwater Piping Sludge Lancing)	0.040
002-C**	003-C**	Blowdown Processing	0.085
002-D**	003-D**	Make-up Demineralizer	0.670
002-E**	003-E**	Radwaste System	0.432
002-F**	003-F**	Polishing Demineralizer System	1.4
002-G**	003-G**	Steam Generator Blowdown	0.720
002-H**	003-H**	Hotwell Overboard	7.20
002-I**	003-I**	Plant Drains (Building Sump)	0.8
002-J**	002-J**	Intake Structure Sump	0.288
002-K**	003-K**	Thermophilic Digester	0.010
002-L**	003-L**	Concrete Cutting Water	0.2
		Total Discharge	1,287 mgd

*wastestreams associated with the components of the condenser cooling water system and seawater cooling.
**In-plant wastestreams are routed to the condenser cooling water system prior to discharge to the ocean outfalls.

A portion of the main condenser cooling intake water is periodically discharged via Outfall 004 to aid in the return of fish and other organisms that become entrapped in the screen forebay. Water discharged via Outfall 004 is untreated (no chlorine or bromine treatment). Discharge is intermittent depending on the need to return entrapped fish. Outfall 004 is located in the Pacific Ocean at latitude 33º 21' 50" north and longitude 117º 33' 31" west. The Discharger's Report of Waste Discharge indicates that total wastewater discharged to the Pacific Ocean through Outfall 004 is 43 mgd. Approximately half of this flow (21.6 mgd) originates from the Unit 3 intake structure with the remaining portion originating from the Unit 2 intake structure.

During emergency shutdowns, when the discharge conduit to Outfall 002 is unavailable, or during maintenance of underwater equipment within the Unit 2 intake structure, water from the once-through cooling water system must be discharged across San Onofre Beach through Outfall 005 to the Pacific Ocean. The end-of-pipe location for Outfall 005 is at latitude 33º 22' 0" north and longitude 117º 33' 21" west. The Discharger's Report of Waste Discharge indicates that total wastewater discharged to the Pacific Ocean through Outfall 005, when necessary, is approximately 49 mgd. Half of this flow (24.5 mgd) would originate from Unit 2 and half from Unit 3.

In its permit renewal application materials, the Discharger provided the following information regarding the individual wastewater streams that are generated from Units 2 and 3 and routed to their respective outfalls:

Once Through Condenser Cooling (Outfalls 002 and 003). Once through ocean water removes heat from the main steam condensers and the closed loop, turbine plant cooling water system. Discharges of 1,219 mgd can contain waste heat, residual chlorine and bromine (used to prevent microbiological fouling on heat exchange surfaces), and trace levels of metals removed by corrosion/leaching from system metallurgy. The main condenser cooling water systems associated with Units 2 and 3 are automatically chlorinated four times per day for 25-minute durations using a 12 percent sodium hypochlorite solution.

Saltwater Cooling (Outfalls 002 and 003). The salt water cooling system for each of the two Units uses 27 mgd of once through ocean water to remove heat from a closed loop cooling system that serves various auxiliary reactor systems. The salt water cooling water is withdrawn from and returned to the main condenser cooling water system. It is chlorinated or brominated to control microbiological fouling and is discharged through Outfall 005 (across-the-beach) during periods of intake and discharge structure maintenance or emergencies.

Screen Wash (Outfalls 002 and 003). Two 2500 gpm screen wash pumps are used for washing the traveling screens, bar screens, and the fish elevator system serving the cooling water intake structures of each of the two Units. A maximum flow of 7.2 mgd is discharged from the screen wash system to the condenser cooling water system serving each Unit.

Pump Bearing Flush (Outfalls 002 and 003). Seawater pump bearings are lubricated with a once through flow of domestic (potable) water. Up to 0.17 mgd of this water is discharged to the intake structure sump or directly to the condenser cooling water system.

Turbine Plant Cooling (Outfalls 002 and 003). The Discharger reports a maximum discharge of 22 mgd from the turbine plant cooling systems serving each of the two Units.

Yard Drains (Outfalls 002 and 003). Yard drains which collect rainfall runoff, auxiliary boiler drain down, and hose down water from outside areas of SONGS Units 2 and 3 are discharged directly to their respective condenser cooling water systems.

Steam Generator Chemical Cleaning (Outfalls 002-A and 003-A). During scheduled outages, the Unit 2 steam generator and feedwater piping is sometimes chemically cleaned. Resultant wastewater is treated by reverse osmosis and/or an evaporator and discharged at a rate of 0.20 mgd through the condensate polishing demineralizer regenerant system.

Steam Generator and Feedwater Piping Sludge Lancing (Outfalls 002-B and 003-B). During scheduled outages, high-pressure water is used to remove sludges from steam generator tubes, tube sheets, and feedwater piping. The Discharger reports that this wastewater is treated through diatomaceous earth filters and discharged at a rate of 0.04 mgd through the condensate polishing regenerant system.

Blowdown Processing (Outfalls 002-C and 003-C). Steam generator blowdown is demineralized and returned to the steam cycle. Spent regenerant wastes are pH neutralized and discharged to the condenser cooling water system for discharge. The maximum discharge flowrate from the system is 0.085 mgd.

Make-up Deminerailzer System (Outfalls 002-D and 003-D). The make-up demineralizer system produces deionized water for various in-plant systems. Potable water purchased from municipal suppliers is passed through ion exchange resins, with regenerants discharged to a neutralization sump. After pH neutralization, wastewater is pumped to the condenser cooling system for discharge. The maximum discharge flowrate from this system is 0.0670 mgd.

Radwaste System (Outfalls 002-E and 003-E). Wastewater from the radwaste system originates from the reactor coolant system, the chemical and volume control system, and minor flows from equipment leaks and drains, laboratory drains, personnel decontamination showers, and floor drains. Treatment to Nuclear Regulatory Commission (NRC) standards for radioactivity is accomplished via holding tanks, demineralizers, filters, flash tanks, and gas strippers. The maximum discharge flowrate from this system is 0.432 mgd.

Polishing Demineralizer (Outfalls 002-F and 003-F). Condensed steam goes through a full flow polishing demineralizer before being returned to the steam generator. The

system removes ionic impurities that may enter through small leaks in the main condenser or associated piping. Resin regenerants are discharged to the condenser cooling system following pH neutralization. The maximum discharge flowrate from this system is 1.40 mgd.

Steam Generator Blowdown (Outfalls 002-G and 003-G). The steam generator provides steam to the turbine by utilizing heat from the Reactor Coolant System. Various chemicals added to the system to maintain proper water chemistry and prevent corrosion at different stages may include: hydrazine, ethalanomine, ammonia, titanium dioxide, boric acid, dimythalamine, carbohydrazide, and morphaline. The steam generators are "blown down" periodically to maintain a proper chemical balance. The maximum discharge flowrate from this system is 0.720 mgd.

Hotwell Overboard (Outfalls 002-H and 003-H). A condenser hotwell overboard discharge occurs during plant start-up or shutdown, or if leaks are detected in the condenser. The maximum discharge flowrate from this system is 7.20 mgd.

Plant Drains (Outfalls 002-I and 003-I). "Non-radioactive" plant drains flow, or are pumped, to building sumps, which are pumped to the SONGS Units 2 and 3 common oil removal system. The maximum discharge flowrate from this system is 0.80 mgd.

Intake Structure Sump (Outfalls 002-J and 003-J). The Unit 2 intake water sump collects a portion of the bearing flush water from the unit's seawater pumps and flows from seawater drains and is then pumped to the condenser cooling system. The maximum discharge flowrate from this system is 0.288 mgd.

Thermophilic Digester (Outfalls 002-K and 003-K). SCE has proposed to install and operate a thermophilic digester to treat kelp debris, dead fish, sewage sludge, and kitchen grease in order to reduce the solid waste disposal needs for the facility. The maximum flowrate from this system, if constructed, would be 0.010 mgd.

Concrete Cutting Cooling Water (Outfalls 002-L and 003-L). Concrete cutting may be needed to support future activities at the facility. If needed, concrete cutting is estimated to produce a maximum discharge flowrate of 0.200 mgd.

Flows from Unit 1. Currently all cooling water discharges, treated sewage, and other low-volume waste streams from SONGS Unit 1 are discharged to the Pacific Ocean primarily through an underwater discharge conduit (Outfall 001) approximately 2,460 feet from shore at a depth of approximately 25 feet. Outfall 001 is located at latitude 33º 21' 49" north and longitude 117º 33' 45" west. The discharges from Unit 1 (total volume of 37 mgd) are currently covered under Order No. 2000-04. Pursuant to Order Nos. 99-48 and 99-49, SCE currently also has the option and the ability to route all wastewater flows from Unit 1 to the Unit 2 or Unit 3 outfalls (i.e. Outfalls 002 or 003). SCE has indicated that it will completely terminate the use of the Outfall 001 sometime in 2005 and request a rescission of Order No. 2000-04 at that time. Once the use of Outfall 001 is

terminated, the combined effluent from Unit 1 will be routed exclusively to Outfalls 002 or 003.

Tentative Order Nos. R9-2005-0005 and R9-2005-0006 acknowledge the impending termination of flows from Unit 1 to Outfall 001 and the routing of up to 36.6 mgd of combined discharge flows from Unit 1 to Outfalls 002 or 003. Both tentative Orders are structured to account for effluent limitations and monitoring requirements as a result of the potential routing of Unit 1 flows to Outfalls 002 and 003. The total permitted flow through the Outfalls 002 and 003 each shall, however, remain unchanged at 1,287 mgd. Furthermore, the concentration-based effluent limitations for the combined discharge through Outfalls 002 and 003 shall also not be impacted by the routing of flows from Unit 1.

The Discharger's Report of Waste Discharge indicates that a total wastewater generated from Unit 1 is approximately 36.6 mgd and consists of the following individual wastestreams:

Wastewater Discharge	Maximum Flow (mgd)
Main Circulating Water	35.00
Unit 1 Sewage Effluent	0.10
Mesa Complex Sewage Effluent	0.045
Metal Cleaning Waste (Chemical and Non-chemical)*	0.08
Radwaste System*	0.144
Plant Drains*	0.014
Yard Drains*	0.360
Dewatering*	0.864
Total Discharge	36.6 mgd

*In-plant wastestreams

In its permit renewal application materials, the Discharger provided the following information regarding the individual wastewater streams which are discharged from SONGS Unit 1:

Main Circulating Water System. Following the decommissioning of the Unit 1 reactor, the principal function of the main circulating water system is to remove waste heat from the spent fuel storage pond and provide dilution for low volume waste streams generated at Unit 1 and the Mesa Sewage Plant. Discharges of up to 35 mgd can contain waste heat, residual chlorine (used to balance pH in sewage treatment process), and trace levels of metals removed by corrosion/leaching from system metallurgy.

Unit 1/Mesa Domestic Waste . Domestic wastewater generated at SONGS receives secondary treatment at either the SONGS Unit 1 sewage treatment plant or at the Mesa Facility Complex sewage treatment plant. Maximum discharge rates from the SONGS Unit 1 and the Mesa Facility Complex sewage treatment plants are 0.10 and 0.045 mgd, respectively.

Chemical Metal Cleaning. Chemical metal cleaning may be periodically performed on some plant systems in support of the ongoing decommissioning activities at Unit 1. Wastewater from this process will be treated and filtered to within NPDES effluent limitations prior to discharge. The Discharger reported an average discharge of 0.04 mgd of treated wastewater from this process.

Non-Chemical Metal Cleaning. Non-chemical metal cleaning may be periodically performed on some plant systems in support of the ongoing decommissioning activities at Unit 1. The Discharger reported an average discharge of 0.04 mgd of treated wastewater from this process.

Radwaste System. Wastewater from the radwaste system originates from the reactor coolant system, the chemical and volume control system, and minor flows from equipment leaks and drains, laboratory drains, personnel decontamination showers, and floor drains. Treatment to Nuclear Regulatory Commission (NRC) standards is accomplished via holding tanks, demineralizers, filters, flash tanks, and gas strippers. The Discharger reported an average discharge of 0.144 mgd from this process.

Plant Drains and Yard Drains. All plant and yard drains gravity feed to various sumps located on the facility grounds. Sumps are pumped to the Unit 1 oily waste separator prior to discharge. The Discharger reported an average flow of approximately 0.01 mgd from the plant drains and 0.36 mgd from the yard drains.

Dewatering. Dewatering in support of the removal of several facility structures may be required in concert with the ongoing decommissioning activities at Unit 1. Wastewater from this process will be treated and filtered to within NPDES effluent limitations prior to discharge. If dewatering is required, the Discharger will submit an application to the Board to enroll in the *General Waste Discharge Requirements for Groundwater Extraction Waste Discharge from Construction, Remediation, and Permanent Groundwater Extraction Projects to Surface Waters Within the San Diego Region Except for San Diego Bay* (Order No. 2001-96) or subsequent revisions prior to commencement of any dewatering activities. The Discharger reported a potential discharge of 0.864 mgd of wastewater from this process.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

UNIT 1

Discharge monitoring reports for Unit 1 discharges (Outfall 001) submitted to the Regional Board indicate that the Discharger consistently complies with the monitoring requirements of Order No. 2000-04 and consistently meets the discharge limitations and conditions established by that Order. Discharge monitoring reports from April 2001 through February 2004 were examined to compile the following characterization of discharges from SONGS Unit 1 through Outfall 001:

Flow

The combined discharge through Outfall 001 did not exceed 9.281 mgd. Main Circulating Water flow consistently accounts for greater than 98.5 percent of the combined discharge through Outfall 001.

The average monthly flow of low volume wastewaters was 0.01 mgd, with a daily maximum flow of 0.01 mgd during this period.

Temperature

The monthly average temperature differential (ΔT) in cooling water through the main condenser was 0.75º F, and the maximum observed daily ΔT was 4º F during this period. Order No. 2000-04 included a maximum permissible ΔT of 5º F.

Turbidity

Monthly average turbidity was 3.39 NTUs in the combined discharge, with a high of 27.3 NTUs occurring in May 2003. Order No. 2000-04 included the following turbidity limitations for the combined discharge through Outfall 001:

Monthly Avg	Weekly Avg	Inst. Max
75 NTU	100 NTU	225 NTU

pH

Monthly average pH of the combined discharge ranged from 7.8 – 8.2 and averaged 7.06. Order No. 2000-04 included a pH limitation of 6.0 – 9.0 for all discharges from SONGS Unit 1.

Total Chlorine Residual

Average monthly total chlorine residuals were consistently measured to be less than 20 µg/L (daily and instantaneous maximum). Order No. 2000-04 included the following chlorine limitations for the combined discharge through Outfall 001:

Monthly Avg	Daily Max
7 µg/L	27 µg/L

Toxic Pollutants – Table B (Ocean Plan)

From April 2001 through February 2004, the combined discharge from Unit 1 was monitored five times for the following toxic pollutants from Table B of the Ocean Plan. Analytical results, expressed as µg/L, unless otherwise noted, are presented in the following table:

Parameter	Units	Sample Date				
		11-04-03	02-11-03	11-12-02	03-22-02	08-15-01
Arsenic	Mg/L	6	50	10	20	20
Cadmium	Mg/L	6	12	25	5	5
Chromium (Hexavalent)	Mg/L	15	25	50	10	10
Copper	Mg/L	15	75	15	30	30
Lead	Mg/L	6	50	10	20	20

Parameter	Units	Sample Date				
		11-04-03	02-11-03	11-12-02	03-22-02	08-15-01
Mercury	Mg/L	0.1	0.3	0.3	1.0	1.0
Nickel	Mg/L	**36**	50	10	20	20
Selenium	µg/L	**100**	50	10	20	20
Silver	µg/L	6	50	10	20	20
Zinc	µg/L	110	50	10	20	20
Cyanide	µg/L	**20**	**20**	20	20	20
Ammonia	µg/L	**1300**	**4700**	100	**5000**	**1940**
Phenolic Compounds (Non-chlorinated)	µg/L	50	50	50	1	1
Phenolic Compounds (Chlorinated)	µg/L	1	50	20	1	1
Endosulfan	ng/L	20	20	20	20	20
Endrin	ng/L	60	60	100	60	60
HCH	ng/L	10	10	10	10	10
Chronic Toxicity[2]	TUc	3.10	**1.0**	3.10	1	3.1

Note: Figures that appear in **bold** in the table, above, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e., the lab result was reported as ND (not detected).

All Table B pollutants in the combined discharge from SONGS Unit 1, monitored by the Discharger from April 2001 through February 2004, complied with applicable effluent limitations derived from water quality criteria of the Ocean Plan, when taking into consideration a minimum probable initial dilution of 2.4 to 1.

Low Volume Wastes

Discharge Monitoring Reports included monitoring data for the following low volume wastewaters: plant drains, radwaste system and steam generator draindown. No discharge of metal cleaning wastes occurred during the review period.

In this 35-month time period, Discharge Monitoring Reports indicate that there was very limited low-volume wastewater flow in comparison to the combined flow.

Results of low volume waste stream monitoring for total suspended solids (TSS) and oil and grease (O&G) during the review period are summarized below:

Waste Stream	Units	Average Monthly TSS		Average Monthly O&G	
		Range	Maximum	Range	Maximum
Plant Drains	mg/L	< 5.0 – 26.2	26.2	< 5.0 – 14.6	14.6
Radwaste System	mg/L	< 5.0 – 10	10	< 5.0 – 12.6	12.6
Steam Generator Draindown	mg/L	-	-	-	-

Order No. 2000-04 included the following limitations for TSS and O&G in low volume wastewaters:

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
TSS	mg/L	30	100	100
O&G	mg/L	15	20	20

Monitoring results from April 2001 through February 2004 indicated that low-volume wastewaters consistently met the effluent limitations for TSS and O&G.

From April 2001 through February 2004, the combined low volume waste discharge from Unit 1 was monitored five times for the following toxic pollutants from Table B of the Ocean Plan. Analytical results, expressed as µg/L, unless otherwise noted, are presented in the following table:

Parameter	Units	Sample Date				
		11-04-03	02-11-03	11-12-02	03-22-02	08-15-01
Arsenic	µg/L	25	20	20	20	20
Cadmium	µg/L	2	5	5	5	5
Chromium VI	µg/L	6	10	10	10	10
Copper	µg/L	**32**	30	**49**	30	30
Lead	µg/L	19	20	20	20	20
Mercury	µg/L	0.1	0.3	0.3	1	1
Nickel	µg/L	10	20	20	20	20
Selenium	µg/L	26	20	20	20	20
Silver	µg/L	3	20	20	20	20
Zinc	µg/L	**160**	**300**	**20**	**60**	**50**
Cyanide	µg/L	20	20	20	100	20
Ammonia (as N)	µg/L	**7850**	**4350**	**1250**	**48500**	**2930**
Phenolic Compounds (non – chlorinated)	µg/L	50	50	10	1	1
Chlorinated Phenolics	µg/L	1	50	10	1	1
Endosulfan[1]	ng/L	20	20	20	20	20
Endrin[1]	ng/L	100	60	100	60	60
HCH[1]	ng/L	10	10	100	10	10
Ethylbenzene	--	0.1[2]	1[3]	0.1[2]	0.1[2]	0.01[3]
Nitrobenzene	--	0.1[2]	10	0.1[2]	0.1[2]	10
Toluene	--	0.1[2]	1.2[3]	0.1[2]	0.1[2]	0.01[3]
Benzene	--	0.1[2]	1	0.1[2]	0.1[2]	10

[1]Parameter expressed in nanograms per liter (ng/l), [2]Parameter expressed in lbs/Day, [3]Parameter expressed in mg/L
Note: Figures that appear in **bold** in the table, above, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e., the lab result was reported as ND (not detected).

All Table B pollutants in the combined low volume wastewater discharge from SONGS Unit 1, monitored by the Discharger from April 2001 through February 2004, complied

with applicable effluent limitations derived from water quality criteria of the Ocean Plan, when taking into consideration a minimum probable initial dilution of 2.4 to 1.

Sewage Treatment Plants

During the 35-month review period, Discharge Monitoring Reports indicate that all wastewater from the Mesa Complex was treated at the Unit 1 sewage treatment plant. In this period the Unit 1 sewage treatment plant discharged only through Outfall 001. The average monthly discharge from the Unit 1 sewage treatment plant was 0.026 mgd, and the daily maximum discharge was 0.067 mgd. Results of Unit 1 sewage treatment plant monitoring are summarized below:

Parameter	Units	Monthly Average	Maximum Monthly Average
TSS (effluent)	mg/L	15.63	48
TSS Removal	percent	96.69	99.8
Oil and Grease	mg/L	5.45	10
Settleable Solids	mg/L	0.13	0.5
PH	S.U.	7.14	7.7
Turbidity	NTUs	6.76	25.6

All parameters complied with effluent limitations for the Unit 1 sewage treatment plant established by Order No. 2000-04.

UNIT 2

Discharge monitoring reports submitted to the Regional Board indicate that the Discharger consistently complies with the monitoring requirements of Order No. 99-47 and consistently complies with the discharge limitations and conditions established by that Order. Discharge monitoring reports from October 2000 through December 2003 were examined to compile the following characterization of discharges from SONGS Unit 2 through Outfall 002:

Flow

The combined discharge through Outfall 002 did not exceed 1,286.9 mgd. The average monthly discharge was 1,219 mgd. Main condenser cooling water flow consistently accounts for greater than 98.5 percent of the combined discharge through Outfall 002. Order No. 99-47 included a maximum flow limitation for discharges through Outfall 002 of 1,286.9 mgd.

The average monthly flow of combined low volume wastewaters was 0.202 mgd, with a daily maximum flow of 0.553 mgd during this period.

Temperature

The monthly average temperature differential (ΔT) in cooling water through the main condenser was 17.8º F, and the maximum observed daily ΔT was 21º F during this period. Order No. 99-47 includes a maximum permissible ΔT of 25º F.

Heat treatments are conducted periodically to control Bay Mussel growth on the condenser tubes and tunnels. During a heat treatment, intake water temperature is elevated to 125º F for a period of not more than two hours. The frequency of heat treatments is determined, in part, by a growth model for the Bay Mussel. The average number of heat treatments at Unit 2 has been 7.33 per year.

Turbidity
Monthly average turbidity was 3.8 NTUs in the combined discharge, with a maximum of 18 NTUs. Order No. 99-47 did not include a numeric turbidity limitation for the combined discharge through Outfall 002.

pH
Monthly average pH of the combined discharge ranged from 8.0 – 8.2 and averaged 8.1. Order No. 99-47 included a pH limitation of 6.0 – 9.0 for all discharges from SONGS Unit 2.

Total Chlorine Residual
The instantaneous maximum total chlorine residual did not exceed 81.9 µg/L. Order No. 99-47 included the following chlorine limitations for the combined discharge through Outfall 002:

Monthly Avg	Weekly Avg	Instantaneous Max.
22 µg/L	88 µg/L	176 µg/L

Toxic Pollutants – Table B (Ocean Plan)
From October 2000 through December 2003, the combined discharge from Unit 2 was monitored seven times for the following toxic pollutants from Table B of the Ocean Plan. Analytical results, expressed as µg/L, unless otherwise noted, are presented in the following table:

Parameter	Units	Sample Date						
		11-24-03	03-07-03	11-05-02	05-14-02	10-30-01	06-13-01	09-13-00
Arsenic	µg/L	6	20	10	20	2	**91**	20
Cadmium	µg/L	6	5	25	5	2	5	5
Chromium VI	µg/L	15	10	5	10	5	10	10
Copper	µg/L	15	30	15	30	5	30	30
Lead	µg/L	6	20	10	20	2	20	20
Mercury	µg/L	0.1	0.3	0.3	0.5	1.0	1.0	1.0
Nickel	µg/L	**29**	20	10	20	**13**	20	20
Selenium	µg/L	**200**	20	10	20	2	20	20
Silver	µg/L	6	20	10	20	2	20	20

Parameter	Units	Sample Date						
		11-24-03	03-07-03	11-05-02	05-14-02	10-30-01	06-13-01	09-13-00
Zinc	µg/L	**110**	20	10	20	20	20	**24**
Chronic Toxicity	TUc	**5.6**	3.1	3.10	3.1	**5.6**	3.1	**17.9**

Note: Figures that appear in **bold** in the table, above, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e., the lab result was reported as ND (not detected). No analytical data is available for ammonia and cyanide, which are inorganic pollutants also in Table B of the Ocean Plan.

All Table B pollutants in the combined discharge from SONGS Unit 2, monitored by the Discharger from October 2000 through December 2003, complied with applicable effluent limitations derived from water quality criteria of the Ocean Plan, when taking into consideration a minimum probable initial dilution of 10 to 1.

From October 2001 through December 2003, chronic toxicity was monitored five times in the combined discharge through Outfall 002. In four out of five monitoring events chronic toxicity was below the analytical method detection limit. On November 24, 2003, chronic toxicity in the discharge was measured at 10 TUc, which is equal to the effluent limitation of Order No. 99-47 of 10 TUc. Because simultaneous chronic toxicity monitoring of the receiving water showed the same result, chronic toxicity, if present, was likely attributable to the intake water before it passed through SONGS Unit 2.

Low Volume Wastes

Discharge monitoring reports included monitoring data for the following low volume wastewaters from Unit 2: thermophilic digester, condenser hotwell, blowdown processing, full flow condenser, makeup demineralizer, radwaste system, intake sump, building sumps, and metal cleaning wastewater. No flow from the thermophilic digester, steam generator, blowdown processing, or metal cleaning wastewater was recorded during the review period.

In the 39-month time period from October 2000 through December 2003, discharge monitoring reports indicate that there was very limited low volume wastewater flow in comparison to the combined flow.

Results of low volume waste stream monitoring from Unit 2 for total suspended solids (TSS) and oil and grease (O&G) is summarized below:

Waste Stream	Units	Average Monthly TSS		Average Monthly O&G	
		Range	Maximum	Range	Maximum
Condenser Hotwell	mg/L	< 5.0	< 5.0	< 5.0	< 5.0
Steam Generator	mg/L	< 5.0	< 5.0	< 2.0 - < 5.0	< 5.0
Blowdown Processing	mg/L	14.5	14.5	27.5	27.5
Full Flow Cond.	mg/L	4.9 – 26	26	5 – 6.8	6.8
Makeup Demineralizer	mg/L	5 – 18.3	18.3	2 – 8.2	8.2
Radwaste System	mg/L	5 – 5.9	5.9	2 – 6.3	6.3
Intake Sump	mg/L	5 – 17	17	5 – 15	15
Building Sumps	mg/L	5 – 10.2	10.2	5 – 12.6	12.6

Order No. 99-47 included the following limitations for TSS and O&G in low volume wastewaters:

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
TSS	mg/L	30	100	100
O&G	mg/L	15	20	20

Monitoring results from October 2000 through December 2003 show that low volume wastewaters consistently complied with effluent limitations for TSS and O&G.

From October 2000 through December 2003, the combined low volume waste discharge from Unit 2 was monitored four times for the following toxic pollutants from Table B of the Ocean Plan. Analytical results, expressed as µg/L, unless otherwise noted, are presented in the following table:

Parameter	Units	Sample Date			
		12-17-03	12-11-02	11-29-01	03-22-02
Arsenic	µg/L	20	140	20	20
Cadmium	µg/L	20	110	5	5
Chromium VI	µg/L	50	110	5	10
Copper	µg/L	50	**120**	**31**	30
Lead	µg/L	20	120	20	20
Mercury	µg/L	0.1	**0.6**	1	1
Nickel	µg/L	**23**	**190**	20	20
Selenium	µg/L	20	**14**	20	20
Silver	µg/L	20	110	20	20
Zinc	µg/L	100	**170**	**33**	**57.8**
Cyanide	µg/L	20	10	20	20
Ammonia (as N)	µg/L	**8600**	**4400**	**3700**	**9000**

Note: Figures that appear in **bold** in the table, above, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e., the lab result was reported as ND (not detected). In each of the three monitoring events, all other Table B toxic pollutants were not detected

All Table B pollutants in the combined low volume wastewater discharge from SONGS Unit 2, monitored by the Discharger from October 2000 through December 2003, complied with applicable effluent limitations derived from water quality criteria of the Ocean Plan, when taking into consideration a minimum probable initial dilution of 10 to 1.

UNIT 3

Discharge monitoring reports submitted to the Regional Board indicate that the Discharger consistently complies with the monitoring requirements of Order No. 99-48

and consistently complies with the discharge limitations and conditions established by that Order. Discharge monitoring reports from October 2001 through December 2003 were examined to compile the following characterization of discharges from SONGS Unit 3 through Outfall 003:

Flow

The combined discharge through Outfall 003 did not exceed 1,219 mgd. Main condenser cooling water flow consistently accounts for greater than 99.5 percent of the combined discharge through Outfall 003. Order No. 99-48 included a maximum flow limitation for discharges through Outfall 003 of 1,286.9 mgd.

The average monthly flow of low volume wastewaters was 0.165 mgd, with a daily maximum flow of 0.548 mgd during this period.

Temperature

The monthly average temperature differential (ΔT) in cooling water through the main condenser was 20º F, and the maximum observed daily ΔT was 22º F during this period. Order No. 99-48 includes a maximum permissible ΔT of 25º F.

Heat treatments are conducted periodically to control Bay Mussel growth within the condenser and cooling water lines. During a heat treatment, intake water temperature is elevated to 125º F for a period of not more than two hours. The frequency of heat treatments is determined, in part, by a growth model for the Bay Mussel. The average number of heat treatments at Unit 3 has been 7.33 per year.

Turbidity

Monthly average turbidity was 3.0 NTUs in the combined discharge, with a high of 8.1 NTUs occurring in August 2002. Order No. 99-48 did not include a numeric turbidity limitation for the combined discharge through Outfall 003.

pH

Monthly average pH of the combined discharge ranged from 7.8 – 8.2 and averaged 8.1. Order No. 99-48 included a pH limitation of 6.0 – 9.0 for all discharges from SONGS Unit 3.

Total Chlorine Residual

Instantaneous maximum total residual chlorine levels ranges from 20 to 140 µg/L. Order No. 99-48 included the following total residual chlorine limitations for the combined discharge through Outfall 003:

Monthly Avg	Weekly Avg	Instantaneous Max.
22 µg/L	88 µg/L	176 µg/L

Toxic Pollutants – Table B (Ocean Plan)

From October 2001 through December 2003, the combined discharge from Unit 3 was monitored six times for the following toxic pollutants from Table B of the Ocean Plan. Analytical results, expressed as µg/L, unless otherwise noted, are presented in the following table:

Parameter	Units	Sample Date					
		2-6-04	11-24-03	3-7-03	11-5-02	5-14-02	10-30-01
Arsenic	µg/L	10	6	20	10	20	2
Cadmium	µg/L	10	6	5	25	5	2
Chromium VI	µg/L	-	**16**	10	5	10	5
Copper	µg/L	25	15	30	15	30	5
Lead	µg/L	10	6	20	10	20	2
Mercury	µg/L	0.1	0.1	0.3	0.3	0.5	1
Nickel	µg/L	**13**	**40**	20	10	20	**14**
Selenium	µg/L	**41**	**190**	20	10	20	2
Silver	µg/L	10	6	20	10	20	2
Zinc	µg/L	50	140	20	10	20	20

Note: Figures that appear in **bold** in the table, above, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e., the lab result was reported as ND (not detected). No analytical data is available for ammonia and cyanide, which are inorganic pollutants also in Table B of the Ocean Plan. Combined discharge samples collected on February 6, 2004 were analyzed for all Table B pollutants; however, no Table B pollutants, except nickel and selenium, were detected above the reported method detection limits.

All Table B pollutants in the combined discharge from SONGS Unit 3, monitored by the Discharger from October 2001 through December 2003, complied with applicable effluent limitations derived from water quality criteria of the Ocean Plan, when taking into consideration a minimum probable initial dilution of 10 to 1.

Low Volume Wastes

Discharge monitoring reports included monitoring data for the following low volume wastewaters: thermophilic digester, condenser hotwell, steam generator, blowdown processing, full flow condensate polishing demineralizer, rad waste, building sumps, intake sump, makeup demineralizer, and metal cleaning waste

In the 27-month time period from October 2001 through December 2003, discharge monitoring reports indicate that there were no wastewaters generated by thermophilic digestion, blowdown processing, and metal cleaning; and there was very limited wastewater flow from the condenser hotwell, steam generator, and building sumps.

Results of low volume waste stream monitoring for total suspended solids (TSS) and oil and grease (O&G) are summarized below:

Parameter	Units	Average Monthly TSS		Average Monthly O&G	
		Range	Maximum	Range	Maximum
Thermophilic Digester	mg/L	No flow (NF)	NF	NF	NF
Condenser	mg/L	< 5.0	< 5.0	< 5.0	< 5.0

Hotwell					
Steam Generator	mg/L	< 5.0	< 5.0	< 5.0	< 5.0
Blowdown Processing	mg/L	NF	NF	NF	NF
Condensate Polishing Demineralizer	mg/L	< 5.0 - 18	18	< 5.0 – 9.7	9.7
Rad Waste	mg/L	< 5.0	< 5.0	< 5.0 – 8.6	8.6
Building Sumps	mg/L	< 5.0	< 5.0	< 5.0 - 21	21
Intake Sump	mg/L	< 5.0 – 9.1	9.1	< 5.0 – 9.1	9.1
Makeup Demineralizer	mg/L	< 5.0 - 31	31	< 5.0 – 8.2	8.2
Metal Cleaning Waste	mg/L	NF	NF	NF	NF

Order No. 99-48 included the following limitations for TSS and O&G in low volume wastewaters:

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
TSS	mg/L	30	100	100
O&G	mg/L	15	20	20

Monitoring results from October 2001 through December 2003 show that low volume wastewaters consistently complied with effluent limitations for TSS and O&G; however, oil and grease in discharges from the building sumps did exceed, at least one time, the daily maximum limitation of 20 mg/L (because monitoring was required monthly, the monthly result equals the daily maximum and instantaneous maximum reported concentrations).

From October 2001 through December 2003, the combined low volume waste discharge from Unit 3 was monitored three times for the following toxic pollutants from Table B of the Ocean Plan. Analytical results, expressed as µg/L, unless otherwise noted, are presented in the following table:

Parameter	Units	Sample Dates		
		12-17-03	12-11-02	11-29-01
Arsenic	µg/L	20	140	20
Cadmium	µg/L	20	110	5
Chromium VI	µg/L	50	110	10
Copper	µg/L	50	110	**32**
Lead	µg/L	20	120	20
Mercury	µg/L	0.1	**0.04**	1
Nickel	µg/L	**13**	**190**	20
Selenium	µg/L	20	10	20
Silver	µg/L	20	110	20

Zinc	µg/L	100	**120**	**31**

Note: Figures that appear in **bold** in the table, above, are measured concentrations. Other figures are the analytical method detection limits reported by the lab; i.e., the lab result was reported as ND (not detected). No analytical data are available for ammonia and cyanide, which are inorganic pollutants also in Table B of the Ocean Plan.

All Table B pollutants in the combined low volume wastewater flow from SONGS Unit 3, monitored by the Discharger between October 2001 through December 2003, were below applicable effluent limitations.

II. APPLICABLE PLANS, POLICIES, AND REGULATIONS

In addition to the regulatory framework established in the Findings section of tentative Order Nos. R9-2005-0005 and R9-2005-0006, the requirements contained in the tentative Orders are based on the requirements and authorities described in this section.

A. Water Quality Control Plans

The *Water Quality Control Plan for the San Diego Basin (9)*, the Basin Plan, was adopted by the Regional Board on September 8, 1994 and approved by the State Board on December 13, 1994. The Basin Plan includes beneficial uses, water quality objectives, implementation plans for point source and nonpoint source discharges, prohibitions, and statewide plans and policies. For the protection and enhancement of ocean water quality, the Basin Plan incorporates by reference, the provisions of the State Board's *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) and the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan).

Although the Ocean Plan establishes most water quality objectives and procedures for implementing those objectives for ocean discharges, the Basin Plan identifies the following beneficial uses of the coastal waters of the Pacific Ocean:

a. Industrial service supply
b. Navigation
c. Contact and non-contact water recreation
d. Commercial and sport fishing
e. Preservation of Areas of Special Biological Significance (ASBS)
f. Preservation of rare, threatened, and endangered species
g. Marine habitat
h. Migration of aquatic organisms
i. Shellfish harvesting
j. Wildlife habitat
k. Spawning, reproduction, and/or early development
l. Aquaculture

In addition to incorporating by reference the Ocean Plan and the Thermal Plan, the Basin Plan establishes specific water quality objectives for pH and dissolved oxygen that are applicable to the SONGS facility.

B. Other Applicable Water Quality Plans, Policies and Regulations

CALIFORNIA OCEAN PLAN

The State Board adopted a revised Water Quality Control Plan for Ocean Waters of California (2001 Ocean Plan) on December 3, 2001. To protect the beneficial uses of State ocean waters, the Ocean Plan establishes water quality objectives, general requirements for management of waste discharges to the ocean, effluent limitations for conventional pollutants (oil and grease, suspended and settleable solids, turbidity, and pH), procedures for implementing water quality objectives for toxic pollutants, and discharge prohibitions. The Ocean Plan identifies the following beneficial uses of ocean waters of the State:

a. Industrial water supply
b. Water contact and non-contact recreation, including aesthetic enjoyment
c. Navigation
d. Commercial and sport fishing
e. Mariculture
f. Preservation and enhancement of Areas of Special Biological Significance
g. Protection of rare, and endangered species
h. Marine habitat
i. Fish migration
j. Fish spawning
k. Shellfish harvesting

Many requirements of the Ocean Plan are incorporated into the limitations, conditions, and requirements of tentative Order Nos. R9-2005-0005 and R9-2005-0006.

The Ocean Plan takes into account the "minimum probable initial dilution" in determining effluent limitations for toxic pollutants. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge. For the purposes of the Ocean Plan, minimum initial dilution is the lowest average initial dilution within any single month of the year. Dilution estimates must be based on observed waste flow characteristics, observed receiving water density structure, and the assumption that no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. On March 13, 1980, the State Board approved the use of calculated initial dilution factors for submerged offshore discharges using a "flux-weighted-average" approach developed by the California Institute of Technology. The minimum probable initial dilution for Units 2 and 3 is 10:1. Where applicable, this minimum dilution factor is used to calculate discharge limitations.

The Ocean Plan requires that discharges be located a sufficient distance from areas designated as being of special biological significance to assure maintenance of the natural water quality in such areas. The Heisler Park Ecological Preserve, located approximately 20 miles northwest of the SONGS facility, is the closest Area of Special Biological Significance (State Water Quality Protection Area), as designated by the State Board.

Section III. C of the Ocean Plan establishes procedures for determining effluent limitations for toxics, taking into consideration the minimum probable initial dilution, and requires that these limitations be expressed in terms of concentration and mass emissions. Due to the large volume of power plant discharges, the Ocean Plan describes special procedures for determining effluent limitations for these facilities. Concentration-based limitations are determined and applied to the combined effluent (in-plant waste streams plus once through cooling water flow); however, the corresponding mass-based limitations (except those for chlorine, chronic toxicity, and all instantaneous maximum limitations) apply only to the in-plant waste streams. The mass-based limitations for in-plant wastestreams are based on the flow rates (mgd) of individual in-plant wastestreams.

THERMAL PLAN

On May 18, 1972, the State Board adopted the Thermal Plan, which includes narrative and numeric water quality objectives for existing discharges (those discharges at least under construction prior to adoption of the Plan) and for new discharges. A revised Thermal Plan was adopted on September 18, 1975. SONGS Units 2 and 3 were not under construction when the Thermal Plan was adopted, and therefore, discharges from these facilities are considered new discharges under the Thermal Plan. Provisions of the Thermal Plan applicable to SONGS Units 2 and 3 require that their thermal discharges be conveyed to the open ocean, away from shorelines and at a protective distance from Areas of Special Biological Significance. The Thermal Plan requires that the maximum temperature of thermal discharges from Units 2 and 3 not exceed the natural temperature of the receiving waters by more than 20º F ($\Delta T \leq 20$º F), and that thermal discharges from the Units not result in an increase in the natural water temperature exceeding 4º F at (a) the shoreline, (2) the surface of any ocean substrate, or (c) the ocean surface beyond 1,000 feet from the discharge system.

On July 31, 1972, the Regional Board adopted Order No. 72-26, granting an exception to the Thermal Plan to allow heat treatment of SONGS Units 2 and 3 condenser cooling water systems for the control of marine fouling organisms. Order No. 72-26 included the following language:

> *The companies may raise the temperature of the cooling water discharge from planned Units 2 and 3 of the San Onofre Generating Station to not more than 125°F for periods of not more than two hours once each five week period for each unit, for purposes of control of marine organism growth in the cooling water system only … Thermal treatment shall be done in such a manner and*

under such conditions that loss of fish and other marine life is eliminated or minimized, and effects upon ocean water quality is minimized.

On February 15, 1973, the State Board adopted Order No. 73-5, concurring conditionally with Regional Board Order No. 72-26 and requiring the discharger to complete certain studies. Conditions of the State Order were incorporated into Regional Board Order No. 72-26 by addendum on March 6, 1973. Following completion of studies by the discharger in 1979 and submission of proposed heat treatment operating conditions, the State Board adopted Resolution No. 80-95 on December 18, 1980 approving the heat treatment studies and proposed operating criteria for SONGS Units 2 and 3. The resolution required that the heat treatment operating conditions be incorporated into the operating procedures and waste discharge requirements for the generating Units.

The Discharger began steps to justify a second exception to the Thermal Plan in accordance with the requirements of Section 316 (a) of the Clean Water Act, because a general loss in cooling efficiency had reduced SONGS Units 2 and 3 from generating full rated power while complying with the 20º F ΔT requirement of the Thermal Plan in 1997.

On February 11, 1998, after conducting a California Environmental Quality Act (CEQA) Initial Study of the requested exception to raise the discharge ΔT for SONGS Unit 2 and 3 to 25º F and following a public hearing, the Regional Board approved the exception as requested by the Discharger. On April 14, 1999, the State Board, in Resolution No. 99-028, concurred, finding that the action complied with State and federal requirements for granting an exception to the Thermal Plan's discharge limitation, and approved the Regional Board's action.

U.S. EPA regulations at 40 CFR 125 Subpart H, which describe criteria for determining alternative effluent limitations under Section 316 (a) of the Clean Water Act, as well as State Board Resolution No. 99-028, require that exceptions to the discharge requirements of the Thermal Plan be reviewed at the time of NPDES permit renewal to assure that the thermal component of the discharge, alone or interacting with other discharge components or thermal sources, is not causing appreciable harm to a balanced indigenous community of marine life. In preparing tentative Order Nos. R9-2005-0005 and R9-2005-0006, the Regional Board found that the thermal component of discharges from SONGS Units 2 and 3 have met the discharge specifications established by Order Nos. 99-47 and 99-48 and are expected to meet the discharge specifications of the tentative Orders which pertain to the thermal component of Unit 2 and 3 discharges. With consideration given to all requirements of the Thermal Plan, including exceptions to the Thermal Plan already granted to the Discharger, the Regional Board finds that compliance with Order Nos. R9-2005-0005 and R9-2005-0006 will assure the protection of a balanced indigenous community of shellfish, fish, and wildlife in the receiving waters for discharges from SONGS Units 2 and 3.

In supplemental application materials submitted to the Regional Board for permit renewal on March 30, 2004, the Discharger requested a rewording of the Units 2 and 3 heat treatment scheduling criteria to allow heat treatment to occur at fixed six week intervals

instead of intervals determined by a growth model for the Bay Mussel. The Discharger pointed out that a variable schedule for heat treatment complicates the scheduling of workers and equipment as well as routine maintenance operations. The Discharger also pointed out that over the past twelve years, when determining the frequency of heat treatments based on the growth model for the Bay Mussel, the average number of heat treatments for Units 2 and 3 have been 7.33 per year. Fifty-nine percent of these heat treatments have occurred from April through September, a period of greater mussel growth, and 41 percent have occurred from October through March. These frequencies correspond to heat treatments one time every 42 days between April and September and one time every 61 days between October and March. The Discharger's request would result in 1.4 additional heat treatments per year for Units 2 and 3 between October and March; however, heat treatments would then occur at fixed 6-week intervals.

The Regional Board acknowledges that scheduling of heat treatments for SONGS Units 2 and 3 based on the growth model for the Bay Mussel may be a complicated procedure that does not allow efficient scheduling of manpower and equipment. The Discharger's request to increase the number of heat treatments, however, is not consistent with the objectives and language of Regional Board Order No. 72-26 and State Board Resolution No. 80-95, which already define an approved exception to the Thermal Plan to allow heat treatments by SONGS Units 2 and 3. The requirements of these Orders, which were incorporated into Waste Discharge Requirements Order No. 99-47 and are incorporated into this Order, place significant emphasis on the frequency of heat treatment, target temperatures, and target durations for heat treatment, with the objective of minimizing thermal loading to receiving waters.

The Regional Board finds that the Discharger's request to allow heat treatment to occur at fixed six-week intervals will result in an increased thermal component to discharges from SONGS Units 2 and 3. Because the Thermal Plan requires the State Board's concurrence with exceptions to its provisions granted by the Regional Board, the Regional Board cannot grant the Discharger's request through this Order. To conduct heat treatments at more frequent intervals than allowed by the existing exception to the Thermal Plan, the Discharger must be a granted a new exception to the Thermal Plan. The Discharger must undertake procedures established by Section 316 (a) of the Clean Water Act and the Thermal Plan, to seek a new exception to the Thermal Plan.

In supplemental application materials submitted to the Regional Board for permit renewal on March 30, 2004, the Discharger requested that compliance with the Outfalls 002 and 003 discharge specifications for residual heat be determined by a daily average temperature calculation instead of an instantaneous maximum temperature measurement. The Discharger described a procedure where one of four circulating water pumps is stopped for ten minutes to reduce cooling water velocity through a section of the main condenser, thereby dislodging shells and debris which block condenser tubes. This "bumping" procedure helps to maintain condenser efficiency and reduces the need to manually clean condenser tubes. The reduced cooling water flow during the bumping procedure does cause an increase in the temperature differential between the intake and effluent temperatures from approximately 20º F to 24º F, which is within the temperature

differential of 25º F allowed by the Regional Board and State Board in Resolution No. 99-028, both granting an exception to the Thermal Plan for SONGS Units 2 and 3. Bumping can be performed on one section of the Units 2 and 3 main condensers at full power; however, if bumping is performed simultaneously on more than one section of the main condenser, power must be reduced in order to stay within the allowable temperature differential of 25º F. The Discharger has stated that measuring compliance with the discharge specification for residual heat using a daily average temperature calculation instead of an instantaneous maximum temperature measurement would permit simultaneous bumping of more than one condenser section, while complying with the Thermal Plan and exceptions already granted to the Discharger.

The Regional Board finds that, although thermal effects due to "simultaneous bumping" for ten-minute intervals may be minimal, the Discharger's request may result in temperature differentials that exceed 25º F, which would be in excess of the current Thermal Plan exception. The Regional Board also finds that granting the Discharger's request would be inconsistent with the process by which previous exceptions to the Thermal Plan were granted. To conduct "simultaneous bumping" at full power and potentially exceed the allowable temperature differential of 25º F, the Discharger must be a granted a new exception to the Thermal Plan. The Discharger must undertake procedures established by Section 316 (a) of the Clean Water Act and the Thermal Plan, to seek a new exception to the Thermal Plan.

CLEAN WATER ACT SECTION 316 (B)

Current CWA Section 316 (b) implementing regulations are applicable to facilities that meet the definition of a Phase II existing facility at 40 CFR 125.91. Such facilities withdraw cooling water from a water of the United States; have, or are required to have, an NPDES permit; generate and transmit electric power as their primary business activity; have a total facility design intake capacity of 50 mgd or greater; and use at least 25 percent of the withdrawn water exclusively for cooling purposes. Pursuant to CWA 316(b) regulations, SONGS Units 2 and 3 are classified as a Phase II existing facilities. SONGS Unit 1, having ceased commercial generation of electric power in 1992, is not subject to the requirements of the Phase II rule.

Section 316(b) of the Clean Water Act provides that any standard established pursuant to Section 301 or 306 of the Act and applicable to a point source must require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental effects.
Order Nos. 99-47 and 99-48 (adopted on August 11, 1999) required and/or encouraged the discharger to:

a. Continue to use effective techniques for reducing losses of midwater fishes in the intake structures, including the use of a velocity cap on the intake and the use of the fish return system, and

b. Schedule refueling and maintenance outages during March and April so as to minimize the loss of fish larvae, which are in greatest abundance in the coastal waters nears SONGS in those months.

Order Nos. 99-47 and 99-48 also noted that the California Coastal Commission amended its Permit No. 6-81-330-A to impose mitigation requirements to address impacts to the marine environment by operation of SONGS Units 2 and 3.

U.S. EPA finalized regulations regarding cooling water intake structures for existing facilities on February 16, 2004. These regulations are applicable to SONGS Units 2 and 3. The regulations, commonly referred to as "316 (b) Phase II", were published in the Federal Register on July 9, 2004, and became effective on September 7, 2004. Facilities that meet the definition of a Phase II facility must comply, or demonstrate a compliance strategy, when they become subject to a reissued NPDES permit adopted on or after the effective date of the regulations.

Ultimately, dischargers must demonstrate compliance with 316 (b) Phase II regulations by choosing one of five alternatives. These alternatives are generally summarized as: (1) demonstrate that the facility has reduced cooling water intake velocity to 0.5 feet per second or less; (2) demonstrate that the existing design and construction technologies, operational measures, and/or restoration measures meet the performance standards established by the regulations; (3) demonstrate that the facility has selected design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards; (4) demonstrate that the facility has installed and properly operates and maintains an approved technology; or (5) demonstrate that a site-specific determination of best technology available (BTA) is appropriate.

Most facilities, including SONGS Units 2 and 3, will be required to prepare a *Comprehensive Demonstration Study* (Study) that will include the following components, if applicable:

a. *Source Waterbody Flow Information*, as described at 40 CFR 125.95 (b) (2);

b. *Impingement Mortality and/or Entrainment Characterization Study*, as described at 40 CFR 125.95 (b) (3), to support development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment;

c. *Design and Construction Technology Plan* and a *Technology Installation and Operation Plan*, as described at 40 CFR 125.95 (b) (4);

d. *Restoration Plan*, as described at 40 CFR 125.95 (b) (5);

e. Information to Support Site-Specific Determination of BAT, as described at 40 CFR 125.95 (b) (6); and

f. *Verification Monitoring Plan*, as described at 40 CFR 125.95 (b) (6).

Within 180 days from the adoption date of the tentative Orders, the Discharger will be required to submit a *Proposal for Information Collection* as required by Section 125.95(b)(1) of the Phase II rule. The *Proposal for Information Collection* shall include the following information:

a. A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the Study;

b. A list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structures and their relevance to this proposed Study. If the discharger proposes to use existing data, it must demonstrate the extent to which the data are representative of current conditions and that the data were collected using appropriate quality assurance/quality control procedures;

c. A summary of any past or ongoing consultations with appropriate Federal, State, and Tribal fish and wildlife agencies that are relevant to this Study and a copy of written comments received as a result of such consultations; and

d. A sampling plan for any new field studies the discharger proposes to conduct in order to ensure that there is sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment at the site. The sampling plan must document all methods and quality assurance/quality control procedures for sampling and data analysis. The sampling and data analysis methods proposed must be appropriate for a quantitative survey and include consideration of the methods used in other studies performed in the source waterbody. The sampling plan must include a description of the study area (including the area of influence of the cooling water intake structure(s)), and provide a taxonomic identification of the sampled or evaluated biological assemblages (including all life stages of fish and shellfish).

The provisions, compliance requirements, and compliance schedules for the Section 316(b) Phase II rule have been incorporated into tentative Order Nos. R9-2005-0005 and 2005-0006.

EFFLUENT LIMITATIONS GUIDELINES

At 40 CFR 125, U.S EPA has established criteria and standards for the NPDES permitting process, including Criteria and Standards for Imposing Technology-Based Treatment Requirements Under Sections 301 (b) and 402 of the Clean Water Act (Subpart A) and Ocean Discharge Criteria (Subpart M). On November 19, 1982, at 40

CFR 423, U.S. EPA has also established technology-based effluent limitations guidelines for the steam electric power point source category, which are applicable to SONGS Units 2 and 3.

ANTI-DEGRADATION

The permitted discharges from SONGS Units 2 and 3 are consistent with the U.S. EPA's anti-degradation requirements at 40 CFR 131.12 and the State Board's Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*, which requires the Regional Board, in regulating the discharge of wastes, to maintain high quality waters of the State, not unreasonably affect beneficial uses, and not allow water quality less than that described in the Regional Board's policies.

STORM WATER

In Water Quality Order No. 97-03-DWQ (NPDES General Permit No. CAS000001), the State Board adopted Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activity, Excluding Construction Activities. On June 10, 1997, the Discharger submitted a Notice of intent for coverage under this general permit, and the State Board confirmed coverage and assigned WDID No. 9 375003198 to the entire SONGS facility. Storm water discharges from SONGS Units 2 and 3 are therefore not covered under tentative Order Nos. R9-2005-0005 and R9-2005-0006.

NUCLEAR REGULATORY COMMISSION

Section 301 of the Clean Water Act establishes a broad prohibition against the discharge of pollutants except in compliance with the Act's permit requirements; and Section 502 of the Act defines "pollutant" to include, inter alia, radioactive materials [33 U.S.C. 1362 (6)]. The U.S. EPA, which implements the Clean Water Act's prohibition on unauthorized discharges, requires a permit for every discharge of pollutants from a point source to waters of the United States through the NPDES permit program. In its implementing regulations the U.S. EPA also defines "pollutant" to include radioactive materials, but expressly excludes radioactive materials that are regulated under the Atomic Energy Act of 1954. The difference in the mandate of the Clean Water Act and the U.S. EPA's implementing procedures regarding the regulation of radioactive materials by the NPDES program was addressed by the U. S. Supreme Court in 1976, when citizens groups, concerned about potential discharges of radioactive effluents from nuclear facilities in Colorado, sought clarification of the definition of "pollutant."

The U.S. Supreme Court found that since the first Atomic Energy Act (AEA) was passed, control over the production and use of atomic energy has rested with the Atomic Energy Commission, which became the Nuclear Regulatory Commission (NRC) in 1972. The AEA gives authority to the NRC to regulate three types of radioactive materials – source material, special nuclear material, and byproduct material. Production of atomic energy for industrial and commercial purposes may be undertaken only in accordance with licenses issued by the NRC, which address potential releases of these nuclear materials

into the environment. [426 U.S. 1 (1976)] The Court agreed with the U.S. EPA that the U.S. EPA did not have authority (through the NPDES permit program) to control radioactive materials that are regulated under the AEA. These tentative Orders do not regulate radioactive materials to the extent that such materials are the responsibility of the NRC pursuant to the AEA. Practically, all radioactive materials associated with the fuel source of a nuclear powered electrical generating station, like SONGS, are source material, special nuclear material, or byproduct material, as defined by the AEA, and therefore, not subject to regulation by these tentative Orders.

C. Impaired Water Bodies on CWA 303 (d) List

On June 5 and July 25, 2003, the U.S. EPA approved major portions of the list of impaired water bodies, prepared by the State Board pursuant to Section 303 (d) of the CWA, which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations for point sources. This 303 (d) list includes 3.7 miles of the Pacific Ocean shoreline within the San Clemente Hydrologic Area as impaired for bacteria indicators. Impairment has been detected at specific near shore locations that are not associated with outfalls from SONGS Units 2 and 3. The receiving waters of SONGS Units 2 and 3 are not otherwise included on the current 303 (d) list.

III. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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 effluent limitations and other requirements in NPDES permits. The CWA establishes two principal bases for effluent limitations. First, dischargers are required to meet technology-based effluent limitations that reflect several levels of control that consider both technical factors as well as costs and economic impact. Second, they are required to meet water quality-based effluent limitations (WQBELs) that are needed to protect applicable designated uses of the receiving water. Dischargers are required to comply with the effluent limitations that are most stringent.

A. Technology-Based Effluent Limitations

1. Scope and Authority

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

a. Best practicable treatment control technology (BPT), which 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.

b. Best available technology economically achievable (BAT), which 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.

c. Best conventional pollutant control technology (BCT), which 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.

d. 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.

2. Applicable Technology-Based Effluent Limitations

Pursuant to Section 306 (b) (1) (B) of the CWA, U.S. EPA has established standards of performance for the steam electric power point source category, for existing and new sources, at 40 CFR Part 423. These regulations apply to SONGS Units 2 and 3 as "an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel … or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium." (40 CFR 423.10) Standards of performance for existing facilities (instead of new source performance standards) are applicable to SONGS Units 2 and 3, because their construction was commenced before the publication of regulations on November 19, 1982, which proposed standards of performance for the industry. Following are applicable technology-based standards of performance (BPT and BAT) applicable to SONGS Units 2 and 3 from the effluent limitations guidelines for existing sources at 40 CFR 423. The guidelines do not include standards of performance based on BCT.

Standards of Performance Based on BPT

a. The pH of all discharges, except once through cooling water, shall be within the range of 6.0 – 9.0 [40 CFR 423.12 (b) (1)].

b. Low volume wastes are defined as those wastewater sources for which specific limitations are not established by the Effluent Limitations Guidelines at 40 CFR

423. The quantity of pollutants discharged from low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration listed in the following table [40 CFR 423.12 (b) (3)]:

Pollutant	Daily Max (mg/L)	30 Day Avg (mg/L)
Total Suspended Solids	100	30
Oil and Grease	20	25

c. The quantity of pollutants discharge in metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of metal cleaning wastes times the concentration listed in the following table [40 CFR 423.12 (b) (5)]:

Pollutant	Daily Max (mg/L)	30 Day Avg (mg/L)
Total Suspended Solids	100	30
Oil and Grease	20	25

d. At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass based limitations required by (b.) and (c.), above [40 CFR 423.12 (b) (11)].

Standards of Performance Based on BAT

e. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid [40 CFR 423.13 (a)].

f. The quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once through cooling water from each discharge point times the concentration listed in the following table [40 CFR 423.13 (b) (1)].

Pollutant	Max Concentration (mg/L)
Total Residual Chlorine	0.2

g. Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the Discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control [40 CFR 423.13 (b) (2)]. The duration of each chlorination cycle shall not exceed 25 minutes.

h. The quantity of pollutants discharged in chemical metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of metal cleaning wastes times the concentration listed in the following table [40 CFR 423.13 (e)]:

Pollutant	Daily Max (mg/L)	30 Day Avg (mg/L)
Total Copper	1.0	1.0
Total Iron	1.0	1.0

i. At the permitting authority's discretion, the quantity of pollutants allowed to be discharged may be expressed as concentration-based limitations instead of the mass based limitations required by (f.) and (h.), above [40 CFR 423.13 (g)].

All applicable standards of performance from 40 CFR 423 were incorporated into Order Nos. 99-47 and 99-48 and are retained in tentative Order Nos. R9-2005-0005 and R9-2005-0006. Differences between the effluent limitations guidelines at 40 CFR 423 and how they are expressed in Order Nos. 99-47 and 99-48 and/or tentative Order Nos. R9-2005-0005 and R9-2005-0006 are described below:

(1) Order Nos. 99-47 and 99-48 expressed the pH limitation (a., above) as applicable to the combined discharge from SONGS Units 2 and 3 (Outfalls 002 and 003), and the limitation is retained as such in the tentative Orders.

(2) Order Nos. 99-47 and 99-48 established daily maximum, 30-day average, and instantaneous maximum limitations for total suspended solids and for oil and grease, applicable to low volume wastes, as required by the effluent limitations guidelines (b., above). These limitations are retained in the tentative Orders.

(3) Order Nos. 99-47 and 99-48 established the limitations for iron and copper in chemical, metal cleaning wastes (h., above) as applicable for all metal cleaning wastes. These limitations are retained as such in the tentative Orders.

(4) Order Nos. 99-47 and 99-48 required only concentration-based limitations of iron and copper for metal cleaning wastes (h., above). The tentative Orders include both concentration-based and mass-based limitations for iron and copper, applicable to all metal cleaning wastes.

(5) Order Nos. 99-47 and 99-48 included 6-month median, daily maximum, and instantaneous maximum effluent limitations for total residual chlorine applicable to the combined discharge from Outfalls 002 and 003. These limitations are water quality based limitations derived from the California Ocean Plan, as described below, and are retained in the tentative Orders.

B. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

U.S. EPA regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for 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. For discharges to the Pacific Ocean, the Ocean Plan allows the Regional Board

little discretion in the application of WQBELs. The Ocean Plan requires the establishment of WQBELs in discharge permits for all Table B toxic pollutants in the Ocean Plan.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

Basin Plan

The Water Quality Control Plan, San Diego Basin (9) *(the Basin Plan)* was adopted by the Regional Board on September 8, 1994 and approved by the State Water Resources Control Board on December 13, 1994. The Basin Plan identifies the following beneficial uses of the coastal waters of the Pacific Ocean.

a. Industrial service supply,
b. Navigation,
c. Contact water recreation,
d. Non-contact water recreation,
e. Commercial and sport fishing,
f. Preservation of biological habitats of special significance,
g. Wildlife habitat,
h. Rare, threatened, or endangered species,
i. Marine habitat,
j. Aquaculture,
k. Migration of aquatic organisms,
l. Spawning, reproduction, and/or early development,
m. Shellfish harvesting

By reference, the Basin Plan adopts the *Water Quality Control Plan for Ocean Waters of California* (the Ocean Plan) and the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (the Thermal Plan). Although these two plans include most water quality objectives and implementing procedures that are applicable to discharges to the Pacific Ocean, the Basin Plan includes the following water quality objectives for dissolved oxygen and pH in ocean waters, which have been incorporated into tentative Order Nos. R9-2005-0005 and R9-2005-0006.

<u>Dissolved Oxygen</u>
The dissolved oxygen concentration in ocean waters shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste materials.

<u>pH</u>
The pH of receiving waters shall not be changed at any time more than 0.2 pH units from that which occurs naturally.

Ocean Plan

The Basin Plan for the San Diego Basin adopts by reference the Ocean Plan (2001), which establishes beneficial uses and water quality objectives and procedures for their implementation to protect the quality of the State's ocean waters. Order Nos. 99-47 and 99-48 were written using the guidance of the Ocean Plan of 1997, and tentative Order Nos. R9-2005-0005 and R9-2005-0006 have been written using the guidance of the updated 2001 Ocean Plan.

For all ocean waters of the State, the Ocean Plan establishes the beneficial uses described previously in this Fact Sheet. The Ocean Plan includes general provisions and water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. These water quality objectives from the Ocean Plan have been incorporated word-for-word as receiving water limitations into tentative Order Nos. R9-2005-0005 and R9-2005-0006 and were also included in the previous orders for SONGS Units 2 and 3. Unlike Order Nos. 99-47 and 99-48, the tentative Order includes the water quality objective for radioactivity as a receiving water limitation; however Section II. B of this Fact Sheet explains that the NPDES program and the tentative Order apply only to those radioactive pollutants not regulated solely by the Nuclear Regulatory Commission pursuant to Atomic Energy Act of 1954.

Table B of the Ocean Plan includes the following water quality objectives for chemicals and chemical characteristics and requires that effluent limitations be established in NPDES permits for each chemical or chemical characteristic:

a. 6-month median, daily maximum, and instantaneous maximum objectives for 21 chemicals and chemical characteristics, including total residual chlorine and chronic toxicity, for the protection of marine aquatic life.

b. 30-day average objectives for 20 non-carcinogenic chemicals for the protection of human health.

c. 30-day average objectives for 42 carcinogenic chemicals for the protection of human health

From the Table B water quality objectives, effluent limitations for the **combined discharge** from Units 2 or 3 are calculated according to the following equation for all chemicals and chemical characteristics, except for chlorine, acute toxicity (if applicable), and radioactivity:

$$Ce = Co + Dm\ (Co - Cs)$$

Where:

Ce = the effluent limitation (µg/L)

Co = the water quality objective to be met at the completion of initial dilution (µg/L)
Cs = background seawater concentration
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater

For SONGS Units 2 and 3, Dm equals 10, based on observed waste flow characteristics, receiving water density structure, and the assumption that no currents of sufficient strength to influence the initial dilution process flow across the discharge structure. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge. In accordance with Table B implementing procedures, Cs equals zero for all chemicals and chemical characteristics, except the following:

Background Seawater Concentrations (Cs)	
Pollutant	**Cs (µg/L)**
Arsenic	3
Copper	2
Mercury	0.0005
Silver	0.16
Zinc	8

As examples, effluent limitations for copper, chronic toxicity, chloroform, and chlorine are determined as follows:

Water quality objectives from the Ocean Plan are:

Pollutant	**6-Month Median**	**Daily Maximum**	**Instantaneous Maximum**	**30 Day Average**
Copper (µg/L)	3	12	30	-
Chronic Toxicity (TUc)	-	1	-	-
Chloroform (µg/L)	-	-	-	130
Total Chlorine Residual (µg/L)	2	8	60	-

Using the equation, Ce = Co + Dm (Co – Cs), effluent limitations are calculated:

Copper

Ce = 3 + 10 (3 – 2) = 13 µg/L (6-Month Median)
Ce = 12 + 10 (12 – 2) = 112 µg/L (Daily Maximum)
Ce = 30 + 10 (30 – 2) = 310 µg/L (Instantaneous Maximum)

Chronic Toxicity

Ce = 1 + 10 (1 - 0) = 11 TUc (Daily Maximum)

Chloroform

Ce = 130 + 10 (130 – 0) = 1,430 µg/L

Total Chlorine Residual

Ce = 2 + 10 (2 – 0) = 22 µg/L (6-Month Median)
Ce = 8 + 10 (8 – 0) = 88 µg/L (Daily Maximum)
Ce = 60 + 10 (60 – 0) = 660 µg/L (Instantaneous Maximum)

For intermittent chlorine sources (as at SONGS Units 2 and 3, which chlorinate 4 times per day for 25 minute durations), water quality objectives for total chlorine residual are determined in accordance with the following equation from footnote c of Table B:

$$\log y = -0.43 (\log x) + 1.8$$

where:

y = the water quality objective to apply when chlorine is being discharged (µg/L)

x = the duration of uninterrupted chlorine discharge in minutes

For SONGS Units 2 and 3, which discharge chlorine for 25 minute uninterrupted intervals, the applicable water quality objective for intermittent discharges of total chlorine residual is calculated as follows:

$$\log y = -0.43 (\log 25) + 1.8 = 1.199$$

$$y = 16 \text{ µg/L}$$

Based on a water quality objective for chlorine of 16 µg/L for intermittent chlorine applications, using the equation, Ce = Co + Dm (Co – Cs), an effluent limitation for chlorine, is calculated:

Ce = 16 + 10 (16 – 0) = 176 µg/L

The Regional Board is applying this effluent limitation for chlorine as the instantaneous maximum limitation applicable during chlorination events, so that the final water quality based effluent limitations for chlorine, applicable to the combined discharge through Outfalls 002 and 003, are as follows:

6-Month Median	Daily Maximum	Instantaneous Maximum
22 µg/L	88 µg/L	176 µg/L

Section III.C of the Ocean Plan (2001) is ambiguous in appearing to require establishment of effluent limitations for both acute and chronic toxicity for all ocean

dischargers but requiring, only chronic, not acute, toxicity monitoring when the minimum initial dilution of the effluent is below 100 to 1. Further, the Ocean Plan provides an equation for determining acute toxicity limitations, which allow for a mixing zone for the acute toxicity objective that is 10 percent of the distance from the edge of the outfall structure to the edge of the chronic mixing zone. The Ocean Plan states that this equation applies only when the minimum probable initial dilution is greater than 24 to 1. The Regional Board, in consultation with the State Board staff, has concluded that an acute toxicity limitation is not required for discharges from SONGS Units 2 and 3 through Outfalls 002 and 003, which receive a minimum probable initial dilution of 10 to 1. Because new information (the revised Ocean Plan) is available since adoption of Order Nos. 99-47 and 99-48, the elimination of acute toxicity limitations from that Order does not violate anti-backsliding prohibitions of the Clean Water Act. The tentative Order Nos. R9-2005-0005 and R9-2005-0006 do include chronic toxicity limitations, which are consistent with Ocean Plan requirements, and which are more meaningful than acute toxicity limitations for the high volume, dilute flows typical of Outfalls 002 and 003.

Based on the implementing procedures described above, effluent limitations have been calculated for all Table B pollutants from the Ocean Plan and incorporated into tentative Order Nos. R9-2005-0005 and R9-2005-0006. Section III.C.7.d. of the Ocean Plan describes compliance determination for Table B pollutants for dischargers which use a large volume of ocean water for once through cooling and states:

> *Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimum probable initial dilution of the combined effluent (in-plant waste streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all in-plant waste streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute [if applicable per Section 3 (c)] and chronic toxicity, and instantaneous maximum concentrations in Table B shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water.*

In accordance with guidance of the Ocean Plan for dischargers which use a large volume of ocean water for once through cooling, tentative Order Nos. R9-2005-0005 and R9-2005-0006 have established water quality based effluent **concentration limitations**, applicable to the **combined discharge** through Outfalls 002 and 003, for total chlorine residual, chronic toxicity, and all for all toxic chemicals requiring instantaneous maximum limitations for protection of marine aquatic life. In addition, **mass emission limitations**, applicable to the **combined flow of low volume, in-plant wastes**, are established for pollutants requiring 6-month median and daily maximum limitations for protection of marine aquatic life and for pollutants requiring 30-day average effluent limitations for protection of human health.

Most of the water quality based effluent limitations established by Order Nos. 99-47 and 99-48 are retained in tentative Order Nos. R9-2005-0005 and R9-2005-0006. Differences between the water quality based effluent limitations in the tentative Orders and Order Nos. 99-47 and 99-48 are described below:

a. Maximum mass emission limitations for toxics in the **combined low-volume, in-plant discharges**, from Units 2 and 3 were based on the combined discharge flow of 1,287 mgd (i.e. total volume of cooling water and other flows being discharged from Outfalls 2 or 3) in Order Nos. 99-47 and 99-48. In the tentative Orders, the mass emission limitation calculations are based exclusively on the total maximum low-volume in-plant wastestream flows (cooling water volumes are not factored into the calculations). The mass emission limitations calculations for individual toxics in the tentative Orders utilized a combined low-volume flow of 13.2 mgd (i.e. 1.38 mgd from Unit 1 and 11.8 mgd from Units 2 or 3) in conjunction with a Dm value of 10 and the water quality objectives listed in Table B of the Ocean Plan.

The maximum combined low-volume discharges from Units 2 or 3 are 11.8 mgd in volume and include the following individual wastestreams (pursuant to 40 CFR 423, *Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category*, treated domestic wastewater or metal cleaning wastes are not categorized as low-volume wastewaters):

- Blowdown Processing
- Makeup Demineralizer System
- Radwaste System
- Polishing Demineralizer System
- Steam Generator Blowdown
- Hotwell Overboard
- Plant Drains (Building Sump)
- Intake Structure Sump
- Thermophilic Digester
- Concrete Cutting Cooling Water

The maximum combined low-volume discharges from Unit 1 are 1.38 mgd in volume and include the following individual wastestreams:

- Radwaste System
- Plant Drains/Yard Drains
- Dewatering Discharges

b. Order Nos. 99-47 and 99-48 did not include concentration-based, instantaneous maximum limitations for the **combined discharge** for cyanide, ammonia, non-chlorinated phenolic compounds, chlorinated phenolics, endosulfan, endrin, and HCH. Pursuant to the Ocean Plan (2001), limitations for these pollutants are required for protection of marine aquatic life. Limitations for these compounds

are established by tentative Order Nos. R9-2005-0005 and R9-2005-0006 for the combined discharge with a maximum flow rate 1,287 mgd.

c. Order Nos. 99-47 and 99-48 established the following water quality based effluent limitations, applicable to the **combined discharge** through Outfalls 002 and 0003, for total residual chlorine and acute and chronic toxicity:

	30 Day Avg	**Weekly Avg**	**Daily Max**	**Inst Max**
Total Residual Chlorine (µg/L)	22	88	200	-
Acute Toxicity (TUa)	1.5	2.0	-	2.5
Chronic Toxicity (TUc)	-	-	10	-

Tentative Order Nos. R9-2005-0005 and R9-2005-0006 do not include an effluent limitation for acute toxicity but do establish the following effluent limitations for total residual chlorine and chronic toxicity applicable to the combined discharge through Outfalls 002 and 003.

	6 Month Median	**Daily Max**	**Inst Max**
Total Residual Chlorine (µg/L)	22	88	176
Chronic Toxicity (TUc)	-	11	-

The 2001 Ocean Plan requires 6-month median, daily maximum, and instantaneous maximum limitations for chlorine. The proposed 6-month median and daily maximum limitations have been determined from water quality objectives from Table B of the Ocean Plan. The proposed instantaneous maximum chlorine limitation of 176 µg/L is based on a water quality objective of 16 µg/L, calculated in accordance with footnote c of Table B for intermittent chlorine applications.

The basis for the chronic toxicity limitation in Order Nos. 99-47 and 99-48 is unclear. Because it was derived before revision of the Ocean Plan in 2001, however, water quality objectives and implementing procedures of the revised Ocean Plan represents new information, and the proposed limitation for chronic toxicity represents a permissible exception to the anti-backsliding provisions of the Clean Water Act – information is now available that was not available at the time of issuance of Order Nos. 99-47 and 99-48 [CWA Section 402 (o)(2)(B)].

d. Tentative Order Nos. R9-2005-0005 and R9-2005-0006 acknowledge the impending termination of flows from Unit 1 to the Unit 1 outfall and the routing of up to 36.6 mgd of combined discharge flows from Unit 1 to the Unit 2 or 3 outfalls. Both tentative Orders are structured to account for effluent limitations and monitoring requirements as a result of the potential routing of Unit 1 flows to the Units 2 or 3 outfalls. The total permitted flow through the Unit 2 and 3 outfalls shall, however, remain unchanged at 1,287 mgd. Furthermore, the concentration-

based effluent limitations for the combined discharge through the Unit 2 and 3 outfalls are also not adjusted due to Unit 1 flows.

IV. MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code require technical and monitoring reports. The Monitoring and Reporting Programs (MRPs) for the tentative Order Nos. R9-2005-0005 and R9-2005-0006 establish monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRPs.

In an effort to standardize monitoring and reporting requirements and in order to support electronic data submittal of discharger self-monitoring reports, reporting units, definitions, and deadlines specified in the tentative Orders have been written in accordance with the State Water Resource Control Board's *Water Quality Permit Standards Team Final Report***.**

A. Influent Monitoring

Fish Impingement

MRP Nos. 99-47 and 99-48 require that fish impingement monitoring be performed at the SONGS Units 2 and 3 intake structures during heat treatments and for at least one continuous 24-hour period per quarter during normal operations. The discharger is required to determine the total weight and number of each fish species removed from the traveling bar racks and screens during each monitoring event, as well as the length and sex in a representative sample.

In 2003, a total of 60 species of fish were counted at the Unit 2 intake structure. When fish count and weight is extrapolated to account for total influent flow, the estimated fish impingement in 2003 was 2,569,039 individuals weighing 16,279 kilograms. The top 15 species accounted for 99.9 percent of the total number and 99.5 percent of the total weight. Northern anchovies were the most numerous species contributing 88 percent of the total number of fish and 60.8 percent of the total weight. Queenfish were the second most abundant species with 7.5 percent of the number and 17.9 percent of the total biomass.

The tentative Orders retain the requirements of Order Nos. 99-47 and 99-48 for fish entrainment monitoring at the Unit 2 and 3 and intake structures.

B. Effluent Monitoring

In an effort to standardize monitoring and reporting requirements and in order to support electronic data submittal of discharger self-monitoring reports, reporting units, definitions, and deadlines specified in the MRPs for tentative Order Nos. R9-2005-0005 and R9-2005-0006 have been written in accordance with the State Water Resource Control Board's *Water Quality Permit Standards Team Final Report***.**

Monitoring Requirements in the tentative MRP are summarized in the following table. The tentative MRPs should be consulted for greater detail regarding specific monitoring requirements:

System/Pollutants	**Monitoring Frequency**
Main Condenser Cooling Water Inflow	
Flow, Temperature	Continuous
pH, Turbidity	Monthly
Combined Discharge (Outfalls 002 and 003)	
Flow, Temperature	Continuous
pH, Turbidity	Monthly
Chlorine	Weekly
Chronic Toxicity	Quarterly
Hydrazine	Monthly
Table B Pollutants (Aquatic Life)	Semiannually
Combined Low Volume Wastewaters	
Table B Pollutants	Annually
Individual Low Volume Wastewaters	
Metal Cleaning Wastewaters	
TSS, O&G	prior to discharge
Iron, Copper	prior to discharge
Other Low Volume Wastewaters	
Flow	Continuous
pH, TSS, O&G	Monthly
Sewage Treatment Plant Influent	
TSS	Monthly
Sewage Treatment Plant Effluent	
Flow	Daily
pH, TSS, O&G, Settleable Solids	Monthly

Most monitoring requirements from Order Nos. 99-47 and 99-48, including those established by Addendum No. 1 to Order Nos. 99-47 and 99-48 (August 30, 2000) are incorporated into the tentative MRPs. Discussion of monitoring requirements in Order Nos. 99-47 and 99-48 and those in the tentative MRPs, highlighting differences between the Orders, follows:

1. Due to reformatting, many provisions of MRP Nos. 99-47 and 99-48 appear in endnotes or in attachments to the tentative MRPs.

2. Cooling water intake monitoring requirements are unchanged and retained from Order Nos. 99-47 and 99-48.

3. There are three changes in monitoring requirements for the combined discharge through Outfalls 002 or 003 (combined discharges through individual Outfalls 002 or 003 are the combined flows of once through main condenser cooling water, low volume wastewaters, and all other wastewater flows from Units 2 or 3. Combined discharges through Outfalls 002 or 003 shall also include cooling water, low-volume wastewaters, and treated domestic wastewaters from Unit 1 whenever the discharger routes these Unit 1 flows through Outfalls 002 or 003):

   a. Order Nos. 99-47 and 99-48 required both acute and chronic toxicity monitoring. As discussed previously in the Fact Sheet, only a chronic toxicity limitation is established by tentative Order Nos. R9-2005-0005 and R9-2005-006, and therefore, only chronic toxicity monitoring is required by the MRPs. A chronic toxicity limitation (and quarterly monitoring requirement) will provide more meaningful information regarding the nature of the discharge than an acute toxicity limitation and monitoring requirement in the high volume, dilute flows typical of Outfalls 002 and 003. Chronic toxicity monitoring procedures are changed to conform to the requirements of the 2001 Ocean Plan.

   b. Order Nos. 99-47 and 99-48 required semiannual monitoring for 10 metals which have water quality criteria listed in the Ocean Plan for protection of aquatic life. As discussed previously, Order Nos. 99-47 and 99-48 did not include combined discharge limitations for organics and non-metals which have aquatic life protection criteria. These additional seven pollutants (i.e. cyanide, ammonia, non-chlorinated phenolic compounds, chlorinated phenolics, endosulfan, endrin, and HCH) were only addressed in the in-plant, low-volume monitoring program.

      In accordance with Section III.C.7.d of the Ocean Plan, tentative Order Nos. R9-2005-0005 and R9-2005-0006 has established concentration-based effluent limitations and semiannual monitoring for these seven additional pollutants for the combined discharge.

   c. Order Nos. 99-47 and 99-48 require total residual chlorine in the combined discharge to be monitored on a monthly basis. Although monitoring data for the last two years has not indicated any violations in the total chlorine residual discharge limitation, this monitoring regimen may be insufficient due to the intermittent nature of chlorination cycles (i.e. 4 cycles per day, 25 minutes per Unit per cycle). The monitoring frequency for total residual chlorine in the tentative MRPs has been increased from monthly to weekly.

4. Order Nos. 99-47 and 99-48 established monitoring requirements for "in-plant waste streams." The Discharger was required to composite a flow proportionate sample from specifically identified wastewater streams, which generally included all wastewaters originating from Units 2 and 3, except discharges of once through

cooling water. The Discharger was also required to include in-plant wastestreams from Unit 1, when Unit 1 was diverting its in-plant wastestreams to the Unit 2 or Unit 3 outfalls (instead of the Unit 1 outfall). In-plant waste streams also included treated domestic wastewater from the Unit 1 and Mesa Complex sewage treatment plants. Analysis for pH and all Table B pollutants of the Ocean Plan was required annually.

Tentative Order Nos. R9-2005-0005 and R9-2005-006 also include monitoring requirements for "combined low volume wastewaters," which are the equivalent of "in-plant waste streams" from Order Nos. 99-47 and 99-48. In general, these wastewaters include all wastewaters originating from individual Units 2 or 3, except discharges of once through cooling water. To remain consistent with the definition of low volume wastes from the *Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category* (40 CFR 423), the tentative Orders do not include treated domestic wastewater or metal cleaning wastes as low volume wastewaters. The individual, low volume wastewaters identified by the tentative Order are:

- Blowdown Processing
- Makeup Demineralizer System
- Radwaste System
- Polishing Demineralizer System
- Steam Generator Blowdown
- Hotwell Overboard
- Plant Drains (Building Sump)
- Intake Structure Sump
- Thermophilic Digester
- Concrete Cutting Cooling Water

Tentative Order Nos. R9-2005-0005 and R9-2005-0006 each require annual collection of separate flow weighted composite sample of low volume wastewaters originating from Units 2 and 3 respectively. Unit 1 low-volume wastewaters will be included in the in composite samples with Units 2 or 3 whenever the Discharger routes its effluent to the Units 2 or 3 outfalls (instead of the Unit 1 outfall). Once the Discharger permanently terminates usage of the Unit 1 outfall and rescinds Order No. 2000-04 (for Unit 1), all low-volume wastewaters from Unit 1 will be composited with low-volume wastewater from Units 2 or 3 on a routine basis. The low-volume wastewaters from Unit 1 that will have to be composited with the Units 2 or 3 low-volume wastewaters include:

- Radwaste System
- Plant Drains/Yard Drains
- Dewatering Discharges

The Regional Board acknowledges that, at the time of sample collection, it may not be possible to collect a sample aliquot from each low volume wastewater, and

therefore certain wastewaters are identified as being of higher priority. The proportion of each waste stream to be added to the composite sample must be based on the actual (preferred) or estimated flow rates for the day on which samples are collected. The following example describes how a flow-weighted composite sample should be collected.

Say that the following individual low volume wastewaters are sampled. The flow rate for each individual wastewater is determined for that day, and the relative amount/volume, in percent, of each individual waste stream is determined. Using the percentages of each individual waste stream in the total, the amount of each individual waste stream to be composited in a five gallon (18,927 mls) sample is calculated. In the example, below, on the day of sample collection, condenser overboard flow accounts for 69 percent of the total flow of the low volume wastewaters that are sampled. 69 percent of five gallons equals 0.69 x 18,927 milliliters, which equals 13,060 milliliters. (There are 3,785 mLs per gallon and 18,927 mLs per five gallons.)

Low Volume Wastewater	**Flow**	**Percent of Total Flow**	**mLs to be Composited in a 5 Gal Sample**
Condenser Overboard	6.5 mgd	69	13,060
Makeup Demineralizer System	0.58 mgd	6	1,136
Radwaste System	0.25 mgd	3	568
Steam Generator Blowdown	0.43 mgd	5	946
Polishing Demineralizer System	1.5 mgd	16	3,028
Concrete Cutting Cooling Water	0.10 mgd	1	189
Total	9.45 mgd	100 percent	18,927 mls

Individual low volume waste stream monitoring requirements are unchanged and retained from Order Nos. 99-47 and 99-48.

Because treated domestic wastewaters have only been discharged through SONGS Outfall 001, Order Nos. 99-47 and 99-48 did not include monitoring requirements for effluent from the Unit 1 and Mesa Complex sewage treatment plants. Tentative Order Nos. R9-2005-0005 and R9-2005-0006 do include monitoring requirements for effluent from the Unit 1 and Mesa sewage treatment plants that will be effective only when treated domestic wastewater is being discharged through Outfalls 002 or 003. The proposed monitoring requirements are the same as those included in Order No. 2000-04 (for Unit 1).

Order Nos. 99-47 and 99-4 (and the tentative Orders) do not have any specific monitoring/reporting requirements for Outfalls 004 (fish return system) and 005 (across the beach discharge) since there are no significant pollutants discharged from these outfalls. Tentative Order Nos. R9-2005-0005 and R9-2005-0006 required that all incidents of across the beach discharges through Outfall 005 shall be recorded and reported for the month during which the discharge occurred. The

discharger shall report the date, time, and duration of each discharge; the source (system) of the wastewater that is discharged; an estimate of the volume discharged; and any other monitoring data that is generated during the discharge.

C. Receiving Water Monitoring

1. *Bacteria Monitoring*

Order Nos. 99-47 and 99-48, through Addendum No. 1, required the discharger to conduct coliform, fecal coliform, and enterococcus monitoring at two offshore and two surfzone receiving water stations in the vicinity of the SONGS Unit 1 outfall. At the offshore locations samples were required from the surface, mid-depth, and bottom. All sampling and bacterial analyses were required monthly, except from April 1 to October 31, when weekly sampling was required at one of the surfzone stations, the San Onofre State Beach.

In supplemental application materials, the discharger requested that bacteria monitoring at receiving water locations, as required by Order Nos. 99-47 and 99-48, be eliminated. The Regional Board has reviewed bacterial monitoring data submitted by the Discharger and finds that bacterial contamination is not a significant component of the discharge through Outfall 001 (where domestic wastewaters have been discharged in the past). To date, no samples collected in the vicinity of the Outfall 001 have shown elevated bacteria levels that exceed water quality criteria of the Ocean Plan. Infrequently elevated levels of enterococcus coliform bacteria found at near shore locations appear to be associated with storm water runoff and/or natural effects, such as rotting kelp. Because treated domestic wastewaters from the Mesa Complex and Unit 1 sewage treatment plants are diluted by 15 – 35 mgd, when discharged through Outfall 001, and would be diluted by at least 1,219 mgd, if discharged through Outfalls 002 or 003; and because bacteriological monitoring is already conducted by the San Diego County Department of Health near the SONGS facility, tentative Order Nos. R9-2005-0005 and R9-2005-0006 do not include the receiving water, bacterial monitoring program established by Addendum No. 1 to Order Nos. 99-47 and 99-48 (adopted August 30, 2000).

2. *Continuous Temperature Monitoring*

Monitoring and Reporting Program (MRP) Nos. 99-47 and 99-48 require that continuously recording thermographs be employed at three receiving water stations. Temperature measurements are required from the surface, at 5 and 10 meters, and at near bottom depths on an hourly basis. Continuous water temperature data for 2003 showed the mean seasonal surface temperatures in summer were 20.2 to 20.4º C. The mean winter surface temperatures were 15.3 to 15.7º C. In 2003, sea surface temperatures fluctuated from - 4º to 2º C around the long term mean.

In 2003, there were 9 periods of conspicuous, short term temperature decreases, as evidenced by measurements at the surface and at the bottom. The decreases occurred

between mid March and October, with the largest decreases occurring between mid August and late September. The short term temperature reductions appear to be related to the strong and persistent wind forced upwelling noted along the west coast of North America in 2003, with the largest, late summer events associated with seasonal tropical storms.

The tentative Orders retain the requirements of Order Nos. 99-47 and 99-48 for continuous temperature monitoring.

3. *Aerial Photographic Surveys*

MRP Nos. 99-47 and 99-48 require aerial photographic surveys to be conducted in the area of the Unit 2 and 3 diffuser systems.

As discussed below, the Regional Board has reviewed study data from an offshore transmissivity monitoring program and in-plant studies on effluent turbidity and agreed with Discharger's assertion that the Unit 2 and 3 discharges do not cause appreciable reductions in light transmission beyond the zone of initial dilution. Although tentative Order Nos. R9-2005-0005 and R9-2005-0006 do not include a requirement to conduct offshore transmissivity monitoring, they retain the requirement for aerial photographic surveys of the discharge area.

4. *Trawling Surveys*

MRP Nos. 99-47 and 99-48 require quarterly offshore trawling at 20, 40, and 60 ft. isobaths at three offshore locations. Collected fish are to be counted and identified, and sex determination is required for selected species.

In 2003, surveys were conducted on March 19, June 10, September 2, and November 6. A total of 1,107 fish representing 25 species were taken during these surveys. Comparison of catch between the San Onofre and reference sites in 2003 indicate that the total number of fish and species richness remain similar to the reference sites.

The tentative Orders retain the requirements of Order Nos. 99-47 and 99-48 for trawling surveys.

5. *Kelp Densities*

MRP Nos. 99-47 and 99-48 require identification and counting of giant kelp plants greater than 2 meters three times per year at six sampling sites in the San Onofre Kelp. Substrate is to be qualitatively described. Random sampling is also required on a semiannual basis. Analysis of kelp bed densities has occurred since 1978 in stations located throughout the San Onofre Kelp. The tentative Orders retain the requirements of Order Nos. 99-47 and 99-48 for kelp density monitoring.

6. *Kelp Bed Monitoring*

MRP Nos. 99-47 and 99-48 require the discharger to participate with other ocean discharges in the San Diego Region in an annual photographic survey of regional kelp beds. Using vertical aerial infrared photography, the purpose of the annual survey is to compare the extent of coastal kelp bed coverage areas to historical surveys. Significant, persistent losses must be investigated by divers to determine probable reasons for the loss. Tentative Order Nos. R9-2005-0005 and R9-2005-0006 retain the requirements of Order Nos. 99-47 and 99-48 for kelp bed monitoring.

7. *Temperature Profiles*

MRP Nos. 99-47 and 99-48 require development of temperature profiles, from surface to bottom, on a quarterly basis, at 29 receiving water locations.

Vertical temperature gradients were generally weak in 2003. From January through early March and in late November through December, gradients of less than 0.1º C per meter were measured. Moderate to strong gradients were observed from mid June through October, with a maximum gradient noted of 0.8º C per meter at one monitoring station. A short-term reverse in temperature stratification occurred in March 2003 at one monitoring station, when bottom temperatures were measured up to 0.3º C warmer than temperatures at the surface.
Tentative Order Nos. R9-2005-0005 and R9-2005-0006 retain the requirements of Order Nos. 99-47 and 99-48 for temperature profiling.

8. *Transmissometer Profiles*

The Ocean Plan includes a water quality objective which requires that natural light not be significantly reduced at any point outside the zone of initial dilution as the result of the discharge of waste.

The Marine Review Committee of the California Coastal Zone Conservation Commission has estimated that the average level of natural light on the sea bottom at stations located downcoast from the SONGS Units 2 and 3 outfall diffusers is lowered by 6 to 16 percent relative to the level that would occur in the absence of SONGS during a downcoast current. The California Coastal Commission has acknowledged the findings of the Marine Review Committee and has conditioned the discharger's coastal permit to require mitigation that will offset the marine resource impacts that have been caused by SONGS Units 2 and 3 as identified by the Marine Review Committee.

On February 10, 1992, the Regional Board held a special session to consider possible non-compliance with the water quality objective of the Ocean Plan for transmissivity by SONGS Units 2 and 3 following extensive studies performed for the Marine Review Committee. The Regional Board concluded that there was still insufficient information to support a finding of non-compliance. The Discharger was required to conduct a one-year study of turbidity at the Units 2 and 3 intake and outfalls for one year. This study, completed by the discharger in 1996, concluded that the turbidity of in-plant waste

streams at SONGS Units 2 and 3 do not vary significantly from the turbidity naturally present in the once-through cooling water, which comprises the majority of the net discharge. Furthermore, the study concluded that the Unit 2 and 3 discharges do not cause a statistically significant reduction in natural light transmission at any point outside the zone of initial dilution.

MRP Nos. 99-47 and 99-48 require the discharger to develop surface to bottom profiles of light transmittance on a quarterly basis at 29 receiving water stations. In its supplemental application materials, the Discharger requested that transmissivity monitoring at receiving water locations be discontinued.

Monitoring of light transmittance during four separate oceanographic surveys in 2003 found no floating particulates, grease, oil, or noticeable discoloration of the sea surface attributable to the SONGS facility. Further, transmissivity monitoring in 2003 and aerial photographic surveys suggested that transmissivity in the study area was strongly related to station depth and natural turbidity effects, and not the result of generating station effects.

The Regional Board has reviewed study data from the offshore transmissivity monitoring program and in-plant studies on effluent turbidity and concurs with Discharger's assertion that the Units 2 and 3 discharges do not cause appreciable reductions in light transmission beyond the zone of initial dilution. The Regional Board finds that the Units 2 and 3 discharges are compliant with the Ocean Plan prohibition against such adverse discharges. Tentative Order Nos. R9-2005-0005 and R9-2005-0006 do not include the provision to conduct offshore transmissivity monitoring but retain the requirement for aerial photographic surveys of the discharge area.

9. *Water Quality Measurements*

MRP Nos. 99-47 and 99-48 require quarterly monitoring of dissolved oxygen (DO) and pH at the surface of 10 receiving water stations. In 2003, DO concentrations in receiving water were similar to the results at the control stations in all quarterly monitoring events. Tentative Order Nos. R9-2005-0005 and R9-2005-0006 retain the requirements of Order Nos. 99-47 and 99-48 for pH and dissolved oxygen monitoring.

V. RATIONALE FOR SPECIAL PROVISIONS

A. Special Studies and Additional Monitoring Requirements [316 (b)]

On June 9, 2004, U.S. EPA promulgated new requirements to minimize adverse environmental impacts associated with existing cooling water intake structures under Section 316(b) of the Clean Water Act. This regulation, commonly referred to as "316(b) Phase II", will require existing dischargers of a certain size to adopt new technologies to reduce impingement mortality and entrainment to within a targeted range, or demonstrate a reasonable alternative for compliance. The facility will be required to update existing

316(b) demonstration studies and to provide a basis for selecting a compliance strategy as Best Technology Available (BTA). (See Section II.B, *CWA Section 316(b)* of this Fact Sheet).

B. Best Management Practices and Pollution Prevention

Section 402 of the Clean Water Act and U.S. EPA regulations 40 CFR 122.44 (k) authorize the requirement of best management practices, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. These measures are important tools for waste minimization and pollution prevention.

The tentative Orders require the Discharger to maintain a BMP Plan that incorporates practices to achieve the objectives and specific requirements in the permit. The BMP Plan must be revised as new practices are developed for the facility.

The BMP Plan must be designed to prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants from ancillary activities to waters of the United States. The BMP Plan shall be consistent with the general guidance contained in the U.S. EPA *Guidance Manual for Developing Best Management Practices (BMPs)* (EPA 833-B-93-004). The Discharger shall maintain the BMP Plan in an up-to-date condition and shall amend the BMP Plan in accordance with 40 CFR 125.100 - 125.104 whenever there is a change in facility design, construction, operation, or maintenance, which materially affects the potential for discharge from the SONGS facilities of significant amounts of hazardous or toxic pollutants into waters of the United States.

VI. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, San Diego 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 SONGS Units 2 and 3. 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. Notification of Interested Parties

The Regional Board has notified the permittee and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the publication in the San Diego Union-Tribune and Orange County Register newspapers no less than 30 days prior to the scheduled hearing of March 9, 2005.

B. Written Comments

Interested persons are invited to submit written comments upon these draft waste discharge requirements. Comments should be submitted either in person or by mail, during business hours to:

John H. Robertus, Executive Officer
Attn: Industrial Compliance Unit
Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123

To ensure that the Regional Board has the opportunity to fully study and consider written material, comments regarding Order Nos. R9-2005-0005 and R9-2005-0006 should be received in the Regional Board's office no later than 5:00 PM on February 25, 2005. Written material submitted after 5:00 PM on March 2, 2005 will not be provided to the Regional Board members and will not be considered by the Regional Board. Oral comments will be received at the hearing on March 9, 2005.

C. Public Hearing

In accordance with 40 CFR 124.10, tentative Order Nos. R9-2005-0005 and R9-2005-0006 will be considered by the Regional Board at a public hearing beginning at 9:00 a.m. on March 9, 2005. The location of this meeting is as follows:

Regional Water Quality Control Board
Regional Board Meeting Room
9174 Sky Park Court, Suite 100
San Diego, California 92123

D. Information and Copying

For additional information, interested persons may write the following address or contact Hashim Navrozali of the Regional Board by e-mail at hnavrozali@waterboards.ca.gov or by phone at (858) 467-2981.

Regional Water Quality Control Board, San Diego Region
Attn: Industrial Compliance – Hashim Navrozali
9174 Sky Park Court, Suite 100
San Diego, California 92123

Copies of the applications, NPDES waste discharge requirements, and other documents (other than those that the Executive Officer maintains as confidential) are available at the RWQCB office for inspections and copying according to the following schedule (excluding holidays):

Monday and Thursday: 1:30 pm to 4:30 pm

Tuesday and Wednesday:	8:30 am to 11:30 am
	1:30 pm to 4:30 pm
Friday:	8:30 am to 11:30 pm

Electronic copies of the Fact Sheet and tentative Orders can be accessed on the Regional Board website: http://www.waterboards.gov./sandiego/.

E. Register of Interested Persons

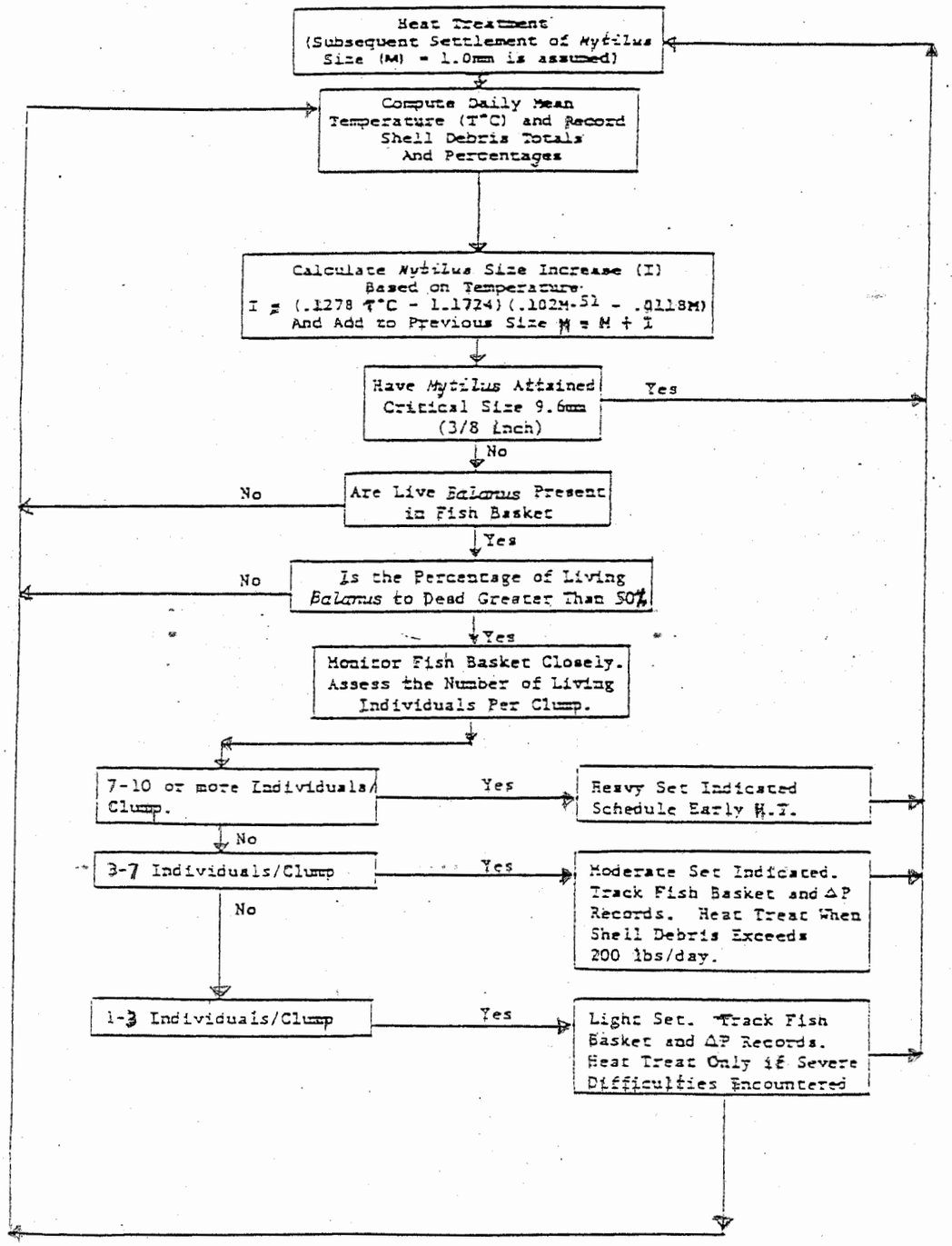
Any person interested in being placed on the mailing list for information regarding this tentative WDR/NPDES permit should contact the Regional Board staff identified above, reference this facility, and provide a name, address, and phone number.

Any person interested in subscribing to the San Diego Regional Board's electronic mailing list may register at the Regional Board's website:

http://www.waterboards.ca.gov/rwqcb9/misc/mailing_lists.html

ATTACHMENT F – SONGS HEAT TREATMENT DECISION CURVE

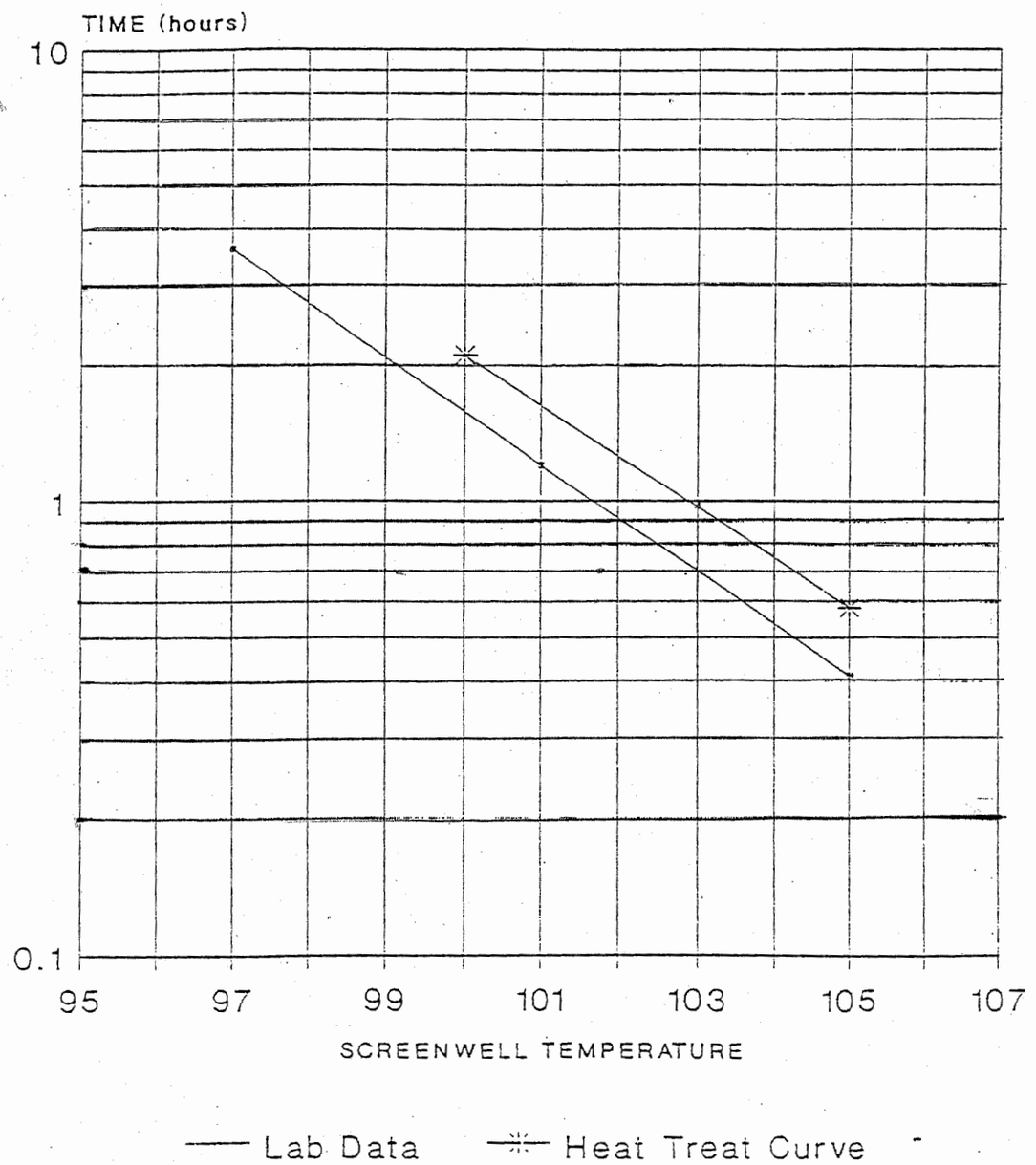
NPDES NO. CA0108181
ORDER NO. R9-2005-0006



Daily heat treatment decision flow chart
for San Onofre Units 2 and 3

ATTACHMENT G – TIME-TEMPERATURE MORTALITY CURVE FOR THE BAY MUSSEL

NPDES NO. CA0108181
ORDER NO. R9-2005-0006

TIME-TEMPERATURE MORTALITY CURVE

Bay Mussel (Mytilus Edulis)