STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 94-131
NPDES NO. CA0001180

WASTE DISCHARGE REQUIREMENTS FOR SOUTHERN CALIFORNIA EDISON COMPANY (Mandalay Generating Station)

The California Regional Water Quality Control Board, Los Angeles Region, (Regional Board) finds:

1. Southern California Edison Company (Discharger) discharges wastes from the Mandalay Generating Station under waste discharge requirements contained in Order No. 90-031, adopted by this Regional Board on February 26, 1990. This Order serves as the National Pollutant Discharge Elimination System (NPDES) permit (CA0001180).

2. The Discharger has filed a Report of Waste Discharge and has applied for renewal of its waste discharge requirements and NPDES permit.

3. The Discharger operates the Mandalay Generating Station, a plant with a design capacity of 560 megawatts, at 393 North Harbor Boulevard, Oxnard, California, and discharges up to 255.3 million gallons per day (mgd) of wastes consisting of once-through cooling water from two steam electric generating units (four condenser halves), metal cleaning wastes, and low volume wastes into the Pacific Ocean at Mandalay Beach in Mandalay, a water of the United States. The wastes are discharged through a concrete and rock-revetted structure (Discharge Serial No. 001) located at a point directly across the beach, west of the plant (Latitude: 34° 12' 23"; Longitude: 119° 15' 09").

   The cooling water intake structure is located east of the plant at the shoreline (Discharge Serial No. 002 during heat treatment as described below) and draws water from the surface to a depth of 8 feet via a canal originating in the Channel Islands Harbor.

   Figure 1 shows the location map of the facility.

4. The Discharger sprays algicide to the Mandalay intake canal periodically during the spring and summer months to control undesirable algal growth which would otherwise clog the intake

screens and impede the pumping of cooling water through the generating station. No adverse water quality impacts have been observed due to algicide applications in the past three years.

5. The chemical metal cleaning wastes are collected to the chemical cleaning retention basin and pretreated through a contractor-owned mobile lime treatment unit. The preteated chemical metal cleaning wastes, non-chemical metal cleaning wastes, and low volume wastes are then stored in two settling basins before discharge to the Pacific Ocean through the outfall. Residues in the basins and from pretreatment are periodically hauled away to legal disposal sites.

   Figure 2 shows the Schematic Diagram of the Wastewater Flow.

6. The Discharger controls marine fouling of the cooling water conduits (intake and discharge) by temporarily recirculating (thus increasing the temperature) and reversing the flow of the once-through cooling water alternately in each offshore conduit (i.e., the discharge point becomes the intake point, and the intake point becomes the discharge point). This procedure (referred to as "heat treatment") is typically conducted every five (5) weeks and lasts for about two (2) hours per conduit.

7. Calcareous shell debris accumulates in the intake structure as a result of heat treatments. Approximately once a year, this shell debris is physically removed and disposed of into the ocean.

8. To control biological growth (defouling), the condenser tubes (arranged in banks of two per generating station, each bank called condenser half) are treated by intermittently injecting chlorine (in the form of sodium hypochlorite), for a maximum of two (2) hours per generating unit per day, into the cooling water stream.

9. The wastes characteristics are as follows:

Temperature in °F during:	Winter (Oct. - April)	Summer (May - Sept.)	Heat Treatment
Maximum	89	104	125

Total Maximum Flow: 255.3 mgd

14. On October 22, 1990, the Regional Board adopted a revised Water Quality Control Plan for the Santa Clara River Basin (Basin Plan 4A). The Water Quality Control Plan incorporates by reference State Board's water quality control plans for Ocean waters. The Basin Plan also identifies water quality objectives and beneficial uses for the Pacific Ocean.

15. The beneficial uses of the Pacific Ocean are as follows:

    Nearshore Zone (Bounded by the shoreline and a line 1,000 feet from the shoreline or the 30-foot depth contour, whichever is farther from shore): Industrial service supply, navigation, water contact and non-water-contact recreation, ocean commercial and sport fishing, preservation of areas of special biological significance, preservation of rare and endangered species, marine habitat, shellfish harvesting, and fish spawning.

    Offshore Zone: Industrial service supply, navigation, water-contact and non-water-contact recreation, ocean commercial and sport fishing, preservation of rare and endangered species, marine habitat, and shellfish harvesting.

16. Pursuant to Section 402(p) of the Clean Water Act and 40 CFR Parts 122, 123, and 124, the State Board adopted a general NPDES permit to regulate stormwater discharges associated with industrial activity (State Board Order No. 91-13-DWQ adopted in November 1991, amended by Order No. 92-12-DWQ adopted in September 1992). Stormwater discharges from power plants are subject to requirements under this general permit.

17. Effluent limitations and guidelines, national standards of performance, and toxic effluent standards established pursuant to Sections 208, 301, 302, 303, 304, 306, 307, and 316 of the Federal Clean Water Act, and amendments thereto, are applicable to the discharge.

18. In compliance with the Thermal Plan and in accordance with Regional Board specifications, the Discharger conducted a thermal effects study. The study demonstrated that waste discharges from the power plant are in compliance with the Thermal Plan and beneficial uses of the receiving waters are protected, as required by Section 316(a) of the Clean Water Act.

19. In accordance with Federal and State guidelines for Section 316(b) of the Clean Water Act, the Discharger conducted a study to determine whether the cooling water intake structures

are in compliance with regulations established pursuant to Section 316(b) of the Clean Water Act. The study adequately addressed the important ecological and engineering factors specified in the guidelines, demonstrated that the ecological impacts of the intake system are environmentally acceptable, and determined that no modification to the intake structure is required. The design, construction, and operation of the intake structure represents Best Available Technology as required by Section 316(b) of the Clean Water Act.

20. At times of peak demand during defouling treatment, residual chlorine levels in the once-through cooling water (up to 0.32 mg/l) have exceeded effluent limitations based on 40 CFR Part 423 guidelines (0.20 mg/l) and Ocean Plan objectives (0.084 mg/l). However, chlorination bioassay studies performed by the Discharger showed no significant adverse impact on the receiving waters as a result of the chlorine levels in the discharge.

    In September 1984, the Discharger submitted a request for variance from the effluent residual chlorine limitation based on Ocean Plan objectives (i.e. from 0.084 mg/l to 0.365 mg/l). The Regional Board and the State Board approved the variance request and forwarded it to the USEPA in August 1988 for concurrence, pursuant to Section 301(g) of the Clean Water Act. To date, the USEPA has not yet rendered its final decision on the request.

21. The requirements contained in this Order, as they are met, will be in conformance or in compliance with the goals of the aforementioned water quality control plans and statutes.

22. Effluent limitations based on Ocean Plan objectives were calculated using a minimum dilution ratio (i.e., parts sea water to one part effluent) of 2.6 to 1 for Discharge Serial No. 001, except for residual chlorine which is 5.2 to 1. These ratios were based on calculations made by the Discharger and approved by the State Board (transmitted to the Regional Board in a State Board memorandum dated February 4, 1985).

23. For toxic constituents regulated in the Ocean Plan (Table B) which the Discharger does not add into or produced in the treatment process and/or waste streams, no numerical limits are prescribed. Also, no numerical limits are prescribed for toxic constituents which are added but usage has been determined that there is very low probability of causing or contributing to excursions in the water quality standards. However, a narrative limit to comply with all ocean Plan

objectives is provided.

24. Acute toxicity monitoring conducted over the past five years demonstrated consistent compliance with the Ocean Plan objectives. However, since the Ocean Plan objectives are not applicable to steam electric generating plants, no numerical limits are prescribed for acute toxicity.

25. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code in accordance with Water Code Section 13389.

The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations.

The Board, in a public hearing, heard and considered all comments pertaining to the discharge and to the tentative requirements. 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, and shall take effect at the end of ten days from the date of its adoption provided the Regional Administrator, USEPA, has no objections.

IT IS HEREBY ORDERED that Southern California Edison Company, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

I. DISCHARGE LIMITATIONS

A. EFFLUENT LIMITATIONS

1. Wastes discharged shall be limited to those described in the findings only, as proposed.

2. The temperature of waste discharged shall not exceed 106°F during normal operation of the facility. During heat treatment, the temperature of waste discharged shall not exceed 125°F except during adjustment of the recirculation gate at which time the temperature of wastes discharged shall not exceed 135°F. Temperature fluctuations during gate adjustment above 125°F shall not last for more than 30 minutes.

3. The pH of wastes discharged shall at all times be within the range of 6.0 to 9.0 pH units.

4. The wastes discharged from Discharge Serial No. 001 with constituents in excess of the following limits are prohibited:

		DISCHARGE LIMITATIONS[1]	
Constituent	Units	30-day Average	Daily Maximum
Arsenic	µg/l	21	107
Cadmium	µg/l	3.6	14.4
Chromium[2] (hexavalent)	µg/l	7.2	28.8
Copper	µg/l	5.6	38
Lead	µg/l	7.2	28.8
Mercury	µg/l	0.143	0.575
Nickel	µg/l	18	72
Selenium	µg/l	54	216
Silver	µg/l	2.1	9.66
Zinc	µg/l	51.2	267
Chronic toxicity[3]	TU_c	---	3.6
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, Section 30269, California Code of Regulations.		

[1] Concentration limits are based on Ocean Plan objectives using a dilution ratio of 2.6 parts of seawater to 1 part effluent. The daily mass emission limits (in lbs per day) shall be determined using the tabulated concentration limits and actual flow rate.

(Footnotes continued in the next page)

(Footnotes continued)

[2] The discharger has the option to meet the hexavalent chromium limitations with a total chromium analysis. However, if the total chromium level exceeds the hexavalent chromium limitation, it will be considered a violation unless an analysis has been made for hexavalent chromium in a replicate sample and the result show within the hexavalent chromium limits.

[3] Expressed as Chronic Toxicity Units (TU_c)

$TU_c = 100/NOEC$

where: NOEC (No Observed Effect Concentration) 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 adopted and effective on March 22, 1990, pages 22-23.

NOEC shall be determined based on toxicity tests having chronic endpoints.

5. The wastes discharged from Discharge Serial No. 001 with constituents in excess of the following concentration limits are prohibited:

		DISCHARGE LIMITATIONS[1]	
Constituent	Units	Daily Average	Daily Maximum
Total residual chlorine[2,3]	mg/l	---	0.365
Free Available chlorine	mg/l	0.2	0.5

[1] The daily mass emission limits (in lbs/day) shall be determined using the tabulated concentration limits and actual flow rate.

[2] Based on the State Board approved Ocean Plan Exception using a minimum initial dilution of 5.2. Total residual chlorine may not be discharged from any single generating unit for more than 10 minutes per condenser half per shift.

For chlorine discharges of up to 10 minutes, the daily maximum limit is 0.365 mg/l. For chlorine discharges exceeding 10 minutes, the applicable total residual chlorine limitations shall be that calculated using procedures outlined in Table B "Toxic Material Limitations" of the Ocean Plan.

[3] Chlorine shall not be discharged from any single generating unit for more than two hours per day. If other oxidants are used, this shall be the total oxidants reported as residual chlorine.

6. If the USEPA Administrator does not approve the Section 301(g) variance as discussed in Findings 20, the effluent limitations in A-5 are not applicable, and the following effluent limitation is applicable:

Constituent	Unit	Discharge Limitation[1] Daily Maximum
Total residual chlorine[2]	mg/l	0.2

[1] The daily mass emission limits (in lbs/day) shall be determined using the tabulated concentration limits and actual flow rate.

[2] Based on the State Board approved Ocean Plan Exception using a minimum initial dilution of 5.2. Total residual chlorine may not be discharged from any single generating unit for more than 10 minutes per condenser half per shift.

For chlorine discharges of up to 10 minutes, the daily maximum limit is 0.365 mg/l. For chlorine discharges exceeding 10 minutes, the applicable total residual chlorine limitations shall be that calculated using procedures outlined in Table B "Toxic Material Limitations" of the Ocean Plan.

7. Effluent Limitations for Inplant Waste Streams:

a. The discharge of metal cleaning wastes[1] with constituents in excess of the following limits is prohibited:

Constituents	Units	DISCHARGE LIMITATIONS[2] 30-day Average	Daily Maximum
Suspended solids	mg/l	30	100
Oil and grease	mg/l	15	20
Copper, total	mg/l	1.0	1.0
Iron, total	mg/l	1.0	1.0

[1] For the purpose of these limitations, metal cleaning wastes shall mean any wastewater resulting from chemical cleaning of any metal process equipment including, but not limited to, boiler tube, boiler fireside, and air preheaters.

[2] The daily mass emission limits (in lbs/day) shall be determined using the tabulated concentration limits and actual flow rate.

6. The wastes discharged shall not change the pH of the receiving waters at any time by more than 0.2 units from that which occurs naturally outside the zone of initial dilution.

7. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions as a result of wastes discharged.

8. The wastes discharged shall not increase the concentrations, in marine sediments of toxic substances listed in Table B of the Ocean Plan, to levels which would degrade indigenous biota.

9. The concentration of organic materials in marine sediments shall not be increased above that which would degrade marine life as result of wastes discharged.

10. The wastes discharged shall not cause objectionable aquatic growths or degrade indigenous biota.

11. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded as a result of wastes discharged.

12. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health as a result of wastes discharged.

13. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered as a result of wastes discharged.

14. The wastes discharged shall not cause objectionable odors to emanate from the receiving waters.

15. The wastes discharged shall not cause receiving waters to contain any substance in concentrations toxic to human, animal, plant, or fish life.

16. No physical evidence of wastes discharged shall be visible at any time in the water or on beaches, shores, rocks, or structures.

17. The salinity of the receiving waters shall not be changed by the wastes discharged to an extent such as to be harmful to marine biota.

18. The wastes discharged shall not contain individual pesticide or combination of pesticides in concentrations that adversely affect beneficial uses.

II. REQUIREMENTS AND PROVISIONS

A. The discharger must develop and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with Attachment A (Storm Water Pollution Prevention Plan) within 120 days of the effective date of this Order. An existing SWPPP which complies with the requirements in Attachment A is acceptable.

B. The discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction; including applicable requirements in municipal storm water management programs developed to comply with NPDES permits issued by the Regional Water Board to local agencies.

C. The wastes discharged shall comply with all Ocean Plan objectives.

D. The Discharger shall comply with all applicable effluent limitations, national standards of performance, toxic effluent standards, and all federal regulations established pursuant to Sections 301, 302, 303(d), 304, 306, 307, 316, and 423 of the Federal Clean Water Act and amendments thereto.

E. The discharge of any product registered under the Federal Insecticide, Fungicide, and Rodenticide Act to any waste stream which may ultimately be released to waters of the United States is prohibited unless specifically authorized elsewhere in this permit. This requirement is not applicable to products used for lawn and agricultural purposes. Discharge of chlorine for disinfection in plant potable and service water systems and in sewage treatment is authorized.

F. The discharge of any waste resulting from the combustion of toxic or hazardous wastes to any waste stream which ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this permit.

G. There shall be no discharge of polychlorinated biphenyl compounds such as those once commonly used for transformer fluid.

H. The Discharger shall notify the Executive Officer in writing no later than six months prior to planned discharge of any chemical, other than chlorine or other product previously reported to the Executive Officer, which may be toxic to aquatic life. Such notification shall include:

1. Name and general composition of the chemical,
2. Frequency of use,
3. Quantities to be used,
4. Proposed discharge concentrations, and
5. USEPA registration number, if applicable.

No discharge of such chemical shall be made prior to the Executive Officer's approval.

I. The Regional Board and USEPA shall be notified immediately by telephone, of the presence of adverse conditions in the receiving waters or on beaches and shores as a result of wastes discharge; written confirmation shall follow as soon as possible but not later than five working days after occurrence.

J. This Order may be modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR Parts 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to: failure to comply with any condition of this order and permit, endangerment to human health or the environment resulting from the permitted activity; or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order adoption and issuance.

The filing of a request by the Discharger for an order and permit modification, revocation and issuance, or termination; or a notification of planned changes or anticipated noncompliances does not stay any condition of this order and permit.

K. This Order may also be modified, in accordance with the provisions set forth in 40 CFR Part 122 and 124, to include requirements for the implementation of the watershed protection management approach.

L. This Order includes the attached "Standard Provisions and General Monitoring and Reporting Requirements" ("Standard Provisions", Attachment B). If there is any conflict between provisions stated hereinbefore and said "Standard Provisions", those provisions stated hereinbefore prevail.

III. EXPIRATION DATE

This Order expires on November 10, 1999.

The Discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

IV. RESCISSION

Order No. 90-031, adopted by this Board on February 26, 1990, is hereby rescinded, except for enforcement purposes.

I, Robert P. Ghirelli, 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, Los Angeles Region on December 5, 1994.

Robert P. Ghirelli

ROBERT P. GHIRELLI, D.Env.
Executive Officer

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