



Southern California Edison Company

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September 9, 1994

WALTER C. MARSH
MANAGER OF NUCLEAR REGULATORY AFFAIRS

TEL. PHONE
(714) 454-4403

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Subject: Docket No. 50-361 and 50-362
New NPDES Permits Nos. CA018073 and CA0108181
San Onofre Nuclear Generating Station Units 2 and 3

Reference: Letter from A. L. Coe (California Regional Water Quality
Control Board, San Diego Region) to Mr. David W. Kay (Edison)
dated August 26, 1994

The referenced letter notified Edison that new NPDES Permits for San Onofre Units 2 and 3 had been adopted by the California Regional Water Quality Control Board, San Diego Region, on August 11, 1994. In accordance with Appendix B, Section 3.2 of Facility Operating Licenses NPF-10 and NPF-15 for Units 2 and 3 respectively, this letter provides a copy of the new NPDES permits to the NRC.

If you have any questions, please contact me.

Sincerely,

Enclosures

cc: L. J. Callan, Regional Administrator, NRC Region IV
A. B. Beach, Director, Division of Reactor Projects, NRC Region IV
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC Region IV
M. K. Webb, NRC Project Manager, San Onofre Unit 1
Louis Carson, Regional Project Inspector, San Onofre Unit 1
S. S. Bajwa, Section Chief, Decommissioning Section

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

8771 CLAIREMONT MESA BOULEVARD, SUITE B
SAN DIEGO, CA 92124-1331
TELEPHONE: (619) 467-2952

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August 26, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

P 177 162 845

Mr. David W. Kay
Senior Environmental Specialist
Southern California Edison Company
P.O. Box 800
2244 Walnut Grove Avenue
Rosemead, CA 91770

Dear Mr. Kay:

ADOPTION OF ORDER NOS. 94-49 (NPDES PERMIT NO. CA0108073) AND 94-50 (NPDES PERMIT NO. CA0108181), WASTE DISCHARGE REQUIREMENTS FOR SOUTHERN CALIFORNIA EDISON COMPANY, SAN ONOFRE NUCLEAR GENERATING STATION (SONGS) UNITS 2 AND 3, RESPECTIVELY, SAN DIEGO COUNTY

Enclosed are copies of the subject Orders which were adopted by the Regional Board on August 11, 1994. These Orders establish waste discharge requirements for the discharge of once-through cooling water and other wastes from SONGS Units 2 and 3 to the ocean. Compliance with the Orders will involve considerable effort on your part. Regional Board staff will be making periodic inspections to ensure compliance is achieved.

In addition, the enclosed monitoring and reporting programs shall be implemented effective September 1, 1994. The first monitoring report is due October 31, 1994. Monitoring reports shall be furnished, under penalty of perjury, containing the required information at the frequency designated in the monitoring programs. Failure to submit the required monitoring reports by the due date will constitute a violation of the Orders, is a misdemeanor under California Water Code Section 13268, and may result in the imposition of administrative civil liabilities of up to \$1,000 per day of violation.

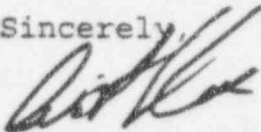
Mr. David W. Kay

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Please prepare monitoring forms containing all the information required in the monitoring and reporting programs for our review and approval. Upon Regional Board staff approval of the monitoring forms, they are to be used to submit monitoring data. On receipt of the reports, we plan to review them and send you an acknowledgement letter with our comments.

If you have any questions or comments concerning these Orders, please call Mr. Brian Kelley at (619) 467-2969.

Sincerely,



ARTHUR L. COE
Executive Officer

cc: (w/enc.)

John Youngerman
Division of Water Quality
State Water Resources Control Board
Sacramento, California

Terry Oda
Permits Issuance Section (W-5-1)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901

Bob Heckler
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
14300 Mesa Road, Bldg. W44
San Clemente, California 92674-0128

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 94-49
NPDES PERMIT NO. CA0108073

WASTE DISCHARGE REQUIREMENTS
FOR
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2
SAN DIEGO COUNTY

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

1. On March 4, 1985, the Regional Board adopted Order No. 85-11, National Pollutant Discharge Elimination System (NPDES) No. CA0108073, Waste Discharge Requirements for Southern California Edison Company, San Onofre Nuclear Generating Station, Unit 2, San Diego County. Order No. 85-11 expired on March 14, 1990, but was administratively extended until adoption of this Order.
2. On September 14, 1989, Southern California Edison Company (SCE) submitted a complete report of waste discharge (RWD), dated September 13, 1989, in application for renewal of the NPDES permit for San Onofre Nuclear Generating Station (SONGS) Unit 2. SCE submitted amendments to the original application dated November 3, 1989, August 22, 1991, December 5, 1991, June 2, 1993, October 27, 1993, November 18, 1993, July 5, 1994 and July 20, 1994.
3. SONGS Unit 2 has the following discharges:
 - a. a combined discharge of once-through cooling water and other wastes through the SONGS Unit 2 Outfall;
 - b. a fish return system discharge of circulating seawater, without in-plant wastes, through the SONGS Units 2 and 3 Fish Return System Outfall; and,
 - c. a discharge of once-through cooling water, without in-plant wastes, for emergency cooling and cooling for certain maintenance activities at an Across-the-Beach discharge point.
4. 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. Unit 3 has an electrical output of 1087 MW. Unit 3 began commercial operation on April 1, 1984.

5. SONGS Unit 3 is owned by 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 Unit 3. Consequently this permit is issued to SCE, pursuant to the United States Environmental Protection Agency (USEPA) Consolidated Permit Regulations, 40 CFR Part 122.4(b).
6. Attachment A is a site map of the SONGS facilities.
7. SONGS Unit 3 uses a once-through ocean water cooling system. The once-through cooling water stream for Unit 3 has a maximum flowrate of 1218.6 million gallons per day (MGD) and a normal operational temperature increase across the condensers of 19.2°F. The intake is located 3,183 ft. offshore in 32 ft. of water. The Unit 3 outfall diffuser extends from 3,558 ft. to 6,020 ft. offshore and ranges in depth from 32 ft. to 38 ft. The Unit 3 outfall has a point of discharge as follows:

Latitude 33° 21' 11.74" North
Longitude 117° 33' 51.61" West

8. The Unit 3 screenwells contain a fish guidance and return system. The fish handling system consists of a series of vertical louvers that guide entrapped fish to a large quiet-water area in the screenwell, fish elevators that remove the fish from the screenwells, and a 4 ft. diameter water conduit that returns fish to the ocean, depositing them 1,900 ft. offshore. The fish return conduit is common to both Units 2 and 3 and is referred to as the SONGS Units 2 and 3 Fish Return System Outfall.
9. On May 18, 1972, the State Water Resources Control Board (State Board) adopted the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California," hereinafter called the Thermal Plan. Water Quality Objective 3B(3) of the Thermal Plan provides:

"The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20°F."
10. On July 31, 1972, the Regional Board adopted Order No. 72-26. The Order granted an exception from Objective 3B(3)

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. Unit 2 has an electrical output of 1087 MW. Unit 2 began commercial operation on August 18, 1983.

5. SONGS Unit 2 is owned by 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 Unit 2. Consequently this permit is issued to SCE, pursuant to the United States Environmental Protection Agency (USEPA) Consolidated Permit Regulations, 40 CFR Part 122.4(b).
6. Attachment A is a site map of the SONGS facilities.
7. SONGS Unit 2 uses a once-through ocean water cooling system. The once-through cooling water stream for Unit 2 has a maximum flowrate of 1218.6 million gallons per day (MGD) and a normal operational temperature increase across the condensers of 19.2°F. The intake is located 3,183 ft. offshore in 32 ft. of water. The Unit 2 outfall diffuser extends from 5,888 ft. to 8,350 ft. offshore and ranges in depth from 39 ft. to 49 ft. The Unit 2 outfall has a point of discharge as follows:

Latitude 33° 20' 55.84" North
Longitude 117° 34' 13.5" West

8. The Unit 2 screenwells contain a fish guidance and return system. The fish handling system consists of a series of vertical louvers that guide entrapped fish to a large quiet-water area in the screenwell, fish elevators that remove the fish from the screenwells, and a 4 ft. diameter water conduit that returns fish to the ocean, depositing them 1,900 ft. offshore. The fish return conduit is common to both Units 2 and 3 and is referred to as the SONGS Units 2 and 3 Fish Return System Outfall.
9. On May 18, 1972, the State Water Resources Control Board (State Board) adopted the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California," hereinafter called the Thermal Plan. Water Quality Objective 3B(3) of the Thermal Plan provides:

"The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20°F."
10. On July 31, 1972, the Regional Board adopted Order No. 72-26. The Order granted an exception from Objective 3B(3)

of the Thermal Plan for heat treatment to control marine fouling organisms in the intake and discharge conduits of SONGS Units 2 and 3. The Regional Board proposed the following language as a substitute for Objective 3B(3):

"The companies may raise the temperature of the cooling water discharge from planned Units 2 and 3 of the San Onofre Nuclear 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;" and

"Thermal treatment shall be done in such 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."

11. The Regional Board, in Order No. 72-26, requested State Board concurrence with the exception to the Thermal Plan.
12. On February 15, 1973, the State Board adopted Order No. 73-5, which concurred conditionally with Regional Board Order No. 72-26. Under the conditions contained in Order No. 73-5, SCE and SDG&E were required to complete certain studies.
13. On March 6, 1973, the conditions contained in State Board Order No. 73-5 were incorporated into Regional Board Order No. 72-26 by Addendum No. 1 to Regional Board Order No. 72-26.
14. On January 31, 1979, SCE submitted final reports for the studies required in Order No. 73-5 and Regional Board Order No. 72-26 to the State and Regional Boards. SCE requested that these reports be approved as fulfilling the conditions established in State Board Order No. 73-5 and Regional Board Order No. 72-26. SCE also submitted proposed heat treatment operating conditions.
15. After reviewing the reports submitted by SCE and other pertinent data, the State Board concluded that the reports fulfilled the conditions set forth in Order No. 73-5 and Regional Board Order No. 72-26.
16. The State Board further found that the heat treatment operating conditions proposed by SCE would assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife within the meaning of Section 316(a) of the Clean Water Act.

17. On December 18, 1980, the State Board adopted Resolution No. 80-95 which approved the completed heat treatment studies and proposed heat treatment operating criteria for SONGS Units 2 and 3. Resolution No. 80-95 required that the proposed heat treatment operating conditions as amended be incorporated into the operating procedures and waste discharge requirements for Units 2 and 3.
18. Clean Water Act Section 316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. On July 29, 1988, SCE submitted a report entitled, "Marine Environmental Analysis and Interpretation, Report on 1987 Data, San Onofre Nuclear Generating Station." Chapter 10 of this report contains the results of a study designed to demonstrate conformance with Section 316(b) for SONGS Units 2 and 3. The study consisted of determining entrainment, impingement and field populations of fishes. The analysis evaluated the losses attributed to Units 2 and 3 intake structures as compared to offshore population densities and distributions.
19. The general intent of Section 316(b) appears to be satisfied by operations at Units 2 and 3. The available information indicates that the design, construction, location and operation of the intakes reflect Best Available Technology (BAT). However, information presented in the report "Review of Southern California Edison, San Onofre Nuclear Generating Station (SONGS) 316(b) Demonstration, July 26, 1993," which was prepared by Science Applications International Corporation (SAIC) under contract to the USEPA, indicates that operations at SONGS do cause adverse impacts to organisms in not only the cooling water system of the facility but also various biological populations or communities in the vicinity of the intake/discharge locations for the station. These effects include mortality for fish, especially eggs and larvae, that are taken into the station with the cooling water, and creating a sometimes turbid plume that affects the kelp, fish, and invertebrates in the San Onofre kelp bed. However, SCE has submitted extensive data challenging the MRC assertions. This data was not considered by SAIC in drafting their conclusions.
20. Compliance with Section 316(b) for issuance of an NPDES discharge permit for SONGS Units 2 and 3 shall be conditional as specified in Provision E.17 of this Order.
21. Attachment B is a flow diagram of discharged wastes for Unit 2.
22. Attachment C is a table of intermittent discharges and respective flows for Unit 2.

23. In order to control the growth of slime-forming organisms on condenser internal surfaces, the once-through condenser cooling water is brominated/chlorinated at the condenser inlet approximately once per day. Each injection period is approximately 60 minutes long.
24. The maximum discharge flowrate from the SONGS Unit 2 Outfall is 1286.9 MGD and consists of the following waste streams (maximum flowrates are indicated in parentheses):
 - a. Once-through condenser cooling water (1218.6 MGD)
 - b. Saltwater cooling system (49.0 MGD)
 - c. Sea water pumps bearing flush water (0.172 MGD)
 - d. Storm drains (0.168 MGD)
 - e. Screen wash (7.2 MGD)
 - f. Domestic wastewater treatment plants (0.145 MGD)
 - g. Low volume wastes (11.61 MGD)

The waste streams identified above are described in Findings 25 through 31 below.

25. Once-through condenser cooling water contains waste heat and residual chlorine or bromine and may contain metals leached from piping. A maximum flowrate of 1218.6 MGD of once-through condenser cooling water is discharged through the SONGS Unit 2 Outfall.
26. The saltwater cooling system (SWCS) uses ocean water to remove heat from the component cooling water system (CCWS) and the turbine plant cooling water (TPCW) system. The CCWS is a closed loop system designed to remove heat from various reactor auxiliary systems. The CCWS provides a radioactivity monitored intermediate barrier between the reactor auxiliary systems and the SWCS. The TPCW is a closed loop cooling system with a primary function to remove waste heat from the components of the steam plant auxiliary systems. As shown in Attachment B, the SWCS flow is withdrawn from and returned (recirculated) to the once-through condenser cooling water stream. The SWCS is chlorinated to control biofouling. A maximum flowrate of 49.0 MGD is discharged from the saltwater cooling system through the SONGS Unit 2 Outfall. During periods of discharge structure maintenance and emergencies, the SWCS discharges at the Across-the-Beach discharge point.
27. Sea water pumps bearings are lubricated by a once-through flow of domestic water. Of the total 0.172 MGD of sea water pumps bearing flush water discharged, 0.070 MGD is directed to the intake structure sump and 0.102 MGD to the once-through condenser cooling water stream.

28. Storm drains collect dewatering of groundwater, rainfall runoff, auxiliary boiler drain down and hose-down water from outside areas at the SONGS Unit 2 facility. Water entering storm drains is discharged directly to the once-through condenser cooling water stream. Storm drain flows may be virtually negligible in the absence of rainfall. During the rainy season, storm drain flowrates average approximately 0.074 MGD. A maximum flowrate of 0.168 MGD is discharged from storm drains to the SONGS Unit 2 Outfall.
29. The traveling screens and bars provide a method to remove marine life and debris from the once-through cooling water. Each of two screen wash pumps delivers a maximum flowrate of 2,500 gallons per minute for washing the traveling screens, traveling bar screens, and fish elevator. A maximum screen wash flowrate of 7.2 MGD is withdrawn from and returned (recirculated) to the once-through condenser cooling water stream.
30. Domestic sewage generated at SONGS is treated at either the SONGS Unit 1 sewage treatment plant or the Mesa Facility Complex sewage treatment plant. The effluents from both facilities are discharged to either the SONGS Unit 1 Outfall, SONGS Unit 2 Outfall, or SONGS Unit 3 Outfall, depending on operating conditions. The maximum effluent flowrate from the SONGS Unit 1 sewage treatment plant is 0.10 MGD. The maximum effluent flowrate from the Mesa Facility Complex sewage treatment plant is 0.045 MGD.
31. Low volume waste streams include the following (maximum flowrates are indicated in parentheses):
- a. Thermophilic digester (0.010 MGD)
 - b. Condenser hotwell overboard (7.20 MGD)
 - c. Steam generator blowdown (0.720 MGD)
 - d. Blowdown processing system demineralizer regenerants (0.085 MGD)
 - e. Full flow condensate polishing demineralizer regenerants (1.40 MGD)
 - f. Makeup demineralizer regenerants (0.670 MGD)
 - g. Radwaste system (0.432 MGD)
 - h. Building sumps (0.800 MGD)
 - i. Intake structure sump (0.288 MGD)

The low volume waste streams identified above are described in Findings 32 through 40 below.

32. SCE is proposing to install and operate a thermophilic digester which would be used to treat kelp debris, dead fish, sludge from both sewage treatment plants and kitchen grease. SCE reports that use of a thermophilic digester would reduce the solid waste disposal needs of the SONGS

facilities. SCE plans to begin operation of a thermophilic digester sometime during the life of this Order. A maximum flowrate of 0.010 MGD of supernatant from the thermophilic digester would be discharged to the influent of the SONGS Unit 1 sewage treatment plant.

33. A condenser hotwell overboard discharge is necessary if leaks are detected in the condenser or during start-up of the unit. The condenser hotwell overboard discharges a maximum flowrate of 7.20 MGD to SONGS Unit 2 Outfall.
34. The steam generator provides steam to the turbine, utilizing heat from the reactor primary cooling system. Hydrazine and ammonia are used to control the oxygen concentration and pH, respectively, of the demineralized feedwater which comes from the demineralizer. They form gaseous products, mainly nitrogen, which do not significantly affect the chemical characteristics of the blowdown. During normal operation, chemicals, such as ammonium hydroxide, are added to control pH. The maximum steam generator blowdown discharge flowrate to the SONGS Unit 2 Outfall is 0.720 MGD.
35. Steam generator blowdown not discharged directly to the once-through cooling water stream flows to the steam generator blowdown processing system (BPS) which functions to demineralize the steam generator blowdown and provide high quality condensate back to the main condenser. This side stream demineralizer is regenerated and the spent regenerants are neutralized to acceptable pH limits prior to discharge to the once-through condenser cooling water stream. The maximum blowdown processing system demineralizer regenerants flowrate to the SONGS Unit 2 Outfall is 0.085 MGD.
36. Steam, upon passing the turbine, is condensed back to water. The condensate is demineralized prior to returning to the steam generator. The full flow condensate polishing demineralizer (FFCPD) system is designed to remove positive and negative ions entering the system from small leaks which may develop in the main condenser and associated piping. The spent regenerants (sulfuric acid and caustic soda) are neutralized, settled and filtered to acceptable limits prior to discharge. The maximum wastewater flowrate from the full flow condensate polishing demineralizer system to the SONGS Unit 2 Outfall is 1.40 MGD.
37. The makeup demineralizer (MUD) system produces deionized water for various in-plant systems and is common to Units 1, 2, and 3. The source water for the MUD is potable water purchased from the Tri-Cities Municipal Water District. The ion exchange resins are routinely regenerated, with the wastewater (acidic and alkalynic) flowing to a

neutralization tank. The pH is then adjusted to acceptable limits by the addition of sulfuric acid or caustic soda. Upon neutralization and settling, the regeneration wastewater is then discharged through either the SONGS Unit 1 Outfall, SONGS Unit 2 Outfall, or SONGS Unit 3 Outfall. A reverse osmosis (RO) unit may be used to supplement the ion exchange system, producing additional make-up water and discharging brine via the MUD system piping. The maximum makeup demineralizer regenerants flowrate is 0.670 MGD.

38. The radwaste system provides radiological waste management. The system receives wastewater from reactor coolant systems, chemical and volume control systems, and minor flows from equipment leaks and drains, laboratory drains, personnel decontamination showers, and floor drains. Treatment facilities consist of a series of surge tanks, demineralizers, filter monitor tanks, flash tanks, and gas strippers. The radiological wastewater is treated to acceptable radiological limits established by the U.S. Nuclear Regulatory Commission for discharge or plant recycle. The maximum wastewater flowrate from the radwaste system to the SONGS Unit 2 Outfall is 0.432 MGD.
39. With the exception of the intake structure sump, which discharges directly into the intake structure, wastewater entering all drains labeled by SCE as "nonradioactive" flow by gravity to building sumps. There they are pumped to an oily waste sump. Each unit's oily waste sump is then pumped to the SONGS Units 2 and 3 common oil removal system prior to discharge through either the SONGS Unit 2 Outfall or the SONGS Unit 3 Outfall. The maximum wastewater flowrate from building sumps to the SONGS Unit 2 Outfall is 0.800 MGD.
40. The intake structure sump receives a portion of the sea water pumps bearing flush water and flows from sea water drains. The water in the intake structure sump is then pumped to the once-through cooling water stream. The maximum intake structure sump discharge flowrate to the SONGS Unit 2 Outfall is 0.288 MGD.
41. A USEPA Form 2C was submitted as part of the RWD. The following table summarizes the analytical data for those pollutants detected in the SONGS Unit 2 combined effluent at concentrations greater than the intake concentrations. The analytical data below is based on single 24-hour composite samples collected from the influent and combined effluent.

Pollutant	Units	Influent Concentration	Effluent Concentration
Total Suspended Solids (TSS)	mg/l	6.8	7.2
Bromide	mg/l	102	143
Chlorine, Total Residual	ug/l	---	200
Color	color units	3	4
Nitrogen, Total Organic (as N)	mg/l	0.25	0.28
Boron, Total	mg/l	4.09	4.25
Magnesium, Total	mg/l	1247	1306
Phenols, Total	mg/l	0.004	0.007

42. The RWD submitted in application for renewal of this permit (as described in Finding No. 2 above) identified a number of substances which will periodically be present in wastewater discharged from SONGS Unit 2. The RWD indicated that these substances were not present in the discharge at the time the discharge was sampled to obtain the information submitted in the application.
43. SCE reported in the application for this Order that metal cleaning wastes are not discharged from SONGS Unit 2.
44. The federal Nuclear Regulatory Commission is responsible for the regulation of SONGS Unit 2 with respect to radiological material. The Regional Board has no jurisdiction over regulation of radiological material or the discharge of radiological wastes from SONGS Unit 2.
45. The State Board adopted a revised "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) on March 22, 1990. The Ocean Plan identifies the following beneficial uses of state ocean waters to be protected:
- Industrial water supply;
 - Water contact recreation;
 - Non-contact water recreation;
 - Aesthetic enjoyment;
 - Navigation;
 - Ocean commercial and sport fishing

- g. Mariculture;
- h. Preservation and enhancement of Areas of Special Biological Significance;
- i. Preservation of rare and endangered species;
- j. Marine habitat;
- k. Fish migration;
- l. Fish spawning; and,
- m. Shellfish harvesting.

In order to protect these beneficial uses, the Ocean Plan establishes water quality objectives, general requirements for management of waste discharges to the ocean, quality requirements for waste discharges, discharge prohibitions, and general provisions.

- 46. The Ocean Plan establishes a procedure for determining effluent limitations which is based on the minimum initial dilution of a discharge by the receiving ocean waters. The State Board has issued a document entitled Water Quality Control Plan, Table B Guidelines, Ocean Waters of California, 1978 (Table B Guidelines) to assist in implementing the Ocean Plan. The Table B Guidelines describe two numerical models for use in estimating the minimum initial dilution of a discharge. If the models described in the Table B Guidelines are not applicable, a discharger may propose another numerical model or use the results of a site-specific physical modeling study. Neither of the models described in the Table B Guidelines is applicable to the SONGS Unit 2 discharge.
- 47. The Ocean Plan defines minimum initial dilution for submerged discharges as complete when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally. 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 shall 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.
- 48. On November 15, 1974, the California Institute of Technology submitted a report to SCE titled "Interpretations of Results from Hydraulic Modeling of Thermal Outfall Diffusers for the San Onofre Nuclear Power Plant." The report concluded that the discharge diffuser, as designed, would induce an offshore current. The report concluded that in the absence of surface cooling and no ambient current, the initial dilution is about ten.

49. On July 18, 1979, SCE requested that the State Board staff approve estimated initial dilution factors for those discharge structures generally described as "offshore submerged." These dilution factors were estimated utilizing the "flux-weighted-average" dilution approach developed by the California Institute of Technology. On March 13, 1980, the State Board staff agreed with SCE's approach for estimating initial dilution for "offshore submerged" discharges and approved the use of these calculated initial dilution factors when issuing future NPDES permits for these discharges. The minimum probable initial dilution, as defined by the Ocean Plan, for the SONGS Unit 2 Outfall is 10.
50. The Ocean Plan requires that waste be discharged a sufficient distance from areas designated as being of special biological significance to assure maintenance of natural water quality conditions in such areas. Heisler Park Ecological Reserve, approximately 20 miles northwest of SONGS Unit 2, is the closest designated Area of Special Biological Significance to the SONGS Unit 2 discharge.
51. The Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan) was adopted by the Regional Board on March 17, 1975, and approved by the State Board on March 20, 1975. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the State Board.
52. The Basin Plan identifies the following beneficial uses of the coastal waters of the Pacific Ocean:
- a. Industrial Service Supply;
 - b. Navigation;
 - c. Water Contact Water Recreation;
 - d. Non-Contact Water Recreation;
 - e. Ocean Commercial and Sport Fishing;
 - f. Preservation of Areas of Special Biological Significance;
 - g. Preservation of Rare and Endangered Species;
 - h. Marine Habitat;
 - i. Fish Migration;
 - j. Shellfish Harvesting;
 - k. Wildlife Habitat;
 - l. Fish Spawning; and,
 - m. Mariculture.
53. On April 18, 1983, Regional Board staff accompanied representatives of SCE on a helicopter flight over the SONGS Units 1, 2, and 3 Outfalls. Discoloration over SONGS Units 1 and 3 Outfalls were visible, apparently as a result of the operation of SONGS Unit 1 and Unit 3 circulating water

pumps. Regional Board staff did not view any discoloration over the SONGS Unit 2 outfall. However, Regional Board staff believes that the SONGS Unit 2 discharge may also create a turbidity plume in the same manner as SONGS Units 1 and 3. The turbidity of the SONGS Unit 2 discharge has the potential of adversely affecting the marine biota in the vicinity of the discharge.

54. The Ocean Plan requires that "natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste."
55. On February 20, 1974, the California Coastal Zone Conservation Commission created the Marine Review Committee (MRC) as a permit condition for the construction of Units 2 and 3 and directed the MRC to measure the effects of Units 2 and 3 on the marine environment and to determine if SONGS is in compliance with the regulatory requirements of State and Federal water quality agencies. Within the final study report issued by the MRC (MRC, 1989a), the MRC estimated that the average level of natural light at the bottom at stations downcoast from SONGS Units 2 and 3 outfall diffusers was lowered by 6-16% relative to the level that would occur in the absence of SONGS during a downcoast current. The MRC report states that this finding is statistically significant at the 95% confidence level.
56. The California Coastal Commission has adopted a resolution acknowledging the MRC findings and has conditioned SCE's coastal permit to require mitigation that will offset the marine resource impacts which have been caused by SONGS Units 2 and 3 as identified by the MRC.
57. On February 10, 1992, the Regional Board considered the issue of possible noncompliance with the NPDES permits for SONGS Units 2 and 3. The Regional Board determined that the conflicting findings of the MRC study and SCE's NPDES permit self-monitoring program made the compliance status of SONGS Units 2 and 3 uncertain. The Regional Board concluded that the evidence was not sufficient to support a finding of noncompliance.
58. Because of some remaining uncertainty as to the relative contribution of turbidity from operation of the SONGS once-through cooling water systems, this Order requires SCE to perform a 1-year study to evaluate the impact of in-plant waste streams on the relative contribution of turbidity in the discharge. The study will consist of daily sampling from the station in-plant intake and discharge structures and analysis of these samples for turbidity. The resulting data will be evaluated and submitted in a special report to the Executive Officer. Upon completion of this one-year

study period, monitoring in the cooling water intake and combined discharge will revert to monthly sampling.

59. On November 19, 1991, the State Board adopted the General Industrial Storm Water Permit, Order No. 91-13-DWQ (as amended by Water Quality Order No. 92-12-DWQ), NPDES No. CAS000001. On November 4, 1992, SCE submitted a Notice of Intent to the State Board for obtaining coverage of the SONGS facilities under Order No. 91-13-DWQ. The State Board confirmed coverage of the SONGS facilities under Order No. 91-13-DWQ and assigned WDID# 9 375003198 to the facilities. This Order requires that SCE comply with all the terms and conditions of Order No. 91-13-DWQ.
60. Effluent limitations, national standards of performance, and toxic and pretreatment effluent standards established pursuant to Section 301, 302, 303(d), 304, 306, 307, 316(b) and 403 of the Clean Water Act and amendments thereto are applicable to the discharge.
61. On November 19, 1982, the USEPA promulgated effluent guidelines and standards for discharges from the steam-electric power generating point source category. The guidelines establish effluent limitation guidelines, pretreatment standards and new source performance standards and are contained in 40 CFR Parts 125 and 423.
62. The best practicable control technology currently available (BPT) and best available technology economically achievable (BAT) effluent limitations promulgated by USEPA to regulate pollutants for the steam electric power generating point source category are applicable to discharges from SONGS Unit 2.
63. SONGS Unit 2 waste streams covered by 40 CFR 423 include: (1) once-through cooling water; and, (2) low volume wastes.
64. On July 10, 1984, SCE submitted an initial request for a Clean Water Act Section 301(g) environmental quality variance to the Regional Board. On January 23, 1985, SCE made final application for a Clean Water Act Section 301(g) environmental quality variance. SCE requested a variance from 40 CFR Part 423.13 which limits the concentration of total residual chlorine in discharged condenser cooling water to 0.2 mg/l. On May 5, 1994, SCE withdrew its application for a Section 301(g) variance citing an ability to operate SONGS Unit 2 subject to the BAT guideline for chlorine.
65. This Order establishes effluent limitations on the combined discharge through the SONGS Unit 2 Outfall only for total chlorine residual, acute and chronic toxicity, and

instantaneous maximum limitations on Ocean Plan Table B toxic materials. If the discharger exceeds the acute or chronic toxicity limitation, a Toxicity Reduction Evaluation (TRE)/Toxicity Identification Evaluation (TIE) shall be conducted. Part of the TRE will be to conduct acute and chronic toxicity monitoring on the various in-plant waste streams to determine the cause(s) of toxicity. When the constituent(s) causing toxicity is identified, new or revised effluent limitations shall be established for that constituent(s).

66. Water quality impacts of discharges from SONGS Unit 2 are consistent with maximum benefit to the people of the State and do not unreasonably affect present and anticipated beneficial use of ocean waters. Also, there is not convincing evidence that the discharges result in water quality less than that prescribed in applicable plans and policies as described in this Order. Therefore, discharges from SONGS Unit 2 as described in this Order are consistent with State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California."
67. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:
 - a. Past, present, and probable future beneficial uses of the ocean waters under consideration;
 - b. Environmental characteristics of the ocean waters under consideration, including the quality of water available thereto;
 - c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
 - d. Economic considerations;
 - e. The need for developing housing within the region;
 - f. The need to develop and use recycled water;
 - g. Beneficial uses to be protected and water quality objectives reasonably required for that purpose;
 - h. Other waste discharges; and,
 - i. The need to prevent nuisance.
68. The Regional Board has considered all water resource related environmental factors associated with the SONGS Unit 2 discharge.
69. The Regional Board has notified SCE and all known interested parties of its intent to prescribe waste discharge requirements for the discharge.

70. The Regional Board has, in a public meeting, heard and considered all comments pertaining to the discharge.
71. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the federal Clean Water Act or amendments thereto.
72. The issuance of waste discharge requirements for this discharge is exempt from the provisions of the California Environmental Quality Act (Chapter 3, Section 21000 et seq of Division 13 of the Public Resources Code) in accordance with Water Code Section 13389.

IT IS HEREBY ORDERED, that the Southern California Edison Company (hereinafter Discharger), in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act and regulations adopted thereunder, shall comply with the following requirements for the discharge through the SONGS Unit 2 Outfall, the Units 2 and 3 Fish Return System Outfall, and for all Across-the-Beach discharges.

A. PROHIBITIONS

1. Discharges of wastes in a manner or to a location which have not been specifically described to the Regional Board and for which valid waste discharge requirements are not in force are prohibited.
2. The discharge of oil or any residuary product of petrol to the waters of the State, except in accord with waste discharge requirements or other provisions of Division 7, California Water Code is prohibited.
3. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste to the ocean is prohibited.
4. The discharge of polychlorinated biphenyl compounds, such as those commonly used for transformer fluid, is prohibited.
5. 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.
6. The bypassing of untreated wastes containing concentrations of pollutants in excess of those of Table A or Table B of

the Ocean Plan to the ocean is prohibited except under those circumstances described under Provision E.16 of this Order.

7. The discharge through the SONGS Unit 2 Outfall in excess of 1286.9 MGD is prohibited unless the Discharger obtains revised waste discharge requirements for the proposed increased discharge flowrate.
8. Total residual oxidants may not be discharged from any single generating unit for more than two hours per day unless the Discharger demonstrates to the Regional Board Executive Officer that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination/bromination is permitted.

B. DISCHARGE SPECIFICATIONS

1. The combined discharge through the SONGS Unit 2 Outfall to the Pacific Ocean containing pollutants in excess of the following effluent limitations is prohibited.^{1/}

Parameter	Units ^{2/3/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Arsenic	ug/l lb/day	--	--	850 9,100
Cadmium	ug/l lb/day	--	--	110 1,200
Chromium (Hexavalent) ^{7/}	ug/l lb/day	--	--	220 2,400
Copper	ug/l lb/day	--	--	310 3,300
Lead	ug/l lb/day	--	--	220 2,400
Mercury	ug/l lb/day	--	--	4.4 47
Nickel	ug/l lb/day	--	--	550 5,900
Selenium	ug/l lb/day	--	--	1,650 18,000
Silver	ug/l lb/day	--	--	75 810

Parameter	Units ^{2/3/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Zinc	ug/l lb/day	--	--	2,120 23,000
Cyanide	ug/l lb/day	--	--	110 1,200
Total Chlorine Residual ^{8/}	ug/l lb/day	20 240	90 940	200 2,100
Ammonia (as N)	ug/l lb/day	--	--	66,000 710,000
Phenolic Compounds (non-chlorinated)	ug/l lb/day	--	--	3,300 35,000
Chlorinated Phenolics	ug/l lb/day	--	--	110 1,200
Endosulfan	ng/l lb/day	--	--	300 3.2
Endrin	ng/l lb/day	--	--	70 0.7
HCH ^{9/}	ng/l lb/day	--	--	130 1.4

Note: ug/l = micrograms per liter
 lb/day = pounds per day
 ng/l = nanograms per liter

Parameter	Units	Monthly Average ^{10/}	Weekly Average ^{11/}	Daily Maximum ^{5/}	Maximum at any time
Acute Toxicity ^{12/}	TUa	1.5	2.0	--	2.5
Chronic Toxicity ^{12/}	TUc	--	--	10	--

See Appendix A for endnotes.

2. Waste discharged^{9/} through the SONGS Unit 2 Outfall to the ocean^{9/} shall be essentially free of:

- a. Material that is floatable or will become floatable upon discharge;
 - b. Settleable material or substances that may form sediments which will degrade^{9/} benthic communities or other aquatic life;
 - c. Substances which will accumulate to toxic levels in marine waters, sediments or biota;
 - d. Substances that significantly^{9/} decrease the natural^{9/} light to benthic communities and other marine life; and
 - e. Materials that result in aesthetically undesirable discoloration of the ocean^{9/} surface.
3. SONGS Unit 2 waste^{9/} management systems that discharge to the ocean^{9/} shall be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
 4. Waste^{9/} effluents from SONGS Unit 2 shall be discharged to the ocean in a manner which provides sufficient initial^{9/} dilution to minimize the concentrations of pollutants and ensure compliance with water quality objectives.
 5. The location of the waste^{9/} discharge from SONGS Unit 2 shall assure that:
 - a. Pathogenic organisms and viruses are not present in areas where shellfish^{9/} 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 of special biological significance or areas that existing marine laboratories use as a source of seawater; and
 - c. Maximum protection is provided to the marine environment.
 6. Waste^{9/} that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing^{9/} and water-contact sports areas to maintain applicable bacteriological 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.

7. The SONGS Unit 2 discharge of elevated temperature wastes to the ocean shall comply with limitations necessary to assure protection of beneficial uses and designated areas of special biological significance.
8. At all times except during heat treatment operations, the maximum temperature of the discharge from SONGS Unit 2 to the ocean shall not exceed the natural temperature of receiving waters by more than 20°F.
9. The pH of the discharge from SONGS Unit 2 to the ocean shall be within the limits of 6.0 to 9.0 pH units at all times.
10. The discharge from the thermophilic digester (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.010 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 2.5	100.0 8.3	100.0 8.3
Grease and Oil	mg/l lb/day	15.0 1.3	20.0 1.7	20.0 1.7

11. The discharge of condenser hotwell overboard (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 7.20 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 1,800	100.0 6,000	100.0 6,000
Grease and Oil	mg/l lb/day	15.0 900	20.0 1,200	20.0 1,200

12. The discharge of steam generator blowdown (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.720 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 180	100.0 600	100.0 600
Grease and Oil	mg/l lb/day	15.0 90	20.0 120	20.0 120

13. The discharge of blowdown processing system demineralizer regenerants (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.085 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 21	100.0 71	100.0 71
Grease and Oil	mg/l lb/day	15.0 11	20.0 14	20.0 14

14. The discharge of full flow condensate polishing demineralizer regenerants (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 1.40 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 350	100.0 1200	100.0 1200
Grease and Oil	mg/l lb/day	15.0 180	20.0 230	20.0 230

15. The discharge of makeup demineralizer regenerants (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.670 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 170	100.0 560	100.0 560
Grease and Oil	mg/l lb/day	15.0 84	20.0 110	20.0 110

16. The discharge from the radwaste system (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.432 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 110	100.0 360	100.0 360
Grease and Oil	mg/l lb/day	15.0 54	20.0 72	20.0 72

17. The discharge from building sumps (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.800 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 200	100.0 670	100.0 670
Grease and Oil	mg/l lb/day	15.0 100	20.0 130	20.0 130

18. The discharge from the intake structure sump (a low volume waste) to the SONGS Unit 2 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.288 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 72	100.0 240	100.0 240
Grease and Oil	mg/l lb/day	15.0 36	20.0 48	20.0 48

19. The combined discharge from all SONGS Unit 2 low volume waste sources, taken together, containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 11.61 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 2,900	100.0 9,700	100.0 9,700
Grease and Oil	mg/l lb/day	15.0 1,500	20.0 1,900	20.0 1,900

20. The combined discharge from all SONGS Unit 2 in-plant waste sources (including seawater pumps bearing flush water, storm drains, screen wash, domestic wastewater treatment plants, and low volume wastes), taken together, containing pollutants in excess of the following effluent limitations to the once-through cooling water flow is prohibited:^{1/} (based on a maximum combined flowrate of 19.3 MGD)

Parameter	Units ^{2/14/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Arsenic	ug/l lb/day	60 9	320 52	850 140
Cadmium	ug/l lb/day	10 2	40 7	110 18
Chromium (Hexavalent) ^{7/}	ug/l lb/day	20 4	90 10	220 35
Copper	ug/l lb/day	16 2	110 18	310 50
Lead	ug/l lb/day	20 4	90 10	220 35

Parameter	Units ^{2/14/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Mercury	ug/l lb/day	0.4 0.07	1.8 0.28	4 0.7
Nickel	ug/l lb/day	60 9	220 35	550 89
Selenium	ug/l lb/day	170 27	660 110	1,700 270
Silver	ug/l lb/day	6 1	29 4.7	80 12
Zinc	ug/l lb/day	140 23	800 130	2,100 340
Cyanide	ug/l lb/day	10 2	40 7	110 18
Total Chlorine Residual ^{8/}	ug/l lb/day	20 4	90 14	660 110
Ammonia (as N)	ug/l lb/day	6,600 1,100	26,000 4,200	66,000 11,000
Phenolic Compounds (non- chlorinated)	ug/l lb/day	330 53	1,300 210	3,300 530
Chlorinated Phenolics	ug/l lb/day	10 2	40 7	110 18
Endosulfan	ng/l lb/day	100 0.02	200 0.032	300 0.048
Endrin	ng/l lb/day	20 0.004	40 0.007	70 0.01
HCH ^{9/}	ng/l lb/day	40 0.007	90 0.01	130 0.021

Parameter	Units	30-day Average
acrolein	ug/l lb/day	2,400 390

Parameter	Units	30-day Average
antimony	mg/l lb/day	13 2,100
bis(2-chloroethoxy) methane	ug/l lb/day	48 7.8
bis(2-chloroisopropyl) ether	mg/l lb/day	13 2,100
chlorobenzene	ug/l lb/day	6,300 1,000
chromium (III)	mg/l lb/day	2,100 340,000
di-n-butyl phthalate	mg/l lb/day	39 6,200
dichlorobenzenes ^{9/}	mg/l lb/day	56 9,000
1,1-dichloroethylene	mg/l lb/day	78 13,000
diethyl phthalate	mg/l lb/day	360 58,000
dimethyl phthalate	mg/l lb/day	9,000 1,500,000
4,6-dinitro-2-methylphenol	ug/l lb/day	2,400 390
2,4-dinitrophenol	ug/l lb/day	44 7.1
ethylbenzene	mg/l lb/day	45 7,300
fluoranthene	ug/l lb/day	170 27
hexachlorocyclopentadiene	ug/l lb/day	640 100
isophorone	mg/l lb/day	1,700 270,000
nitrobenzene	ug/l lb/day	54 8.7
thallium	ug/l lb/day	150 25

Parameter	Units	30-day Average
toluene	mg/l lb/day	940 150,000
1,1,2,2-tetrachloroethane	mg/l lb/day	13 2,100
tributyltin	ng/l lb/day	15 0.0025
1,1,1-trichloroethane	mg/l lb/day	5,900 960,000
1,1,2-trichloroethane	mg/l lb/day	470 76,000
acrylonitrile	ug/l lb/day	1.1 0.18
aldrin	ng/l lb/day	0.24 3.9E-05
benzene	ug/l lb/day	65 10
benzidine	ng/l lb/day	0.76 0.00012
beryllium	ng/l lb/day	360 0.058
bis(2-chloroethyl) ether	ug/l lb/day	0.50 0.080
bis(2-ethylhexyl) phthalate	ug/l lb/day	39 6.2
carbon tetrachloride	ug/l lb/day	9.9 1.6
chlordane ^{9/}	ng/l lb/day	0.25 4.1E-05
chloroform	mg/l lb/day	1.4 230
DDT ^{9/}	ng/l lb/day	1.9 0.00030
1,4-dichlorobenzene	ug/l lb/day	200 32
3,3-dichlorobenzidine	ng/l lb/day	89 0.014

Parameter	Units	30-day Average
1,2-dichloroethane	mg/l lb/day	1.4 230
dichloromethane	mg/l lb/day	5.0 800
1,3-dichloropropene	ug/l lb/day	98 16
dieldrin	ng/l lb/day	0.44 7.1E-05
2,4-dinitrotoluene	ug/l lb/day	28 4.6
1,2-diphenylhydrazine	ug/l lb/day	1.8 0.28
halomethanes ^{9/}	mg/l lb/day	1.4 230
heptachlor ^{9/}	ng/l lb/day	7.9 0.0013
hexachlorobenzene	ng/l lb/day	2.3 0.00037
hexachlorobutadiene	ug/l lb/day	150 25
hexachloroethane	ug/l lb/day	28 4.4
N-nitrosodimethylamine	ug/l lb/day	80 13
N-nitrosodiphenylamine	ug/l lb/day	28 4.4
PAHs ^{9/}	ng/l lb/day	97 0.016
PCBs ^{9/}	ng/l lb/day	0.21 3.4E-05
TCDD equivalents ^{9/}	pg/l lb/day	0.043 6.9E-09
tetrachloroethylene	ug/l lb/day	1100 180
toxaphene	ng/l lb/day	2.3 0.00037

Parameter	Units	30-day Average
trichloroethylene	ug/l lb/day	300 48
2,4,6-trichlorophenol	ug/l lb/day	3.2 0.51
vinyl chloride	ug/l lb/day	400 64

Note: mg/l = milligrams per liter
 ug/l = micrograms per liter
 ng/l = nanograms per liter
 pg/l = picograms per liter
 lb/day = pounds per day

21. The discharge from the SONGS Unit 1 sewage treatment plant shall not exceed the following effluent limitations: (based on a maximum flowrate of 0.10 MGD)^{15/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Weekly Average ^{11/}	Maximum at any time
Grease and Oil	mg/l lb/day	25 21	40 33	75 63
Total Suspended Solids	mg/l	Not more than 25% of influent total suspended solids		
Settleable Solids	ml/l	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	Within the limits of 6.0 to 9.0 at all times		
Acute Toxicity ^{12/}	TUa	1.5	2.0	2.5

Note: ml/l = milliliters per liter
 NTU = Nephelometric turbidity units

22. The discharge from the Mesa Facility Complex sewage treatment plant shall not exceed the following effluent limitations: (based on a maximum flowrate of 0.045 MGD)^{15/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Weekly Average ^{11/}	Maximum at any time
Grease and Oil	mg/l lb/day	25 9	40 15	75 28
Total Suspended Solids	mg/l	Not more than 25% of influent total suspended solids		
Settleable Solids	ml/l	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	Within the limits of 6.0 to 9.0 at all times		
Acute Toxicity ^{12/}	TUa	1.5	2.0	2.5

Note: ml/l = milliliters per liter
NTU = Nephelometric turbidity units

23. The discharge through the SONGS Units 2 and 3 Fish Return System Outfall and any Across-the-Beach discharge containing pollutants in excess of effluent limitations equal to the toxic material limitations contained in Receiving Water Limitation D.3 of this Order is prohibited.
24. The discharge of substances for which effluent limits are not established by this Order shall be prevented or, if the discharge cannot be prevented, minimized.

C. HEAT TREATMENT DISCHARGE SPECIFICATIONS

The Discharger may raise the temperature of the cooling water discharge to the Pacific Ocean in excess of the temperature specified in Discharge Specification B.7 during periods of heat treatment in accordance with the following specifications:

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 D. 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 E), 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 which 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 Bay Mussel Time-Temperature Mortality Curve (Attachment E). (Heat treatment duration represents the period of time at the target temperature, and not the time required to reach 100°F and 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 SONGS Units 2 and 3 heat treatment Decision Flow Chart (Attachment D). 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 2 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 (Attachment E).
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 No. C.3.
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 No. C.3. During Unit 2 heat treatments, the difference between intake and discharge water temperatures for Unit 3 may exceed 20°F due to crossover connections with Unit 3.

D. RECEIVING WATER LIMITATIONS

1. The SONGS Unit 2 discharge to the Pacific Ocean shall not by itself or jointly with any discharge or discharges cause the following Thermal Plan ocean water quality objective to be violated:

Thermal Characteristics:

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.

2. The SONGS Unit 2 discharge to the Pacific Ocean shall not by itself or jointly with any discharge or discharges cause the following Ocean Plan ocean water quality objectives to be violated. Compliance with these objectives shall be determined from samples collected at stations representative

of the area within the waste field where initial^{9/} dilution is completed.

a. Bacterial Characteristics

- (1) 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^{9/} beds, the following bacterial objectives shall be maintained throughout the water column:

- (a) 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).

- (b) 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.

- (2) At all areas where shellfish^{9/} may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

b. Physical Characteristics

- (1) Floating particulates and grease and oil shall not be visible.

- (2) The discharge of waste^{9/} shall not cause aesthetically undesirable discoloration of the ocean^{9/} surface.
- (3) Natural^{9/} light shall not be significantly^{9/} reduced at any point outside the initial dilution zone as the result of the discharge of waste.
- (4) The rate of deposition of inert solids and the characteristics of inert solids in ocean^{9/} sediments shall not be changed such that benthic communities are degraded^{9/}.

c. Chemical Characteristics

- (1) 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^{9/} materials.
- (2) The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- (3) The dissolved sulfide concentration of waters in and near sediments shall not be significantly^{9/} increased above that present under natural conditions.
- (4) The concentration of substances set forth in Table B of the Ocean Plan in marine sediments shall not be increased to levels which would degrade^{9/} indigenous biota.
- (5) The concentration of organic materials in marine sediments shall not be increased to levels which would degrade^{9/} marine life.
- (6) Nutrient materials shall not cause objectionable aquatic growths or degrade^{9/} indigenous biota.

d. Biological Characteristics

- (1) Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded^{9/}.
- (2) The natural taste, odor, and color of fish, shellfish^{9/}, or other marine resources used for human consumption shall not be altered.

- (3) The concentration of organic materials in fish, shellfish^{9/}, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

3. The SONGS Unit 2 discharge to the Pacific Ocean shall not by itself or jointly with any other discharge or discharges cause the following Ocean Plan toxic material limitations to be exceeded in ocean waters upon completion of initial^{9/} dilution:

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Arsenic	ug/l	8	32	80
Cadmium	ug/l	1	4	10
Chromium (Hexavalent) ^{7/}	ug/l	2	8	20
Copper	ug/l	3	12	30
Lead	ug/l	2	8	20
Mercury	ug/l	0.04	0.16	0.4
Nickel	ug/l	5	20	50
Selenium	ug/l	15	60	150
Silver	ug/l	0.7	2.8	7
Zinc	ug/l	20	80	200
Cyanide	ug/l	1	4	10
Total Chlorine Residual ^{8/}	ug/l	2	8	60
Ammonia (as N)	ug/l	600	2400	6000
Chronic Toxicity	TUc	--	1	--
Phenolic Compounds (non-chlorinated)	ug/l	30	120	300
Chlorinated Phenolics	ug/l	1	4	10
Endosulfan	ng/l	9	18	27

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Endrin	ng/l	2	4	6
HCH ^{9/}	ng/l	4	8	12

Parameter	Units	30-day Average
acrolein	ug/l	220
antimony	mg/l	1.2
bis(2-chloroethoxy) methane	ug/l	4.4
bis(2-chloroisopropyl) ether	mg/l	1.2
chlorobenzene	ug/l	570
chromium (III)	mg/l	190
di-n-butyl phthalate	mg/l	3.5
dichlorobenzenes ^{9/}	mg/l	5.1
1,1-dichloroethylene	mg/l	7.1
diethyl phthalate	mg/l	33
dimethyl phthalate	mg/l	820
4,6-dinitro-2-methylphenol	ug/l	220
2,4-dinitrophenol	ug/l	4.0
ethylbenzene	mg/l	4.1
fluoranthene	ug/l	15
hexachlorocyclopentadiene	ug/l	58
isophorone	mg/l	150
nitrobenzene	ug/l	4.9
thallium	ug/l	14
toluene	mg/l	85
1,1,2,2-tetrachloroethane	mg/l	1.2
tributyltin	ng/l	1.4
1,1,1-trichloroethane	mg/l	540

Parameter	Units	30-day Average
1,1,2-trichloroethane	mg/l	43
acrylonitrile	ug/l	0.10
aldrin	ng/l	0.022
benzene	ug/l	5.9
benzidine	ng/l	0.069
beryllium	ng/l	33
bis(2-chloroethyl) ether	ug/l	0.045
bis(2-ethylhexyl) phthalate	ug/l	3.5
carbon tetrachloride	ug/l	0.90
chlordane ^{9/}	ng/l	0.023
chloroform	mg/l	0.13
DDT ^{9/}	ng/l	0.17
1,4-dichlorobenzene	ug/l	18
3,3-dichlorobenzidine	ng/l	8.1
1,2-dichloroethane	mg/l	0.13
dichloromethane	mg/l	0.45
1,3-dichloropropene	ug/l	8.9
dieldrin	ng/l	0.040
2,4-dinitrotoluene	ug/l	2.6
1,2-diphenylhydrazine	ug/l	0.16
halomethanes ^{9/}	mg/l	0.13
heptachlor ^{9/}	ng/l	0.72
hexachlorobenzene	ng/l	0.21
hexachlorobutadiene	ug/l	14
hexachloroethane	ug/l	2.5
N-nitrosodimethylamine	ug/l	7.3
N-nitrosodiphenylamine	ug/l	2.5
PAHs ^{9/}	ng/l	8.8
PCBs ^{9/}	ng/l	0.019

Parameter	Units	30-day Average
TCDD equivalents ^{9/}	pg/l	0.0039
tetrachloroethylene	ug/l	99
toxaphene	ng/l	0.21
trichloroethylene	ug/l	27
2,4,6-trichlorophenol	ug/l	0.29
vinyl chloride	ug/l	36

Note: mg/l = milligrams per liter
ug/l = micrograms per liter
ng/l = nanograms per liter
pg/l = picograms per liter
lb/day = pounds per day

E. PROVISIONS

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
2. The Discharger must comply with all conditions of this Order. Any permit noncompliance constitutes a violation of the Clean Water Act and the California Water Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a Report of Waste Discharge submitted in application for permit modification or reissuance.
3. 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.
4. This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
 - a. Violation of any terms or conditions of this Order;
 - b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts, or;

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

The filing of a request by the Discharger for modification, revocation and reissuance, or termination of this Order does not stay the conditions of this Order. Notification by the Discharger of planned changes or of anticipated noncompliance with this Order does not stay the conditions of this Order.

5. 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 Executive Officer determines that continued discharges may cause unreasonable degradation of the marine environment.
6. Notwithstanding Provision E.5 above, if a toxic effluent standard or 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 such pollutant in this Order, this Order may be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the Discharger so notified.
7. 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 Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act or amendments thereto, the Regional Board may modify this Order in accordance with the more stringent standards.
8. The Discharger shall comply with effluent standards and prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement.
9. The Discharger shall take all reasonable steps in a timely manner as agreed upon by the Regional Board Executive Officer to identify the source(s) of toxicity through a Toxicity Identification Evaluation (TIE) and, if

appropriate, a Toxicity Reduction Evaluation (TRE), if the results of the acute or chronic toxicity tests exceed the toxicity limits specified in Discharge Specification B.1 of this Order.

At a minimum, the TIE/TRE shall be conducted in accordance with the following:

a. TIE/TRE Requirements for Acute and Chronic Toxicity

- (1) In accordance with EPA acute and chronic manuals EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 (Phase III), the Discharger shall initiate a Toxicity Identification Evaluation (TIE) within fifteen (15) days of the exceedance to identify the causes of the toxicity;
- (2) In accordance with EPA manual EPA/600/2-88/070, (TRE protocol for industrials) or any subsequent revisions, the Discharger shall initiate a Toxicity Reduction Evaluation (TRE) where appropriate; and
- (3) Within (15) days of becoming aware of the violation, the Discharger shall submit to the Regional Board a report which specifies at least the following:
 - (a) the times and dates when the limitation was exceeded;
 - (b) the actions the Discharger has taken to mitigate the impact of the discharge, to correct the exceedance and to prevent the recurrence of toxicity;
 - (c) the findings of TIE/TRE and any other investigations to identify the causes of the toxicity; and,
 - (d) if no TIE/TRE steps have been taken, the proposed schedule under which these actions will be implemented.

10. This Order is not transferable to any person except after notice to the Regional Board Executive Officer. The Regional Board may require modification or revocation and

reissuance of this Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the California Water Code and the Clean Water Act. The Discharger shall submit notice of any transfer of this Order's responsibility and coverage to a new Discharger as described under Reporting Requirement F.3.

11. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Discharger from liabilities under federal, state or local laws, nor create a vested right for the Discharger to continue the waste discharge.
12. The Discharger shall allow the Regional Board, or an authorized representative thereof, or any authorized representative of the United States Environmental Protection Agency, upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order, and;
 - d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the Clean Water Act or California Water Code, any substances or parameters at any location.
13. 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 includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures.

This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

14. In an enforcement action, it shall not be a defense for the Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of a treatment facility, the Discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of a treatment facility fails, is reduced, or is lost.

15. Bypass of Treatment Facilities

- a. Definitions

- (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
 - (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 which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in productions.

- b. Bypass Not Exceeding Effluent Limitations

The Discharger may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it is also for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this provision.

- c. Notice of Anticipated Bypass and Unanticipated Bypass

- (1) Anticipated Bypass: If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of bypass.

- (2) Unanticipated Bypass: The Discharger shall submit notice of the unanticipated bypass as described under Reporting Requirement F.4.

d. Prohibition of Bypass

- (1) Bypass is prohibited and the Regional Board may take enforcement action against the Discharger for bypass unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There was no feasible alternative 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 the Discharger could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
 - (c) The Discharger submitted notices as required under paragraph (c) of this section.
- (2) The Executive Officer may approve an anticipated bypass, after considering its adverse effect, if the Executive Officer determines that it will meet the three conditions listed above in paragraph (1) of this subsection.

16. Upset Conditions

a. Definition

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

facilities, lack of preventative maintenance, or careless or improper operation.

b. 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 (c) 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.

c. 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:

- (1) An upset occurred and that the Discharger can identify the specific cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated; and
- (3) The Discharger submitted notice of the upset as required in Reporting Requirement F.4.

d. Burden of Proof

In any enforcement proceeding, the Discharger, seeking to establish the occurrence of an upset has the burden of proof.

17. In accordance with Section 316(b) of the Clean Water Act (33 U.S.C. 1251 et seq.) the location, design, construction, and capacity of the SONGS Unit 2 cooling water intake structure shall reflect the best technology available for minimizing adverse environmental impact. The Discharger shall comply with any standards and guidelines which may be established by USEPA pursuant to Section 316(b) of the Clean Water Act. The Discharger shall comply with the following conditions to demonstrate compliance with Clean Water Act Section 316(b):

- a. - Continue use of effective techniques for reducing losses of midwater fishes in the intake structures

including (1) velocity caps on the intakes and (2) the Fish Return System (FRS).

- b. On July 16, 1991, the California Coastal Commission amended Permit No. 6-81-330-A (formerly Permit No. 183-73) to impose certain mitigation requirements upon SCE for impacts the Coastal Commission found to the marine environment caused by the operation of SONGS Units 2 and 3. Compliance with the Coastal Commission permit is not under the authority of the Regional Board and is not required by this Order. However, a failure to comply with the Coastal Commission permit mitigation requirement with regard to the FRS behavioral barriers described above may result in a reevaluation of the 316(b) adequacy finding.
 - c. The MRC (MRC 1989a) found that fish larvae are in greatest abundance in the coastal waters near SONGS during March and April. The MRC predicts that a complete elimination of the water flow through SONGS during March and April could reduce the annual losses of fish larvae by 50%. Where possible, the Regional Board encourages the Discharger to schedule all refueling and maintenance operations to occur during March and April, so as to maximize the savings in loss of fish larvae that would occur during these regularly scheduled periods of downtime.
18. The provisions of this Order are severable, and if any provision 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.
19. The Discharger shall have and implement a Best Management Practices (BMP) program in accordance with 40 CFR 125.100-125.104. The BMP program shall prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants referred to in Finding No. 42, from ancillary activities to waters of the United States. The Discharger shall maintain the BMP program in an up-to-date condition and shall amend the BMP program 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 Unit 2 of significant amounts of hazardous or toxic pollutants into waters of the United States. The BMP program, and any amendments thereto, shall be subject to the

approval of the Executive Officer and shall be modified as directed by the Executive Officer. The Discharger shall submit the BMP program and any amendments thereto to the Executive Officer upon request of the Executive Officer. A copy of the up-to-date BMP program shall be maintained at SONGS Unit 2 and shall be readily available to operating personnel at all times.

F. REPORTING REQUIREMENTS

1. The Discharger shall file a new Report of Waste Discharge not less than 180 days prior to any material change or proposed change in the character, location, or volume of the discharge including, but not limited to, the following:
 - a. Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.
 - b. Significant change in disposal method, e.g., change from a land disposal to a direct discharge to water, or change in the method of treatment which would significantly alter the characteristics of the waste.
 - c. Significant change in the disposal area, e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area, potentially causing different water quality or nuisance problems.
 - d. Increase in flow beyond that specified in this order.
2. The Discharger shall give advance notice to the Executive Officer of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this Order.
3. The Discharger shall notify the Executive Officer, in writing, at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger. This notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an

acknowledgment that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on.

4. The Discharger shall notify the Regional Board Executive Officer and the Long Beach and San Diego Offices of the California Department of Fish and Game, where practicable, at least 48 hours in advance of any heat treatment at Unit 2.
5. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally to the Executive Officer 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 recurrence of the noncompliance. The Executive Officer or an authorized representative may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following shall be included as information which must be reported within 24 hours under this reporting requirement:
 - a. Any unanticipated bypass which exceeds any effluent limitation in this Order.
 - b. Any discharge of treated or untreated wastewater resulting from pipe line breaks, obstruction, surcharge or any other circumstance.
 - c. Any upset which exceeds any effluent limitation in this Order.
 - d. Any spills of polychlorinated biphenyl compounds (PCBs). The spill residue shall be drummed and disposed of in conformance with all applicable local, state and federal regulations. The written notification shall include pertinent information explaining reasons for the spill and shall indicate what steps were taken to prevent the problem from recurring.

- e. Any violation of the prohibitions of this Order.
6. The Discharger shall notify the Executive Officer as soon as they know or have reason to believe:
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic or non-toxic pollutant which is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 ug/l);
 - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that toxic pollutant in the Report of Waste Discharge submitted in application for this Order; or,
 - (4) The level established by the Regional Board in accordance with 40 CFR 122.44(f).
 - b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic or non-toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 ug/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge submitted in application for this Order; or,
 - (4) The level established by the Regional Board in accordance with 40 CFR 122.44(f).

7. The Discharger shall furnish to the Executive Officer within a reasonable time, any information which the Executive Officer may require to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Discharger shall also furnish to the Executive Officer, upon request, copies of records required to be kept by this Order.
8. Where the Discharger becomes aware that any relevant facts were not submitted in the Report of Waste Discharge, or that incorrect information was submitted in the Report of Waste Discharge or in any report to the Regional Board, the Discharger shall promptly submit such facts or information.
9. This Order expires on August 11, 1999. If the Discharger wishes to continue any activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain new waste discharge requirements. The Discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations (CCR), not later than 180 days in advance of the expiration date of this order as application for issuance of new waste discharge requirements.
10. All applications, reports, or information submitted to the Regional Board Executive Officer shall be signed and certified.
 - a. All Reports of Waste Discharge 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 employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- (2) For a partnership or sole proprietorship: by general partner or the proprietor, respectively.
 - (3) For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, 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 EPA).
- b. All other reports required by this Order and other information requested by the Executive Officer shall be signed by a person described in paragraph a. of this reporting requirement, 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 a. of this reporting requirement;
 - (2) The authorization specifies 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, or 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); and,
 - (3) The written authorization is submitted to the Executive Officer.
- c. If an authorization under paragraph b. of this reporting requirement 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

b. of this section must be submitted to the Executive Officer prior to or together with any reports, information, or applications to be signed by an authorized representative.

- d. Any person signing a document under paragraph a. or b. of this section 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."

11. Except for data determined to be confidential under Title 40, United States Code of Federal Regulations Part 2, all reports prepared in accordance with the terms of this Order shall be available for public inspection at the office of the Regional Board. As required by the Clean Water Act, Reports of Waste Discharge, this Order, and effluent data shall not be considered confidential.
12. The Discharger shall comply with Monitoring and Reporting Program No. 94-49.
13. The Discharger shall submit reports and provide notifications as required by this Order in accordance with the following:
 - (a) Reports required to be submitted to the Regional Board Executive Officer shall be sent to:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd, Suite B
San Diego, California 92124

Notifications required to be provided to the Regional Board Executive Officer shall be made to:

Phone - (619) 467-2952 or
Fax - (619) 571-6972

- (b) Reports required to be submitted to the U.S. Environmental Protection Agency shall be sent to:

U.S. Environmental Protection Agency
Region IX
Permits Issuance Section
75 Hawthorne Street (W-5-1)
San Francisco, California 94105

- (c) Notifications required to be provided to the California Department of Fish and Game shall be made to:

Long Beach Office

Phone - (310) 590-5132
Fax - (310) 590-5834

San Diego Office

Phone - (619) 525-4187
Fax - (619) 525-4056

G. NOTIFICATIONS

1. California Water Code Section 13263(g) states:

"No discharge of waste into waters of the state, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the state are privileges, not rights."

2. The Clean Water Act provides that any person who violates a condition of this permit is subject to a civil penalty not to exceed \$25,000 per day of each violation. Any person who negligently causes a violation of any condition in this permit is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two years, or both.

3. The Clean Water Act provides that any person who knowingly causes violation of any condition of this permit is subject to fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than three years, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$100,000 per day of violation, or by imprisonment of not more than six years, or both.
4. Any person who knowingly causes a violation of any condition of this permit and, by so doing, knows at that time that he or she thereby places another in imminent danger of death or serious bodily injury shall be subject to a fine of not more than \$250,000, or imprisonment of not more than 15 years, or both. A person who is an organization and violates this provision shall be subject to a fine of not more than \$1,000,000 for a first conviction. For a second conviction under this provision, the maximum fine and imprisonment shall be doubled.
5. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under Section 311 of the Clean Water Act.
6. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.
7. This Order shall become effective 10 days after the date of its adoption provided the Regional Administrator, USEPA, has no objection. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.
8. This Order supersedes Order No. 85-11.
9. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto.

Appendix A: Endnote References

Endnote references for Order No. 94-50 (NPDES No. CA0108181), WASTE DISCHARGE REQUIREMENTS FOR SOUTHERN CALIFORNIA EDISON COMPANY, SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3, SAN DIEGO COUNTY

1. The effluent concentration limits for Ocean Plan Table B parameters were determined using the procedures outlined in the Ocean Plan and a minimum initial dilution value of ten.
2. The mass emission rate (MER) of a substance is calculated using the following equation:

$$\text{MER} = 8.34 \times Q \times C$$

Where MER is the mass emission rate in lb/day, Q is the discharge flowrate in MGD, and C is the effluent concentration in mg/l.

If a composite sample is taken, C is the concentration measured in the composite sample and Q is the average discharge flowrate occurring during the period over which the composite sample is collected.

3. The MER limits in this table were obtained using $Q = 1286.9$ MGD (the maximum daily combined discharge flowrate reported in the Report of Waste Discharge) and effluent concentration limits determined as specified in Endnote 1. When the combined discharge flowrate is lower than 1286.9 MGD, the MER limits shall be correspondingly lower.
4. The six-month median effluent concentration limit shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
5. The daily maximum effluent concentration limit shall apply to flow weighted 24 hour composite samples.
6. The instantaneous maximum effluent concentration limit shall apply to grab sample determinations.

7. The Discharger may at its option meet this limitation as a total chromium limitation.
8. In samples obtained from marine, saline, or other waters containing bromine, total chlorine residual limitations shall apply to total residual oxidants.

Discharge Specification B.1

In Discharge Specification B.1, the total chlorine residual effluent limitations shown are for non-intermittent chlorine/bromine sources. The 6-month median and daily maximum effluent limitations are based on the Ocean Plan water quality objectives using the procedure described in Endnote 1. The instantaneous maximum effluent limitation is based on the USEPA BAT effluent limitation contained in 40 CFR 423. MER limits are calculated using maximum flowrates and the procedures described in Endnote 2. When the flowrate is less than the maximum flowrate, the MER limit shall be correspondingly lower.

If the discharge of chlorine/bromine is an intermittent discharge not exceeding two hours, the total chlorine residual effluent limitation shall be the lower of the following:

- a) an effluent limitation calculated using the procedure described in Endnote 1 and water quality objectives determined through the use of the following equation:

$$\log y = -0.43(\log x) + 1.8 \quad (\text{Equation 3})$$

where: y = the water quality objective (in $\mu\text{g/l}$) to apply when chlorine/bromine is being discharged;

x = the duration of uninterrupted chlorine/bromine discharge in minutes; or,

- b) the USEPA BAT effluent limitation contained in 40 CFR 423 (0.20 mg/l).

MER limits for intermittent discharges shall be calculated using the following equation:

$$\text{MER limit (lb/day)} = 8.34 \times C \times Q \times z/24$$

where: C = effluent concentration limit as calculated above (mg/l)

Q = discharge flowrate (MGD)

z = total time (hours) chlorine/bromine is discharged per day, not to exceed two (2.0) hours per unit; or,

Discharge Specification B.16

In Discharge Specifications B.16, effluent limitations for total chlorine residual are based on the Ocean Plan water quality objectives for non-intermittent chlorine/bromine sources using the procedure described in Endnote 1. MER limits are calculated using maximum flowrates and the procedures described in Endnote 2. When the flowrate is less than the maximum flowrate, the MER limit shall be correspondingly lower.

Effluent limitations for total chlorine residual applying to intermittent discharges not exceeding two hours shall be calculated using the procedure described in Endnote 1 and water quality objectives determined using Equation 3 above. MER limits shall be calculated using the following equation:

$$\text{MER limit (lb/day)} = 8.34 \times C \times Q \times z/24$$

where: C = effluent concentration limit as calculated above (mg/l)

Q = discharge flowrate (MGD)

z = total time (hours) chlorine/bromine is discharged per day, not to exceed two (2.0) hours per unit; or,

Receiving Water Limitation D.3

In Receiving Water Limitation D.3, limitations for total chlorine residual are for non-intermittent chlorine/bromine sources. Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours shall be determined using Equation 3 above.

Total chloroxine residual may be measured by either of the two EPA-approved analytical methods: amperometric titration or DPD-colorimetric.

9. See Appendix I of the Ocean Plan for definition of terms.
10. The monthly average is the arithmetic mean using the results of analyses of all samples collected during any 30 consecutive calendar day period.
11. The weekly average is the arithmetic mean using the results of analyses of all samples collected during any 7 consecutive calendar day period.
12. Toxicity units are defined as follows.

Acute Toxicity

- a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

- b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

Chronic Toxicity

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$\text{TUc} = \frac{100}{\text{NOEL}}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix II of the Ocean Plan.

13. The MER limits in this table were obtained using the indicated maximum flowrate and the following effluent concentration limits from the USEPA standards for the steam electric power generating point source category contained in 40 CFR Part 423:

Parameter	Units	Monthly Average	Daily Maximum	Instantaneous Maximum
Total Suspended Solids	mg/l	30.0	100.0	100.0
Grease and Oil	mg/l	15.0	20.0	20.0

When the discharge flowrate is lower than the maximum flowrate, the MER limit shall be correspondingly lower.

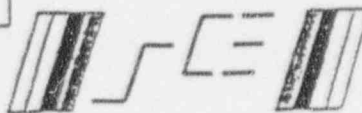
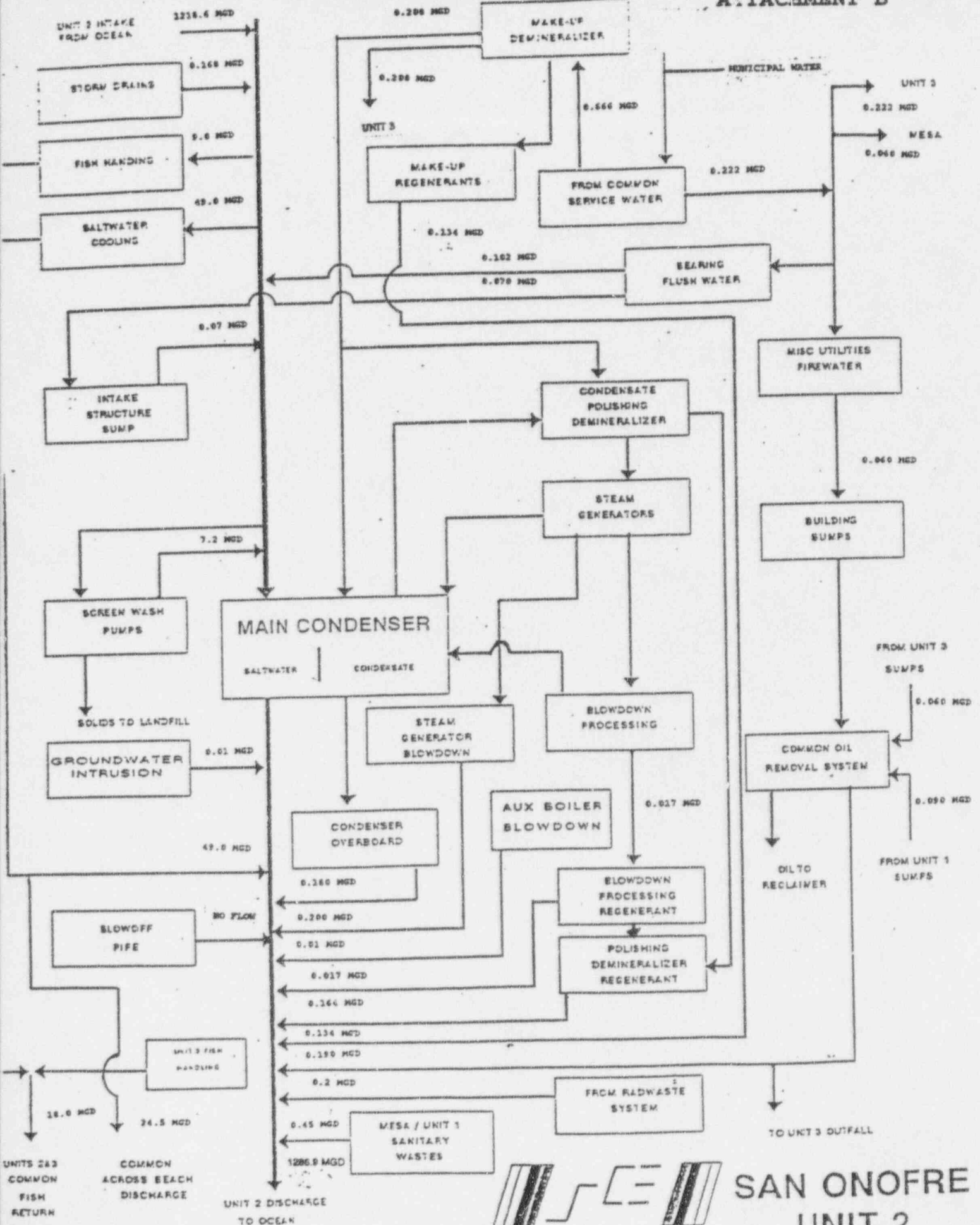
14. The MER limits in this table were obtained using $Q = 19.3$ MGD (the maximum daily combined in-plant waste stream flowrate) and effluent concentration limits determined as specified in Endnote 1. When the combined in-plant waste stream flowrate is lower than 19.3 MGD, the MER limits shall be correspondingly lower.

15. The MER limits in this table were obtained using the indicated maximum flowrate and effluent concentration limits from Table A of the Ocean Plan. When the flowrate is lower than the indicated maximum flowrate, the MER limits shall be correspondingly lower.

I, Arthur L. Coe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on August 11, 1994.

A handwritten signature in dark ink, appearing to read 'Arthur L. Coe', is written over a horizontal line.

Arthur L. Coe
Executive Officer



Southern California Edison

SAN ONOFRE
UNIT 2

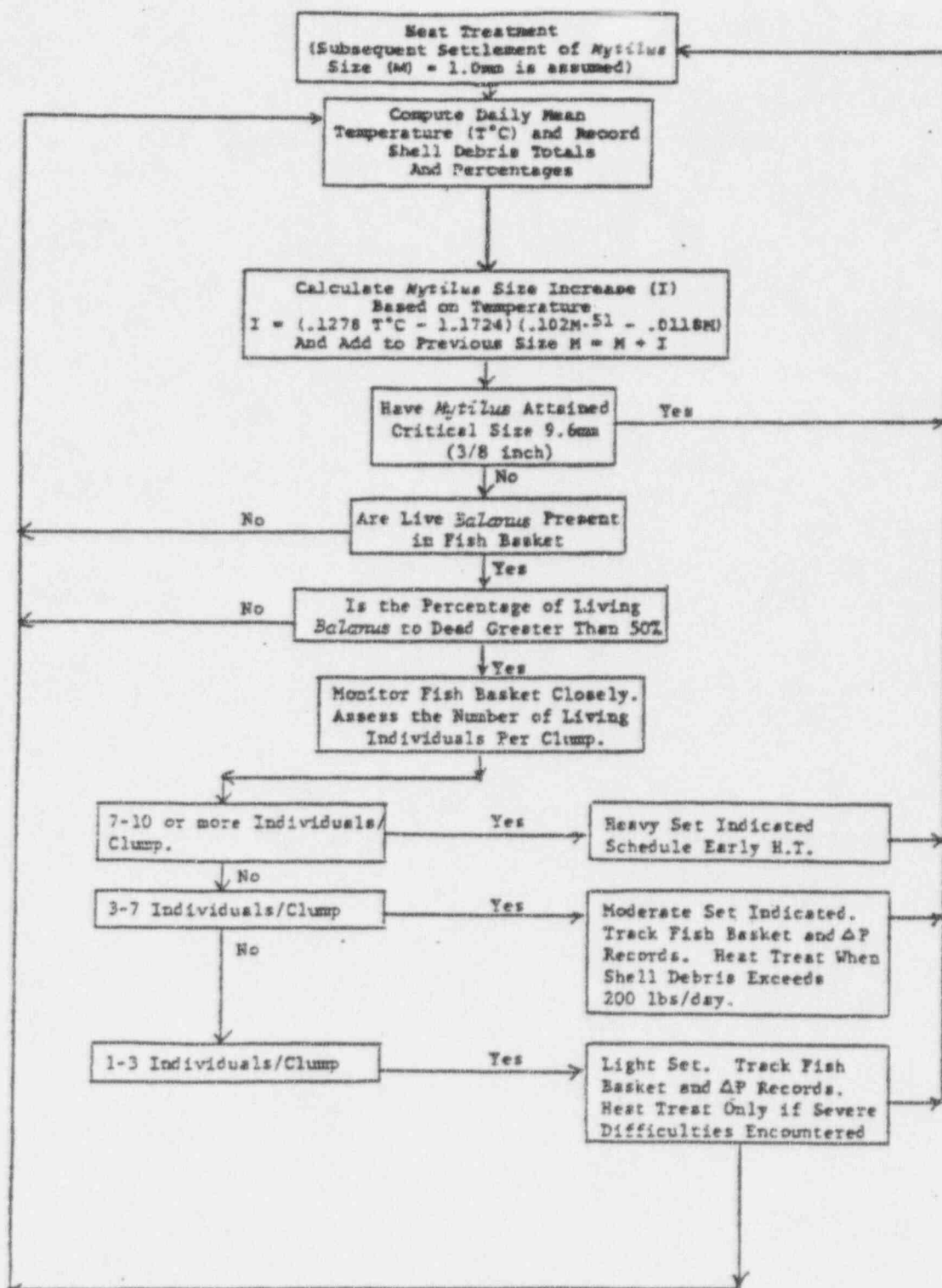
UPDATE 10/27/93

INTERMITTENT OR SEASONAL DISCHARGES

OUTFALL NUMBER (list)	2. OPERATION(s) CONTRIBUTING FLOW (list)	FREQUENCY		a. FLOW RATE		b. TOTAL VOLUME (specify w/units)		c. Duration (In days)
		a. DAYS PER WEEK (SPECIFY AVG)	b. MONTHS PER YEAR (SPECIFY AVG)	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
002	Screen Wash	7	12	5,000 gpm	5,000 gpm	0.9E6 gal	7.2E6 gal	Daily
	Blowdown Processing System	(See Note 1)	400 gpm	400 gpm	17,000 gal	68,000 gal		Note (1)
	Polishing Demineralizer Requirement	7	12	600 gpm	675 gpm	80,000 gal	400,000 gal	Daily
	Makeup Demin / Reverse Osmosis	7	12	2,550 gpm	2,600 gpm	100,000 gal	800,000 gal	Daily
	Radwaste System	7	12	140 gpm	300 gpm	5,000 gal	200,000 gal	Daily
	Building Sumps (3)	7	12	200 gpm	800 gpm	140,000 gal	400,000 gal	Daily
	Intake Structure Sumps	7	12	100 gpm	200 gpm	70,000 gal	144,000 gal	Daily
	Steam Generator Blowdown	7	12	300 gpm	500 gpm	200,000 gal	720,000 gal	Daily
	Condenser Overboard	7	12	500 gpm	5,000 gpm	180,000 gal	7.2E6 gal	Daily
	Auxboiler Blowdown	1	1	300 gpm	500 gpm	10,000 gal	15,000 gal	Daily
003	Same as above listing for 002							
004	Fish Handling System	7	12	30,000 gpm	30,000 gpm	18E6 gal	88.4E6 gal	Daily
005	Across the Beach (Seawall)	3	4	17,000 gpm	34,000 gpm	8.2E6 gal	48.9E6 gal	Daily

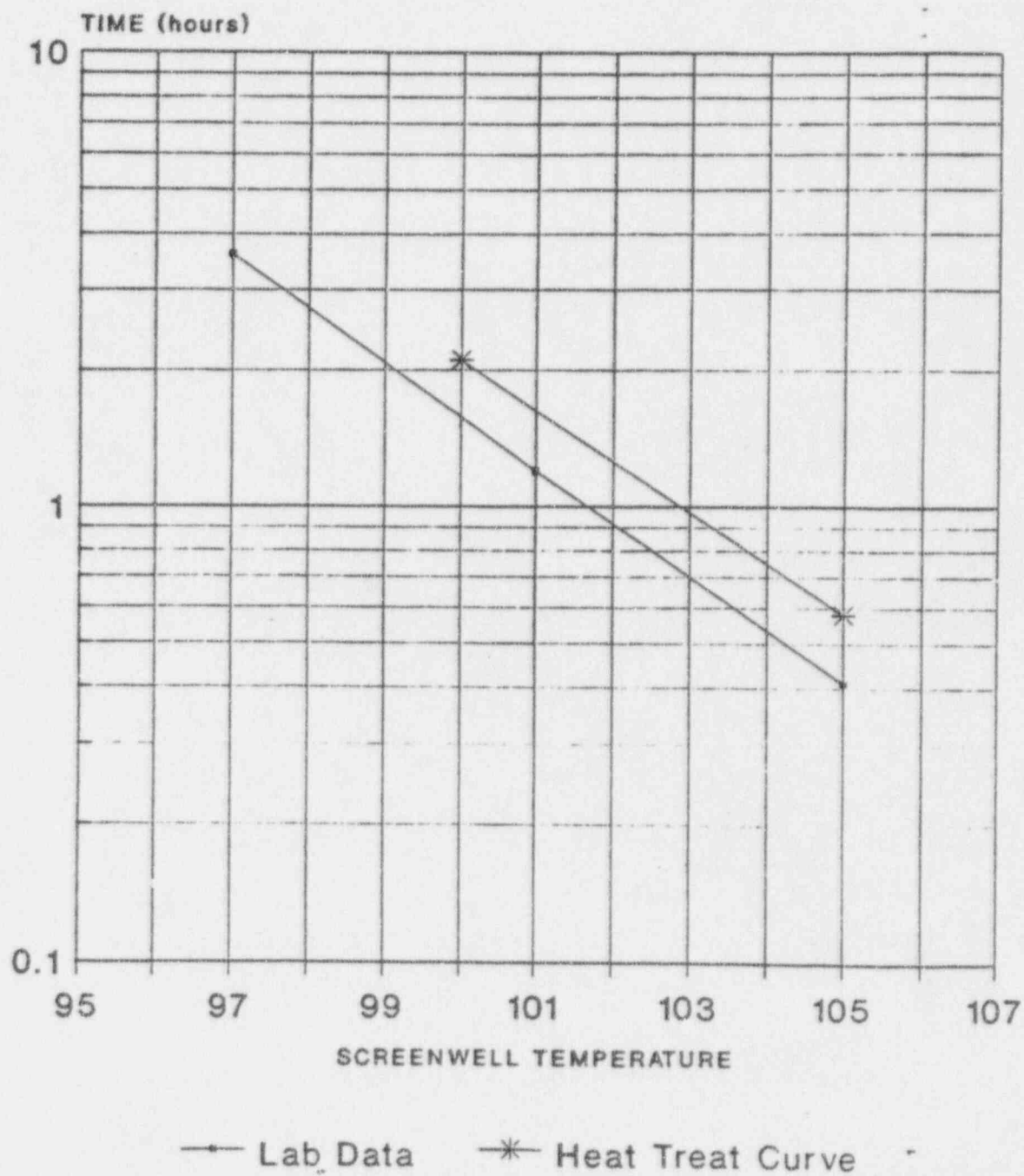
Notes

- (1) Average occurrence is once/45 days, maximum is 4 times/day.
- (2) Average occurrence is once/day, maximum is 4 times/day.
- (3) common to Units 1, 2 & 3



Daily heat treatment decision flow chart
for San Onofre Units 2 and 3

TIME-TEMPERATURE MORTALITY CURVE

Bay Mussel (*Mytilus Edulis*)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

NPDES NO. CA0108073

MONITORING AND REPORTING PROGRAM NO. 94-49
FOR
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2
SAN DIEGO COUNTY

A. MONITORING PROVISIONS

1. This monitoring plan may be modified to incorporate changes in frequency or types of analysis to be consistent with the Regional Monitoring Program which is currently under development.
2. 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 in this Order and, unless otherwise specified, before the effluent 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 Executive Officer.
3. Appropriate flow measurement devices and/or methods for calculating flowrates shall be consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. Any flow measuring device used 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 ± 5 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. "Guide to Methods and Standard for the Measurement of Water Flow," U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 97 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. 127, 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 Service (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 (GSA), Centralized Mailing Lists Services, Building 41, Denver Federal Center, Denver, CO 80225).
- 4. Monitoring must be conducted according to United States Environmental Protection Agency test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act" as amended, unless other test procedures have been specified in this Order.
 - 5. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Service or a laboratory approved by the Executive Officer.
 - 6. Monitoring results must be reported on discharge monitoring report forms approved by the Executive Officer.
 - 7. If the discharger monitors any pollutants more frequently than required by this Order, using test procedures approved under 40 (CFR), Part 136, 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 discharger's monitoring report. The increased frequency of monitoring shall also be reported.
 - 8. 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. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved

litigation regarding this discharge of when requested by the Regional Board Executive Officer of the United States Environmental Protection Agency.

9. Record 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 analyses;
 - e. The analytical techniques of method used; and
 - f. The results of such analyses.
10. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Executive Officer or in this Order.
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, and 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.
13. The discharger shall report all instances of noncompliance not reported under Reporting Requirement F.5 of this Order at the time monitoring reports are submitted. The reports shall contain the information listed in Reporting Requirement F.5.
14. The monitoring reports shall be signed by an authorized person as required by Reporting Requirement No. F.10.
15. A composite sample is defined as a combination of at least sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. 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 of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

16. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.
17. Reports of marine monitoring surveys conducted to meet receiving water monitoring requirements of the "Monitoring and Reporting Program" 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.
18. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000. The detection method used for each analysis shall be reported with the results of the analysis.
19. Detection methods used for coliform analyses (total and fecal) shall be those presented in the most recent edition of Standard Methods for the Examination of Water and Wastewater or any improved method determined by the Regional Board, and approved by EPA, to be appropriate.

Detection methods used for enterococcus shall be those presented in EPA publication EPA 600/4-85/076, Test Methods for Escherichia coli and Enterococci in Water By Membrane

Filter Procedure or any improved method determined by the Executive Officer to be appropriate.

20. Acute Toxicity Testing

The presence of acute toxicity shall be determined as specified in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms (EPA 600/4-90-027, September, 1991 or subsequent editions). Beginning September, 1994, the permittee shall conduct monthly toxicity tests on a grab sample of the effluent. Samples shall be taken at the NPDES sampling location of the combined discharge. There is no mixing zone allowance for acute toxicity. The permittee shall conduct monthly 96 hour static-renewal tests with an invertebrate, Menidia beryllina. The effluent concentrations will be 100%, 75%, 50%, 25%, and 12.5% and a control. Note: When the State Water Resources Control Board approves the use of topsmelt, Atherinops affinis this species will replace the use of Menidia beryllina. The effluent tests must be conducted with concurrent reference toxicant tests. Both the reference toxicant and the effluent test must meet all test acceptability criteria as specified in the acute manual. If the test acceptability criteria is not achieved, then the permittee must re-sample and re-test within 14 days. The test results must be reported according to the acute manual chapter on Report Preparation, and shall be attached to the DMR.

Compliance with acute toxicity will be expressed as TUa, which equals 100/NOAEC. No Observable Adverse Effect Concentration (NOAEC) is the highest concentration at which survival is not significantly different from the control in a 96-hour renewal test.

21. Chronic Toxicity Testing

Beginning August, 1994, the permittee shall conduct monthly toxicity tests on 24-hour composite effluent samples. The grab samples shall be taken during a period of chlorination, and during a period when low volume wastes are being discharged. Samples shall be taken at the NPDES sampling location of the combined discharge. The permittee shall conduct monthly tests with an invertebrate, Haliotis rufescens (Marine Bioassay Project, Report # 90-10WQ), a plant Macrocystis pyrifera (Marine Bioassay Project, Report # 90-10WQ), and a vertebrate Menidia beryllina (EPA 600/4-87/028) for the first three months. Note: When the State Water Resources Control Board approves the use of topsmelt, Atherinops affinis this species will replace the use of Menidia beryllina. After this screening period, monitoring

may be conducted on the most sensitive species. Every year the permittee shall re-screen and if the same species is the most sensitive species, the discharger shall continue to monitor with the most sensitive species. 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 for Menidia beryllina. 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 permittee must re-sample and re-test within 14 days. The test results must be reported according to the chronic manual chapter on Report Preparation, and shall be attached to the DMR. It is also suggested that the permittee submit the data on an electronic disk as specified in "Suggested Standardized Reporting Requirements For Monitoring Chronic Toxicity" (SWRCB, August 1993).

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. The chronic toxicity limitation is: 1) a monthly median expressed as 10 TUC or 2) any one test that demonstrates a 50% toxic effect.

22. Toxicity Provisions

a) Alternative Protocols

The permittee may propose to the Regional Board Executive Officer in writing that compliance with the acute toxicity limit be based on the mortality data from the chronic tests data.

b) Implementation of the Acute and Chronic Limits

The permittee must submit to the Regional Board Executive Officer a copy of the permittee's Toxicity Reduction Evaluation (TRE) workplan within 90 days of issuance of this permit.

Whenever the acute or chronic toxicity effluent limitation as defined has been exceeded, the Permittee shall, within (15) days:

- (i) In accordance with EPA manuals EPA/600/2-88/070, (TRE protocol for industrials) or any subsequent

revisions, the discharger shall conduct a toxicity reduction evaluation (TRE) where appropriate; and

- (ii) In accordance with EPA acute and chronic TIE manuals EPA/600/6-91/003F (Phase I), EPA/600/R-92/080 (Phase II), EPA/600/R-92/081 (Phase III), and the Phase I draft manual for marine testing, the discharger shall conduct a toxicity identification reduction (TIE) within (15) days of the exceedance to identify the cause(s) of the toxicity;
- (iii) Notify the State agency within (5) days of becoming aware of the exceedance:
 - (1) times and dates when the limitation was exceeded;
 - (2) the finding of the TIE or other investigation to identify the cause(s) of the toxicity;
 - (3) the actions the permittee has taken or will take to mitigate the impact of the discharge, to correct the noncompliance and prevent the recurrence of toxicity; and
 - (4) where corrective actions including TRE or TIE, have not been completed, expeditious schedule under which the corrective actions will be implemented.

d) Toxicity Reopener

This permit may be modified in accordance with the requirements set forth at 40 CFR Part 122 and 124, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new state water quality standards applicable to effluent toxicity.

- 23. The monitoring program for a discharger with discharge requirements shall:
 - a) Determine compliance with the terms and conditions of Order No. 94-49.
 - b) Determine that the applicable State and federal water quality standards are met.
- 24. Revisions of the monitoring program by the Regional Board staff are appropriate to ensure that the discharger is in compliance with requirements and provisions contained in this order. Revisions may be made by the Executive Officer

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.

25. 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. The discharger should have a success rate equal to or greater than 80 percent.

B. FISH ENTRAINMENT MONITORING

1. Monitoring

During heat treatments and for at least one continuous 24-hour period per month 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^{1/} removed from the traveling bar racks and screens.

2. Reporting

- (a) A report containing detailed analyses of the previous year's fish entrainment monitoring data shall be submitted by July 30 of each year.
- (b) The annual report requirement in Section J of this monitoring and reporting program will not apply to Fish Entrainment Monitoring.

C. COOLING WATER INTAKE MONITORING

Samples of the cooling water intake shall be collected in accordance with the following criteria:

Parameter	Units	Sample Type ^{2/}	Minimum Frequency of Analysis
Flow	MGD	--	Continuous
Turbidity	NTU	Grab	Monthly*
Temperature ^{3/}	°F	--	Continuous
pH ^{4/}	pH units	Grab	Monthly

- * Turbidity may be measured more frequently during the first year, based on the outcome of the study design as discussed in Finding No. 58 of the Order. After the first year, turbidity shall be measured monthly.

D. COMBINED DISCHARGE^{5/} MONITORING

Samples of the combined discharge shall be collected in accordance with the following criteria:

Parameter	Units	Type of Sample ^{2/}	Minimum Frequency
Flow	MGD	--	Continuous
Turbidity	NTU	Grab	Daily*
Temperature ^{12/}	°F	--	Continuous
pH ^{4/}	pH units	Grab	Monthly
Arsenic	ug/L	Grab	Semiannually
Cadmium	ug/L	Grab	Semiannually
Chromium (Hexavalent) ^{6/}	ug/L	Grab	Semiannually
Copper	ug/L	Grab	Semiannually
Lead	ug/L	Grab	Semiannually
Mercury	ug/L	Grab	Semiannually
Nickel	ug/L	Grab	Semiannually
Selenium	ug/L	Grab	Semiannually
Silver	ug/L	Grab	Semiannually
Zinc	ug/L	Grab	Semiannually

Parameter	Units	Type of Sample ^{2/}	Minimum Frequency
Cyanide	ug/L	Grab	Semiannually
Total Chlorine Residual ^{7/}	ug/L	Grab	Semiannually
Ammonia (expressed as nitrogen)	ug/L	Grab	Semiannually
Phenolic Compounds (non-chlorinated)	ug/L	Grab	Semiannually
Chlorinated Phenolics	ug/L	Grab	Semiannually
Endosulfan	ug/L	Grab	Semiannually
Endrin	ug/L	Grab	Semiannually
HCH ^{8/}	ug/L	Grab	Semiannually
Acute Toxicity ^{9/}	TUa	Grab	Monthly+
Chronic Toxicity ^{9/}	TUc	Composite	Monthly+

* Turbidity may be measured more frequently during the first year, based on the outcome of the study design as discussed in Finding No. 58 of the Order. After the first year, turbidity shall be measured monthly.

+ The Regional Water Board and EPA may consider a reduction in the frequency of acute and chronic toxicity testing after reviewing the first year of monthly test results.

E. IN-PLANT WASTE STREAMS^{10/} MONITORING

The following shall constitute the in-plant waste streams monitoring program for the purposes of monitoring discharge conformance with discharge specification B-18.^{11/}

Parameter	Units	Type of Sample	Minimum Frequency
Flow	MGD	--	Continuous
Acute toxicity	TUa	Grab	+
Chronic toxicity	TUc	Composite	+

Parameter	Units	Type of Sample	Minimum Frequency
Arsenic	ug/L	Grab	Semiannually
Cadmium	ug/L	Grab	Semiannually
Chromium (hexavalent)	ug/L	Grab	Semiannually
Copper	ug/L	Grab	Semiannually
Lead	ug/L	Grab	Semiannually
Mercury	ug/L	Grab	Semiannually
Nickel	ug/L	Grab	Semiannually
Selenium	ug/L	Grab	Semiannually
Silver	ug/L	Grab	Semiannually
Zinc	ug/L	Grab	Semiannually
Cyanide	ug/L	Grab	Semiannually
Total Chlorine Residual	ug/L	Grab	Semiannually
Ammonia (expressed as nitrogen)	ug/L	Grab	Semiannually
Phenolic Compounds (non-chlorinated)	ug/L	Grab	Semiannually*
Chlorinated Phenolics	ug/L	Grab	Semiannually*
Endosulfan	ng/L	Grab	Semiannually*
Endrin	ng/L	Grab	Semiannually*
HCH	ng/L	Grab	Semiannually*
Acrolein	ug/L	Grab	Semiannually*
Antimony	ug/L	Grab	Semiannually*
Bis(2-chloroethoxy) methane	ug/L	Grab	Semiannually*
Bis(2-chloroisopropyl) ether	ug/L	Grab	Semiannually*
Chlorobenzene	ug/L	Grab	Semiannually*
Chromium (III)	ug/L	Grab	Semiannually*
di-n-butyl phthalate	ug/L	Grab	Semiannually*
Dichlorobenzenes	ug/L	Grab	Semiannually*

Parameter	Units	Type of Sample	Minimum Frequency
1,1-dichloroethylene	ug/L	Grab	Semiannually*
Diethyl phthalate	ug/L	Grab	Semiannually*
Dimethyl phthalate	ug/L	Grab	Semiannually*
4,6-dinitro-2-methylphenol	ug/L	Grab	Semiannually*
2,4-dinitrophenol	ug/L	Grab	Semiannually*
Ethylbenzene	ug/L	Grab	Semiannually*
Fluoranthene	ug/L	Grab	Semiannually*
Hexachlorocyclopentadiene	ug/L	Grab	Semiannually*
Isophorone	ug/L	Grab	Semiannually*
Nitrobenzene	ug/L	Grab	Semiannually*
Thallium	ug/L	Grab	Semiannually*
Toluene	ug/L	Grab	Semiannually*
1,1,2,2-tetrachloroethane	ug/L	Grab	Semiannually*
Tributyltin	ug/L	Grab	Semiannually*
1,1,1-trichloroethane	ug/L	Grab	Semiannually*
1,1,2-trichloroethane	ug/L	Grab	Semiannually*
Acrylonitrile	ug/L	Grab	Semiannually*
Aldrin	ug/L	Grab	Semiannually*
Benzene	ug/L	Grab	Semiannually*
Benzidine	ug/L	Grab	Semiannually*
Beryllium	ug/L	Grab	Semiannually*
Bis(2-chloroethyl) ether	ug/L	Grab	Semiannually*
Bis(2-ethylhexyl) phthalate	ug/L	Grab	Semiannually*
Carbon Tetrachloride	ug/L	Grab	Semiannually*
Chlordane	ug/L	Grab	Semiannually*
Chloroform	ug/L	Grab	Semiannually*

Parameter	Units	Type of Sample	Minimum Frequency
DDT	ug/L	Grab	Semiannually*
1,4-dichlorobenzene	ug/L	Grab	Semiannually*
3,3-dichlorobenzidine	ug/L	Grab	Semiannually*
1,2-dichloroethane	ug/L	Grab	Semiannually*
Dichloromethane	ug/L	Grab	Semiannually*
1,3-dichloropropene	ug/L	Grab	Semiannually*
Dieldrin	ug/L	Grab	Semiannually*
2,4-dinitrotoluene	ug/L	Grab	Semiannually*
1,2-diphenylhydrazine	ug/L	Grab	Semiannually*
Halomethanes	ug/L	Grab	Semiannually*
Heptachlor	ug/L	Grab	Semiannually*
Hexachlorobenzene	ug/L	Grab	Semiannually*
Hexachlorobutadiene	ug/L	Grab	Semiannually*
Hexachloroethane	ug/L	Grab	Semiannually*
N-nitrosodimethylamine	ug/L	Grab	Semiannually*
N-nitrododiphenylamine	ug/L	Grab	Semiannually*
PAHs	ug/L	Grab	Semiannually*
PCBs	ug/L	Grab	Semiannually*
Tetrachlorethylene	ug/L	Grab	Semiannually*
Toxaphene	ug/L	Grab	Semiannually*
Trichloroethylene	ug/L	Grab	Semiannually*
2,4,6-trichlorophenol	ug/L	Grab	Semiannually*
Vinyl chloride	ug/L	Grab	Semiannually*

* Each pollutant shall be analyzed during the first two years of the permit for a total number of three samples. For pollutant(s) which are not detected in the waste stream in the three samples along with a statement certifying that the pollutant(s) was not added to the waste stream during the reporting period

that pollutant(s). The permittee shall conduct one sample of the pollutant(s) before renewal of the next application.

- + Acute or chronic toxicity shall be conducted if the combined monitoring for acute or chronic toxicity demonstrates a toxic response.

F. LOW VOLUME WASTES MONITORING

The following shall constitute the low volume wastes monitoring program for each low volume waste stream.

Parameter	Units	Sample Type	Minimum Reporting Frequency
Flow	MGD	--	Monthly
Total Suspended Solids	mg/L	Grab	Monthly
Grease and Oil	mg/L	Grab	Monthly

G. FISH HANDLING SYSTEM MONITORING

As required for evaluating the studies in Finding No. 18 the discharger shall submit reports describing the operation of the fish handling systems for Units 2 and 3. The Executive Officer may request additional monitoring after review of the reports and consultation with representatives of the State Department of Fish and Game.

H. RECEIVING WATER MONITORING

Receiving water monitoring shall be conducted as specified below. Station location, sampling, sample preservation and analysis, when not specified, shall be by methods described in the discharger's previous annual reports (Marine Environmental Analysis and Interpretation, San Onofre Nuclear Generating Station, 1990, 1991 and 1992 Annual Reports) submitted to the Regional Board. A summary of the monitoring program is presented in Table 1, and station locations for the various study elements are shown in Figures 1A through 1D.

The following study elements shall represent the receiving water monitoring program.

1. Continuous Temperature Monitoring

Continuously recording thermographs will be employed at three stations (Figure 1A). 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 system.

3. Fish Populations

Quarterly trawling surveys will be conducted at three stations (Figure 1B) located offshore of San Mateo Point, SONGS and Don Light. Daylight sampling by otter trawl will be accomplished 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

Individual giant kelp plants and the number of associated stipes greater than 2 m will be counted tri-annually at six fixed sampling sites located in the San Onofre Kelp (Figure 1C). The composition of the substrate will be qualitatively described. Additional substrate and percent cover information will be collected.

A random sampling of the 100 m² will be conducted semi-annually to enumerate giant kelp, and a qualitative estimate of percent sand, cobble and boulder made.

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 staff. (Verbal approval 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 areal 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.

5. Temperature Profiles

Temperature profiles from the surface to the bottom will be measured quarterly at 29 stations (Figure 1D).

6. Transmissometer Profiles

Surface to bottom profiles of light transmittance will be conducted quarterly from 29 stations (Figure 1D).

7. Water Quality Measurements

Water quality parameters, dissolved oxygen and hydrogen ion concentration, will be measured quarterly at the surface of ten stations (Figure 1D).

REPORTING

- (a) A report containing detailed analyses of the previous year's receiving water monitoring data shall be submitted by July 30 of each year.
- (b) The annual report requirement in Section I of this Monitoring and Reporting Program will not apply to Receiving Water Monitoring.

I. ANNUAL SUMMARY OF MONITORING DATA

By January 30 of each year, the discharger shall submit an annual report to the Executive Officer. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous 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.

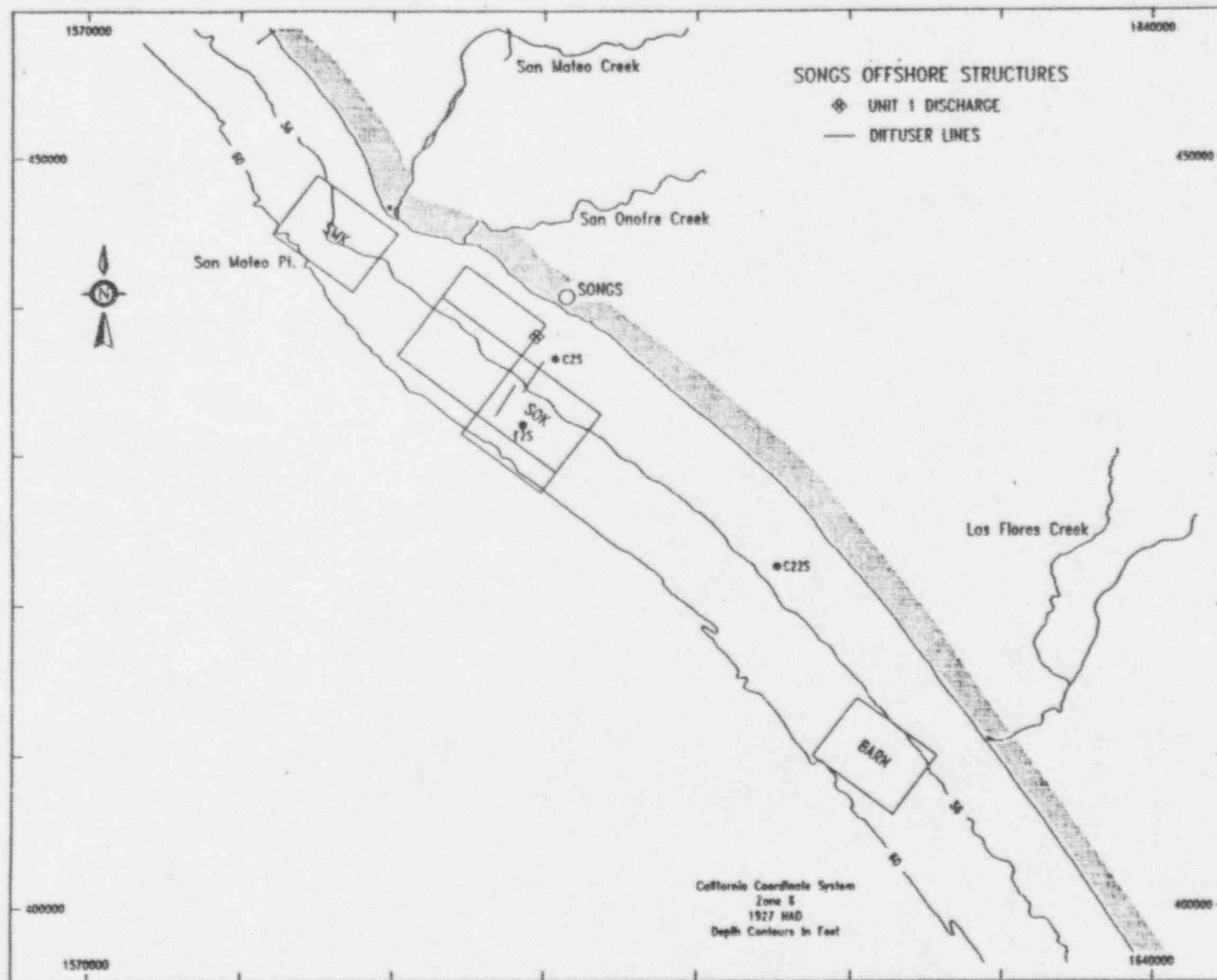
J. MONITORING REPORT SCHEDULE

Monitoring reports shall be submitted to the Executive Officer according to the dates in the following schedule:

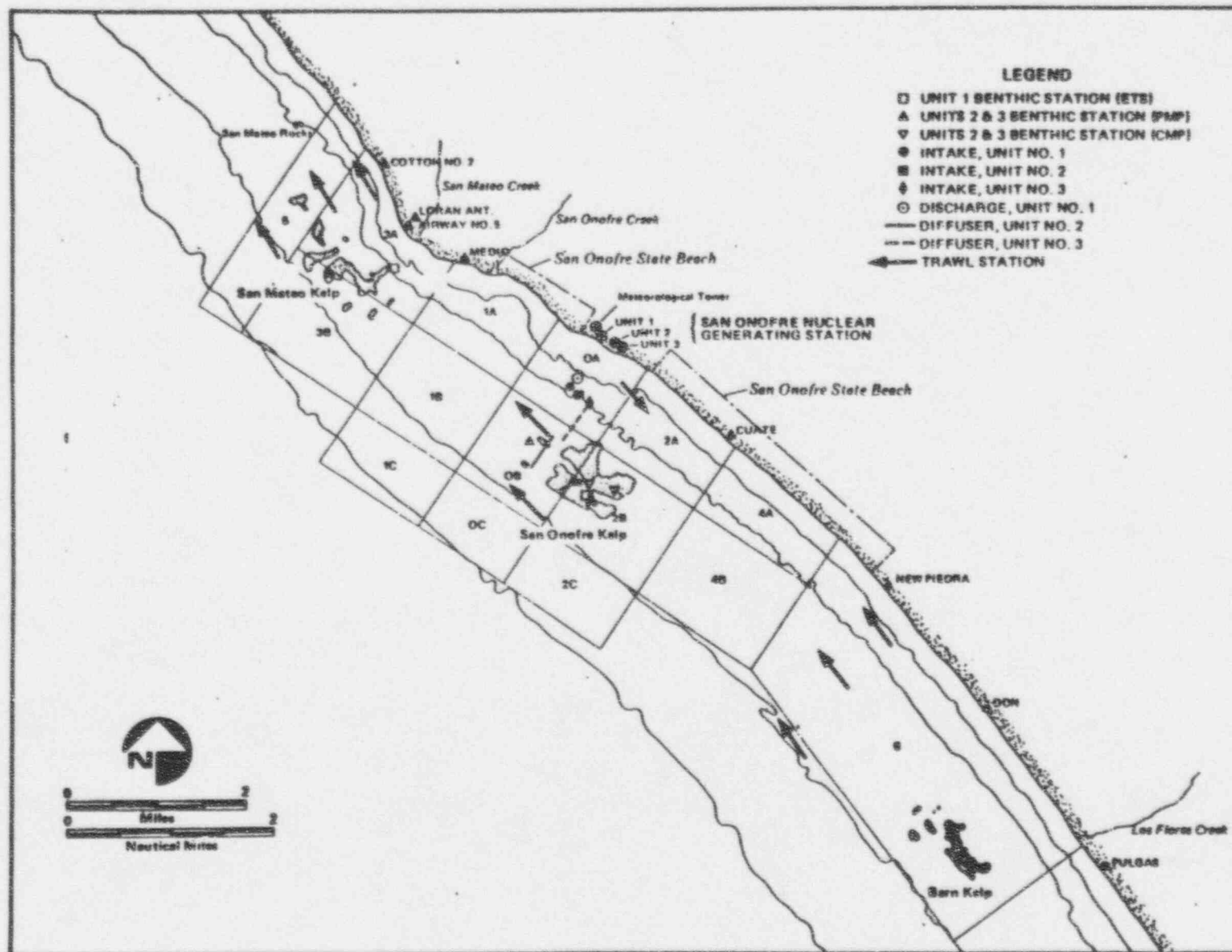
<u>Monitoring Frequency</u>	<u>Report Due</u>
Continuous, Daily, Weekly or Monthly	By the 30th of following month
Quarterly	January 30, April 30, July 30, October 30
Semiannually	January 30, July 30
Annually	January 30 (Effluent) July 30 (Receiving Water)

TABLE 1. SUMMARY OF NPDES RECEIVING WATER MONITORING PROGRAM

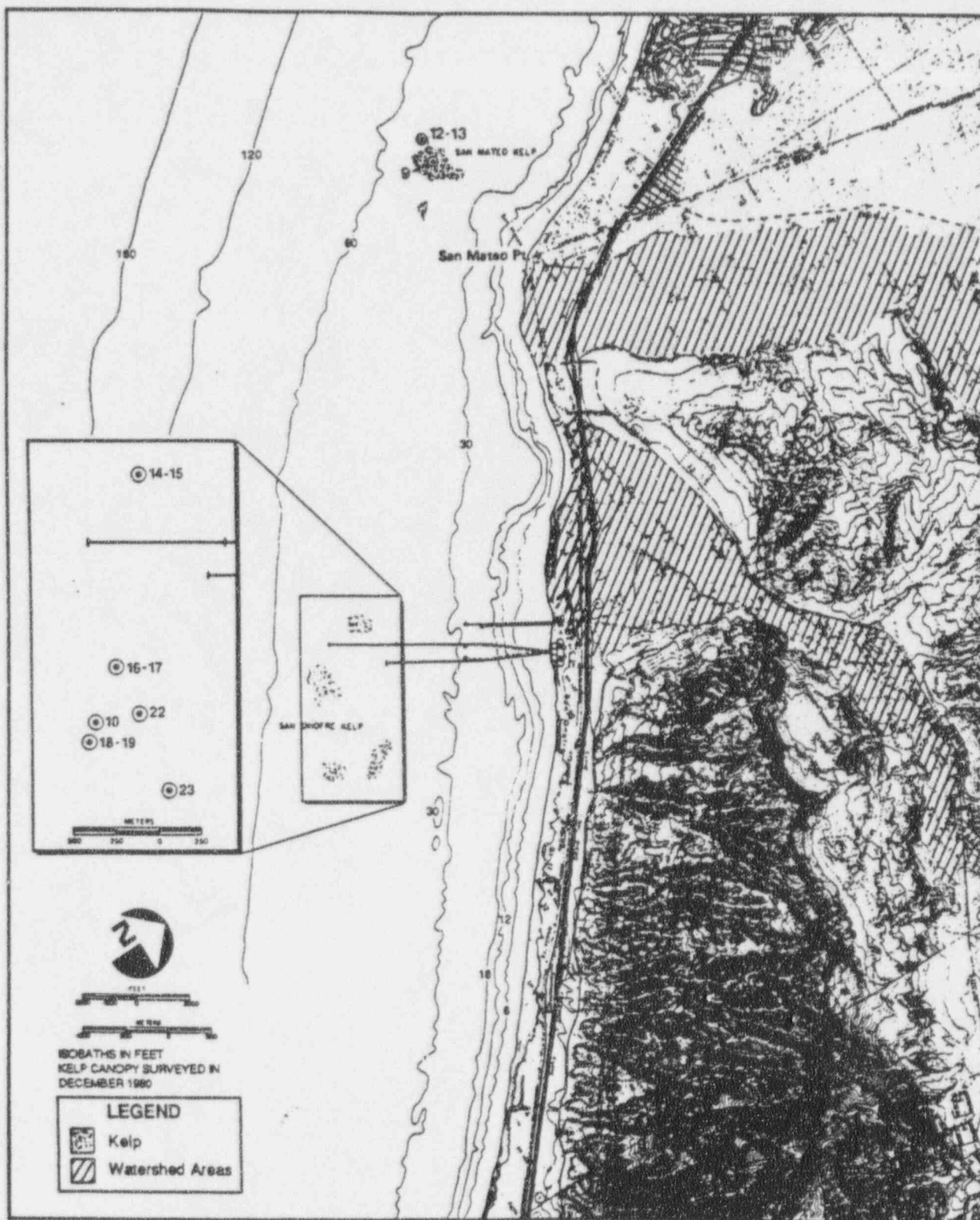
STUDY ELEMENT	STATION LOCATION	FREQUENCY	SAMPLE TYPE
<u>MONITORING</u>			
Continuous Temperature	C2S/F2S/C22S	Continuous	Remote
Turbidity	Units 2 and 3 Diffusers	Quarterly	Aerial Photos
Fish Populations	M, San Mateo; S, San Onofre; D, Don Light	Quarterly	Trawl
<u>SPECIAL STUDIES</u>			
Temperature Profiles*	F2ON/J8N/J4N J2N/J0/J2S/ J4S/J8S/M8N/ M4N/M2N/MO/ M2S/M4S/M8S/ F2N/F2S/F22S/ F24S/F26S/H2N/ HO/H2S	Quarterly	Grab
Transmissometer Profiles*	See Temp Location	Quarterly	Grab
Water Quality, pH and DO*	J2S/J2N/J4S/F22S	Quarterly	Grab
<u>REPORTING</u>	N/A	Annual	



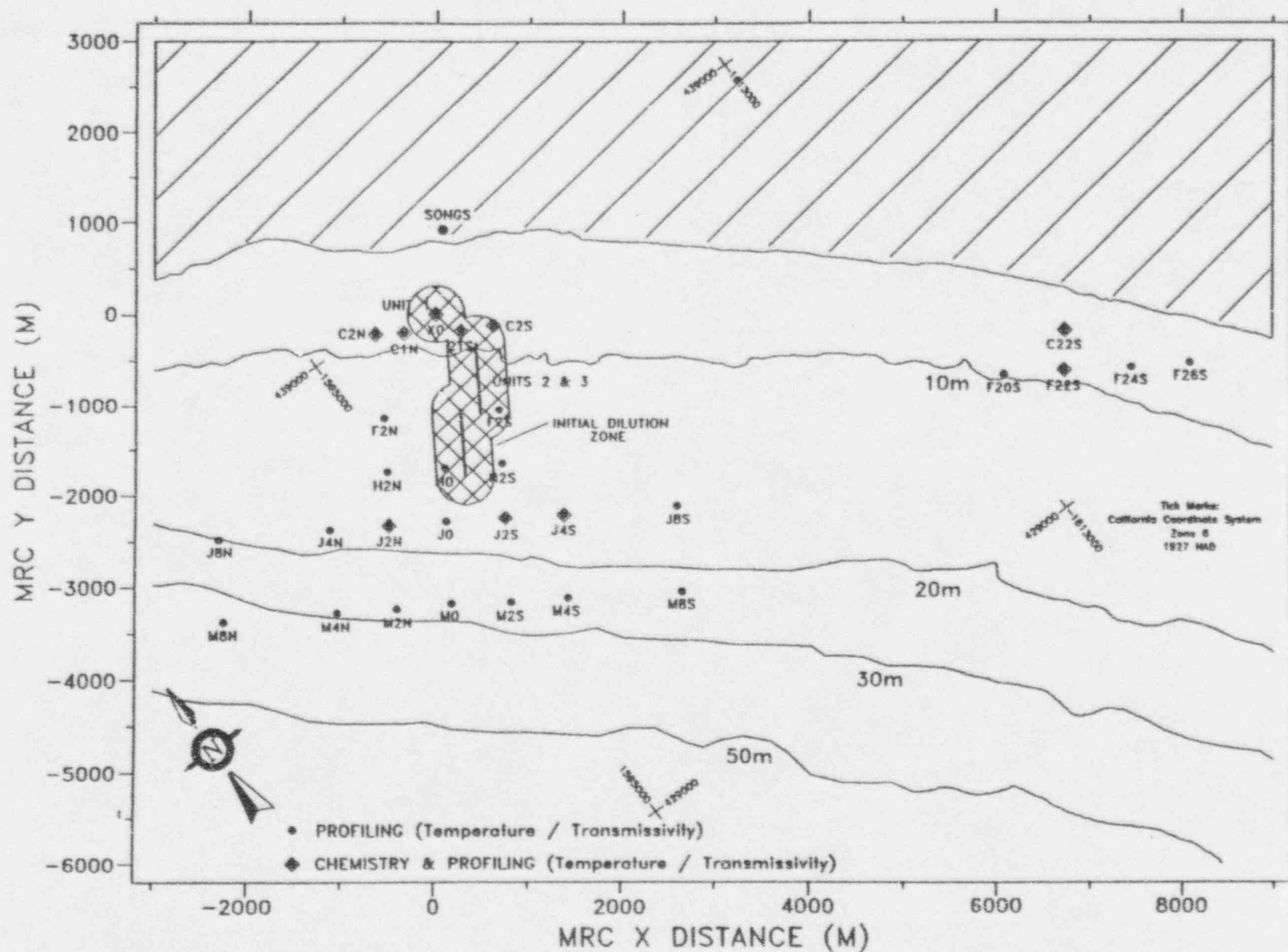
Locations of continuous temperature monitoring stations C2S, F2S, and C22S offshore of San Onofre.



Otter trawl stations for the Fish Population Study.



Location of sampling stations for Kelp Density Study in San Onofre and San Mateo Kelp Forests.



Locations of temperature, transmissivity, and water quality profiles.

FIGURE 1D

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

Endnote references for Monitoring and Reporting Program No. 94-49 (NPDES NO. CA0108073), SOUTHERN CALIFORNIA EDISON COMPANY, SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2, SAN DIEGO COUNTY.

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 individual shall be 50.
2. A grab sample is defined as an individual sample of at least 100 milliliters collected over a period not exceeding 15 minutes. Grab samples shall be collected at times when wastewater flows and characteristics are most demanding on the treatment facilities.
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.
4. Samples shall be collected and analyzed for pH during chlorination/bromination.
5. 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 waste steams, enter the circulating water stream. Combined discharge samples shall be collected immediately following collection of cooling water intake samples.
6. The discharger may at their option meet this limitation as a total chromium limitation.
7. 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.

8. HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.
9. Toxicity concentration shall be measured in the following manner.

- a. Acute Toxicity (TUa)

$$TUa = 100/96\text{-hr LC } 50\%$$

Compliance with acute toxicity will be expressed as TUa, which equals 100/NOAEC. No Observable Adverse Effect Concentration (NOAEC) is the highest concentration at which survival is not significantly different from the control in a 96-hour static renewal test.

- b. Chronic Toxicity Testing

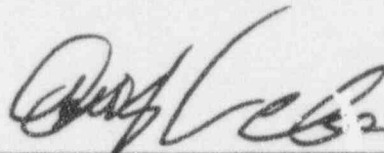
$$TUc = 100/NOEC$$

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. The chronic toxicity limitation is: 1) a monthly median of 1.0 TUc, or 2) any one test result with greater than a 50% toxic effect.

9. Copies of all SCE reports to the Nuclear Regulatory Commission pertaining to monitoring of radioactive waste disposal shall be transmitted to the Regional Board.
10. For the purpose of monitoring, the following shall be considered sources of in-plant waste streams:
 - a. seawater pumps bearing flush water
 - b. storm drains
 - c. screen wash
 - d. domestic wastewater treatment plants
 - e. low volume wastes (as listed in Finding No. 31 of the Order)
11. Grab samples of individual in-plant waste streams shall be collected and composited on a flow-weighted basis for analysis. Measurements or estimates of flows of individual in-plant waste streams used as a basis for compositing shall be reported.

12. The daily average temperature, based on an average of temperature readings over a 24-hour period, shall be reported. The daily average difference (ΔT) between the intake and discharge temperatures shall also be reported.

Ordered by



Arthur L. Coe
Executive Officer

Date Ordered: August 11, 1994

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 94-50
NPDES PERMIT NO. CA0108181

WASTE DISCHARGE REQUIREMENTS
FOR
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3
SAN DIEGO COUNTY

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

1. On March 4, 1985, the Regional Board adopted Order No. 85-13, National Pollutant Discharge Elimination System (NPDES) No. CA0108181, Waste Discharge Requirements for Southern California Edison Company, San Onofre Nuclear Generating Station, Unit 3, San Diego County. Order No. 85-13 expired on March 14, 1990, but was administratively extended until adoption of this Order.
2. On September 14, 1989, Southern California Edison Company (SCE) submitted a complete report of waste discharge (RWD), dated September 13, 1989, in application for renewal of the NPDES permit for San Onofre Nuclear Generating Station (SONGS) Unit 3. SCE submitted amendments to the original application dated November 3, 1989, August 22, 1991, December 5, 1991, June 2, 1993, October 27, 1993, November 18, 1993, July 5, 1994 and July 20, 1994.
3. SONGS Unit 3 has the following discharges:
 - a. a combined discharge of once-through cooling water and other wastes through the SONGS Unit 3 Outfall;
 - b. a fish return system discharge of circulating seawater, without in-plant wastes, through the SONGS Units 2 and 3 Fish Return System Outfall; and,
 - c. a discharge of once-through cooling water, without in-plant wastes, for emergency cooling and cooling for certain maintenance activities at an Across-the-Beach discharge point.
4. 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. Unit 3 has an electrical output of 1087 MW. Unit 3 began commercial operation on April 1, 1984.

5. SONGS Unit 3 is owned by 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 Unit 3. Consequently this permit is issued to SCE, pursuant to the United States Environmental Protection Agency (USEPA) Consolidated Permit Regulations, 40 CFR Part 122.4(b).
6. Attachment A is a site map of the SONGS facilities.
7. SONGS Unit 3 uses a once-through ocean water cooling system. The once-through cooling water stream for Unit 3 has a maximum flowrate of 1218.6 million gallons per day (MGD) and a normal operational temperature increase across the condensers of 19.2°F. The intake is located 3,183 ft. offshore in 32 ft. of water. The Unit 3 outfall diffuser extends from 3,558 ft. to 6,020 ft. offshore and ranges in depth from 32 ft. to 38 ft. The Unit 3 outfall has a point of discharge as follows:

Latitude 33° 21' 11.74" North
Longitude 117° 33' 51.61" West
8. The Unit 3 screenwells contain a fish guidance and return system. The fish handling system consists of a series of vertical louvers that guide entrapped fish to a large quiet-water area in the screenwell, fish elevators that remove the fish from the screenwells, and a 4 ft. diameter water conduit that returns fish to the ocean, depositing them 1,900 ft. offshore. The fish return conduit is common to both Units 2 and 3 and is referred to as the SONGS Units 2 and 3 Fish Return System Outfall.
9. On May 18, 1972, the State Water Resources Control Board (State Board) adopted the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California," hereinafter called the Thermal Plan. Water Quality Objective 3B(3) of the Thermal Plan provides:

"The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20°F."
10. On July 31, 1972, the Regional Board adopted Order No. 72-26. The Order granted an exception from Objective 3B(3)

of the Thermal Plan for heat treatment to control marine fouling organisms in the intake and discharge conduits of SONGS Units 2 and 3. The Regional Board proposed the following language as a substitute for Objective 3B(3):

"The companies may raise the temperature of the cooling water discharge from planned Units 2 and 3 of the San Onofre Nuclear 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;" and

"Thermal treatment shall be done in such 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."

11. The Regional Board, in Order No. 72-26, requested State Board concurrence with the exception to the Thermal Plan.
12. On February 15, 1973, the State Board adopted Order No. 73-5, which concurred conditionally with Regional Board Order No. 72-26. Under the conditions contained in Order No. 73-5, SCE and SDG&E were required to complete certain studies.
13. On March 6, 1973, the conditions contained in State Board Order No. 73-5 were incorporated into Regional Board Order No. 72-26 by Addendum No. 1 to Regional Board Order No. 72-26.
14. On January 31, 1979, SCE submitted final reports for the studies required in Order No. 73-5 and Regional Board Order No. 72-26 to the State and Regional Boards. SCE requested that these reports be approved as fulfilling the conditions established in State Board Order No. 73-5 and Regional Board Order No. 72-26. SCE also submitted proposed heat treatment operating conditions.
15. After reviewing the reports submitted by SCE and other pertinent data, the State Board concluded that the reports fulfilled the conditions set forth in Order No. 73-5 and Regional Board Order No. 72-26.
16. The State Board further found that the heat treatment operating conditions proposed by SCE would assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife within the meaning of Section 316(a) of the Clean Water Act.

17. On December 18, 1980, the State Board adopted Resolution No. 80-95 which approved the completed heat treatment studies and proposed heat treatment operating criteria for SONGS Units 2 and 3. Resolution No. 80-95 required that the proposed heat treatment operating conditions as amended be incorporated into the operating procedures and waste discharge requirements for Units 2 and 3.
18. Clean Water Act Section 316(b) requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. On July 29, 1988, SCE submitted a report entitled, "Marine Environmental Analysis and Interpretation, Report on 1987 Data, San Onofre Nuclear Generating Station." Chapter 10 of this report contains the results of a study designed to demonstrate conformance with Section 316(b) for SONGS Units 2 and 3. The study consisted of determining entrainment, impingement and field populations of fishes. The analysis evaluated the losses attributed to Units 2 and 3 intake structures as compared to offshore population densities and distributions.
19. The general intent of Section 316(b) appears to be satisfied by operations at Units 2 and 3. The available information indicates that the design, construction, location and operation of the intakes reflect Best Available Technology (BAT). However, information presented in the report "Review of Southern California Edison, San Onofre Nuclear Generating Station (SONGS) 316(b) Demonstration, July 26, 1993," which was prepared by Science Applications International Corporation (SAIC) under contract to the USEPA, indicates that operations at SONGS do cause adverse impacts to organisms in not only the cooling water system of the facility but also various biological populations or communities in the vicinity of the intake/discharge locations for the station. These effects include mortality for fish, especially eggs and larvae, that are taken into the station with the cooling water, and creating a sometimes turbid plume that affects the kelp, fish, and invertebrates in the San Onofre kelp bed. However, SCE has submitted extensive data challenging the MRC assertions. This data was not considered by SAIC in drafting their conclusions.
20. Compliance with Section 316(b) for issuance of an NPDES discharge permit for SONGS Units 2 and 3 shall be conditional as specified in Provision E.17 of this Order.
21. Attachment B is a flow diagram of discharged wastes for Unit 3.
22. Attachment C is a table of intermittent discharges and respective flows for Unit 3.

23. In order to control the growth of slime-forming organisms on condenser internal surfaces, the once-through condenser cooling water is brominated/chlorinated at the condenser inlet approximately once per day. Each injection period is approximately 60 minutes long.
24. The maximum discharge flowrate from the SONGS Unit 3 Outfall is 1286.9 MGD and consists of the following waste streams (maximum flowrates are indicated in parentheses):
- a. Once-through condenser cooling water (1218.6 MGD)
 - b. Saltwater cooling system (49.0 MGD)
 - c. Sea water pumps bearing flush water (0.172 MGD)
 - d. Storm drains (0.168 MGD)
 - e. Screen wash (7.2 MGD)
 - f. Domestic wastewater treatment plants (0.145 MGD)
 - g. Low volume wastes (11.61 MGD)

The waste streams identified above are described in Findings 25 through 31 below.

25. Once-through condenser cooling water contains waste heat and residual chlorine or bromine and may contain metals leached from piping. A maximum flowrate of 1218.6 MGD of once-through condenser cooling water is discharged through the SONGS Unit 3 Outfall.
26. The saltwater cooling system (SWCS) uses ocean water to remove heat from the component cooling water system (CCWS) and the turbine plant cooling water (TPCW) system. The CCWS is a closed loop system designed to remove heat from various reactor auxiliary systems. The CCWS provides a radioactivity monitored intermediate barrier between the reactor auxiliary systems and the SWCS. The TPCW is a closed loop cooling system with a primary function to remove waste heat from the components of the steam plant auxiliary systems. As shown in Attachment B, the SWCS flow is withdrawn from and returned (recirculated) to the once-through condenser cooling water stream. The SWCS is chlorinated to control biofouling. A maximum flowrate of 49.0 MGD is discharged from the saltwater cooling system through the SONGS Unit 3 Outfall. During periods of discharge structure maintenance and emergencies, the SWCS discharges at the Across-the-Beach discharge point.
27. Sea water pumps bearings are lubricated by a once-through flow of domestic water. Of the total 0.172 MGD of sea water pumps bearing flush water discharged, 0.070 MGD is directed to the intake structure sump and 0.102 MGD to the once-through condenser cooling water stream.

28. Storm drains collect dewatering of groundwater, rainfall runoff, auxiliary boiler drain down and hose-down water from outside areas at the SONGS Unit 3 facility. Water entering storm drains is discharged directly to the once-through condenser cooling water stream. Storm drain flows may be virtually negligible in the absence of rainfall. During the rainy season, storm drain flowrates average approximately 0.074 MGD. A maximum flowrate of 0.168 MGD is discharged from storm drains to the SONGS Unit 3 Outfall.
29. The traveling screens and bars provide a method to remove marine life and debris from the once-through cooling water. Each of two screen wash pumps delivers a maximum flowrate of 2,500 gallons per minute for washing the traveling screens, traveling bar screens, and fish elevator. A maximum screen wash flowrate of 7.2 MGD is withdrawn from and returned (recirculated) to the once-through condenser cooling water stream.
30. Domestic sewage generated at SONGS is treated at either the SONGS Unit 1 sewage treatment plant or the Mesa Facility Complex sewage treatment plant. The effluents from both facilities are discharged to either the SONGS Unit 1 Outfall, SONGS Unit 2 Outfall, or SONGS Unit 3 Outfall, depending on operating conditions. The maximum effluent flowrate from the SONGS Unit 1 sewage treatment plant is 0.10 MGD. The maximum effluent flowrate from the Mesa Facility Complex sewage treatment plant is 0.045 MGD.
31. Low volume waste streams include the following (maximum flowrates are indicated in parentheses):
 - a. Thermophilic digester (0.010 MGD)
 - b. Condenser hotwell overboard (7.20 MGD)
 - c. Steam generator blowdown (0.720 MGD)
 - d. Blowdown processing system demineralizer regenerants (0.085 MGD)
 - e. Full flow condensate polishing demineralizer regenerants (1.40 MGD)
 - f. Makeup demineralizer regenerants (0.670 MGD)
 - g. Radwaste system (0.432 MGD)
 - h. Building sumps (0.800 MGD)
 - i. Intake structure sump (0.288 MGD)

The low volume waste streams identified above are described in Findings 32 through 40 below.

32. SCE is proposing to install and operate a thermophilic digester which would be used to treat kelp debris, dead fish, sludge from both sewage treatment plants and kitchen grease. SCE reports that use of a thermophilic digester would reduce the solid waste disposal needs of the SONGS

facilities. SCE plans to begin operation of a thermophilic digester sometime during the life of this Order. A maximum flowrate of 0.010 MGD of supernatant from the thermophilic digester would be discharged to the influent of the SONGS Unit 1 sewage treatment plant.

33. A condenser hotwell overboard discharge is necessary if leaks are detected in the condenser or during start-up of the unit. The condenser hotwell overboard discharges a maximum flowrate of 7.20 MGD to SONGS Unit 3 Outfall.
34. The steam generator provides steam to the turbine, utilizing heat from the reactor primary cooling system. Hydrazine and ammonia are used to control the oxygen concentration and pH, respectively, of the demineralized feedwater which comes from the demineralizer. They form gaseous products, mainly nitrogen, which do not significantly affect the chemical characteristics of the blowdown. During normal operation, chemicals, such as ammonium hydroxide, are added to control pH. The maximum steam generator blowdown discharge flowrate to the SONGS Unit 3 Outfall is 0.720 MGD.
35. Steam generator blowdown not discharged directly to the once-through cooling water stream flows to the steam generator blowdown processing system (BPS) which functions to demineralize the steam generator blowdown and provide high quality condensate back to the main condenser. This side stream demineralizer is regenerated and the spent regenerants are neutralized to acceptable pH limits prior to discharge to the once-through condenser cooling water stream. The maximum blowdown processing system demineralizer regenerants flowrate to the SONGS Unit 3 Outfall is 0.085 MGD.
36. Steam, upon passing the turbine, is condensed back to water. The condensate is demineralized prior to returning to the steam generator. The full flow condensate polishing demineralizer (FFCPD) system is designed to remove positive and negative ions entering the system from small leaks which may develop in the main condenser and associated piping. The spent regenerants (sulfuric acid and caustic soda) are neutralized, settled and filtered to acceptable limits prior to discharge. The maximum wastewater flowrate from the full flow condensate polishing demineralizer system to the SONGS Unit 3 Outfall is 1.40 MGD.
37. The makeup demineralizer (MUD) system produces deionized water for various in-plant systems and is common to Units 1, 2, and 3. The source water for the MUD is potable water purchased from the Tri-Cities Municipal Water District. The ion exchange resins are routinely regenerated, with the wastewater (acidic and alkalynic) flowing to a

neutralization tank. The pH is then adjusted to acceptable limits by the addition of sulfuric acid or caustic soda. Upon neutralization and settling, the regeneration wastewater is then discharged through either the SONGS Unit 1 Outfall, SONGS Unit 2 Outfall, or SONGS Unit 3 Outfall. A reverse osmosis (RO) unit may be used to supplement the ion exchange system, producing additional make-up water and discharging brine via the MUD system piping. The maximum makeup demineralizer regenerants flowrate is 0.670 MGD.

38. The radwaste system provides radiological waste management. The system receives wastewater from reactor coolant systems, chemical and volume control systems, and minor flows from equipment leaks and drains, laboratory drains, personnel decontamination showers, and floor drains. Treatment facilities consist of a series of surge tanks, demineralizers, filter monitor tanks, flash tanks, and gas strippers. The radiological wastewater is treated to acceptable radiological limits established by the U.S. Nuclear Regulatory Commission for discharge or plant recycle. The maximum wastewater flowrate from the radwaste system to the SONGS Unit 3 Outfall is 0.432 MGD.
39. With the exception of the intake structure sump, which discharges directly into the intake structure, wastewater entering all drains labeled by SCE as "nonradioactive" flow by gravity to building sumps. There they are pumped to an oily waste sump. Each unit's oily waste sump is then pumped to the SONGS Units 2 and 3 common oil removal system prior to discharge through either the SONGS Unit 2 Outfall or the SONGS Unit 3 Outfall. The maximum wastewater flowrate from building sumps to the SONGS Unit 3 Outfall is 0.800 MGD.
40. The intake structure sump receives a portion of the sea water pumps bearing flush water and flows from sea water drains. The water in the intake structure sump is then pumped to the once-through cooling water stream. The maximum intake structure sump discharge flowrate to the SONGS Unit 3 Outfall is 0.288 MGD.
41. A USEPA Form 2C was submitted as part of the RWD. The following table summarizes the analytical data for those pollutants detected in the SONGS Unit 3 combined effluent at concentrations greater than the intake concentrations. The analytical data below is based on single 24-hour composite samples collected from the influent and combined effluent.

Pollutant	Units	Influent Concentration	Effluent Concentration
Total Suspended Solids (TSS)	mg/l	6.8	11
Bromide	mg/l	102	123
Chlorine, Total Residual	ug/l	---	200
Color	color units	3	4
Fecal Coliform	MPN	<2	2
Nitrogen, Total Organic (as N)	mg/l	0.25	0.28
Boron, Total	mg/l	4.09	4.55
Magnesium, Total	mg/l	1247	1346
Phenols, Total	mg/l	0.004	0.005

42. The RWD submitted in application for renewal of this permit (as described in Finding No. 2 above) identified a number of substances which will periodically be present in wastewater discharged from SONGS Unit 3. The RWD indicated that these substances were not present in the discharge at the time the discharge was sampled to obtain the information submitted in the application.
43. SCE reported in the application for this Order that metal cleaning wastes are not discharged from SONGS Unit 3.
44. The federal Nuclear Regulatory Commission is responsible for the regulation of SONGS Unit 3 with respect to radiological material. The Regional Board has no jurisdiction over regulation of radiological material or the discharge of radiological wastes from SONGS Unit 3.
45. The State Board adopted a revised "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) on March 22, 1990. The Ocean Plan identifies the following beneficial uses of state ocean waters to be protected:
 - a. Industrial water supply;
 - b. Water contact recreation;
 - c. Non-contact water recreation;
 - d. Aesthetic enjoyment;
 - e. Navigation;
 - f. Ocean commercial and sport fishing

- g. Mariculture;
- h. Preservation and enhancement of Areas of Special Biological Significance;
- i. Preservation of rare and endangered species;
- j. Marine habitat;
- k. Fish migration;
- l. Fish spawning; and,
- m. Shellfish harvesting.

In order to protect these beneficial uses, the Ocean Plan establishes water quality objectives, general requirements for management of waste discharges to the ocean, quality requirements for waste discharges, discharge prohibitions, and general provisions.

- 46. The Ocean Plan establishes a procedure for determining effluent limitations which is based on the minimum initial dilution of a discharge by the receiving ocean waters. The State Board has issued a document entitled Water Quality Control Plan, Table B Guidelines, Ocean Waters of California, 1978 (Table B Guidelines) to assist in implementing the Ocean Plan. The Table B Guidelines describe two numerical models for use in estimating the minimum initial dilution of a discharge. If the models described in the Table B Guidelines are not applicable, a discharger may propose another numerical model or use the results of a site-specific physical modeling study. Neither of the models described in the Table B Guidelines is applicable to the SONGS Unit 3 discharge.
- 47. The Ocean Plan defines minimum initial dilution for submerged discharges as complete when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally. 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 shall 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.
- 48. On November 15, 1974, the California Institute of Technology submitted a report to SCE titled "Interpretations of Results from Hydraulic Modeling of Thermal Outfall Diffusers for the San Onofre Nuclear Power Plant." The report concluded that the discharge diffuser, as designed, would induce an offshore current. The report concluded that in the absence of surface cooling and no ambient current, the initial dilution is about ten.

49. On July 18, 1979, SCE requested that the State Board staff approve estimated initial dilution factors for those discharge structures generally described as "offshore submerged." These dilution factors were estimated utilizing the "flux-weighted-average" dilution approach developed by the California Institute of Technology. On March 13, 1980, the State Board staff agreed with SCE's approach for estimating initial dilution for "offshore submerged" discharges and approved the use of these calculated initial dilution factors when issuing future NPDES permits for these discharges. The minimum probable initial dilution, as defined by the Ocean Plan, for the SONGS Unit 3 Outfall is 10.
50. The Ocean Plan requires that waste be discharged a sufficient distance from areas designated as being of special biological significance to assure maintenance of natural water quality conditions in such areas. Heisler Park Ecological Reserve, approximately 20 miles northwest of SONGS Unit 3, is the closest designated Area of Special Biological Significance to the SONGS Unit 3 discharge.
51. The Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan) was adopted by the Regional Board on March 17, 1975, and approved by the State Board on March 20, 1975. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the State Board.
52. The Basin Plan identifies the following beneficial uses of the coastal waters of the Pacific Ocean:
- a. Industrial Service Supply;
 - b. Navigation;
 - c. Water Contact Water Recreation;
 - d. Non-Contact Water Recreation;
 - e. Ocean Commercial and Sport Fishing;
 - f. Preservation of Areas of Special Biological Significance;
 - g. Preservation of Rare and Endangered Species;
 - h. Marine Habitat;
 - i. Fish Migration;
 - j. Shellfish Harvesting;
 - k. Wildlife Habitat;
 - l. Fish Spawning; and,
 - m. Mariculture.
53. On April 18, 1983, Regional Board staff accompanied representatives of SCE on a helicopter flight over the SONGS Units 1, 2, and 3 Outfalls. Discoloration over SONGS Units 1 and 3 Outfalls were visible, apparently as a result of the operation of SONGS Unit 1 and Unit 3 circulating water

pumps. The turbidity of the SONGS Unit 3 discharge has the potential of adversely affecting the marine biota in the vicinity of the discharge.

54. The Ocean Plan requires that "natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste."
55. On February 20, 1974, the California Coastal Zone Conservation Commission created the Marine Review Committee (MRC) as a permit condition for the construction of Units 2 and 3 and directed the MRC to measure the effects of Units 2 and 3 on the marine environment and to determine if SONGS is in compliance with the regulatory requirements of State and Federal water quality agencies. Within the final study report issued by the MRC (MRC, 1989a), the MRC estimated that the average level of natural light at the bottom at stations downcoast from SONGS Units 2 and 3 outfall diffusers was lowered by 6-16% relative to the level that would occur in the absence of SONGS during a downcoast current. The MRC report states that this finding is statistically significant at the 95% confidence level.
56. The California Coastal Commission has adopted a resolution acknowledging the MRC findings and has conditioned SCE's coastal permit to require mitigation that will offset the marine resource impacts which have been caused by SONGS Units 2 and 3 as identified by the MRC.
57. On February 10, 1992, the Regional Board considered the issue of possible noncompliance with the NPDES permits for SONGS Units 2 and 3. The Regional Board determined that the conflicting findings of the MRC study and SCE's NPDES permit self-monitoring program made the compliance status of SONGS Units 2 and 3 uncertain. The Regional Board concluded that the evidence was not sufficient to support a finding of noncompliance.
58. Because of some remaining uncertainty as to the relative contribution of turbidity from operation of the SONGS once-through cooling water systems, this Order requires SCE to perform a 1-year study to evaluate the impact of in-plant waste streams on the relative contribution of turbidity in the discharge. The study will consist of daily sampling from the station in-plant intake and discharge structures and analysis of these samples for turbidity. The resulting data will be evaluated and submitted in a special report to the Executive Officer. Upon completion of this one-year study period, monitoring in the cooling water intake and combined discharge will revert to monthly sampling.

59. On November 19, 1991, the State Board adopted the General Industrial Storm Water Permit, Order No. 91-13-DWQ (as amended by Water Quality Order No. 92-12-DWQ), NPDES No. CAS000001. On November 4, 1992, SCE submitted a Notice of Intent to the State Board for obtaining coverage of the SONGS facilities under Order No. 91-13-DWQ. The State Board confirmed coverage of the SONGS facilities under Order No. 91-13-DWQ and assigned WDID# 9 375003198 to the facilities. This Order requires that SCE comply with all the terms and conditions of Order No. 91-13-DWQ.
60. Effluent limitations, national standards of performance, and toxic and pretreatment effluent standards established pursuant to Section 301, 302, 303(d), 304, 306, 307, 316(b) and 403 of the Clean Water Act and amendments thereto are applicable to the discharge.
61. On November 19, 1982, the USEPA promulgated effluent guidelines and standards for discharges from the steam-electric power generating point source category. The guidelines establish effluent limitation guidelines, pretreatment standards and new source performance standards and are contained in 40 CFR Parts 125 and 423.
62. The best practicable control technology currently available (BPT) and best available technology economically achievable (BAT) effluent limitations promulgated by USEPA to regulate pollutants for the steam electric power generating point source category are applicable to discharges from SONGS Unit 3.
63. SONGS Unit 3 waste streams covered by 40 CFR 423 include: (1) once-through cooling water; and, (2) low volume wastes.
64. On July 10, 1984, SCE submitted an initial request for a Clean Water Act Section 301(g) environmental quality variance to the Regional Board. On January 23, 1985, SCE made final application for a Clean Water Act Section 301(g) environmental quality variance. SCE requested a variance from 40 CFR Part 423.13 which limits the concentration of total residual chlorine in discharged condenser cooling water to 0.2 mg/l. On May 5, 1994, SCE withdrew its application for a Section 301(g) variance citing an ability to operate SONGS Unit 3 subject to the BAT guideline for chlorine.
65. This Order establishes effluent limitations on the combined discharge through the SONGS Unit 3 Outfall only for total chlorine residual, acute and chronic toxicity, and instantaneous maximum limitations on Ocean Plan Table B toxic materials. If the discharger exceeds the acute or chronic toxicity limitation, a Toxicity Reduction Evaluation

(TRE)/Toxicity Identification Evaluation (TIE) shall be conducted. Part of the TRE will be to conduct acute and chronic toxicity monitoring on the various in-plant waste streams to determine the cause(s) of toxicity. When the constituent(s) causing toxicity is identified, new or revised effluent limitations shall be established for that constituent(s).

66. Water quality impacts of discharges from SONGS Unit 3 are consistent with maximum benefit to the people of the State and do not unreasonably affect present and anticipated beneficial use of ocean waters. Also, there is not convincing evidence that the discharges result in water quality less than that prescribed in applicable plans and policies as described in this Order. Therefore, discharges from SONGS Unit 3 as described in this Order are consistent with State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California."
67. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:
 - a. Past, present, and probable future beneficial uses of the ocean waters under consideration;
 - b. Environmental characteristics of the ocean waters under consideration, including the quality of water available thereto;
 - c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
 - d. Economic considerations;
 - e. The need for developing housing within the region;
 - f. The need to develop and use recycled water;
 - g. Beneficial uses to be protected and water quality objectives reasonably required for that purpose;
 - h. Other waste discharges; and,
 - i. The need to prevent nuisance.
68. The Regional Board has considered all water resource related environmental factors associated with the SONGS Unit 3 discharge.
69. The Regional Board has notified SCE and all known interested parties of its intent to prescribe waste discharge requirements for the discharge.
70. The Regional Board has, in a public meeting, heard and considered all comments pertaining to the discharge.

71. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the federal Clean Water Act or amendments thereto.
72. The issuance of waste discharge requirements for this discharge is exempt from the provisions of the California Environmental Quality Act (Chapter 3, Section 21000 et seq of Division 13 of the Public Resources Code) in accordance with Water Code Section 13389.

IT IS HEREBY ORDERED, that the Southern California Edison Company (hereinafter Discharger), in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act and regulations adopted thereunder, shall comply with the following requirements for the discharge through the SONGS Unit 3 Outfall, the Units 2 and 3 Fish Return System Outfall, and for all Across-the-Beach discharges.

A. PROHIBITIONS

1. Discharges of wastes in a manner or to a location which have not been specifically described to the Regional Board and for which valid waste discharge requirements are not in force are prohibited.
2. The discharge of oil or any residuary product of petroleum to the waters of the State, except in accord with waste discharge requirements or other provisions of Division 7, California Water Code is prohibited.
3. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste to the ocean is prohibited.
4. The discharge of polychlorinated biphenyl compounds, such as those commonly used for transformer fluid, is prohibited.
5. 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.
6. The bypassing of untreated wastes containing concentrations of pollutants in excess of those of Table A or Table B of the Ocean Plan to the ocean is prohibited except under those circumstances described under Provision E.16 of this Order.

7. The discharge through the SONGS Unit 3 Outfall in excess of 1286.9 MGD is prohibited unless the Discharger obtains revised waste discharge requirements for the proposed increased discharge flowrate.
8. Total residual oxidants may not be discharged from any single generating unit for more than two hours per day unless the Discharger demonstrates to the Regional Board Executive Officer that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination/bromination is permitted.

B. DISCHARGE SPECIFICATIONS

1. The combined discharge through the SONGS Unit 3 Outfall to the Pacific Ocean containing pollutants in excess of the following effluent limitations is prohibited.^{1/}

Parameter	Units ^{2/3/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Arsenic	ug/l lb/day	--	--	850 9,100
Cadmium	ug/l lb/day	--	--	110 1,200
Chromium (Hexavalent) ^{7/}	ug/l lb/day	--	--	220 2,400
Copper	ug/l lb/day	--	--	310 3,300
Lead	ug/l lb/day	--	--	220 2,400
Mercury	ug/l lb/day	--	--	4.4 47
Nickel	ug/l lb/day	--	--	550 5,900
Selenium	ug/l lb/day	--	--	1,650 18,000
Silver	ug/l lb/day	--	--	75 810
Zinc	ug/l lb/day	--	--	2,120 23,000
Cyanide	ug/l lb/day	--	--	110 1,200

Parameter	Units ^{2/3/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Chlorine Residual ^{8/}	ug/l lb/day	20 240	90 940	200 2,100
Ammonia (as N)	ug/l lb/day	--	--	66,000 710,000
Phenolic Compounds (non-chlorinated)	ug/l lb/day	--	--	3,300 35,000
Chlorinated Phenolics	ug/l lb/day	--	--	110 1,200
Endosulfan	ng/l lb/day	--	--	300 3.2
Endrin	ng/l lb/day	--	--	70 0.7
HCH ^{9/}	ng/l lb/day	--	--	130 1.4

Note: ug/l = micrograms per liter
 lb/day = pounds per day
 ng/l = nanograms per liter

Parameter	Units	Monthly Average ^{10/}	Weekly Average ^{11/}	Daily Maximum ^{5/}	Maximum at any time
Acute Toxicity ^{12/}	TUa	1.5	2.0	--	2.5
Chronic Toxicity ^{12/}	TUc	--	--	10	--

See Appendix A for endnotes.

2. Waste discharged^{9/} through the SONGS Unit 3 Outfall to the ocean^{9/} shall be essentially free of:
 - a. Material that is floatable or will become floatable upon discharge;

- b. Settleable material or substances that may form sediments which will degrade^{9/} benthic communities or other aquatic life;
 - c. Substances which will accumulate to toxic levels in marine waters, sediments or biota;
 - d. Substances that significantly^{9/} decrease the natural^{9/} light to benthic communities and other marine life; and
 - e. Materials that result in aesthetically undesirable discoloration of the ocean^{9/} surface.
3. SONGS Unit 3 waste^{9/} management systems that discharge to the ocean^{9/} shall be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
4. Waste^{9/} effluents from SONGS Unit 3 shall be discharged to the ocean in a manner which provides sufficient initial^{9/} dilution to minimize the concentrations of pollutants and ensure compliance with water quality objectives.
5. The location of the waste^{9/} discharge from SONGS Unit 3 shall assure that:
- a. Pathogenic organisms and viruses are not present in areas where shellfish^{9/} 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 of special biological significance or areas that existing marine laboratories use as a source of seawater; and
 - c. Maximum protection is provided to the marine environment.
6. Waste^{9/} that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing^{9/} and water-contact sports areas to maintain applicable bacteriological 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.
7. The SONGS Unit 3 discharge of elevated temperature wastes to the ocean shall comply with limitations necessary to assure

protection of beneficial uses and designated areas of special biological significance.

8. At all times except during heat treatment operations, the maximum temperature of the discharge from SONGS Unit 3 to the ocean shall not exceed the natural temperature of receiving waters by more than 20°F.
9. The pH of the discharge from SONGS Unit 3 to the ocean shall be within the limits of 6.0 to 9.0 pH units at all times.
10. The discharge from the thermophilic digester (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.010 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 2.5	100.0 8.3	100.0 8.3
Grease and Oil	mg/l lb/day	15.0 1.3	20.0 1.7	20.0 1.7

11. The discharge of condenser hotwell overboard (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 7.20 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 1,800	100.0 6,000	100.0 6,000
Grease and Oil	mg/l lb/day	15.0 900	20.0 1,200	20.0 1,200

12. The discharge of steam generator blowdown (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.720 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 180	100.0 600	100.0 600
Grease and Oil	mg/l lb/day	15.0 90	20.0 120	20.0 120

13. The discharge of blowdown processing system demineralizer regenerants (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.085 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 21	100.0 71	100.0 71
Grease and Oil	mg/l lb/day	15.0 11	20.0 14	20.0 14

14. The discharge of full flow condensate polishing demineralizer regenerants (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 1.40 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 350	100.0 1200	100.0 1200
Grease and Oil	mg/l lb/day	15.0 180	20.0 230	20.0 230

15. The discharge of makeup demineralizer regenerants (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.670 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 170	100.0 560	100.0 560
Grease and Oil	mg/l lb/day	15.0 84	20.0 110	20.0 110

16. The discharge from the radwaste system (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.432 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 110	100.0 360	100.0 360
Grease and Oil	mg/l lb/day	15.0 54	20.0 72	20.0 72

17. The discharge from building sumps (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.800 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 200	100.0 670	100.0 670
Grease and Oil	mg/l lb/day	15.0 100	20.0 130	20.0 130

18. The discharge from the intake structure sump (a low volume waste) to the SONGS Unit 3 combined discharge outfall containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 0.288 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 72	100.0 240	100.0 240
Grease and Oil	mg/l lb/day	15.0 36	20.0 48	20.0 48

19. The combined discharge from all SONGS Unit 3 low volume waste sources, taken together, containing pollutants in excess of the following effluent limitations is prohibited: (based on a maximum flowrate of 11.61 MGD)^{13/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Total Suspended Solids	mg/l lb/day	30.0 2,900	100.0 9,700	100.0 9,700
Grease and Oil	mg/l lb/day	15.0 1,500	20.0 1,900	20.0 1,900

20. The combined discharge from all SONGS Unit 3 in-plant waste sources (including seawater pumps bearing flush water, storm drains, screen wash, domestic wastewater treatment plants, and low volume wastes), taken together, containing pollutants in excess of the following effluent limitations to the once-through cooling water flow is prohibited:^{1/} (based on a maximum combined flowrate of 19.3 MGD)

Parameter	Units ^{2/14/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Arsenic	ug/l lb/day	60 9	320 52	850 140
Cadmium	ug/l lb/day	10 2	40 7	110 18
Chromium (Hexavalent) ^{7/}	ug/l lb/day	20 4	90 10	220 35
Copper	ug/l lb/day	10 2	110 18	310 50
Lead	ug/l lb/day	20 4	90 10	220 35

Parameter	Units ^{2/14/}	6-Month Median ^{4/}	Daily Maximum ^{5/}	Instantaneous Maximum ^{6/}
Mercury	ug/l lb/day	0.4 0.07	1.8 0.28	4 0.7
Nickel	ug/l lb/day	60 9	220 35	550 89
Selenium	ug/l lb/day	170 27	660 110	1,700 270
Silver	ug/l lb/day	6 1	29 4.7	80 12
Zinc	ug/l lb/day	140 23	800 130	2,100 340
Cyanide	ug/l lb/day	10 2	40 7	110 18
Total Chlorine Residual ^{8/}	ug/l lb/day	20 4	90 14	660 110
Ammonia (as N)	ug/l lb/day	6,600 1,100	26,000 4,200	66,000 11,000
Phenolic Compounds (non- chlorinated)	ug/l lb/day	330 53	1,300 210	3,300 530
Chlorinated Phenolics	ug/l lb/day	10 2	40 7	110 18
Endosulfan	ng/l lb/day	100 0.02	200 0.032	300 0.048
Endrin	ng/l lb/day	20 0.004	40 0.007	70 0.01
HCH ^{9/}	ng/l lb/day	40 0.007	90 0.01	130 0.021

Parameter	Units	30-day Average
acrolein	ug/l lb/day	2,400 390

Parameter	Units	30-day Average
antimony	mg/l lb/day	13 2,100
bis(2-chloroethoxy) methane	ug/l lb/day	48 7.8
bis(2-chloroisopropyl) ether	mg/l lb/day	13 2,100
chlorobenzene	ug/l lb/day	6,300 1,000
chromium (III)	mg/l lb/day	2,100 340,000
di-n-butyl phthalate	mg/l lb/day	39 6,200
dichlorobenzenes ^{s/}	mg/l lb/day	56 9,000
1,1-dichloroethylene	mg/l lb/day	78 13,000
diethyl phthalate	mg/l lb/day	360 58,000
dimethyl phthalate	mg/l lb/day	9,000 1,500,000
4,6-dinitro-2-methylphenol	ug/l lb/day	2,400 390
2,4-dinitrophenol	ug/l lb/day	44 7.1
ethylbenzene	mg/l lb/day	45 7,300
fluoranthene	ug/l lb/day	170 27
hexachlorocyclopentadiene	ug/l lb/day	640 100
isophorone	mg/l lb/day	1,700 270,000
nitrobenzene	ug/l lb/day	54 8.7
thallium	ug/l lb/day	150 25

Parameter	Units	30-day Average
toluene	mg/l lb/day	940 150,000
1,1,2,2-tetrachloroethane	mg/l lb/day	13 2,100
tributyltin	ng/l lb/day	15 0.0025
1,1,1-trichloroethane	mg/l lb/day	5,900 960,000
1,1,2-trichloroethane	mg/l lb/day	470 76,000
acrylonitrile	ug/l lb/day	1.1 0.18
aldrin	ng/l lb/day	0.24 3.9E-05
benzene	ug/l lb/day	65 10
benzidine	ng/l lb/day	0.76 0.00012
beryllium	ng/l lb/day	360 0.058
bis(2-chloroethyl) ether	ug/l lb/day	0.50 0.080
bis(2-ethylhexyl) phthalate	ug/l lb/day	39 6.2
carbon tetrachloride	ug/l lb/day	9.9 1.6
chlordan ^{9/}	ng/l lb/day	0.25 4.1E-05
chloroform	mg/l lb/day	1.4 230
DDT ^{9/}	ng/l lb/day	1.9 0.00030
1,4-dichlorobenzene	ug/l lb/day	200 32
3,3-dichlorobenzidine	ng/l lb/day	89 0.014

Parameter	Units	30-day Average
1,2-dichloroethane	mg/l lb/day	1.4 230
dichloromethane	mg/l lb/day	5.0 800
1,3-dichloropropene	ug/l lb/day	98 16
dieldrin	ng/l lb/day	0.44 7.1E-05
2,4-dinitrotoluene	ug/l lb/day	28 4.6
1,2-diphenylhydrazine	ug/l lb/day	1.8 0.28
halomethanes ^{9/}	mg/l lb/day	1.4 230
heptachlor ^{9/}	ng/l lb/day	7.9 0.0013
hexachlorobenzene	ng/l lb/day	2.3 0.00037
hexachlorobutadiene	ug/l lb/day	150 25
hexachloroethane	ug/l lb/day	28 4.4
N-nitrosodimethylamine	ug/l lb/day	80 13
N-nitrosodiphenylamine	ug/l lb/day	28 4.4
PAHs ^{9/}	ng/l lb/day	97 0.016
PCBs ^{9/}	ng/l lb/day	0.21 3.4E-05
TCDD equivalents ^{9/}	pg/l lb/day	0.043 6.9E-09
tetrachloroethylene	ug/l lb/day	1100 180
toxaphene	ng/l lb/day	2.3 0.00037

Parameter	Units	30-day Average
trichloroethylene	ug/l lb/day	300 48
2,4,6-trichlorophenol	ug/l lb/day	3.2 0.51
vinyl chloride	ug/l lb/day	400 64

Note: mg/l = milligrams per liter
 ug/l = micrograms per liter
 ng/l = nanograms per liter
 pg/l = picograms per liter
 lb/day = pounds per day

21. The discharge from the SONGS Unit 1 sewage treatment plant shall not exceed the following effluent limitations: (based on a maximum flowrate of 0.10 MGD)^{15/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Weekly Average ^{11/}	Maximum at any time
Grease and Oil	mg/l lb/day	25 21	40 33	75 63
Total Suspended Solids	mg/l	Not more than 25% of influent total suspended solids		
Settleable Solids	ml/l	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	Within the limits of 6.0 to 9.0 at all times		
Acute Toxicity ^{12/}	TUa	1.5	2.0	2.5

Note: ml/l = milliliters per liter
 NTU = Nephelometric turbidity units

22. The discharge from the Mesa Facility Complex sewage treatment plant shall not exceed the following effluent limitations: (based on a maximum flowrate of 0.045 MGD)^{15/}

Parameter	Units ^{2/}	Monthly Average ^{10/}	Weekly Average ^{11/}	Maximum at any time
Grease and Oil	mg/l lb/day	25 9	40 15	75 28
Total Suspended Solids	mg/l	Not more than 25% of influent total suspended solids		
Settleable Solids	ml/l	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	Within the limits of 6.0 to 9.0 at all times		
Acute Toxicity ^{12/}	TUa	1.5	2.0	2.5

Note: ml/l = milliliters per liter
 NTU = Nephelometric turbidity units

23. The discharge through the SONGS Units 2 and 3 Fish Return System Outfall and any Across-the-Beach discharge containing pollutants in excess of effluent limitations equal to the toxic material limitations contained in Receiving Water Limitation D.3 of this Order is prohibited.
24. The discharge of substances for which effluent limits are not established by this Order shall be prevented or, if the discharge cannot be prevented, minimized.

C. HEAT TREATMENT DISCHARGE SPECIFICATIONS

The Discharger may raise the temperature of the cooling water discharge to the Pacific Ocean in excess of the temperature specified in Discharge Specification B.7 during periods of heat treatment in accordance with the following specifications:

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 D. 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 E), 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 which 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 Bay Mussel Time-Temperature Mortality Curve (Attachment E). (Heat treatment duration represents the period of time at the target temperature, and not the time required to reach 100°F and 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 SONGS Units 2 and 3 heat treatment Decision Flow Chart (Attachment D). 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 0.9 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 (Attachment E).
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 No. C.3.
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 No. C.3. During Unit 3 heat treatments, the difference between intake and discharge water temperatures for Unit 2 may exceed 20°F due to crossover connections with Unit 2.

D. RECEIVING WATER LIMITATIONS

1. The SONGS Unit 3 discharge to the Pacific Ocean shall not by itself or jointly with any discharge or discharges cause the following Thermal Plan ocean water quality objective to be violated:

Thermal Characteristics:

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.

2. The SONGS Unit 3 discharge to the Pacific Ocean shall not by itself or jointly with any discharge or discharges cause the following Ocean Plan ocean water quality objectives to be violated. Compliance with these objectives shall be determined from samples collected at stations representative

of the area within the waste field where initial^{9/} dilution is completed.

a. Bacterial Characteristics

- (1) 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^{9/} beds, the following bacterial objectives shall be maintained throughout the water column:

- (a) 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).

- (b) 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.

- (2) At all areas where shellfish^{9/} may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

b. Physical Characteristics

- (1) Floating particulates and grease and oil shall not be visible.

- (2) The discharge of waste^{9/} shall not cause aesthetically undesirable discoloration of the ocean^{9/} surface.
- (3) Natural^{9/} light shall not be significantly^{9/} reduced at any point outside the initial dilution zone as the result of the discharge of waste.
- (4) The rate of deposition of inert solids and the characteristics of inert solids in ocean^{9/} sediments shall not be changed such that benthic communities are degraded^{9/}.

c. Chemical Characteristics

- (1) 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^{9/} materials.
- (2) The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- (3) The dissolved sulfide concentration of waters in and near sediments shall not be significantly^{9/} increased above that present under natural conditions.
- (4) The concentration of substances set forth in Table B of the Ocean Plan in marine sediments shall not be increased to levels which would degrade^{9/} indigenous biota.
- (5) The concentration of organic materials in marine sediments shall not be increased to levels which would degrade^{9/} marine life.
- (6) Nutrient materials shall not cause objectionable aquatic growths or degrade^{9/} indigenous biota.

d. Biological Characteristics

- (1) Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded^{9/}.
- (2) The natural taste, odor, and color of fish, shellfish^{9/}, or other marine resources used for human consumption shall not be altered.

- (3) The concentration of organic materials in fish, shellfish^{9/}, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

3. The SONGS Unit 3 discharge to the Pacific Ocean shall not by itself or jointly with any other discharge or discharges cause the following Ocean Plan toxic material limitations to be exceeded in ocean waters upon completion of initial^{9/} dilution:

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Arsenic	ug/l	8	32	80
Cadmium	ug/l	1	4	10
Chromium (Hexavalent) ^{7/}	ug/l	2	8	20
Copper	ug/l	3	12	30
Lead	ug/l	2	8	20
Mercury	ug/l	0.04	0.16	0.4
Nickel	ug/l	5	20	50
Selenium	ug/l	15	60	150
Silver	ug/l	0.7	2.8	7
Zinc	ug/l	20	80	200
Cyanide	ug/l	1	4	10
Total Chlorine Residual ^{8/}	ug/l	2	8	60
Ammonia (as N)	ug/l	600	2400	6000
Chronic Toxicity	TUc	--	1	--
Phenolic Compounds (non-chlorinated)	ug/l	30	120	300
Chlorinated Phenolics	ug/l	1	4	10
Endosulfan	ng/l	9	18	27

Parameter	Units	6-Month Median	Daily Maximum	Instantaneous Maximum
Endrin	ng/l	2	4	6
HCH ^{9/}	ng/l	4	8	12

Parameter	Units	30-day Average
acrolein	ug/l	220
antimony	mg/l	1.2
bis(2-chloroethoxy) methane	ug/l	4.4
bis(2-chloroisopropyl) ether	mg/l	1.2
chlorobenzene	ug/l	570
chromium (III)	mg/l	190
di-n-butyl phthalate	mg/l	3.5
dichlorobenzenes ^{9/}	mg/l	5.1
1,1-dichloroethylene	mg/l	7.1
diethyl phthalate	mg/l	33
dimethyl phthalate	mg/l	820
4,6-dinitro-2-methylphenol	ug/l	220
2,4-dinitrophenol	ug/l	4.0
ethylbenzene	mg/l	4.1
fluoranthene	ug/l	15
hexachlorocyclopentadiene	ug/l	58
isophorone	mg/l	150
nitrobenzene	ug/l	4.9
thallium	ug/l	14
toluene	mg/l	85
1,1,2,2-tetrachloroethane	mg/l	1.2
tributyltin	ng/l	1.4
1,1,1-trichloroethane	mg/l	540

Parameter	Units	30-day Average
1,1,2-trichloroethane	mg/l	43
acrylonitrile	ug/l	0.10
aldrin	ng/l	0.022
benzene	ug/l	5.9
benzidine	ng/l	0.069
beryllium	ng/l	33
bis(2-chloroethyl) ether	ug/l	0.045
bis(2-ethylhexyl) phthalate	ug/l	3.5
carbon tetrachloride	ug/l	0.90
chlordane ^{9/}	ng/l	0.023
chloroform	mg/l	0.13
DDT ^{9/}	ng/l	0.17
1,4-dichlorobenzene	ug/l	18
3,3-dichlorobenzidine	ng/l	8.1
1,2-dichloroethane	mg/l	0.13
dichloromethane	mg/l	0.45
1,3-dichloropropene	ug/l	8.9
dieldrin	ng/l	0.040
2,4-dinitrotoluene	ug/l	2.6
1,2-diphenylhydrazine	ug/l	0.16
halomethanes ^{9/}	mg/l	0.13
heptachlor ^{9/}	ng/l	0.72
hexachlorobenzene	ng/l	0.21
hexachlorobutadiene	ug/l	14
hexachloroethane	ug/l	2.5
N-nitrosodimethylamine	ug/l	7.3
N-nitrosodiphenylamine	ug/l	2.5
PAHs ^{9/}	ng/l	8.8
PCBs ^{9/}	ng/l	0.019

Parameter	Units	30-day Average
TCDD equivalents ^{9/}	pg/l	0.0039
tetrachloroethylene	ug/l	99
toxaphene	ng/l	0.21
trichloroethylene	ug/l	27
2,4,6-trichlorophenol	ug/l	0.29
vinyl chloride	ug/l	36

Note: mg/l = milligrams per liter
ug/l = micrograms per liter
ng/l = nanograms per liter
pg/l = picograms per liter
lb/day = pounds per day

E. PROVISIONS

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
2. The Discharger must comply with all conditions of this Order. Any permit noncompliance constitutes a violation of the Clean Water Act and the California Water Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a Report of Waste Discharge submitted in application for permit modification or reissuance.
3. 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.
4. This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
 - a. Violation of any terms or conditions of this Order;
 - b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts, or;

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

The filing of a request by the Discharger for modification, revocation and reissuance, or termination of this Order does not stay the conditions of this Order. Notification by the Discharger of planned changes or of anticipated noncompliance with this Order does not stay the conditions of this Order.

5. 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 Executive Officer determines that continued discharges may cause unreasonable degradation of the marine environment.
6. Notwithstanding Provision E.5 above, if a toxic effluent standard or 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 such pollutant in this Order, this Order may be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the Discharger so notified.
7. 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 Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act or amendments thereto, the Regional Board may modify this Order in accordance with the more stringent standards.
8. The Discharger shall comply with effluent standards and prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement.
9. The Discharger shall take all reasonable steps in a timely manner as agreed upon by the Regional Board Executive Officer to identify the source(s) of toxicity through a Toxicity Identification Evaluation (TIE) and, if

appropriate, a Toxicity Reduction Evaluation (TRE), if the results of the acute or chronic toxicity tests exceed the toxicity limits specified in Discharge Specification B.1 of this Order.

At a minimum, the TIE/TRE shall be conducted in accordance with the following:

a. TIE/TRE Requirements for Acute and Chronic Toxicity

- (1) In accordance with EPA acute and chronic manuals EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 (Phase III), the Discharger shall initiate a Toxicity Identification Evaluation (TIE) within fifteen (15) days of the exceedance to identify the causes of the toxicity;

In accordance with EPA manual EPA/600/2-88/070, (TRE protocol for industrials) or any subsequent revisions, the Discharger shall initiate a Toxicity Reduction Evaluation (TRE) where appropriate; and

- (3) Within (15) days of becoming aware of the violation, the Discharger shall submit to the Regional Board a report which specifies at least the following:
 - (a) the times and dates when the limitation was exceeded;
 - (b) the actions the Discharger has taken to mitigate the impact of the discharge, to correct the exceedance and to prevent the recurrence of toxicity;
 - (c) the findings of TIE/TRE and any other investigations to identify the causes of the toxicity; and,
 - (d) if no TIE/TRE steps have been taken, the proposed schedule under which these actions will be implemented.

10. This Order is not transferable to any person except after notice to the Regional Board Executive Officer. The Regional Board may require modification or revocation and

reissuance of this Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the California Water Code and the Clean Water Act. The Discharger shall submit notice of any transfer of this Order's responsibility and coverage to a new Discharger as described under Reporting Requirement F.3.

11. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Discharger from liabilities under federal, state or local laws, nor create a vested right for the Discharger to continue the waste discharge.
12. The Discharger shall allow the Regional Board, or an authorized representative thereof, or any authorized representative of the United States Environmental Protection Agency, upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order, and;
 - d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the Clean Water Act or California Water Code, any substances or parameters at any location.
13. 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 includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures.

This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

14. In an enforcement action, it shall not be a defense for the Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of a treatment facility, the Discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of a treatment facility fails, is reduced, or is lost.

15. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- (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 which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in productions.

b. Bypass Not Exceeding Effluent Limitations

The Discharger may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it is also for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this provision.

c. Notice of Anticipated Bypass and Unanticipated Bypass

- (1) Anticipated Bypass: If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of bypass.

- (2) Unanticipated Bypass: The Discharger shall submit notice of the unanticipated bypass as described under Reporting Requirement F.4.

d. Prohibition of Bypass

- (1) Bypass is prohibited and the Regional Board may take enforcement action against the Discharger for bypass unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There was no feasible alternative 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 the Discharger could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
 - (c) The Discharger submitted notices as required under paragraph (c) of this section.
- (2) The Executive Officer may approve an anticipated bypass, after considering its adverse effect, if the Executive Officer determines that it will meet the three conditions listed above in paragraph (1) of this subsection.

16. Upset Conditions

a. Definition

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

facilities, lack of preventative maintenance, or careless or improper operation.

b. 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 (c) 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.

c. 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:

- (1) An upset occurred and that the Discharger can identify the specific cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated; and
- (3) The Discharger submitted notice of the upset as required in Reporting Requirement F.4.

d. Burden of Proof

In any enforcement proceeding, the Discharger, seeking to establish the occurrence of an upset has the burden of proof.

17. In accordance with Section 316(b) of the Clean Water Act (33 U.S.C. 1251 et seq.) the location, design, construction, and capacity of the SONGS Unit 3 cooling water intake structure shall reflect the best technology available for minimizing adverse environmental impact. The Discharger shall comply with any standards and guidelines which may be established by USEPA pursuant to Section 316(b) of the Clean Water Act. The Discharger shall comply with the following conditions to demonstrate compliance with Clean Water Act Section 316(b):

- a. Continue use of effective techniques for reducing losses of midwater fishes in the intake structures

including (1) velocity caps on the intakes and (2) the Fish Return System (FRS).

- b. On July 16, 1991, the California Coastal Commission amended Permit No. 6-81-330-A (formerly Permit No. 183-73) to impose certain mitigation requirements upon SCE for impacts the Coastal Commission found to the marine environment caused by the operation of SONGS Units 2 and 3. Compliance with the Coastal Commission permit is not under the authority of the Regional Board and is not required by this Order. However, a failure to comply with the Coastal Commission permit mitigation requirement with regard to the FRS behavioral barriers described above may result in a reevaluation of the 316(b) adequacy finding.
 - c. The MRC (MRC 1989a) found that fish larvae are in greatest abundance in the coastal waters near SONGS during March and April. The MRC predicts that a complete elimination of the water flow through SONGS during March and April could reduce the annual losses of fish larvae by 50%. Where possible, the Regional Board encourages the Discharger to schedule all refueling and maintenance operations to occur during March and April, so as to maximize the savings in loss of fish larvae that would occur during these regularly scheduled periods of downtime.
18. The provisions of this Order are severable, and if any provision 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.
19. The Discharger shall have and implement a Best Management Practices (BMP) program in accordance with 40 CFR 125.100-125.104. The BMP program shall prevent, or minimize the potential for, the release of toxic or hazardous pollutants, including any such pollutants referred to in Finding No. 42, from ancillary activities to waters of the United States. The Discharger shall maintain the BMP program in an up-to-date condition and shall amend the BMP program 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 Unit 3 of significant amounts of hazardous or toxic pollutants into waters of the United States. The BMP program, and any amendments thereto, shall be subject to the

approval of the Executive Officer and shall be modified as directed by the Executive Officer. The Discharger shall submit the BMP program and any amendments thereto to the Executive Officer upon request of the Executive Officer. A copy of the up-to-date BMP program shall be maintained at SONGS Unit 3 and shall be readily available to operating personnel at all times.

F. REPORTING REQUIREMENTS

1. The Discharger shall file a new Report of Waste Discharge not less than 180 days prior to any material change or proposed change in the character, location, or volume of the discharge including, but not limited to, the following:
 - a. Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.
 - b. Significant change in disposal method, e.g., change from a land disposal to a direct discharge to water, or change in the method of treatment which would significantly alter the characteristics of the waste.
 - c. Significant change in the disposal area, e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area, potentially causing different water quality or nuisance problems.
 - d. Increase in flow beyond that specified in this order.
2. The Discharger shall give advance notice to the Executive Officer of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this Order.
3. The Discharger shall notify the Executive Officer, in writing, at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger. This notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an

acknowledgment that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on.

4. The Discharger shall notify the Regional Board Executive Officer and the Long Beach and San Diego Offices of the California Department of Fish and Game, where practicable, at least 48 hours in advance of any heat treatment at Unit 3.
5. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally to the Executive Officer 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 recurrence of the noncompliance. The Executive Officer or an authorized representative may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following shall be included as information which must be reported within 24 hours under this reporting requirement:
 - a. Any unanticipated bypass which exceeds any effluent limitation in this Order.
 - b. Any discharge of treated or untreated wastewater resulting from pipe line breaks, obstruction, surcharge or any other circumstance.
 - c. Any upset which exceeds any effluent limitation in this Order.
 - d. Any spills of polychlorinated biphenyl compounds (PCBs). The spill residue shall be drummed and disposed of in conformance with all applicable local, state and federal regulations. The written notification shall include pertinent information explaining reasons for the spill and shall indicate what steps were taken to prevent the problem from recurring.

- e. Any violation of the prohibitions of this Order.
6. The Discharger shall notify the Executive Officer as soon as they know or have reason to believe:
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic or non-toxic pollutant which is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 ug/l);
 - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that toxic pollutant in the Report of Waste Discharge submitted in application for this Order; or,
 - (4) The level established by the Regional Board in accordance with 40 CFR 122.44(f).
 - b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic or non-toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 ug/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge submitted in application for this Order; or,
 - (4) The level established by the Regional Board in accordance with 40 CFR 122.44(f).

7. The Discharger shall furnish to the Executive Officer within a reasonable time, any information which the Executive Officer may require to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Discharger shall also furnish to the Executive Officer, upon request, copies of records required to be kept by this Order.
8. Where the Discharger becomes aware that any relevant facts were not submitted in the Report of Waste Discharge, or that incorrect information was submitted in the Report of Waste Discharge or in any report to the Regional Board, the Discharger shall promptly submit such facts or information.
9. This Order expires on August 11, 1999. If the Discharger wishes to continue any activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain new waste discharge requirements. The Discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations (CCR), not later than 180 days in advance of the expiration date of this order as application for issuance of new waste discharge requirements.
10. All applications, reports, or information submitted to the Regional Board Executive Officer shall be signed and certified.
 - a. All Reports of Waste Discharge 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 employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- (2) For a partnership or sole proprietorship: by general partner or the proprietor, respectively.
 - (3) For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, 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 EPA).
- b. All other reports required by this Order and other information requested by the Executive Officer shall be signed by a person described in paragraph a. of this reporting requirement, 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 a. of this reporting requirement;
 - (2) The authorization specifies 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, or 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); and,
 - (3) The written authorization is submitted to the Executive Officer.
- c. If an authorization under paragraph b. of this reporting requirement 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

b. of this section must be submitted to the Executive Officer prior to or together with any reports, information, or applications to be signed by an authorized representative.

- d. Any person signing a document under paragraph a. or b. of this section 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."

11. Except for data determined to be confidential under Title 40, United States Code of Federal Regulations Part 2, all reports prepared in accordance with the terms of this Order shall be available for public inspection at the office of the Regional Board. As required by the Clean Water Act, Reports of Waste Discharge, this Order, and effluent data shall not be considered confidential.

12. The Discharger shall comply with Monitoring and Reporting Program No. 94-50.

13. The Discharger shall submit reports and provide notifications as required by this Order in accordance with the following:

- (a) Reports required to be submitted to the Regional Board Executive Officer shall be sent to:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd, Suite B
San Diego, California 92124

Notifications required to be provided to the Regional Board Executive Officer shall be made to:

Phone - (619) 467-2952 or
Fax - (619) 571-6972

- (b) Reports required to be submitted to the U.S. Environmental Protection Agency shall be sent to:

U.S. Environmental Protection Agency
Region IX
Permits Issuance Section
75 Hawthorne Street (W-5-1)
San Francisco, California 94105

- (c) Notifications required to be provided to the California Department of Fish and Game shall be made to:

Long Beach Office

Phone - (310) 590-5132
Fax - (310) 590-5834

San Diego Office

Phone - (619) 525-4187
Fax - (619) 525-4056

G. NOTIFICATIONS

1. California Water Code Section 13263(g) states:

"No discharge of waste into waters of the state, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the state are privileges, not rights."

2. The Clean Water Act provides that any person who violates a condition of this permit is subject to a civil penalty not to exceed \$25,000 per day of each violation. Any person who negligently causes a violation of any condition in this permit is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two years, or both.

3. The Clean Water Act provides that any person who knowingly causes violation of any condition of this permit is subject to fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than three years, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$100,000 per day of violation, or by imprisonment of not more than six years, or both.
4. Any person who knowingly causes a violation of any condition of this permit and, by so doing, knows at that time that he or she thereby places another in imminent danger of death or serious bodily injury shall be subject to a fine of not more than \$250,000, or imprisonment of not more than 15 years, or both. A person who is an organization and violates this provision shall be subject to a fine of not more than \$1,000,000 for a first conviction. For a second conviction under this provision, the maximum fine and imprisonment shall be doubled.
5. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under Section 311 of the Clean Water Act.
6. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.
7. This Order shall become effective 10 days after the date of its adoption provided the Regional Administrator, USEPA, has no objection. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.
8. This Order supersedes Order No. 85-11.
9. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto.

Appendix A: Endnote References

Endnote references for Order No. 94-50 (NPDES No. CA0108181), WASTE DISCHARGE REQUIREMENTS FOR SOUTHERN CALIFORNIA EDISON COMPANY, SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3, SAN DIEGO COUNTY

1. The effluent concentration limits for Ocean Plan Table B parameters were determined using the procedures outlined in the Ocean Plan and a minimum initial dilution value of ten.
2. The mass emission rate (MER) of a substance is calculated using the following equation:

$$\text{MER} = 8.34 \times Q \times C$$

Where MER is the mass emission rate in lb/day, Q is the discharge flowrate in MGD, and C is the effluent concentration in mg/l.

If a composite sample is taken, C is the concentration measured in the composite sample and Q is the average discharge flowrate occurring during the period over which the composite sample is collected.

3. The MER limits in this table were obtained using $Q = 1286.9$ MGD (the maximum daily combined discharge flowrate reported in the Report of Waste Discharge) and effluent concentration limits determined as specified in Endnote 1. When the combined discharge flowrate is lower than 1286.9 MGD, the MER limits shall be correspondingly lower.
4. The six-month median effluent concentration limit shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
5. The daily maximum effluent concentration limit shall apply to flow weighted 24 hour composite samples.
6. The instantaneous maximum effluent concentration limit shall apply to grab sample determinations.

7. The Discharger may at its option meet this limitation as a total chromium limitation.
8. In samples obtained from marine, saline, or other waters containing bromine, total chlorine residual limitations shall apply to total residual oxidants.

Discharge Specification B.1

In Discharge Specification B.1, the total chlorine residual effluent limitations shown are for non-intermittent chlorine/bromine sources. The 6-month median and daily maximum effluent limitations are based on the Ocean Plan water quality objectives using the procedure described in Endnote 1. The instantaneous maximum effluent limitation is based on the USEPA BAT effluent limitation contained in 40 CFR 423. MER limits are calculated using maximum flowrates and the procedures described in Endnote 2. When the flowrate is less than the maximum flowrate, the MER limit shall be correspondingly lower.

If the discharge of chlorine/bromine is an intermittent discharge not exceeding two hours, the total chlorine residual effluent limitation shall be the lower of the following:

- a) an effluent limitation calculated using the procedure described in Endnote 1 and water quality objectives determined through the use of the following equation:

$$\log y = -0.43(\log x) + 1.8 \quad (\text{Equation 3})$$

where: y = the water quality objective (in ug/l) to apply when chlorine/bromine is being discharged;

x = the duration of uninterrupted chlorine/bromine discharge in minutes; or,

- b) the USEPA BAT effluent limitation contained in 40 CFR 423 (0.20 mg/l).

MER limits for intermittent discharges shall be calculated using the following equation:

$$\text{MER limit (lb/day)} = 8.34 \times C \times Q \times z/24$$

where: C = effluent concentration limit as calculated above (mg/l)

Q = discharge flowrate (MGD)

z = total time (hours) chlorine/bromine is discharged per day, not to exceed two (2.0) hours per unit; or,

Discharge Specification B.16

In Discharge Specifications B.16, effluent limitations for total chlorine residual are based on the Ocean Plan water quality objectives for non-intermittent chlorine/bromine sources using the procedure described in Endnote 1. MER limits are calculated using maximum flowrates and the procedures described in Endnote 2. When the flowrate is less than the maximum flowrate, the MER limit shall be correspondingly lower.

Effluent limitations for total chlorine residual applying to intermittent discharges not exceeding two hours shall be calculated using the procedure described in Endnote 1 and water quality objectives determined using Equation 3 above. MER limits shall be calculated using the following equation:

$$\text{MER limit (lb/day)} = 8.34 \times C \times Q \times z/24$$

where: C = effluent concentration limit as calculated above (mg/l)

Q = discharge flowrate (MGD)

z = total time (hours) chlorine/bromine is discharged per day, not to exceed two (2.0) hours per unit; or,

Receiving Water Limitation D.3

In Receiving Water Limitation D.3, limitations for total chlorine residual are for non-intermittent chlorine/bromine sources. Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours shall be determined using Equation 3 above.

Total chlorine residual may be measured by either of the two EPA-approved analytical methods: amperometric titration or DPD-colorimetric.

9. See Appendix I of the Ocean Plan for definition of terms.
10. The monthly average is the arithmetic mean using the results of analyses of all samples collected during any 30 consecutive calendar day period.
11. The weekly average is the arithmetic mean using the results of analyses of all samples collected during any 7 consecutive calendar day period.
12. Toxicity units are defined as follows.

Acute Toxicity

- a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

- b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard test species. If specific identifiable substances in wastewater can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

Chronic Toxicity

a. Chronic Toxicity (TUC)

Expressed as Toxic Units Chronic (TUC)

$$TUC = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix II of the Ocean Plan.

13. The MER limits in this table were obtained using the indicated maximum flowrate and the following effluent concentration limits from the USEPA standards for the steam electric power generating point source category contained in 40 CFR Part 423:

Parameter	Units	Monthly Average	Daily Maximum	Instantaneous Maximum
Total Suspended Solids	mg/l	30.0	100.0	100.0
Grease and Oil	mg/l	15.0	20.0	20.0

When the discharge flowrate is lower than the maximum flowrate, the MER limit shall be correspondingly lower.

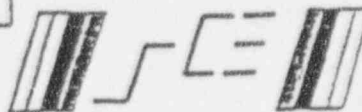
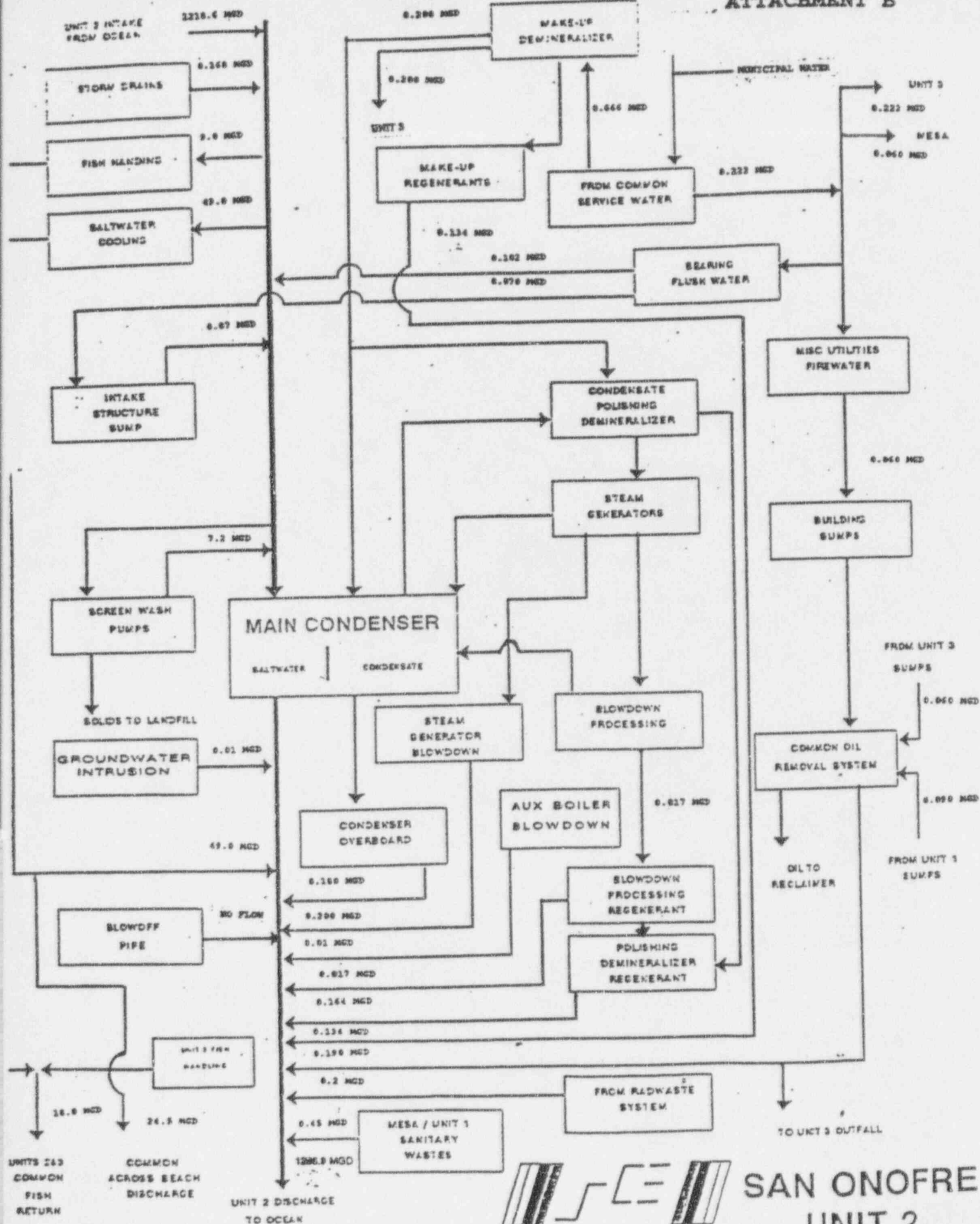
14. The MER limits in this table were obtained using $Q = 19.3$ MGD (the maximum daily combined in-plant waste stream flowrate) and effluent concentration limits determined as specified in Endnote 1. When the combined in-plant waste stream flowrate is lower than 19.3 MGD, the MER limits shall be correspondingly lower.

15. The MER limits in this table were obtained using the indicated maximum flowrate and effluent concentration limits from Table A of the Ocean Plan. When the flowrate is lower than the indicated maximum flowrate, the MER limits shall be correspondingly lower.

I, Arthur L. Coe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on August 11, 1994.

A handwritten signature in dark ink, appearing to read 'Arthur L. Coe', is written over a horizontal line.

Arthur L. Coe
Executive Officer



Southern California Edison

SAN ONOFRE

UNIT 2

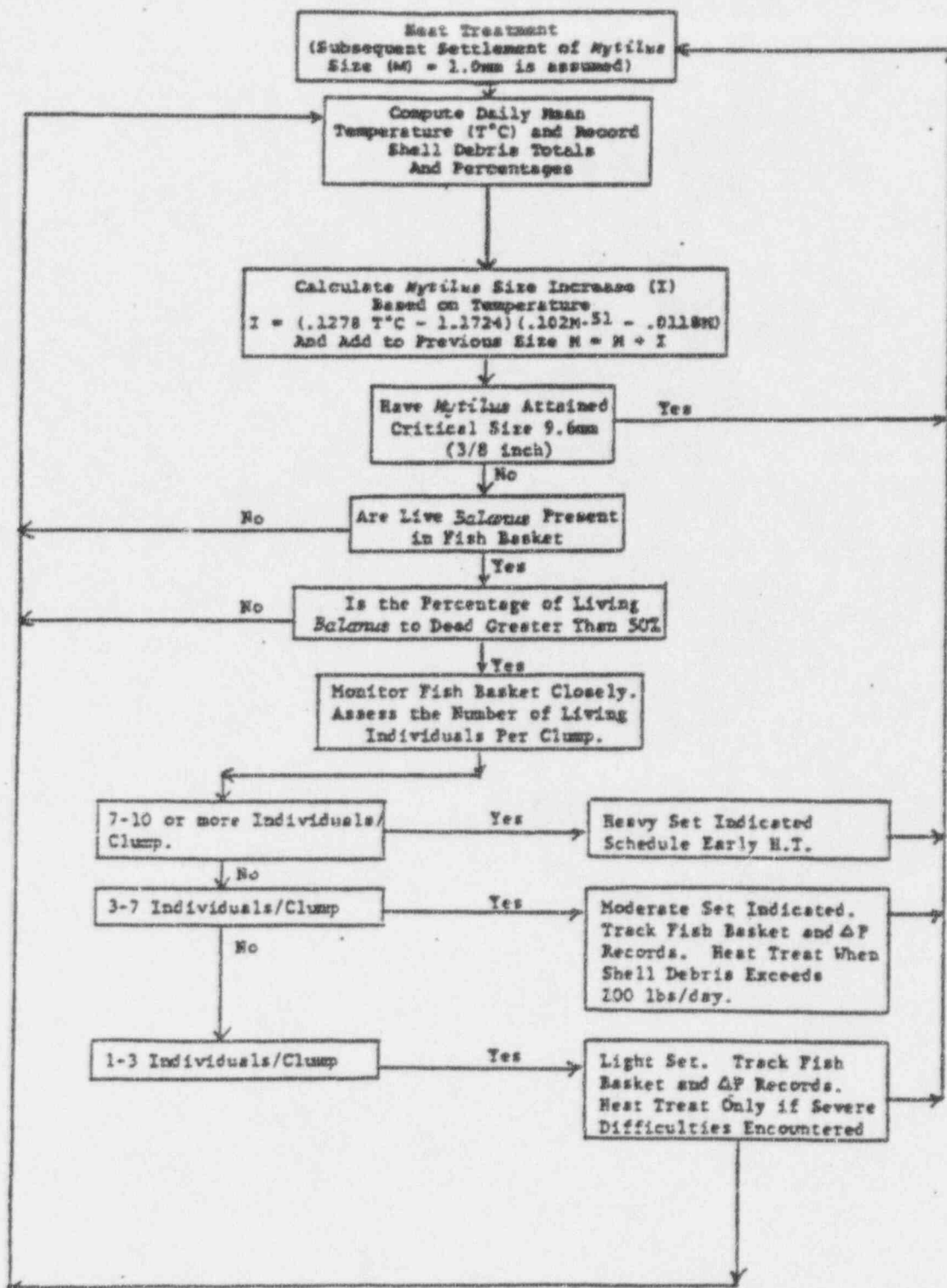
UPDATE 10/27/93

INTERMITTENT OR SEASONAL DISCHARGES

OUTFALL NUMBER (list)	2. OPERATION(s) CONTRIBUTING FLOW (/s)	FREQUENCY		a. FLOW RATE		b. TOTAL VOLUME (specify w/units)		c. Duration (In days)
		a. DAYS PER WEEK (SPECIFY AVG)	b. MONTHS PER YEAR (SPECIFY AVG)	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
002	Screen Wash	7	12	5,000 gpm	5,000 gpm	0.9E6 gal	7.2E6 gal	Daily
	Blowdown Processing System	(See Note 1)	400 gpm	400 gpm	17,000 gal	68,000 gal		Note (1)
	Polishing Demineralizer Requirement	7	12	600 gpm	675 gpm	80,000 gal	400,000 gal	Daily
	Makeup Demin / Reverse Osmosis	7	12	2,550 gpm	2,600 gpm	100,000 gal	800,000 gal	Daily
	Radwaste System	7	12	140 gpm	300 gpm	5,000 gal	200,000 gal	Daily
	Building Sumps (3)	7	12	200 gpm	800 gpm	140,000 gal	400,000 gal	Daily
	Intake Structure Sumps	7	12	100 gpm	200 gpm	70,000 gal	144,000 gal	Daily
	Steam Generator Blowdown	7	12	300 gpm	500 gpm	200,000 gal	720,000 gal	Daily
	Condenser Overboard	7	12	500 gpm	5,000 gpm	180,000 gal	7.2E6 gal	Daily
	Auxboiler Blowdown	1	1	300 gpm	500 gpm	10,000 gal	15,000 gal	Daily
003	Same as above listing for 002							
004	Fish Handling System	7	12	30,000 gpm	30,000 gpm	18E6 gal	86.4E6 gal	Daily
005	Across the Beach (Seawall)	3	4	17,000 gpm	34,000 gpm	8.2E6 gal	48.9E6 gal	Daily

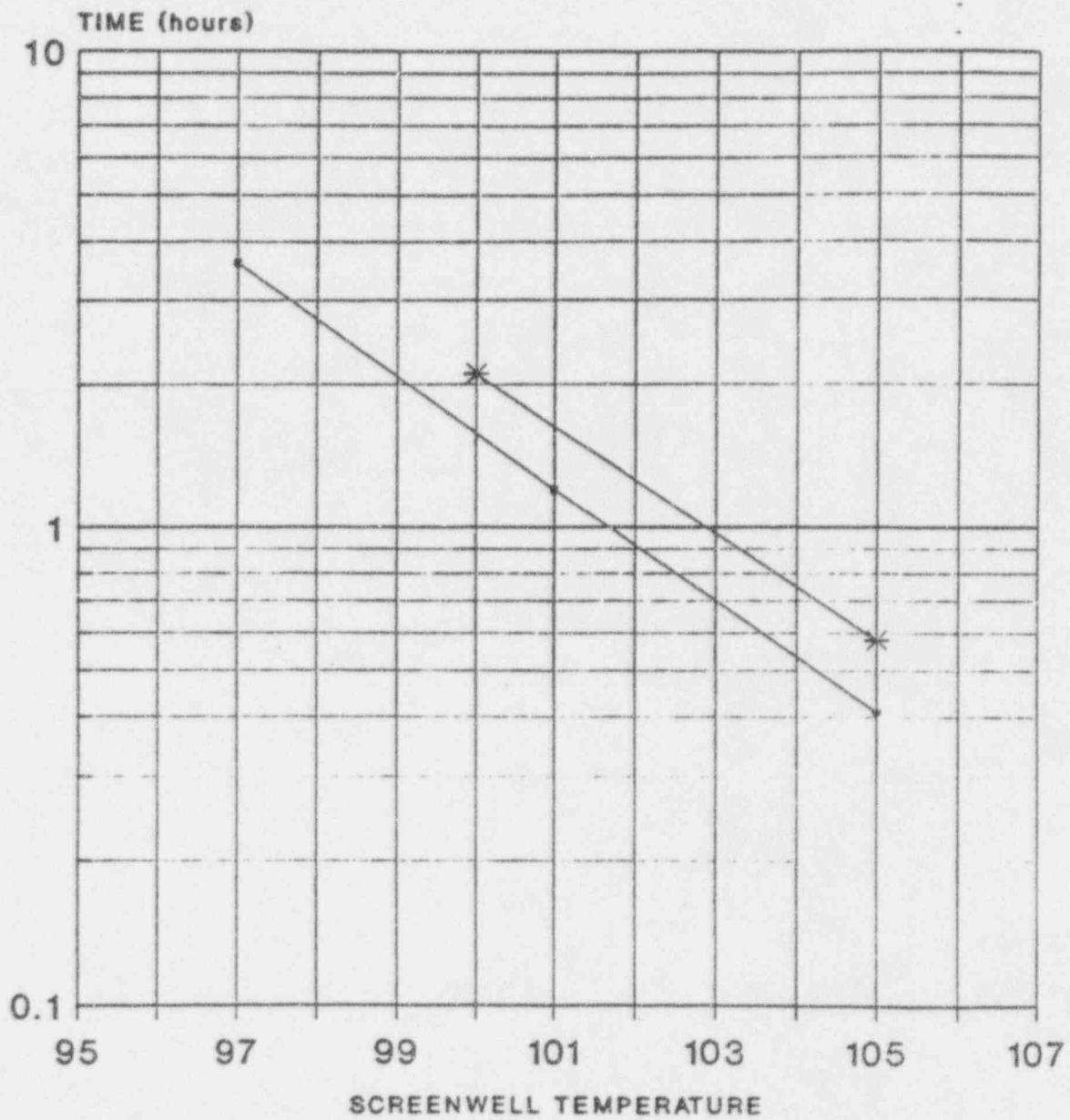
Notes

- (1) Average occurrence is once/45 days, maximum is 4 times/day.
- (2) Average occurrence is once/day, maximum is 4 times/day.
- (3) common to Units 1, 2 & 3



Daily heat treatment decision flow chart
for San Onofre Units 2 and 3

TIME-TEMPERATURE MORTALITY CURVE

Bay Mussel (*Mytilus Edulis*)

—•— Lab Data —*— Heat Treat Curve

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

NPDES NO. CA0108073

MONITORING AND REPORTING PROGRAM NO. 94-49
FOR
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2
SAN DIEGO COUNTY

A. MONITORING PROVISIONS

1. This monitoring plan may be modified to incorporate changes in frequency or types of analysis to be consistent with the Regional Monitoring Program which is currently under development.
2. 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 in this Order and, unless otherwise specified, before the effluent 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 Executive Officer.
3. Appropriate flow measurement devices and/or methods for calculating flowrates shall be consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. Any flow measuring device used 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 ± 5 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. "Guide to Methods and Standard for the Measurement of Water Flow," U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 97 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. 127, 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 Service (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 (GSA), Centralized Mailing Lists Services, Building 41, Denver Federal Center, Denver, CO 80225).
- 4. Monitoring must be conducted according to United State Environmental Protection Agency test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act" as amended, unless other test procedures have been specified in this Order.
 - 5. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Service or a laboratory approved by the Executive Officer.
 - 6. Monitoring results must be reported on discharge monitoring report forms approved the Executive Officer.
 - 7. If the discharger monitors any pollutants more frequently than required by this Order, using test procedures approved under 40 (CFR), Part 136, 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 discharger's monitoring report. The increased frequency of monitoring shall also be reported.
 - 8. 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. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved

litigation regarding this discharge of when requested by the Regional Board Executive Officer of the United States Environmental Protection Agency.

9. Record 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 analyses;
 - e. The analytical techniques of method used; and
 - f. The results of such analyses.
10. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Executive Officer or in this Order.
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, and 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.
13. The discharger shall report all instances of noncompliance not reported under Reporting Requirement F.5 of this Order at the time monitoring reports are submitted. The reports shall contain the information listed in Reporting Requirement F.5.
14. The monitoring reports shall be signed by an authorized person as required by Reporting Requirement No. F.10.
15. A composite sample is defined as a combination of at least sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. 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 of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

16. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.
17. Reports of marine monitoring surveys conducted to meet receiving water monitoring requirements of the "Monitoring and Reporting Program" 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.
18. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000. The detection method used for each analysis shall be reported with the results of the analysis.
19. Detection methods used for coliform analyses (total and fecal) shall be those presented in the most recent edition of Standard Methods for the Examination of Water and Wastewater or any improved method determined by the Regional Board, and approved by EPA, to be appropriate.

Detection methods used for enterococcus shall be those presented in EPA publication EPA 600/4-85/076, Test Methods for Escherichia coli and Enterococci in Water By Membrane

Filter Procedure or any improved method determined by the Executive Officer to be appropriate.

20. Acute Toxicity Testing

The presence of acute toxicity shall be determined as specified in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms (EPA 600/4-90-027, September, 1991 or subsequent editions). Beginning September, 1994, the permittee shall conduct monthly toxicity tests on a grab sample of the effluent. Samples shall be taken at the NPDES sampling location of the combined discharge. There is no mixing zone allowance for acute toxicity. The permittee shall conduct monthly 96 hour static-renewal tests with an invertebrate, Menidia beryllina. The effluent concentrations will be 100%, 75%, 50%, 25%, and 12.5% and a control. Note: When the State Water Resources Control Board approves the use of topsmelt, Atherinops affinis this species will replace the use of Menidia beryllina. The effluent tests must be conducted with concurrent reference toxicant tests. Both the reference toxicant and the effluent test must meet all test acceptability criteria as specified in the acute manual. If the test acceptability criteria is not achieved, then the permittee must re-sample and re-test within 14 days. The test results must be reported according to the acute manual chapter on Report Preparation, and shall be attached to the DMR.

Compliance with acute toxicity will be expressed as TUa, which equals 100/NOAEC. No Observable Adverse Effect Concentration (NOAEC) is the highest concentration at which survival is not significantly different from the control in a 96-hour renewal test.

21. Chronic Toxicity Testing

Beginning August, 1994, the permittee shall conduct monthly toxicity tests on 24-hour composite effluent samples. The grab samples shall be taken during a period of chlorination, and during a period when low volume wastes are being discharged. Samples shall be taken at the NPDES sampling location of the combined discharge. The permittee shall conduct monthly tests with an invertebrate, Haliotis rufescens (Marine Bioassay Project, Report # 90-10WQ), a plant Macrocystis pyrifera (Marine Bioassay Project, Report # 90-10WQ), and a vertebrate Menidia beryllina (EPA 600/4-87/028) for the first three months. Note: When the State Water Resources Control Board approves the use of topsmelt, Atherinops affinis this species will replace the use of Menidia beryllina. After this screening period, monitoring

may be conducted on the most sensitive species. Every year the permittee shall re-screen and if the same species is the most sensitive species, the discharger shall continue to monitor with the most sensitive species. 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 for Menidia beryllina. 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 permittee must re-sample and re-test within 14 days. The test results must be reported according to the chronic manual chapter on Report Preparation, and shall be attached to the DMR. It is also suggested that the permittee submit the data on an electronic disk as specified in "Suggested Standardized Reporting Requirements For Monitoring Chronic Toxicity" (SWRCB, August 1993).

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. The chronic toxicity limitation is: 1) a monthly median expressed as 10 TUC or 2) any one test that demonstrates a 50% toxic effect.

22. Toxicity Provisions

a) Alternative Protocols

The permittee may propose to the Regional Board Executive Officer in writing that compliance with the acute toxicity limit be based on the mortality data from the chronic tests data.

b) Implementation of the Acute and Chronic Limits

The permittee must submit to the Regional Board Executive Officer a copy of the permittee's Toxicity Reduction Evaluation (TRE) workplan within 90 days of issuance of this permit.

Whenever the acute or chronic toxicity effluent limitation as defined has been exceeded, the Permittee shall, within (15) days:

- (i) In accordance with EPA manuals EPA/600/2-88/070, (TRE protocol for industrials) or any subsequent

revisions, the discharger shall conduct a toxicity reduction evaluation (TRE) where appropriate; and

- (ii) In accordance with EPA acute and chronic TIE manuals EPA/600/6-91/003F (Phase I), EPA/600/R-92/080 (Phase II), EPA/600/R-92/081 (Phase III), and the Phase I draft manual for marine testing, the discharger shall conduct a toxicity identification reduction (TIE) within (15) days of the exceedance to identify the cause(s) of the toxicity;
- (iii) Notify the State agency within (5) days of becoming aware of the exceedance:
 - (1) times and dates when the limitation was exceeded;
 - (2) the finding of the TIE or other investigation to identify the cause(s) of the toxicity;
 - (3) the actions the permittee has taken or will take to mitigate the impact of the discharge, to correct the noncompliance and prevent the recurrence of toxicity; and
 - (4) where corrective actions including TRE or TIE, have not been completed, expeditious schedule under which the corrective actions will be implemented.

d) Toxicity Reopener

This permit may be modified in accordance with the requirements set forth at 40 CFR Part 122 and 124, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new state water quality standards applicable to effluent toxicity.

- 23. The monitoring program for a discharger with discharge requirements shall:
 - a) Determine compliance with the terms and conditions of Order No. 94-49.
 - b) Determine that the applicable State and federal water quality standards are met.
- 24. Revisions of the monitoring program by the Regional Board staff are appropriate to ensure that the discharger is in compliance with requirements and provisions contained in this order. Revisions may be made by the Executive Officer

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.

25. 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. The discharger should have a success rate equal to or greater than 80 percent.

B. FISH ENTRAINMENT MONITORING

1. Monitoring

During heat treatments and for at least one continuous 24-hour period per month 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^{1/} removed from the traveling bar racks and screens.

2. Reporting

- (a) A report containing detailed analyses of the previous year's fish entrainment monitoring data shall be submitted by July 30 of each year.
- (b) The annual report requirement in Section J of this monitoring and reporting program will not apply to Fish Entrainment Monitoring.

C. COOLING WATER INTAKE MONITORING

Samples of the cooling water intake shall be collected in accordance with the following criteria:

Parameter	Units	Sample Type ^{2/}	Minimum Frequency of Analysis
Flow	MGD	--	Continuous
Turbidity	NTU	Grab	Monthly*
Temperature ^{3/}	°F	--	Continuous
pH ^{4/}	pH units	Grab	Monthly

- * Turbidity may be measured more frequently during the first year, based on the outcome of the study design as discussed in Finding No. 58 of the Order. After the first year, turbidity shall be measured monthly.

D. COMBINED DISCHARGE^{5/} MONITORING

Samples of the combined discharge shall be collected in accordance with the following criteria:

Parameter	Units	Type of Sample ^{2/}	Minimum Frequency
Flow	MGD	--	Continuous
Turbidity	NTU	Grab	Daily*
Temperature ^{12/}	°F	--	Continuous
pH ^{4/}	pH units	Grab	Monthly
Arsenic	ug/L	Grab	Semiannually
Cadmium	ug/L	Grab	Semiannually
Chromium (Hexavalent) ^{6/}	ug/L	Grab	Semiannually
Copper	ug/L	Grab	Semiannually
Lead	ug/L	Grab	Semiannually
Mercury	ug/L	Grab	Semiannually
Nickel	ug/L	Grab	Semiannually
Selenium	ug/L	Grab	Semiannually
Silver	ug/L	Grab	Semiannually
Zinc	ug/L	Grab	Semiannually

MONITORING AND REPORTING
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-10-

Parameter	Units	Type of Sample ^{2/}	Minimum Frequency
Cyanide	ug/L	Grab	Semiannually
Total Chlorine Residual ^{7/}	ug/L	Grab	Semiannually
Ammonia (expressed as nitrogen)	ug/L	Grab	Semiannually
Phenolic Compounds (non-chlorinated)	ug/L	Grab	Semiannually
Chlorinated Phenolics	ug/L	Grab	Semiannually
Endosulfan	ug/L	Grab	Semiannually
Endrin	ug/L	Grab	Semiannually
HCH ^{8/}	ug/L	Grab	Semiannually
Acute Toxicity ^{9/}	TUa	Grab	Monthly+
Chronic Toxicity ^{9/}	TUc	Composite	Monthly+

- * Turbidity may be measured more frequently during the first year, based on the outcome of the study design as discussed in Finding No. 58 of the Order. After the first year, turbidity shall be measured monthly.
- + The Regional Water Board and EPA may consider a reduction in the frequency of acute and chronic toxicity testing after reviewing the first year of monthly test results.

E. IN-PLANT WASTE STREAMS^{10/} MONITORING

The following shall constitute the in-plant waste streams monitoring program for the purposes of monitoring discharge conformance with discharge specification B-18.^{11/}

Parameter	Units	Type of Sample	Minimum Frequency
Flow	MGD	--	Continuous
Acute toxicity	TUa	Grab	+
Chronic toxicity	TUc	Composite	+

Parameter	Units	Type of Sample	Minimum Frequency
Arsenic	ug/L	Grab	Semiannually
Cadmium	ug/L	Grab	Semiannually
Chromium (hexavalent)	ug/L	Grab	Semiannually
Copper	ug/L	Grab	Semiannually
Lead	ug/L	Grab	Semiannually
Mercury	ug/L	Grab	Semiannually
Nickel	ug/L	Grab	Semiannually
Selenium	ug/L	Grab	Semiannually
Silver	ug/L	Grab	Semiannually
Zinc	ug/L	Grab	Semiannually
Cyanide	ug/L	Grab	Semiannually
Total Chlorine Residual	ug/L	Grab	Semiannually
Ammonia (expressed as nitrogen)	ug/L	Grab	Semiannually
Phenolic Compounds (non-chlorinated)	ug/L	Grab	Semiannually*
Chlorinated Phenolics	ug/L	Grab	Semiannually*
Endosulfan	ng/L	Grab	Semiannually*
Endrin	ng/L	Grab	Semiannually*
HCH	ng/L	Grab	Semiannually*
Acrolein	ug/L	Grab	Semiannually*
Antimony	ug/L	Grab	Semiannually*
Bis(2-chloroethoxy) methane	ug/L	Grab	Semiannually*
Bis(2-chloroisopropyl) ether	ug/L	Grab	Semiannually*
Chlorobenzene	ug/L	Grab	Semiannually*
Chromium (III)	ug/L	Grab	Semiannually*
di-n-butyl phthalate	ug/L	Grab	Semiannually*
Dichlorobenzenes	ug/L	Grab	Semiannually*

Parameter	Units	Type of Sample	Minimum Frequency
1,1-dichloroethylene	ug/L	Grab	Semiannually*
Diethyl phthalate	ug/L	Grab	Semiannually*
Dimethyl phthalate	ug/L	Grab	Semiannually*
4,6-dinitro-2-methylphenol	ug/L	Grab	Semiannually*
2,4-dinitrophenol	ug/L	Grab	Semiannually*
Ethylbenzene	ug/L	Grab	Semiannually*
Fluoranthene	ug/L	Grab	Semiannually*
Hexachlorocyclopentadiene	ug/L	Grab	Semiannually*
Isophorone	ug/L	Grab	Semiannually*
Nitrobenzene	ug/L	Grab	Semiannually*
Thallium	ug/L	Grab	Semiannually*
Toluene	ug/L	Grab	Semiannually*
1,1,2,2-tetrachloroethane	ug/L	Grab	Semiannually*
Tributyltin	ug/L	Grab	Semiannually*
1,1,1-trichloroethane	ug/L	Grab	Semiannually*
1,1,2-trichloroethane	ug/L	Grab	Semiannually*
Acrylonitrile	ug/L	Grab	Semiannually*
Aldrin	ug/L	Grab	Semiannually*
Benzene	ug/L	Grab	Semiannually*
Benzidine	ug/L	Grab	Semiannually*
Beryllium	ug/L	Grab	Semiannually*
Bis(2-chloroethyl) ether	ug/L	Grab	Semiannually*
Bis(2-ethylhexyl) phthalate	ug/L	Grab	Semiannually*
Carbon Tetrachloride	ug/L	Grab	Semiannually*
Chlordane	ug/L	Grab	Semiannually*
Chloroform	ug/L	Grab	Semiannually*

Parameter	Units	Type of Sample	Minimum Frequency
DDT	ug/L	Grab	Semiannually*
1,4-dichlorobenzene	ug/L	Grab	Semiannually*
3,3-dichlorobenzidine	ug/L	Grab	Semiannually*
1,2-dichloroethane	ug/L	Grab	Semiannually*
Dichloromethane	ug/L	Grab	Semiannually*
1,3-dichloropropene	ug/L	Grab	Semiannually*
Dieldrin	ug/L	Grab	Semiannually*
2,4-dinitrotoluene	ug/L	Grab	Semiannually*
1,2-diphenylhydrazine	ug/L	Grab	Semiannually*
Halomethanes	ug/L	Grab	Semiannually*
Heptachlor	ug/L	Grab	Semiannually*
Hexachlorobenzene	ug/L	Grab	Semiannually*
Hexachlorobutadiene	ug/L	Grab	Semiannually*
Hexachloroethane	ug/L	Grab	Semiannually*
N-nitrosodimethylamine	ug/L	Grab	Semiannually*
N-nitrododiphenylamine	ug/L	Grab	Semiannually*
PAHs	ug/L	Grab	Semiannually*
PCBs	ug/L	Grab	Semiannually*
Tetrachlorethylene	ug/L	Grab	Semiannually*
Toxaphene	ug/L	Grab	Semiannually*
Trichloroethylene	ug/L	Grab	Semiannually*
2,4,6-trichlorophenol	ug/L	Grab	Semiannually*
Vinyl chloride	ug/L	Grab	Semiannually*

- * Each pollutant shall be analyzed during the first two years of the permit for a total number of three samples. For pollutant(s) which are not detected in the waste stream in the three samples along with a statement certifying that the pollutant(s) was not added to the waste stream during the reporting period

that pollutant(s). The permittee shall conduct one sample of the pollutant(s) before renewal of the next application.

- + Acute or chronic toxicity shall be conducted if the combined monitoring for acute or chronic toxicity demonstrates a toxic response.

F. LOW VOLUME WASTES MONITORING

The following shall constitute the low volume wastes monitoring program for each low volume waste stream.

Parameter	Units	Sample Type	Minimum Reporting Frequency
Flow	MGD	--	Monthly
Total Suspended Solids	mg/L	Grab	Monthly
Grease and Oil	mg/L	Grab	Monthly

G. FISH HANDLING SYSTEM MONITORING

As required for evaluating the studies in Finding No. 18 the discharger shall submit reports describing the operation of the fish handling systems for Units 2 and 3. The Executive Officer may request additional monitoring after review of the reports and consultation with representatives of the State Department of Fish and Game.

H. RECEIVING WATER MONITORING

Receiving water monitoring shall be conducted as specified below. Station location, sampling, sample preservation and analysis, when not specified, shall be by methods described in the discharger's previous annual reports (Marine Environmental Analysis and Interpretation, San Onofre Nuclear Generating Station, 1990, 1991 and 1992 Annual Reports) submitted to the Regional Board. A summary of the monitoring program is presented in Table 1, and station locations for the various study elements are shown in Figures 1A through 1D.

The following study elements shall represent the receiving water monitoring program.

1. Continuous Temperature Monitoring

Continuously recording thermographs will be employed at three stations (Figure 1A). 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 system.

3. Fish Populations

Quarterly trawling surveys will be conducted at three stations (Figure 1B) located offshore of San Mateo Point, SONGS and Don Light. Daylight sampling by otter trawl will be accomplished 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

Individual giant kelp plants and the number of associated stipes greater than 2 m will be counted tri-annually at six fixed sampling sites located in the San Onofre Kelp (Figure 1C). The composition of the substrate will be qualitatively described. Additional substrate and percent cover information will be collected.

A random sampling of the 100 m² will be conducted semi-annually to enumerate giant kelp, and a qualitative estimate of percent sand, cobble and boulder made.

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 staff. (Verbal approval 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 areal 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.

5. Temperature Profiles

Temperature profiles from the surface to the bottom will be measured quarterly at 29 stations (Figure 1D).

6. Transmissometer Profiles

Surface to bottom profiles of light transmittance will be conducted quarterly from 29 stations (Figure 1D).

7. Water Quality Measurements

Water quality parameters, dissolved oxygen and hydrogen ion concentration, will be measured quarterly at the surface of ten stations (Figure 1D).

REPORTING

- (a) A report containing detailed analyses of the previous year's receiving water monitoring data shall be submitted by July 30 of each year.
- (b) The annual report requirement in Section I of this Monitoring and Reporting Program will not apply to Receiving Water Monitoring.

I. ANNUAL SUMMARY OF MONITORING DATA

By January 30 of each year, the discharger shall submit an annual report to the Executive Officer. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous 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.

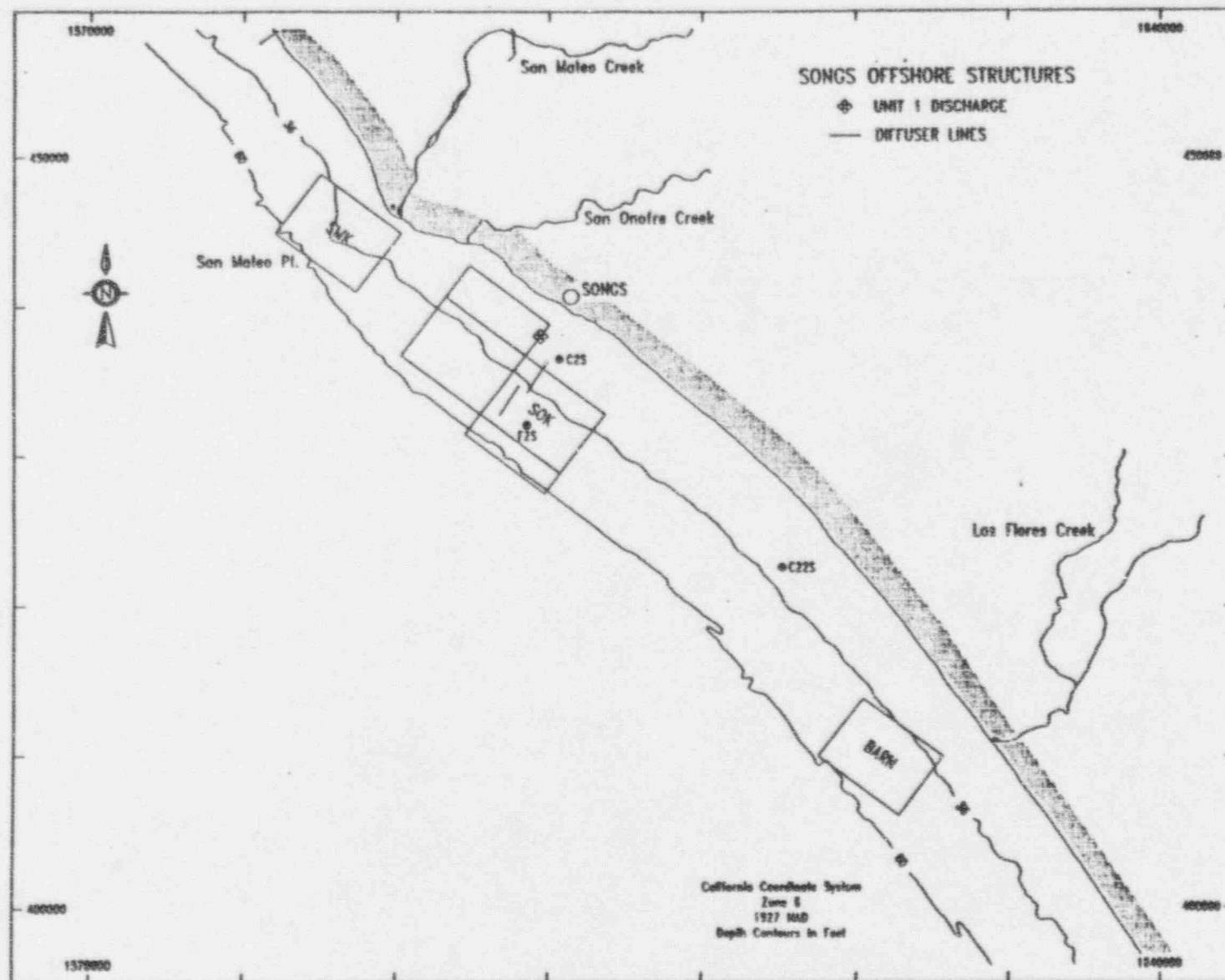
J. MONITORING REPORT SCHEDULE

Monitoring reports shall be submitted to the Executive Officer according to the dates in the following schedule:

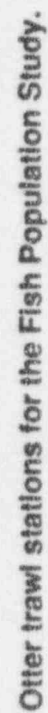
<u>Monitoring Frequency</u>	<u>Report Due</u>
Continuous, Daily, Weekly or Monthly	By the 30th of following month
Quarterly	January 30, April 30, July 30, October 30
Semiannually	January 30, July 30
Annually	January 30 (Effluent) July 30 (Receiving Water)

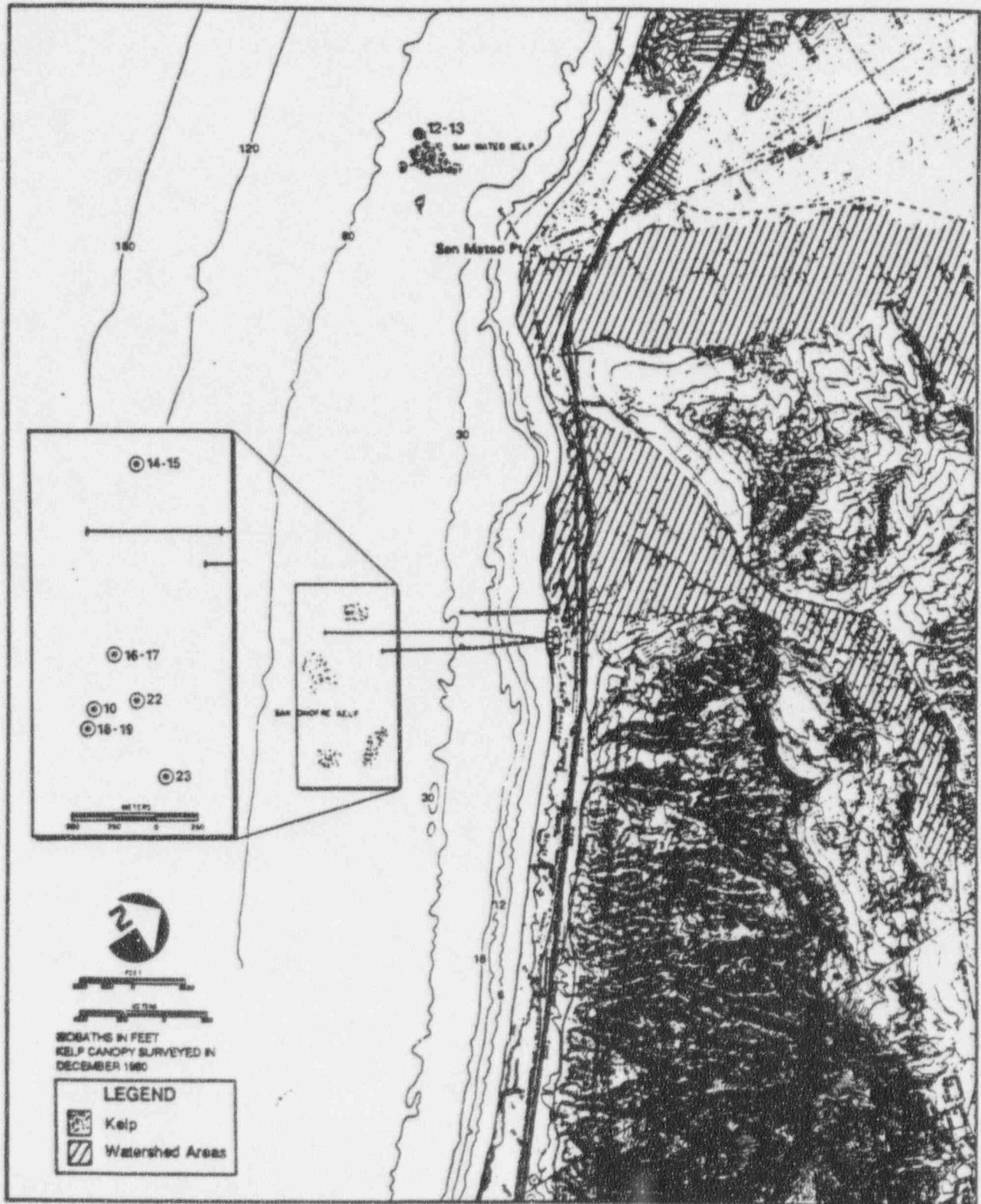
TABLE 1. SUMMARY OF NPDES RECEIVING WATER MONITORING PROGRAM

STUDY ELEMENT	STATION LOCATION	FREQUENCY	SAMPLE TYPE
<u>MONITORING</u>			
Continuous Temperature	C2S/F2S/C22S	Continuous	Remote
Turbidity	Units 2 and 3 Diffusers	Quarterly	Aerial Photos
Fish Populations	M, San Mateo; S, San Onofre; D, Don Light	Quarterly	Trawl
<u>SPECIAL STUDIES</u>			
Temperature Profiles*	F20N/J8N/J4N J2N/JO/J2S/ J4S/J8S/M8N/ M4N/M2N/MO/ M2S/M4S/M8S/ F2N/F2S/F22S/ F24S/F26S/H2N/ HO/H2S	Quarterly	Grab
Transmissometer Profiles*	See Temp Location	Quarterly	Grab
Water Quality, pH and DO*	J2S/J2N/J4S/F22S	Quarterly	Grab
<u>REPORTING</u>	N/A	Annual	

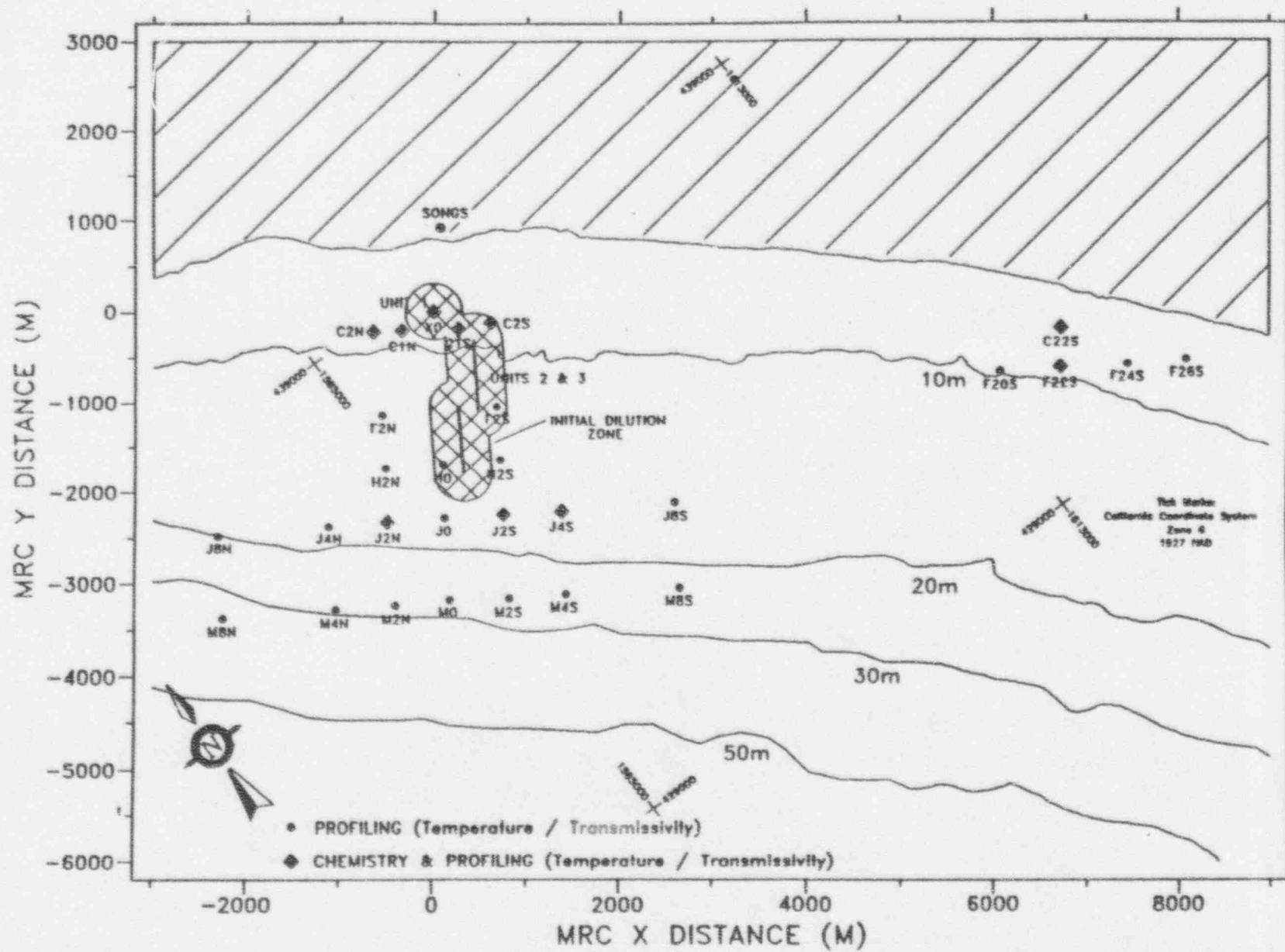


Locations of continuous temperature monitoring stations C2S, F2S, and C22S offshore of San Onofre.





Location of sampling stations for Kelp Density Study in San Onofre and San Mateo Kelp Forests.



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

Endnote references for Monitoring and Reporting Program No. 94-49 (NPDES NO. CA0108073), SOUTHERN CALIFORNIA EDISON COMPANY, SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2, SAN DIEGO COUNTY.

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 individual shall be 50.
2. A grab sample is defined as an individual sample of at least 100 milliliters collected over a period not exceeding 15 minutes. Grab samples shall be collected at times when wastewater flows and characteristics are most demanding on the treatment facilities.
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.
4. Samples shall be collected and analyzed for pH during chlorination/bromination.
5. 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 waste steams, enter the circulating water stream. Combined discharge samples shall be collected immediately following collection of cooling water intake samples.
6. The discharger may at their option meet this limitation as a total chromium limitation.
7. 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.

8. HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

9. Toxicity concentration shall be measured in the following manner.

a. Acute Toxicity (TUa)

$$TUa = 100/96\text{-hr LC } 50\%$$

Compliance with acute toxicity will be expressed as TUa, which equals 100/NOAEC. No Observable Adverse Effect Concentration (NOAEC) is the highest concentration at which survival is not significantly different from the control in a 96-hour static renewal test.

b. Chronic Toxicity Testing

$$TUC = 100/NOEC$$

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. The chronic toxicity limitation is: 1) a monthly median of 1.0 TUC, or 2) any one test result with greater than a 50% toxic effect.

9. Copies of all SCE reports to the Nuclear Regulatory Commission pertaining to monitoring of radioactive waste disposal shall be transmitted to the Regional Board.

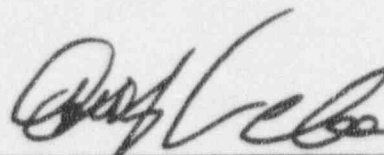
10. For the purpose of monitoring, the following shall be considered sources of in-plant waste streams:

- a. seawater pumps bearing flush water
- b. storm drains
- c. screen wash
- d. domestic wastewater treatment plants
- e. low volume wastes (as listed in Finding No. 31 of the Order)

11. Grab samples of individual in-plant waste streams shall be collected and composited on a flow-weighted basis for analysis. Measurements or estimates of flows of individual in-plant waste streams used as a basis for compositing shall be reported.

12. The daily average temperature, based on an average of temperature readings over a 24-hour period, shall be reported. The daily average difference (ΔT) between the intake and discharge temperatures shall also be reported.

Ordered by



Arthur L. Coe
Executive Officer

Date Ordered: August 11, 1994