

## STATE WATER RESOURCES CONTROL BOARD

ROOM 1015, RESOURCES BUILDING  
1416 NINTH STREET • SACRAMENTO 95814

Phone 445-3993



W. W. ADAMS, Chairman  
RONALD B. ROBIE, Vice Chairman  
E. F. DIBBLE, Member  
ROY E. DODSON, Member  
MRS. CARL H. (JEAN) AUER, Member  
BILL B. DENDY, Executive Officer

Regulatory

File Cy.

50-361

50-362

April 26, 1973

Southern California Edison Company  
Box 800  
Rosemead, CA 91770

Gentlemen:

The Certificate of Conformance with water quality standards which you requested February 14, 1972, is enclosed. This certificate is to accompany your request for permits from the Department of the Army, Corps of Engineers, and the Atomic Energy Commission to construct Units Nos. 2 and 3 at the San Onofre Generating Station.

Sincerely,

*R. L. Rosenberger*

for Paul R. Bonderson  
Chief  
Division of Water Quality

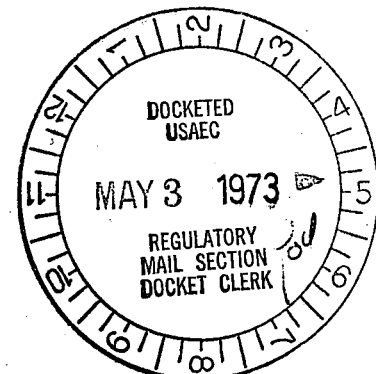
Enclosure

cc: Mr. Paul DeFalco  
Regional Administrator  
Region IX  
Environmental Protection Agency  
100 California Street  
San Francisco, CA 94111

CRWQCB, San Diego Region  
6154 Mission Gorge Road, Suite 205  
San Diego, CA 92120

USCE, Los Angeles  
District Office  
P.O. Box 2711  
Los Angeles, CA 90053

Atomic Energy Commission ✓



STATE OF CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD

} ss.

CERTIFICATE 10339  
APPLICATION \_\_\_\_\_  
PERMIT \_\_\_\_\_  
LICENSE \_\_\_\_\_

I, E. L. Klusman, having custody  
of the files and records of the State Water Resources Control Board, State of  
California, do hereby certify that the attached Certificate No. 72-28,  
Southern California Edison Company, Construction of Units 2  
& 3 at the San Onofre Generating Station dated 4/30/73  
is a true copy of the original on file in this office.

WITNESS my hand and the seal of the State Water Resources Control Board,  
State of California, this 30th day of April, 1973.

E. L. Klusman  
Title Administrative Service Officer

STATE OF CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD

CERTIFICATE NO. 72-28  
(Section 401, Federal Water Pollution  
Control Act, as Amended)

APPLICANT: Southern California Edison Company  
ADDRESS: 2244 Walnut Grove Avenue, Box 800, Rosemead, CA 91770  
ACTIVITY: Construction of Units 2 & 3 at the San Onofre  
Generating Station

FEDERAL AGENCIES REQUIRING CERTIFICATION:

Department of the Army, Corps of Engineers  
Atomic Energy Commission

1. The activity is subject to waste discharge requirements prescribed by the California Regional Water Quality Control Board, San Diego Region, in Order No. 72-26 and 72-26, Addendum 1, copies of which are attached.
2. Notice of the request for certification and of the waste discharge requirements was published in the San Diego Union, the Santa Ana Register, and the Los Angeles Times on March 20, March 21, and March 22, 1972 and was mailed to the State Water Resources Control Board, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the Bureau of Sport Fisheries and Wildlife, and the California Department of Fish and Game. The notice gave interested persons an opportunity to comment on the waste discharge requirements and on the water quality aspects of the activity.
3. Copies of all comments received are attached.
4. This certificate is based upon an evaluation of the information contained in such application which is relevant to water quality considerations and information in the files of the State Water Resources Control Board and Regional Water Quality Control Board, including the aforesaid waste discharge requirements, and on the comments received.
5. This certificate is subject to the provision that the studies required by State Board Order No. 73-5 meet with Regional Board approval.
6. This activity is one for which there is not an applicable effluent limitation or other limitation under Sections 301(b) and 302, and there is not an applicable standard under Sections 306 and 307 of the Federal Water Pollution Control Act, as amended and included in this certification are any appropriate requirements pursuant to state law.

April 30, 1973  
Date

Bill B. Dandy  
Bill B. Dandy  
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION

ORDER NO. 72 - 26

WASTE DISCHARGE REQUIREMENTS  
FOR COOLING WATER DISCHARGE FROM  
SAN ONOFRE NUCLEAR GENERATING STATION  
UNITS NO. 2 AND NO. 3  
INTO THE PACIFIC OCEAN

THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, FINDS THAT:

1. THE SOUTHERN CALIFORNIA EDISON COMPANY AND THE SAN DIEGO GAS & ELECTRIC COMPANY SUBMITTED A REPORT OF WASTE DISCHARGE WITH RESPECT TO THE CIRCULATING COOLING WATER DISCHARGE FROM UNITS NO. 2 AND NO. 3 OF THE SAN ONOFRE NUCLEAR GENERATING STATION ON SEPTEMBER 10, 1970.
2. ON JANUARY 7, 1971, THE STATE WATER RESOURCES CONTROL BOARD ADOPTED A THERMAL WASTE CONTROL POLICY, WHICH WAS REVISED OCTOBER 13, 1971. ON MAY 18, 1972, THIS POLICY WAS AMENDED INTO THE "WATER QUALITY CONTROL PLAN FOR CONTROL OF TEMPERATURE IN THE COASTAL AND INTERSTATE WATERS AND ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA."
3. ON FEBRUARY 14, 1972, A REVISED REPORT OF WASTE DISCHARGE WAS SUBMITTED CHANGING THE POINT OF THE PROPOSED DISCHARGE TO REFLECT THE LENGTHENING OF THE DISCHARGE LINES AND INCLUSION OF DIFFUSERS.
4. ON JULY 6, 1972, THE STATE WATER RESOURCES CONTROL BOARD ADOPTED THE "WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA."
5. LIQUID WASTES PROPOSED TO BE DISPOSED OF THROUGH THE CONDENSER COOLING DISCHARGE ARE AS FOLLOWS:
  - (A) COOLING WATER AT A RATE OF 830,000 GALLONS PER MINUTE (GPM) FROM EACH UNIT.
  - (B) SEAWATER EVAPORATION BRINE CONTAINING APPROXIMATELY 63,000 MILLIGRAMS PER LITER OF DISSOLVED SOLIDS AT A RATE OF 120 GPM FROM EACH UNIT.
  - (C) SANITARY WASTES AFTER PASSING THROUGH A SEPTIC TANK AT AN AVERAGE COMBINED RATE OF TWO GPM FOR BOTH UNITS FROM EITHER UNIT.

- (d) STEAM GENERATOR BLOWDOWN CONTAINING APPROXIMATELY 1000 MILLIGRAMS PER LITER OF TOTAL DISSOLVED SOLIDS, INCLUDING CORROSION INHIBITORS, AT VARYING RATES AND ON AN INTERMITTENT BASIS.

THE UTILITY COMPANY ESTIMATES THE MAXIMUM EQUIVALENT CONTINUOUS FLOW RATE TO BE 50 GPM FROM EACH UNIT UNDER NORMAL OPERATING CONDITIONS.

- (e) AUXILIARY EQUIPMENT OPERATION INCLUDING PUMP BEARING LUBRICATION CONTAINING LESS THAN 120 MILLIGRAMS PER LITER OF TOTAL DISSOLVED SOLIDS AT A MAXIMUM RATE ESTIMATED TO BE LESS THAN 125 GPM. OILY WASTE WATER WOULD BE COLLECTED IN SUMPS AND PROCESSED TO REMOVE OIL AND OTHER EXTRANEOUS MATTER PRIOR TO RELEASE.

6. REPRESENTATIVES OF THE DISCHARGER HAVE REPORTED THAT:

- (a) EVAPORATOR FEED WATER WOULD BE TREATED WITH ACID TO MAINTAIN PH 7.5.
- (b) INTAKE WATER WOULD BE TREATED WITH SODIUM HYPOCHLORITE FOR SHORT INTERVALS TOTALING APPROXIMATELY THREE HOURS PER DAY. THE CONCENTRATION AT THE POINT OF INJECTION WOULD BE APPROXIMATELY 3 MILLIGRAMS PER LITER.

7. COUNSEL FOR THE STATE WATER RESOURCES CONTROL BOARD HAS INFORMED THE REGIONAL BOARD THAT EXCLUSIVE REGULATORY AUTHORITY CONCERNING THE RADIOACTIVE DISCHARGES FROM NUCLEAR POWER PLANTS IS VESTED IN THE UNITED STATES ATOMIC ENERGY COMMISSION. CURRENT APPLICABLE REGULATIONS OF THE UNITED STATES ATOMIC ENERGY COMMISSION REQUIRE THAT HIGH-LEVEL LIQUID AND SOLID RADIOACTIVE WASTES BE REMOVED FROM THE SITE AND ALLOW FOR CONTROLLED DISCHARGE OF LOW-LEVEL RADIOACTIVE LIQUID WASTE, AFTER DECAY AND MONITORING, INTO THE COOLING WATER STREAM.

8. THE SAN ONOFRE NUCLEAR GENERATING STATION SITE IS ADJACENT TO THE PACIFIC OCEAN, APPROXIMATELY TWO AND ONE-HALF MILES SOUTH OF THE SAN DIEGO-ORANGE COUNTY BOUNDARY LINE. THE SITE OCCUPIES APPROXIMATELY 84 ACRES AND IS WITHIN THE CAMP JOSEPH H. PENDLETON MARINE CORPS BASE.

9. BEACH FRONT AND IMMEDIATELY ADJACENT LAND BEGINNING AT THE SOUTHERLY BOUNDARY OF THE GENERATING PLANT SITE AND EXTENDING MORE THAN TWO MILES SOUTHERLY IS NOW BEING DEVELOPED BY THE STATE OF CALIFORNIA, DEPARTMENT OF PARKS AND RECREATION AS SAN ONOFRE BEACH STATE PARK.

10. SAN ONOFRE NUCLEAR GENERATING STATION NO. 1 WHICH DISCHARGES APPROXIMATELY 350,000 GPM THROUGH A 12-FOOT DIAMETER PIPE 2600 FEET OFFSHORE, IS IN COMMERCIAL OPERATION AND IS REGULATED BY THE WASTE DISCHARGE REQUIREMENTS OF RESOLUTION 64-R25 OF THIS REGIONAL BOARD.
11. THE REGIONAL BOARD HAS BEEN INFORMED BY REPRESENTATIVES OF THE DISCHARGER THAT BASED UPON CURRENT PLANNING:
  - (A) UNITS NO. 2 AND NO. 3 WOULD EACH BE AN ESSENTIALLY INDEPENDENT AND COMPLETE NUCLEAR POWER PLANT PRODUCING 1140 MEGAWATTS (NET) OF ELECTRICAL POWER. EACH UNIT WOULD CONTAIN A NUCLEAR STEAM SUPPLY SYSTEM AND A TURBINE GENERATOR WITH A CIRCULATING COOLING WATER SYSTEM.
  - (B) CONDENSER COOLING WATER SYSTEMS WOULD BE DESIGNED FOR A NORMAL OPERATING FLOW OF 830,000 GPM. THE PROPOSED INTAKE AND DISCHARGE LINES OF UNIT NO. 2 ARE APPROXIMATELY 600 FEET SOUTHERLY OF UNIT NO. 1, AND THOSE OF UNIT NO. 3 AN ADDITIONAL 750 FEET SOUTHERLY.
  - (C) INTAKE LINES WOULD EXTEND APPROXIMATELY 3400 FEET SEAWARD AND TERMINATE IN INLET STRUCTURES. THE INLET STRUCTURE OPENINGS WOULD BE APPROXIMATELY TEN FEET ABOVE THE SEA FLOOR.
  - (D) THE DISCHARGE LINE FROM UNIT NO. 2 WOULD EXTEND 8500 FEET SEAWARD OF THE BEACH AND FOR UNIT NO. 3, APPROXIMATELY 6000 FEET SEAWARD. LINE LENGTH WOULD INCLUDE A 2500-FOOT-LONG MULTIPORT DIFFUSER SECTION AT THE SEAWARD END OF THE LINE. AVERAGE BOTTOM DEPTH AT THE DIFFUSER FOR UNIT NO. 2 IS -45 FEET MEAN LOWER LOW WATER (MLLW) AND UNDER THE UNIT NO. 3 DIFFUSER, -35 FEET MLLW.
  - (E) COOLING WATER TEMPERATURE WOULD BE INCREASED APPROXIMATELY 20° F IN PASSING THROUGH THE CONDENSER UNIT UNDER NORMAL OPERATING CONDITIONS. EVERY FIVE TO SIX WEEKS, A THERMAL SHOCKING PROGRAM TO CONTROL ENCRUSTING MARINE GROWTHS WITHIN THE COOLING WATER SYSTEM WOULD CAUSE THE WATER TEMPERATURE TO BE RAISED TO APPROXIMATELY 125° F FOR APPROXIMATELY TWO HOURS ALTERNATELY IN EACH CONDUIT. DURING THE PERIOD IN WHICH THE TEMPERATURE IS INCREASED, VOLUME WILL BE REDUCED APPROXIMATELY 60%.
  - (F) A LIVE FISH REMOVAL SYSTEM FOR EACH UNIT WOULD REQUIRE UP TO AN ADDITIONAL 30,000 GPM OF FLOW IN THE COOLING WATER INTAKE CONDUITS ON AN INTERMITTENT BASIS. THE FISH REMOVAL CONDUIT WOULD TERMINATE APPROXIMATELY 1300 FEET SEAWARD OF THE BEACH.

12. THE REGIONAL BOARD HAS BEEN INFORMED BY REPRESENTATIVES OF THE DISCHARGER THAT STUDIES ARE NOW IN PROGRESS TO (A) IMPROVE THE EXISTING AND PLANNED COOLING WATER INLET STRUCTURES, AND (B) DEVELOP SCREEN ARRANGEMENTS FOR THE LIVE FISH HANDLING SYSTEM. AN ADDITIONAL STUDY PROJECT CONCERNING TRANSPLANTATION OF WARM WATER TOLERANT GIANT KELP HAS BEEN AUTHORIZED. PHYSICAL AND MATHEMATICAL MODELS OF THE DIFFUSER SYSTEM AND HEAT DISPERSION FIELD IN THE RECEIVING WATERS HAVE BEEN DEVELOPED. MODEL STUDIES INDICATE COMPLIANCE WITH STATEWIDE THERMAL REGULATIONS WOULD BE ACHIEVED.
13. ORDER No. 72-17 REGARDING AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE IN THE PACIFIC OCEAN BETWEEN THE CITY OF SAN CLEMENTE PIER AND THE MOUTH OF LAS FLORES CREEK WAS ADOPTED BY THIS REGIONAL BOARD ON APRIL 17, 1972 TO INFORM THE STATE WATER RESOURCES CONTROL BOARD THAT WITHIN THE DESIGNATED BOUNDARIES NO AREA WARRANTING THE CLASSIFICATION "AREA OF SPECIAL BIOLOGICAL SIGNIFICANCE" HAD BEEN DETERMINED TO EXIST.
14. ON JULY 31, 1972, FOLLOWING A PUBLIC HEARING THE REGIONAL BOARD DID AUTHORIZE AN EXCEPTION TO THE "WATER QUALITY CONTROL PLAN FOR THE CONTROL OF TEMPERATURE IN THE COASTAL AND INTERSTATE WATERS AND ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA" FOR THE PURPOSE OF USING WATER HEATED TO ~~125° F~~ TO CONTROL FOULING ORGANISMS.
15. THE WATER QUALITY CONTROL PLAN (INTERIM) SAN DIEGO BASIN 9 ADOPTED BY THE REGIONAL BOARD ON JUNE 14, 1971, ESTABLISHED THE FOLLOWING BENEFICIAL USES FOR THE PACIFIC OCEAN WATERS WITHIN THIS REGION: INDUSTRIAL SUPPLY, WATER CONTACT RECREATION, AESTHETIC ENJOYMENT, COMMERCIAL FISHING AND SHELLFISH HARVESTING, NAVIGATION, SCIENTIFIC STUDY, RESEARCH AND TRAINING, MARINE HABITAT AND MILITARY EXERCISES.

IT IS HEREBY ORDERED, THAT WITH RESPECT TO UNITS No. 2 AND No. 3 OF THE SAN ONOFRE NUCLEAR GENERATING STATION, THE SOUTHERN CALIFORNIA EDISON COMPANY AND THE SAN DIEGO GAS & ELECTRIC COMPANY SHALL COMPLY WITH THE FOLLOWING WASTE DISCHARGE REQUIREMENTS:

A. DISCHARGE SPECIFICATIONS

1. ELEVATED TEMPERATURE WASTES SHALL BE DISCHARGED TO THE OPEN OCEAN AWAY FROM THE SHORELINE TO ACHIEVE DISPERSION THROUGH THE VERTICAL WATER COLUMN.
2. ELEVATED TEMPERATURE WASTES SHALL BE DISCHARGED A SUFFICIENT DISTANCE FROM "AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE" TO ASSURE THE MAINTENANCE OF NATURAL TEMPERATURE IN THESE AREAS.

3. THE MAXIMUM TEMPERATURE OF THERMAL WASTE DISCHARGES SHALL NOT EXCEED THE NATURAL TEMPERATURE OF RECEIVING WATERS BY MORE THAN 20° F.
4. THE DISCHARGE 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 1000 FEET FROM THE DISCHARGE SYSTEM. THE SURFACE TEMPERATURE LIMITATION SHALL BE MAINTAINED AT LEAST 50 PERCENT OF THE DURATION OF ANY COMPLETE DIURNAL TIDAL CYCLE.
5. THE DISCHARGE SHALL NOT RAISE THE AMBIENT WATER TEMPERATURE IN AREAS PRESENTLY SUPPORTING OR CAPABLE OF SUPPORTING GIANT KELP (*MACROCYSTIS PYRIFERA*) TO SUCH AN EXTENT THAT KELP GROWTH IN PERSISTENT BEDS IS INHIBITED. THE CLOSEST PERSISTENT KELP BEDS ARE APPROXIMATELY THREE MILES UP COAST AND SIX MILES DOWN COAST. THESE BEDS HAVE BEEN DESIGNATED AS THE SAN MATEO OR SAN CLEMENTE BED, AND THE BARN OR CAMP PENDLETON BED.
6. THE DISCHARGE SHALL NOT CONTAIN CONSTITUENTS IN EXCESS OF THE FOLLOWING LIMITS AS COMPARED TO THE CONCENTRATIONS IN THE INTAKE WATER:

<u>CONSISTENT</u>	<u>MEAN CONCENTRATION</u>		<u>MAXIMUM CONCENTRATION</u>	
TOTAL CHLORINE	1.0	MG/L	2.0	MG/L
RESIDUAL				
OIL AND GREASE	10.0	"	15.0	"
COPPER	0.2	"	0.3	"
TOTAL CHROMIUM	0.005	"	0.01	"

7. ANNUAL MEAN DISSOLVED OXYGEN CONCENTRATION IN THE RECEIVING WATERS SHALL NOT BE LESS THAN 7.0 MILLIGRAMS PER LITER AND THE CONCENTRATION SHALL AT ALL PLACES BE GREATER THAN 5.0 MILLIGRAMS PER LITER, EXCEPT WHEN NATURAL CONDITIONS CAUSE LESSER CONCENTRATIONS, AT WHICH TIME THE DISSOLVED OXYGEN LEVELS SHALL NOT BE REDUCED BELOW PREVAILING BACKGROUND LEVELS.

NOTE: MG/L = MILLIGRAMS PER LITER



8. THE MOST PROBABLE NUMBER OF COLIFORM ORGANISMS IN THE UPPER 60 FEET OF THE WATER COLUMN SHALL BE LESS THAN 1000 PER 100 MILLILITER (10 PER ML.); PROVIDED THAT NOT MORE THAN 20 PERCENT OF THE SAMPLES AT ANY SAMPLING STATION, IN ANY 30 DAY PERIOD, MAY EXCEED 1000 PER 100 MILLILITER (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 MILLILITER (100 PER ML.).
9. (A) NO SEWAGE SOLIDS OR OTHER VISIBLE EVIDENCE OF SANITARY WASTE DISCHARGE SHALL BE VISIBLE AT ANY TIME ON THE WATER OR ON THE SHORE, ROCKS, JETTIES OR SHORE STRUCTURES AS A RESULT OF THE DISCHARGE.  
  
(B) THERE SHALL BE NO SETTLEABLE SOLIDS, OTHER THAN OF NATURAL ORIGIN, THAT WOULD ADVERSELY ALTER THE COMPOSITION OF THE BOTTOM FAUNA AND FLORA; INTERFERE WITH FISH PROPAGATION OR DELETERIOUSLY AFFECT THEIR HABITAT; ADVERSELY CHANGE THE PHYSICAL OR CHEMICAL NATURE OF THE BOTTOM; OR CAUSE OBJECTIONABLE CONDITIONS ON THE WATER SURFACE AS A RESULT OF THE DISCHARGE.
10. THE DISCHARGE SHALL NOT CAUSE OIL AND GREASE TO BE VISIBLE, IN NOTICEABLE AMOUNTS, AT THE WATER SURFACE; SUSPENDED IN THE WATER; OR DEPOSITED ON THE SUBSTRATE, SHORE, ROCKS OR JETTIES.
11. THE DISCHARGE SHALL NOT CAUSE CLEARLY VISIBLE DISCOLORATION IN THE RECEIVING WATERS RESULTING FROM PARTICULATE ENTRAINMENT.
12. IN THE RECEIVING WATERS THERE SHALL BE NO SUSPENDED SOLIDS, OF OTHER THAN NATURAL ORIGIN, THAT WOULD INTERFERE WITH USE OF THESE WATERS OR WITH MARINE LIFE, INCLUDING FISH, PLANT AND BIRD LIFE AND THE ORGANISMS THAT THEY DEPEND UPON.
13. (A) LIGHT PENETRATION IN THE RECEIVING WATERS SHALL NOT BE IMPAIRED BY SUSPENDED OR FLOATING MATTER, OTHER THAN OF NATURAL ORIGIN.  
  
(B) THE DISCHARGE SHALL NOT REDUCE THE TRANSPARENCY OF THE RECEIVING WATERS IN THE IMMEDIATE VICINITY OF THE DISCHARGE BY MORE THAN TEN PERCENT.
14. THE DISCHARGE SHALL NOT CAUSE SLUDGE DEPOSITS IN ANY AREA.
15. THERE SHALL BE NO SIGNIFICANT CHANGE IN NORMAL AMBIENT PH, NOR SHALL THE PH BE DEPRESSED BELOW 7.0 UNITS OR RAISED ABOVE 8.5 UNITS AS A RESULT OF WASTE DISCHARGES.

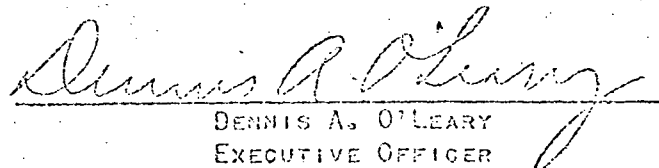
16. THE DISCHARGE OF TOXIC MATERIALS, INCLUDING METALS AND HYDROCARBONS, IN AMOUNTS DELETERIOUS TO FISH, PLANT OR AQUATIC LIFE, OR WHICH WOULD RENDER AQUATIC LIFE UNDESIRABLE FOR HUMAN CONSUMPTION IS PROHIBITED.
17. DIRECT DISCHARGE OF GARBAGE, TRASH, OR OTHER SOLID MUNICIPAL, INDUSTRIAL OR AGRICULTURAL WASTE OR DEPOSITION OF THESE MATERIALS IN AN AREA IN SUCH MANNER THEY MAY BE WASHED INTO THE PACIFIC OCEAN IS PROHIBITED.
18. THE DISCHARGE SHALL NOT CAUSE ODORS, OTHER THAN OF NATURAL ORIGIN, TO EMANATE FROM THE RECEIVING WATERS.

B. PROVISIONS

1. THE DISCHARGER SHALL COMPLY WITH A MONITORING AND REPORTING PROGRAM WHICH WILL BE ADOPTED BY THE REGIONAL BOARD ON OR BEFORE DECEMBER 1, 1972. SAID PROGRAM WILL INCLUDE EFFLUENT AND RECEIVING WATER SAMPLING AND ANALYSES TO CHARACTERIZE PHYSICAL FACTORS, LEVELS OF RADIOACTIVITY, INTERTIDAL AND BENTHIC BIOLOGY, AND THE OBSERVABLE BIOTA OF THE RECEIVING WATER COLUMN.
2. INTERMITTENT USE OF HEATED WATER TO CONTROL FOULING ORGANISMS IS EXCEPTED FROM CONSIDERATION IN ACHIEVING REQUIREMENT NO. 3 OF THE DISCHARGE SPECIFICATION.
3. THE "WATER QUALITY CONTROL PLAN FOR CONTROL OF TEMPERATURE IN COASTAL AND INTERSTATE WATERS AND ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA" REQUIRES THAT DISCHARGERS OF THERMAL WASTES SHALL CONDUCT A STUDY PRIOR TO AND FOLLOWING INITIATION OF DISCHARGE TO DEFINE THE EFFECTS OF THE DISCHARGE ON BENEFICIAL USES. THE STUDY SHALL BE DESIGNED TO INCLUDE THE FOLLOWING ITEMS:
  - (A) EXISTING CONDITIONS IN THE AQUATIC ENVIRONMENT.
  - (B) EFFECTS OF THE EXISTING DISCHARGE ON BENEFICIAL USES.
  - (C) PREDICTED CONDITIONS IN THE AQUATIC ENVIRONMENT WITH WASTE DISCHARGE FACILITIES DESIGNED AND OPERATED IN COMPLIANCE WITH THE PROVISIONS OF THIS PLAN.
  - (D) PREDICTED EFFECTS OF THE PROPOSED DISCHARGE ON BENEFICIAL USES.

- (E) AN ANALYSIS OF COSTS AND BENEFITS OF VARIOUS DESIGN ALTERNATIVES.
  - (F) THE EXTENT TO WHICH INTAKE AND OUTFALL STRUCTURES ARE LOCATED AND DESIGNED SO THAT THE INTAKE OF PLANKTONIC ORGANISMS IS AT A MINIMUM, WASTE PLUMES ARE PREVENTED FROM TOUCHING THE OCEAN SUBSTRATE OR SHORELINES, AND THE WASTE IS DISPERSED INTO AN AREA OF PRONOUNCED ALONG SHORE OR OFF SHORE CURRENTS.
4. MATERIAL CHANGE IN METHOD OR POINT OF DISPOSAL OR CHARACTERISTICS OR VOLUME OF DISCHARGE SHALL BE PROMPTLY REPORTED TO THIS BOARD, AND NO SUCH CHANGE SHALL BE MADE UNTIL REQUIREMENTS PERMITTING THE CHANGE HAVE BEEN ESTABLISHED BY THIS REGIONAL BOARD.
  5. THE DISCHARGER SHALL GRANT ADMISSION TO THE PREMISES OF THE GENERATING STATION TO MEMBERS OF THIS REGIONAL BOARD AND ITS STAFF AT SUCH TIMES AS MAY BE NECESSARY IN THE CONDUCT OF THEIR DUTIES IN CONNECTION WITH THE WASTE DISCHARGE REQUIREMENTS ESTABLISHED HEREIN.
  6. THE WASTE DISCHARGER SHALL NOTIFY THIS REGIONAL BOARD BY LETTER OF THE COMMENCEMENT OF THE DISCHARGE.
  7. WITHIN 120 DAYS OF INSTALLATION OF PUBLIC SEWERS IN THE SAN ONOFRE AREA, SANITARY WASTES SHALL BE DIVERTED INTO THE PUBLIC SYSTEM AND DISCHARGE OF SANITARY WASTES THROUGH THE OUTFALLS TERMINATED.
  8. HEAT TREATMENTS ARE TO BE CONDUCTED AT TIMES AND IN SUCH MANNER AS TO MINIMIZE ADVERSE EFFECTS IN THE OCEAN WATERS.

I, DENNIS A. O'LEARY, EXECUTIVE OFFICER, DO HEREBY CERTIFY 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 JULY 31, 1972.

  
DENNIS A. O'LEARY  
EXECUTIVE OFFICER

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION

ADDENDUM NO. 1 TO ORDER NO. 72-26

AN ADDENDUM REVISING THE WASTE DISCHARGE REQUIREMENTS  
TO INCLUDE ORDERS 1 THROUGH 5 OF ORDER NO. 73-5  
OF THE STATE WATER RESOURCES CONTROL BOARD

THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, FINDS THAT:

1. ON JULY 31, 1972 THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, AFTER APPROPRIATE NOTICE, CONDUCTED A PUBLIC HEARING AND DID GRANT THE FOLLOWING EXCEPTION TO THE PROVISIONS OF THE STATE WATER RESOURCES CONTROL BOARD'S WATER QUALITY CONTROL PLAN FOR CONTROL OF TEMPERATURE IN THE COASTAL AND INTERSTATE WATERS AND ENCLOSED BAYS AND ESTUARIES OF CALIFORNIA:

"THE COMPANIES MAY RAISE THE TEMPERATURE OF THE COOLING WATER DISCHARGE FROM PLANNED UNITS 2 AND 3 OF 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."

2. ALSO ON JULY 31, 1972, AFTER GRANTING THE EXCEPTION TO THE STATE WATER RESOURCES CONTROL BOARD'S THERMAL PLAN, THE REGIONAL BOARD ADOPTED ORDER NO. 72-26, WASTE DISCHARGE REQUIREMENTS FOR COOLING WATER DISCHARGE FROM SAN ONOFRE NUCLEAR GENERATING STATION UNITS NO. 2 AND NO. 3 INTO THE PACIFIC OCEAN. FINDING NO. 14 IN ORDER NO. 72-26 RECOGNIZED THE EXCEPTION TO THE THERMAL PLAN.
3. EXCEPTIONS GRANTED TO THE STATE BOARD'S THERMAL PLAN MUST BE REVIEWED FOR CONCURRENCE BY THE STATE BOARD AND THE ENVIRONMENTAL PROTECTION AGENCY.
4. DURING THE REVIEW PROCESS, CERTAIN OBJECTIONS AND QUESTIONS WERE RAISED BY OTHER STATE AND FEDERAL AGENCIES IN CONNECTION WITH THE EXCEPTION GRANTED BY THE REGIONAL BOARD.
5. ON JANUARY 26, 1973, AFTER APPROPRIATE NOTICE, THE STATE WATER RESOURCES CONTROL BOARD CONDUCTED A PUBLIC HEARING TO RECEIVE EVIDENCE AND COMMENT ON THE EXCEPTION GRANTED BY THE REGIONAL BOARD.
6. ON FEBRUARY 15, 1973 THE STATE WATER RESOURCES CONTROL BOARD ADOPTED ORDER NO. 73-5, CONTAINING THE FOLLOWING ORDERS WITH RESPECT TO AN EXCEPTION TO THE THERMAL PLAN FOR THE SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3:

- "1. AN EXCEPTION TO THE THERMAL PLAN FOR INTERMITTENT HEAT TREATMENT TO CONTROL MARINE FOULING ORGANISMS IN THE INTAKE AND DISCHARGE CONDUITS OF SAN ONOFRE NUCLEAR GENERATING STATIONS, UNITS 2 AND 3 OPERATED BY SOUTHERN CALIFORNIA EDISON COMPANY AND SAN DIEGO GAS AND ELECTRIC COMPANY IS APPROVED.
- "2. IN ORDER TO PERMIT THE REGIONAL BOARD TO SET PRECISE LIMITS ON THE FREQUENCY, DEGREE AND DURATION OF HEAT TREATMENT, THE COMPANIES SHALL COMPLETE THE FOLLOWING STUDIES ACCORDING TO THE ACCOMPANYING TIME SCHEDULES:
  - "A. DETERMINE THE OPTIMUM OPERATIONAL PROCEDURE FOR ACHIEVING MAXIMUM PROTECTION OF MARINE LIFE AND OCEAN WATER QUALITY DURING THERMAL SHOCK TREATMENT;
  - "B. DETERMINE UNDER ACTUAL OR SIMULATED OPERATING CONDITIONS THE LETHAL TEMPERATURE/TIME OF EXPOSURE RELATIONSHIP FOR THE CONTROL OF FOULING ORGANISMS IN THE INTAKE SYSTEM, AND THE NECESSITY FOR RAISING THE TEMPERATURE FOR THERMAL SHOCK AS OPPOSED TO MAINTAINING AN ELEVATED TEMPERATURE FOR A LONGER PERIOD OF TIME. THIS RELATIONSHIP MUST TAKE INTO ACCOUNT ALL OF THE VARIOUS OPERATING CONDITIONS ENCOUNTERED DURING A TYPICAL 12-MONTH PERIOD;
  - "C. DETERMINE THE FREQUENCY REQUIRED FOR HEAT TREATMENT OF THE INTAKE SYSTEM DURING THE VARIOUS SEASONS OF THE YEAR, AND DETERMINE THE NECESSITY FOR HEAT TREATMENT DURING WINTER MONTHS;
  - "D. DETERMINE WHETHER BOTH THE INTAKE AND DISCHARGE CONDUITS REQUIRE HEAT TREATMENT. IF THE DISCHARGE CONDUIT IS FOUND TO REQUIRE HEAT TREATMENT, STUDIES (B) AND (C) MUST BE REPEATED FOR THE DISCHARGE CONDUIT;
  - "E. DETERMINE THE NEED FOR HEAT TREATMENT VS. MECHANICAL CLEANING OF THE VARIOUS PARTS OF THE SHORE STRUCTURE; IF THE SHORE STRUCTURE REQUIRES HEAT TREATMENT, REPEAT STUDIES (B) AND (C) FOR SUCH PARTS OF THE SHORE STRUCTURE;
  - "F. DOCUMENT THE NUMBER AND BIOMASS OF MARINE FAUNA KILLED IN THAT PART OF THE HEAT TREATMENT CYCLE WHEN THE DISCHARGE CONDUITS ARE USED AS AN INTAKE AND COMPARE THIS TO THE NUMBER AND BIOMASS OF MARINE FAUNA KILLED IN THE ENTIRE CYCLE; AND
  - "G. CONDUCT INVESTIGATIONS OF MEANS TO FURTHER LIMIT ENTRAINMENT OF MARINE LIFE DURING NORMAL OPERATIONS AND HEAT TREATMENT.
- "3. THE COMPANIES SHALL COMPLY WITH THE FOLLOWING TIME SCHEDULE:

- "A. THE WORK PLAN MUST BE SUBMITTED WITHIN THREE MONTHS AND MUST BE RATIFIED BY THE STATE AND REGIONAL BOARDS. IF POSSIBLE, STUDIES SHOULD BE PERFORMED FIRST ON A LABORATORY SCALE AND CONFIRMED BY PROTOTYPE OBSERVATIONS USING SAN ONOFRE UNIT No. 1.
- "B. THE STUDIES MUST COMMENCE WITHIN SIX MONTHS.
- "C. PROGRESS REPORTS MUST BE SUBMITTED EVERY FOUR MONTHS COMMENCING FOUR MONTHS AFTER COMMENCEMENT OF THE STUDIES. THE PROGRESS REPORTS ARE TO CONTAIN THE FOLLOWING:
- (1) DATA GATHERED IN PREVIOUS FOUR-MONTH PERIOD.
  - (2) PRELIMINARY DATA ANALYSES AND SUMMARIES.
  - (3) EVALUATION OF PROGRESS.
  - (4) PROBLEMS ENCOUNTERED AND PROPOSED SOLUTIONS TO PROBLEMS.
  - (5) TENTATIVE CONCLUSIONS, IF POSSIBLE.
- "D. THE FINAL RESULTS AND CONCLUSIONS ARE TO BE SUBMITTED WITHIN THREE YEARS AFTER COMMENCEMENT OF THE STUDIES BUT NOT LATER THAN ONE YEAR BEFORE COMMENCEMENT OF OPERATION OF THE PLANT.
- "4. THE REGIONAL BOARD SHALL, AFTER REVIEWING THE AFOREMENTIONED STUDIES, SET PRECISE LIMITS ON THE FREQUENCY, DEGREE AND DURATION OF HEAT TREATMENT AND SUCH OTHER TERMS AND CONDITIONS AS ARE DEEMED NECESSARY, SUCH THAT BENEFICIAL USES SHALL BE PROTECTED TO THE MAXIMUM EXTENT PRACTICABLE. THESE NUMERICAL LIMITS SHALL BE CONCURRED IN BY THE STATE BOARD AND BY THE ENVIRONMENTAL PROTECTION AGENCY BEFORE THEY BECOME EFFECTIVE.
- "5. IF, IN THE JUDGMENT OF THE REGIONAL BOARD, THE COMPANIES FAIL TO SATISFY THE REQUIREMENTS SET FORTH IN NOS. 2 AND 3 ABOVE, THE EXCEPTION TO THE THERMAL PLAN HEREIN RECITED SHALL HAVE NO FORCE AND EFFECT."

IT IS HEREBY ORDERED, THAT THE SOUTHERN CALIFORNIA EDISON COMPANY AND THE SAN DIEGO GAS & ELECTRIC COMPANY SHALL COMPLY WITH THE FOLLOWING REVISIONS TO ORDER No. 72-26 OF THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION:

1. ORDERS 1 THROUGH 5 INCLUSIVE OF THE STATE WATER RESOURCES CONTROL BOARD'S ORDER No. 73-5, QUOTED IN FINDING No. 6 ABOVE, ARE ADDED TO THE ORDERS ALREADY CONTAINED IN ORDER No. 72-26.
2. PROVISION No. 1 ON PAGE 2 OF ORDER No. 72-26 IS CHANGED TO THE FOLLOWING:

- "1. THE DISCHARGER SHALL COMPLY WITH A MONITORING AND REPORTING PROGRAM AS SPECIFIED BY THE EXECUTIVE OFFICER. SAID PROGRAM WILL INCLUDE EFFLUENT AND RECEIVING WATER SAMPLING AND ANALYSES TO CHARACTERIZE PHYSICAL FACTORS, LEVELS OF RADIO-ACTIVITY, INTERTIDAL AND SUBTIDAL BENTHIC BIOLOGY, AND THE OBSERVABLE BIOTA OF THE RECEIVING WATER COLUMN. SAID PROGRAM WILL BE FORMULATED AFTER THE STATE WATER RESOURCES CONTROL BOARD HAS RATIFIED THE WORK PLAN FOR THE STUDIES CALLED FOR UNDER ORDER NO. 2 IN FINDING NO. 6 ABOVE."

I, LEONARD BURTMAN, EXECUTIVE OFFICER, DO HEREBY CERTIFY THE FOREGOING IS A FULL, TRUE, AND CORRECT COPY OF AN ADDENDUM ADOPTED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, ON MARCH 6, 1973.

Leonard Burtman

LEONARD BURTMAN  
EXECUTIVE OFFICER

## Memorandum

To : State Water Resources Control Board  
1416 Ninth Street - Room 1015  
Sacramento, California 95814

Date: August 17, 1972

Attention: Bill B. Dandy  
Executive Officer

From : Department of Fish and Game

Subject: Proposed Waste Discharge Requirements - San Onofre  
Nuclear Generating Station - Units 2 and 3

On July 31, our Department appeared before the California Regional Water Quality Control Board, San Diego Region, at San Diego and objected to approval of an authorization for variance from item 3 of the Discharge Specifications of Tentative Waste Discharge Requirements, Order 72-76. Specifically, the exception would allow relaxation of restrictions on the maximum temperature of thermal discharges during periods of heat treatment at Southern California Edison Company's proposed San Onofre Nuclear Generating Station, Units 2 and 3.

Our objection to the exception is based on two points: (1) We have not seen the results of any model studies depicting the heat dispersion field during heat treatment and have received the impression that compliance with item 4 of the Discharge Specifications of Tentative Order 72-76 may be difficult to achieve; (2) it is our understanding that water temperatures of 105°F. are sufficient to kill organisms requiring removal and that the temperatures of 125°F. anticipated at San Onofre Units 2 and 3 would be excessive to achieve defouling. We believe, therefore, that expressions of the relative feasibility of alternative means for routing and/or dispersing water used during heat treatments should be provided.

This is to advise you of our interest in this matter and to request your assistance in determining if there is any foundation for our concerns detailed in points 1 and 2 and in obtaining the expressions requested above.

*E. C. Fickert*  
Deputy Director



# Memorandum

To : Mr. F. J. Hortig  
Executive Officer  
State Lands Division  
State Lands Commission  
107 South Broadway, Room 3123  
Los Angeles, CA 90012

Date : DEC 27 1972

File No.:

Subject: Draft Environmental Impact  
Report on Installation of  
Four Underwater Circulating  
Water Conduits for Nuclear  
Generating Station, San  
Diego County

From : Office of the Secretary

This is in response to your letter of September 25, 1972, File Reference W 9225, requesting our review and comment on the subject Draft Environmental Impact Report.

The Report has been submitted for review and comments to the State Departments of Conservation, Fish and Game, Parks and Recreation, Navigation and Ocean Development, and Water Resources; and the State Water Resources Control Board. The State's comments are as follows:

1. Page 4, paragraph 1. Brief recognition is provided that certain fish protective measures are being considered for San Onofre Units 2 and 3. Entrainment problems and fish mortalities are a serious problem at San Onofre Unit 1, which takes in 350,000 gallons of cooling water per minute. These problems will be far more serious with Units 2 and 3, which are designed to collectively take in 1,660,000 gpm. It would seem imperative that a more extensive discussion be provided for the concept of fish protective measures and the project sponsor's capabilities to provide such a functioning device. This becomes especially important when, on page 31, item 7 of the proposed mitigation measures, it is declared that the State Lands Commission will require the lessees to develop and use an efficient fish bypass system for the conduits that will intercept and return live fish to the ocean.
2. Page 5. The use of the beaches and areas leased to the State is not mentioned in the text and this involves the greatest amount of human use in the area. This must be recognized and be in the Report.
3. Page 7. The discussion of geology in the Report is generally correct and offers moderate detail for engineering use. However, the discussion of earthquake history and the questions of age of faults are treated too casually. It would be useful to discuss the intensities and epicenters of major earthquakes that have affected the area. Especially questionable is the statement that the Cristianitos fault "does not penetrate the overlying Pleistocene terrace deposits and is therefore inactive". More correct would be a statement that the Cristianitos fault offset sediments of Pleistocene age at localities to the north of the nuclear generating station and that detailed mapping, trenching, and radiometric age dating may be required to determine its most recent period of activity. The question of a seaward extension of the Newport-Inglewood fault zone, perhaps 4 miles offshore from the plant site, should also be investigated.

4. Pages 12 and 13. The section on tsunami appears adequate. The section on "Alternative Means of Power Generation" considers geothermal energy to be not "technically feasible to develop in this decade". This is surprising and erroneous on its face as geothermal energy is being utilized and continuously developed in California and adjacent Mexico. What the applicant apparently means to say is that the full extent of the geothermal resource is still unknown and development may not proceed rapidly until exploration has progressed further. The geothermal resource potential may be large enough, if realized, to provide a significant share of the future increase in California energy demand; however, exploration has not yet provided a definitive evaluation of the potential.

5. Page 14, paragraph 3. The entire subject of thermal influence is treated very superficially. Sufficient model studies of the predicted thermal plume for Units 2 and 3, under normal operating conditions and during heat treatment, are available for inclusion in this statement.

It is indicated that ecological monitoring programs have demonstrated the lack of adverse effects from Unit 1's operation. That statement is far too strong. For example, no significant studies about the effect of entrainment upon larval fish at San Onofre have been completed that indicate the nature or magnitude of such effects. This should be mentioned.

6. Page 22. No mention of littleneck clams is made in the Report. The beds just north of the site are reported to be the largest in the State. Other clams are also present, such as sunset, bean, etc.

7. Page 23, paragraph 2. The cobble reefs of the area are the most productive ones known in the State, south of Point Conception, for common littleneck clams, Protothaca staminea, clipped Semele, Semele decisa, and sunset clams, Gari californica. Their importance is minimized in the EIS and should be amplified.

8. Pages 24 and 25. No mention of the surf fish in the area is made. It should be included in the list of animals found in the area.

9. Page 26. People visiting San Onofre State Beach would make up a large percentage of the people viewing the plant facilities and should be indicated.

10. Page 27. The proposed Basilone area as a disposal site is not compatible with the uses Parks and Recreation has for this area and some other site has to be found.

11. Page 27. "Dredging for Cooling Water Conduits". Excavation and dredging to install the conduits will involve the removal and subsequent backfill of 204,000 cubic yards of materials. The EIS does not provide any information on the extent to which the valuable, fauna rich, cobble areas will be disturbed and how they might be protected.

12. Page 28. Dredging should take place in the off-season when it has the least effect on State Beach uses. Septic tanks and leach fields should not be allowed in the area.

13. Page 29. The risks to humans from a nuclear accident, relative to radioactive releases, should be covered in the Report.

14. Page 30. There was no mention of the effect of the additional hot water on the invertebrates, fish and plant life. Some changes are going to occur with the amount of warming to take place. Stingrays thrive in the outfall areas. This would cause added danger to swimmers.

15. Page 30, No. 5 (1). It is stated that mitigation measures will be taken as required. No suggestion is given to what those measures might constitute. Those should be discussed in greater detail.

16. Page 31. No consideration is given to developing power elsewhere, especially the evaporative cooler type used by some reactors.

17. Exhibit 1, page 3. The exhibit fails to show the present and anticipated visitation at San Onofre, San Clemente, and Doheny State Beaches.

18. Exhibit 3, pages 1, 2, and 3. The animals and plants listed are a very incomplete list of the species present; many important species are not recorded.

19. Exhibit 3, (next to the last page). Ten "important" molluscan species in the area are listed. Department of Fish and Game records list 45 molluscan species. The determination of "important" species is a subjective one. The EIS list shows 29 invertebrate species in the San Onofre area. Department records show that 230 invertebrate species have been identified in the San Onofre area. We believe this information, which is available, should be included.

Thank you for the opportunity to comment on this Report.

M. B. LIVERMORE, JR.  
Secretary for Resources

By R. C. C. C. C.



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
300 South Ferry Street, Room 2016  
Terminal Island, CA 90731

January 23, 1973

Mr. William B. Dendy, Executive Officer  
State Water Resources Control Board  
Room 1015, Resources Building  
1416 Ninth Street  
Sacramento, California

Dear Mr. Dendy:

Subject: Notice of Public Hearing on proposed thermal variance  
for San Onofre Nuclear Generating Station regarding  
thermal shock treatment for the control of fouling  
organisms, dated January 12, 1973.

We have reviewed the State Board's recommended modifications  
to the Regional Water Quality Control Board's "Request for Vari-  
ation from Provisions of the Thermal Plan - San Onofre Nuclear  
Station".

We received original notification of the State Board's proposed  
thermal variance standards for the control of fouling organisms  
in a letter from Mr. Richard L. Rosenberger, of your organiza-  
tion, dated October 19, 1972. In our response to Mr. Rosen-  
berger's letter on October 27, 1972 we agreed that the proposed  
thermal variance should be granted provided certain conditions  
were met.

The modifications as now outlined in the subject Notice of Pub-  
lic Hearing are basically the same as those presented in Mr.  
Rosenberger's letter. There are, however, three conditions not  
stated in this proposed modification which we feel must be  
included before we can agree to its issuance.

First, it is our understanding that this requested thermal excep-  
tion refers only to the intermittent thermal shock treatment for  
controlling the growth of marine fouling organisms in the intake  
and discharge conduits of the San Onofre Nuclear Generating



A Century of Fish Conservation

January 23, 1973

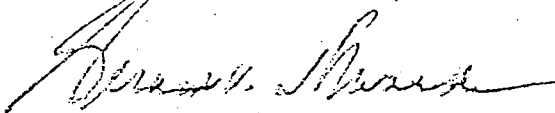
Page 2

Station, Units 2 and 3. The heated discharges occurring from the normal plant operation of Units 2 and 3 in the future are not at issue here.

Second, the stipulation must be made that before the proposed thermal studies outlined in sections 4 (a-f) are implemented, all concerned governmental conservation agencies must be allowed to review and comment as to their adequacy. Third, these same agencies must review all final study results before the proposed variance becomes operationally effective.

If these three conditions are included we will not object to your granting this recommended exception in its modified form.

Sincerely,



Gerald V. Howard  
Regional Director

cc: William S. Leet, NMFS, Tiburon, CA  
Dr. Jay Watson, BSF&W, Sacto., CA  
George McCammon, CF&G, Sacto., CA



*Orig. to O. O.*  
*Rel. 1/30/73*  
*Reg. 1/30/73*

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE

Reference: RBS

1500 N. E. IRVING STREET  
P. O. BOX 3737  
PORTLAND, OREGON 97208

January 30, 1973

Mr. Bill B. Dendy, Executive Officer  
State Water Resources Control Board  
Division of Water Quality Control  
Room 1015, Resources Building  
1416 Ninth Street  
Sacramento, California 95814

Dear Mr. Dendy:

Since we were not prepared to present a statement at the January 26 public hearing regarding the granting of an exception on San Onofre Nuclear Power Generating Station, Units 2 and 3, we are submitting this letter as a record of our position.

We believe the proposed studies described in your January 12 Notice of Public Hearing may be the means of providing the answers in which we are interested, but we will not prejudge the case. In order that we may have confidence in the studies and their results, we request that we and the other interested Governmental conservation agencies be permitted to review and comment on (1) the work plan which applicant will be submitting for ratification within three months, (2) the progress reports which applicant will be submitting every four months after commencement of the studies, and (3) the final results and conclusions which are to be submitted within three years. In addition, we request that we and the above agencies be permitted access to the studies for the purpose of observing procedures, techniques, etc., and evaluating results.

We appreciate the opportunity to present our comments.

Sincerely yours,

*John D. Finley*  
JOHN D. FINLEY  
Regional Director



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
100 CALIFORNIA STREET  
SAN FRANCISCO, CALIFORNIA 94111

2. H. S.  
3. L. S.

Bill B. Dendy  
State Water Resources Control Board  
1416 Ninth Street  
Sacramento CA 95814

APR 18 1973

Dear Mr. Dendy:

We have reviewed your letter of March 19, 1973 and its enclosures on the subject: Exception to the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) for San Onofre Nuclear Generating Station, Units 2 and 3. This exception would allow intermittent heat treatment to control marine fouling organisms in the cooling water system at the proposed generating station.

We concur that the exception to the Thermal Plan provided by State Board Resolution No. 73-11 should be granted under General Water Quality Provision 4.B. of the Thermal Plan for the specified heat treatment process. This concurrence is based on the understanding that all other provisions of the Thermal Plan and the Ocean Plan will be fully met by the discharger. Our concurrence is also based on our understanding that the State and Regional Boards will develop a monitoring and reporting program sufficient to ascertain this full compliance. (Reference California Regional Water Quality Control Board, San Diego Region, Order 72-26 provision B.1.) It is our further understanding that EPA will be included in the work planning process for the required heat treatment studies and will receive copies of the progress reports for these studies as they are submitted in accordance with Addendum No. 1 to Order 72-26.

Sincerely,

Paul De Falco, Jr.  
Regional Administrator

## Division of Water Quality

Order No. 73-5

The Thermal Plan, in relevant part, provides as follows:

"The maximum temperature of thermal waste discharges shall not exceed the natural temperature of receiving waters by more than 20°F." /Thermal Plan, Specific Water Quality Objectives, Coastal Waters, New Discharges, Paragraph (3)./



"The discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at ... the ocean surface beyond 1,000 feet from the discharge system ...." /Thermal Plan, Specific Water Quality Objectives, Coastal Waters, New Discharges, Paragraph (4)./

"An exception to the specific water quality objectives of this plan may be authorized by a regional board for a specific discharge upon a finding following public hearing that:

\* \* \* \* \*

- B. The use of heat on an intermittent basis to control fouling organisms in intake and discharge structures will result in less potential for deleterious effects upon beneficial uses than other alternative methods (heat, in addition to that required for cleaning of intake and discharge structures, shall not be used for cleaning of condenser units)." /Thermal Plan, General Water Quality Provision, Paragraph (4)./

On July 31, 1972, following appropriate notice, the Regional Board conducted a public hearing to receive evidence on the proposed exception for the companies. Based upon the evidence submitted, the Regional Board recommended an exception to the Thermal Plan as follows:

1. The companies may raise the temperature of the cooling water discharge from planned Units 2 and 3 of San Onofre Nuclear Generating Station to not more than 125°F for periods of not more than two hours for each conduit every five weeks for purposes of control of marine organism growth in the cooling water system only; and
2. 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.

As a part of its review of the request for concurrence, the State Board and its staff reviewed the evidence from the Regional Board hearing and the State Board staff conducted informal meetings with representatives of the companies, Regional Board staff, California Department of Fish and Game, Environmental Protection Agency, National Marine Fisheries Service, and the U. S. Bureau of Sport Fisheries and Wildlife.

Information from the companies indicated that, based on operating experience, cooling water at a temperature of 105°F for two hours in both the intake and discharge conduits every five to six weeks will control marine organisms attached to the inside of the conduits. The water temperature is increased to 105°F by operating a series of gates to recycle some of the cooling water back through the condenser where it is reheated before discharge. As the water is cycled back through the condenser it can gain an extra 20°F and, thereby, be discharged to the environment at 125°F.

At the Regional Board's public hearing and the State Board's staff level meetings, the necessity for using water heated to 105°F at all times of the year was discussed as well as the possibility of using internal gates to cycle the cooling water more efficiently to control the temperature of the heat treatment.

During the review process, certain objections and questions were raised by other state and federal agencies in connection with the exception proposed by the Regional Board. The objections included the following:

1. That the lethal temperature actually required for control of marine organisms has not been determined.
2. That the frequency of heat treatment required had not been determined.
3. That the necessity for heat treating both the intake and discharge conduits had not been demonstrated.
4. That the possibility of mechanical cleaning of shore structures in lieu of heat treatment had not been properly explored.
5. That an estimate of the number and biomass killed during heat treatment should be compared to that number and biomass killed during normal operations.
6. That better methods for further limiting the entrainment of organisms should be explored.

hearing and the information from the informal meetings with the companies, Regional Board staff and state and federal agencies, the State Board staff proposed an exception to the Thermal Plan. The exception provided that specific thermal discharge limits by the companies pursuant to a time schedule prior to operation of Units 2 and 3.

Because of the objections raised and the importance of the issues involved, the State Board determined that it would be appropriate to hold an additional public hearing to receive evidence and comment on the exception proposed by the State Board staff and on alternative proposals. Therefore, on January 26, 1973, following appropriate notice, the State Board conducted a public hearing.

The State Board has reviewed all evidence received relative to the proposed exception of the Regional Board and the exception proposed by the State Board staff, and finds that:

1. Of the methods available for control of fouling organisms at San Onofre Nuclear Generating Station, Units 2 and 3, the use of heat on an intermittent basis will result in the least potential for deleterious effects upon beneficial uses.
2. The evidence submitted by the companies has not fully resolved the objections and questions raised in connection with the proposed exception.
- 3. The evidence submitted is inconclusive on the following matters:
  - a. The lethal temperature level required for control of growth of marine organisms.
  - b. The frequency of heat treatment required.
  - c. The necessity for heat treatment of the discharge conduit.
  - d. The possibility of mechanical cleaning of shore structures in lieu of heat treatment.
  - e. The possibility of limiting the temperature of the discharge during heat treatment through modification of the operations and facilities at Units 2 and 3.

THEREFORE, IT IS HEREBY ORDERED that:

1. An exception to the Thermal Plan for intermittent heat treatment to control marine fouling organisms in the intake and discharge conduits of San Onofre Nuclear Generating Stations, Units 2 and 3 operated by Southern California Edison Company and San Diego Gas and Electric Company is approved.
2. In order to permit the Regional Board to set precise limits on the frequency, degree and duration of heat treatment, the companies shall complete the following studies according to the accompanying time schedules:
  - a. Determine the optimum operational procedure for achieving maximum protection of marine life and ocean water quality during thermal shock treatment.
  - b. Determine under actual or simulated operating conditions the lethal temperature/time of exposure relationship for the control of fouling organisms in the intake system, and the necessity for raising the temperature for thermal shock as opposed to maintaining an elevated temperature for a longer period of time. This relationship must take into account all of the various operating conditions encountered during a typical 12-month period;
  - c. Determine the frequency required for heat treatment of the intake system during the various seasons of the year, and determine the necessity for heat treatment during winter months;
  - d. Determine whether both the intake and discharge conduits require heat treatment. If the discharge conduit is found to require heat treatment, studies (b) and (c) must be repeated for the discharge conduit;
  - e. Determine the need for heat treatment vs. mechanical cleaning of the various parts of the shore structure; if the shore structure requires heat treatment, repeat studies (b) and (c) for such parts of the shore structure;

- f. Document the number and biomass marine fauna killed in that part of the heat treatment cycle when the discharge conduits are used as an intake and compare this to the number and biomass of marine fauna killed in the entire cycle; and
  - g. Conduct investigations of means to further limit entrainment of marine life during normal operations and heat treatment.
3. The companies shall comply with the following time schedule:
- a. The work plan must be submitted within three months and must be ratified by the State and Regional Boards. If possible, studies should be performed first on a laboratory scale and confirmed by prototype observations using San Onofre Unit No. 1.
  - b. The studies must commence within six months.
  - c. Progress reports must be submitted every four months commencing four months after commencement of the studies. The progress reports are to contain the following:
    - (1) Data gathered in previous four-month period.
    - (2) Preliminary data analyses and summaries.
    - (3) Evaluation of progress.
    - (4) Problems encountered and proposed solutions to problems.
    - (5) Tentative conclusions, if possible.
  - d. The final results and conclusions are to be submitted within three years after commencement of the studies but not later than one year before commencement of operation of the plant.

4. The Regional Board shall, after reviewing the aforementioned studies, set precise limits on the frequency, degree and duration of heat treatment and such other terms and conditions as are deemed necessary, such that beneficial uses shall be protected to the maximum extent practicable. These numerical limits shall be concurred in by the State Board and by the Environmental Protection Agency before they become effective.
5. If, in the judgment of the Regional Board, the companies fail to satisfy the requirements set forth in Nos. 2 and 3 above, the exception to the Thermal Plan herein recited shall have no force and effect.

Adopted as the order of the State Water Resources Control Board at a meeting duly called and held at Sacramento, California.

Dated: February 15, 1973

/s/ W. W. Adams

W. W. Adams, Chairman

/s/ Ronald B. Robie

Ronald B. Robie, Vice Chairman

/s/ E. F. Dibble

E. F. Dibble, Member

/s/ Roy E. Dodson

Roy E. Dodson, Member

/s/ Mrs. Carl H. (Jean) Auer

Mrs. Carl H. (Jean) Auer, Member