

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of
Pacific Gas and Electric Company
for Review of Orders Nos. 76-60,
76-61, 76-62 and 76-63 of the Cali-
fornia Regional Water Quality Control
Board, San Francisco Bay Region, and
Order No. 76-133 of the California
Regional Water Quality Control Board,
Central Valley Region. Our Files
Nos. A-141 and A-142.

Order No. WQ 77-10

BY BOARD VICE CHAIRMAN MAUGHAN:

Pursuant to Section 402 of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500), hereafter referred to as the "Federal Act", and applicable provisions of the California Porter-Cologne Water Quality Act (Division 7 of the Water Code, commencing with Section 13000), on May 18, 1976, the California Regional Water Quality Control Board, San Francisco Bay Region (San Francisco Regional Board), adopted Orders Nos. 76-60 (NPDES Permit No. CA0005649), 76-61 (NPDES Permit No. CA0005657), 76-62 (NPDES Permit No. CA0005631) and 76-63 (NPDES Permit No. CA0004880). These permits prescribe waste discharge requirements for four Pacific Gas and Electric Company (hereafter referred to as PG&E or petitioner) steam electric generating plants located in the San Francisco Bay area, to wit: PG&E's Hunters Point, Potrero, Oleum and Pittsburg Power Plants, respectively. On June 17, 1976, PG&E submitted a petition requesting a hearing and review by the State Board of the four orders.

Petitioner subsequently withdrew its request for review of Order No. 76-62, concerning its Oleum Power Plant. This order, therefore, does not discuss the requirements of San Francisco Regional Board Order No. 76-62.

On May 28, 1976, pursuant to the authority cited above, the California Regional Water Quality Control Board, Central Valley Region (Central Valley Regional Board), adopted Order No. 76-133 (NPDES Permit No. CA0004863), prescribing waste discharge requirements for PG&E's Contra Costa Power Plant, a steam electric generating plant, located on the San Joaquin River near the City of Antioch. On June 28, 1976, PG&E submitted a petition requesting a hearing and review of Order No. 76-133.

The PG&E petitions request the State Board to review each of the above-mentioned Regional Board orders with respect to their effluent limitations for the chlorine residual content of once-through cooling water discharges only.

Included in each of these orders is a limitation on the total residual chlorine content of cooling water discharges of 0.0 mg/l,¹ which becomes effective July 1, 1977. Due to the similarity of the issues raised in the two petitions submitted by PG&E, it was determined that pursuant to Section 2054, Title 23, California Administrative Code, the petitions would be heard and considered together. No objection to this procedure was received from petitioner.

Pursuant to the petitioner's request, a hearing was held January 7, 1977, to receive evidence concerning effluent

1. The San Francisco Regional Board specifies this requirement as an instantaneous maximum, and the Central Valley Regional Board specifies it as a daily maximum.

limitations for residual chlorine contained in the subject Regional Board orders. The hearing record was held open through January 28, 1977, for the submittal of additional data.

I. BACKGROUND

PG&E is a California corporation and a public utility which operates certain steam electric generating plants (power plants) for which waste discharge requirements were issued in the above-mentioned Regional Board orders. The operation of a power plant results in the discharge of large quantities of waste heat to the environment through the use of a cooling system. Each of the power plants considered here uses a once-through cooling water system which draws water from nearby surface water, circulates it through the power plant, and discharges it to the surface water. For the most part cooling water discharges at the subject power plants are not combined with other wastewater discharges. The cooling water systems of each of the power plants discussed in this order are described in detail in the hearing record for these matters, and need not be described here more specifically.

Chlorine is periodically added near the intake conduits of the cooling water systems to remove the algae and slime which tend to grow on the surface of the condenser tubes. If this biological growth is uncontrolled, it may cause tube blockages, poor heat transfer, and accelerated corrosion in the tubes, in turn, reducing the efficiency of the cooling system. The frequency and duration of chlorination necessary to remove algae and slime varies for each cooling water system according to seasonal

variations in the level of biological growth present and the frequency of use of each system. (The PG&E power plants do not operate at full capacity all of the time.) PG&E stated in its petitions that its chlorination needs vary from 20 minutes per week per unit to 40 minutes per day per unit.

PG&E's customary practice is to apply sufficient chlorine to produce a free available chlorine level of 0.5-1.0 mg/l at the condenser inlet in order to assure algae and slime removal. A detailed description of the chlorination practices applied at each of the four power plants appears in the hearing record.

II. CONTENTIONS AND FINDINGS

Petitioner has raised a number of factual and legal issues related to the chlorine residual limitations in the subject Regional Board orders which merit our consideration. These contentions and our findings relative thereto are as follows:

1. Contention: With respect to each of the subject Regional Board orders, the petitioner contends that the effluent limitation for the total residual chlorine content of cooling water discharge is unreasonable. In this regard, petitioner further contends that the 0.0 mg/l limitation is not technologically feasible and is economically unreasonable.

Prior to discussing this contention we must define both the 0.0 mg/l limitation and the sampling point for monitoring compliance with waste discharge requirements. In terms of significant figures, as generally used by the scientific community, a limitation of 0.0 mg/l actually means something less than 0.05 mg/l. Petitioner contends that it is not possible to measure the presence of chlorine on a continuous basis below 0.1 mg/l by the use of the generally accepted amperometric titration method, and that, therefore, it is impossible to monitor to determine compliance with the adopted 0.0 mg/l limitation. In the opinion of the San Francisco Regional Board staff it is possible to measure the presence of chlorine residual in concentrations as low as .02 mg/l. Although they were aware of the practical limits in measuring the presence of chlorine residual, the Regional Boards adopted a 0.0 mg/l limitation and it is important to determine their intent in so doing. The intent of the San Francisco Regional Board in prescribing a 0.0 mg/l limitation, as described by staff representatives during the hearing on January 7, 1977, was to require that the presence of chlorine residual in the cooling waters discharged from the PG&E power plants be maintained below the level of detection by conventional methods. (R.T., pages 255, 257)² This was also the apparent intent of the Central Valley Regional Board in adopting the 0.0 mg/l limitation. (R.T., page 280) In effect, then, the 0.0 mg/l chlorine residual limitation means the presence of less than 0.02 mg/l or a chlorine residual below the limit of detectability. However, the monitoring programs for these

2. This reference and all similar references are to the transcript of the State Board hearing.

discharges must be changed to require discrete sampling during chlorination of cooling waters.

The second preliminary technical question we must address concerns the proper sampling point in monitoring to determine the concentration of chlorine residual present in effluent. Some confusion was expressed at the hearing as to whether sampling must occur prior to contact with any of the receiving waters. It is apparent from reading the applicable monitoring requirements, specifically the standard provisions included therein, adopted by the Regional Boards in conjunction with the subject Regional Board orders, that sampling must occur prior to the dilution of cooling waters by any waters of the State.^{3/} Each of the monitoring requirements for the subject Regional Board orders contains the statement:

"Effluent samples shall be taken downstream of the last addition of waste to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters." [Emphasis added.]

Feasibility

The feasibility of dechlorination has been demonstrated with respect to municipal wastewaters and we find no convincing reason why such technology cannot be successfully applied to cooling water discharges of power plants.

PG&E presented evidence to the effect that no power plants have been required to retrofit or have installed dechlorination systems for their once-through cooling water systems,

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3. Waters in a discharge channel, whether or not the real property surrounding said channel is privately owned, are waters of the State. Water Code Section 13050(e).

and that chlorinated once-through cooling water discharges differ significantly from municipal wastewaters. We recognize that in general the volume of cooling water discharged and chlorine application practices with respect to cooling water for power plants may differ from ordinary municipal waste discharges.

The key to the dechlorination of wastewaters apparently lies in the successful mixing of a dechlorinating agent and the waste stream, since the reaction of the agent, usually sulfur dioxide, with the wastewater is nearly instantaneous. Testimony was received at the hearing concerning the problem of mixing a dechlorinating agent with chlorinated once-through cooling waters. While as to any specific problem, we believe that experts may express differences in professional judgment, after reviewing the record before us, we believe that a system can be designed which can achieve a discharge of once-through cooling waters containing no detectable chlorine residual.

We have reached this conclusion after examining, among other things, evidence based on performance of operating systems presented by the Regional Boards' staffs and their consultants, Professors Robert E. Selleck and Stephen Whitaker of the University of California at Davis at the hearing. Of the four power plants, the most difficult to dechlorinate would appear to be the Potrero Plant. Unit No. 3 of the Potrero Plant has a discharge conduit of approximately 7'x7'x150', which provides an approximate mean residence time of 24 seconds for once-through cooling waters. The evidence submitted by the Regional Boards, including testimony from Professors Selleck and Whitaker, indicates that even at the Potrero Plant a properly designed diffuser with multiple injection points should provide sufficient mixing to adequately dechlorinate in the time and distance available.

Economics

As stated above, petitioner contends that the 0.0 mg/l chlorine residual limitation is economically unreasonable. We have stated in previous orders that economic factors must be considered at the time of adoption of a Basin Plan and that at the time of adoption of waste discharge requirements or prohibitions of discharge consistent with its Basin Plan, a Regional Board is not required to reconsider the economic impact of compliance with Basin Plan provisions. [See, e.g., State Board Orders 73-4 (Rancho Caballero) and 74-2 (Santee County Water District).] In any event, in the course of the hearing held January 7, 1977, the State Board did receive substantial evidence concerning economics with respect to the particular discharges in question here, and we find that the evidence regarding economics does not support a relaxation of the requirements imposed by the Regional Boards.

PG&E submitted cost estimates showing that the estimated total capital cost for installing dechlorination equipment at the four subject power plants is approximately \$1,060,700.00. PG&E also presented evidence concerning the estimated annual operation and maintenance costs for dechlorination at its four power plants. In a letter of November 18, 1976, submitted by PG&E, Wallace & Tiernan, an equipment manufacturer, estimated chemical costs of \$16.00 per day for chlorine removal at the Contra Costa Power Plant, the largest of the plants which are the subject of this appeal. In its testimony at the hearing, PG&E estimated the annual operation and maintenance costs to be approximately \$130,000.00. This figure was based upon PG&E's calculation that for miscellaneous power plant equipment, operation and maintenance costs have historically been about 13 percent of the value of capital expenditures. (R.T. page 104)

Somewhat lower cost estimates, both for capital and operation and maintenance, for chlorine removal at the PG&E power plants were presented for our consideration by the Regional Boards. To put some of these costs on a relative basis, the Central Valley Regional Board also presented evidence of the value of average annual power production at the Contra Costa Power Plant. Based on a report prepared by Tetra Tech, Inc. for PG&E and submitted by PG&E to the Central Valley Regional Board, it was stated that the average annual power production for the Contra Costa Power Plant from 1970 to 1974 was 420 megawatts, with a value of approximately \$37.8 million annually (using a value of \$90,000 per megawatt, the average for the Sacramento area last year).

In considering whether certain costs of water quality control are reasonable, we must consider environmental costs as well as economic costs. While it is difficult to quantify environmental costs, the Central Valley Regional Board did present some evidence of the value of bass and salmon fisheries in the vicinity of the Contra Costa Power Plant.³ It is clear that the total value of aquatic resources in the vicinity of the PG&E power plants is high, although monetary value estimates are not available for all affected aquatic life. (R.T., page 282)

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3. The following statements appear in Central Valley Regional Board Exhibit 1, received at the hearing, at pages 3-4:

"The Tetra Tech report placed a value of \$2 million annually on the commercial salmon fishery. The Department of Fish and Game has estimated the value of the total salmon fishery at well over \$10 million. Stanford Research Institute placed a value of \$7.5 million on the 1970 striped bass run."

In the case of the PG&E power plants here considered, available scientific literature indicates that substantial environmental costs are likely, if chlorine removal from cooling water discharges is not required. The extreme sensitivity of aquatic life to low concentrations of free available chlorine and combined chlorine residuals is well established. The testimony of Dr. Craig Walton at the hearing on behalf of PG&E indicates that the quality of waters in the vicinity of the PG&E power plants is significantly affected by the discharge of chlorinated cooling waters.

Dr. Walton stated (R.T., page 94, lines 18-26):

"Fishes do tend to congregate around our discharges because of the heat and are able to feed on organisms that come through the plant, but interviews with fishermen indicate that the fishes do leave the area whenever we do chlorinate. Fishing just stops. And we fully expect that the fish do--once they do see the chlorine plume, they do leave. And so I see no way in which they would be harmed by our discharges."

In addition, the evidence in the record of hearing for this matter shows that fish and other aquatic life may receive damaging, if not lethal doses, of chlorine before they escape from a chlorinated effluent plume.⁴

PG&E relies in part on Environmental Protection Agency (EPA) Effluent Limitations Guidelines for the Steam Electric Power Generating Point Source Category, October 8, 1974, to support its contention that the 0.0 mg/l residual chlorine limitation for once-through cooling waters is not reasonable. These Guidelines specify concentrations of 0.2 mg/l average and 0.5 mg/l maximum for free available chlorine as the Best Practicable Control Technology Currently Available (BPCTCA). The Guidelines further state:

4. RT., pages 22, 85, 92, 94, 242, 290; Central Valley Regional Board Exhibit 1, page 2; Department of Fish and Game, Exhibit 1, pages 8-9; Department of Fish and Game, Exhibit 2, pages 27, 28, 29.

"Neither free available chlorine nor total residual chlorine may be discharged from any unit more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination."

We do not here discuss what might be required of PG&E to meet the substantive requirements of the EPA Guidelines. However, we find it is significant that the EPA standards are based upon adherence to certain chlorine application practices, i.e., chlorination of a single unit at a time, indicating that the low volume of chlorinated wastewaters relative to total cooling waters discharged was important to EPA in limiting environmental damage from these discharges. However, due to conduit configuration in some of its power plants, PG&E cannot currently meet EPA's requirement for chlorinating one unit at a time. We further note that the Federal Act is clear in recognizing the authority of states to impose water quality standards and limitations stricter than national standards established by EPA. (Section 510, P.L. 92-500)

Evidence received at the hearing before the State Board (R.T., pages 273, 274) and evidence presented by PG&E to the Regional Boards indicates that the costs to PG&E of meeting the state standards here in question will not differ significantly from those incurred by other nearby dischargers, who are also required to dechlorinate their wastewaters, including municipal dischargers.

In summary, we find that the 0.0 mg/l total chlorine residual limitation for cooling water discharges included in

San Francisco Regional Board Orders Nos. 76-60, 76-61 and 76-63, and in Central Valley Regional Board Order No. 76-133, is both reasonable and necessary for the protection of the quality of waters of the State.

2. Contention: With respect to each of the subject Regional Board orders, the petitioner contends that the effluent limitation for the total residual chlorine content of cooling water discharges was improperly adopted. Petitioner contends specifically (a) that both the San Francisco and Central Valley Regional Boards failed to establish that the discharge of chlorine residuals at levels contained in the existing PG&E cooling water discharges was a contamination, pollution or nuisance, or unreasonably affected the beneficial uses of the receiving waters; (b) that the 0.0 mg/l residual chlorine limitation is not required by any applicable regional water quality control plans (basin plans); and (c) that the 0.0 mg/l residual chlorine limitation is an improper implementation of the applicable basin plans.

Findings:

Alleged Obligation to Establish that
PG&E's Discharges Cause Contamination,
Pollution, or Nuisance.

As discussed in the evaluation of the previous contention, chlorine, even when present in only small amounts, is a toxic substance that can significantly alter the quality of the waters of the State. There is no requirement that in prescribing waste discharge requirements Regional Boards must determine the existence of a pollution, contamination, or

nuisance, or wait until such a condition exists, prior to regulating a pollutant present in a waste discharge. Neither is there any requirement to demonstrate that absent the limitations prescribed by the Regional Boards the discharges would create a contamination, pollution or nuisance. Rather, the State and Regional Boards are required to issue waste discharge requirements to regulate the discharge of pollutants to the navigable waters of the United States within the jurisdiction of this State. For this purpose, Water Code Section 13377 provides as follows:

"Notwithstanding any other provisions of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements which ensure compliance with any applicable effluent limitations, water quality related effluent limitations, national standards of performance, toxic and pretreatment effluent standards, and any ocean discharge criteria."

In addition, Water Code Section 13379 provides:

"Waste discharge requirements shall be adopted to meet the following:

* * *

(f) Any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses or to prevent nuisance. [Emphasis added.]

Section 13263 of the Water Code provides:

"A regional board, in prescribing requirements, need not authorize the utilization of the full waste assimilation capacities of the receiving waters."

Therefore, the Regional Board need not permit full use of the assimilative or dilution capability of receiving waters.

By PG&E's own admission, the discharge of wastewater containing chlorine does significantly affect aquatic life in the area of its cooling water outfalls. Chlorine residuals are therefore properly subject to regulation by the Regional Boards through the issuance of waste discharge requirements.

Allegation That the Chlorine Residual Limitation Imposed by the Regional Boards is Not Required by the Basin Plans.

Petitioner contends that neither the San Francisco Bay Basin Plan nor the Sacramento-San Joaquin Delta Basin Plan require the application of the adopted 0.0 mg/l limitation on total chlorine residual, which is in effect a prohibition on the discharge of chlorine residual in cooling wastewaters. The "Water Quality Control Plan Report for the San Francisco Bay Basin" states, on page 5-4: "Wastewaters shall not contain residual chlorine upon discharge to surface waters". This Basin Plan also contains a general statement on toxicity, at page 4-17, placed in the chapter discussing water quality objectives. The Sacramento-San Joaquin Delta Basin Plan similarly contains a general statement on toxicity, at page I-4-10.⁵

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5. "All waters shall be maintained free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the Regional Board. The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for 'experimental water' as described in Standard Methods.... In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate; additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available; and source control of toxic substances will be encouraged."

A primary means of implementing basin plans is the issuance of waste discharge requirements, which include limitations on discharges of waste consistent with the provisions of the applicable plan and beneficial uses specified in the plan. Numerical limitations need not necessarily be specified by a basin plan. That a Regional Board may impose limitations consistent with its basin plan whether or not those limitations are specifically set forth in the basin plan is obvious from reading the above quoted sections of the California Water Code. (See page 13.)

With respect to the Central Valley Regional Board's application of the general toxicity objective by the adoption of the 0.0 mg/l chlorine residual limit, PG&E also asserts that use of this limit is improper without a study of the effects of a particular discharge on the specific receiving waters. (R.T., page 278-279.) The objective states in part that "All waters shall be maintained free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life." The objective provides that specific testing will be used to determine compliance and that, when appropriate, specific testing will be used to establish effluent limitations. Given the previously discussed, well-established, toxic nature of chlorine, we find no error in the Central Valley Regional Board's implementation of the general toxicity statement by the adoption of an effluent limitation permitting the presence of chlorine and chlorine residuals only in concentrations below the level of detectability.

PG&E also argues with respect to the Central Valley Regional Board order that, during the hearing for the adoption of Order No. 76-133, the flows of the San Joaquin River were improperly described compared to the wastewater flows of the Contra Costa Power Plant. The cooling wastewater flow of the power plant was described as 987 mgd, which is equal to about 1,500 cfs. The average flow of the San Joaquin River was described as 6,000 cfs, which, compared to the power plant flows, implies that the flow of the power plant was about one fourth the size of the flow of the river. PG&E contends that this comparison is misleading because the tidal prism was not considered. PG&E states that the tide can move as much as 150,000 cfs past the Antioch Bridge. PG&E is correct in that at the point of the discharge the tidal prism would have a greater effect on the dispersion of effluent at times than the flow in the San Joaquin does.

After reviewing the record of the Regional Board hearing, we find the discussion of the relative flows of the power plant and the San Joaquin River was primarily for illustrative purposes, i.e., to show that the discharge is of significant size. At the public hearing the discharger had opportunity to comment and to rebut any statements which may have been incomplete or incorrect. PG&E failed to bring this point to the attention of the Regional Board.

Allegation That Application of Basin Plan Requirements
to Particular Discharges Must be Flexible.

With respect to the San Francisco Regional Board, PG&E argues that the San Francisco Bay Basin Plan prohibition on the discharge of residual chlorine to surface waters (Basin Plan, page 5-4) was inflexibly imposed on the subject PG&E Bay Area power plants, that is, it was imposed without reference to the circumstances surrounding the particular discharges, so as to constitute a denial of due process and equal protection of the law. Petitioner does not challenge the constitutionality of the prohibition on its face, but contends that exceptions to a general administrative rule must be provided where special circumstances exist, as a matter of constitutional law. Petitioner contends that in adopting the subject orders the San Francisco Regional Board failed to consider the facts pertinent to its power plant cooling water discharges, which justify application of a limitation which is less stringent than the prohibition of the discharge of chlorine residual to surface waters otherwise required by the Basin Plan.

Although petitioner has cited numerous cases discussing this constitutional requirement of flexibility, they do not persuade us that the action of the San Francisco Regional Board was contrary to any constitutional requirement.

As we have stated in previous State Board orders, cited at page 8 above, and as affirmed by the Fourth District Court of Appeal in a recent decision, when a basin plan has been adopted, waste discharge requirements are to

implement the plan.⁶ If a limitation specified in a basin plan is determined to be inappropriate for a discharger, or a class of dischargers, then the Regional Board may modify its basin plan pursuant to Article 3, Chapter 4, Division 7 of the Water Code.

Assuming, but not conceding, that Regional Boards are obligated to provide for variances from basin plan requirements, the petitioner was given ample opportunity to demonstrate to the Regional Board that the Basin Plan prohibitions should not be imposed on its facilities. The mere fact that it did not make such a demonstration to the satisfaction of the Regional Board does not mean that the Basin Plan was applied in an unconstitutionally inflexible manner. The Regional Board, after considering all of the facts presented relative to the individual PG&E discharges, issued waste discharge requirements containing a 0.0 mg/l limitation on the chlorine residual content of cooling water discharges. Given the known effects of chlorine on aquatic life, the volume and frequency of the PG&E chlorinated cooling water discharges, and the known presence of aquatic life in the immediate vicinity of each of the discharges, we find ample justification for the adoption of this requirement.

6. Hampson v. Superior Court, 67 Cal.App.3d. 472, 136 Cal.Rptr. 722 at 729.

3. Contention: PG&E contends that the following would be appropriate effluent limitations for the total residual chlorine content of cooling water discharges at the specified locations: 0.1 mg/l average and 0.2 mg/l maximum at Hunters Point Units 2 and 3, 0.2 mg/l average and 0.5 mg/l maximum at Hunters Point Unit 4; 0.2 mg/l average and 0.5 mg/l maximum at Potrero; 0.1 mg/l average and 0.2 mg/l maximum at Pittsburg; and 0.1 mg/l average and 0.2 mg/l maximum at Contra Costa Units 1 through 5 and Units 6 and 7, except 0.2 mg/l average and 0.3 mg/l maximum for Units 6 and 7 operating alone.

Finding: In view of our findings above, it is not necessary to evaluate each of these specifically requested limitations.

4. Contention: Finally, PG&E contends that instead of the July 1, 1977, effective date prescribed in the subject Regional Board orders for compliance with the 0.0 mg/l total chlorine residual limitation applied to cooling water discharges, compliance should be required in coordination with studies required under Section 316(a) of the Federal Act to support a request for exemption from thermal requirements, and under Section 316(b) concerning intake structures.

Finding: The essence of the petitioner's argument to support this contention is that since, as a result of the Section 316(a) and (b) studies it is required to conduct, some modification of its cooling water discharge system(s) may be required, and if the installation of dechlorination facilities will also be necessary, it would be desirable to make all such modifications at one time. Since the result of any such studies and the petitioner's request for exemption under Section 316(a) of the Federal Act cannot be anticipated with accuracy at this time and the decisions on these matters will not be forthcoming for several months, we find it inappropriate to delay the effective date of properly adopted total residual chlorine limitations to coincide with that for thermal requirements. Nonetheless, in view of the time required to resolve issues raised by the subject PG&E petitions, it is appropriate to suggest that, if necessary to provide adequate time for compliance, the Regional Boards may revise the effective date of the total residual chlorine limitation for these cooling water discharges.

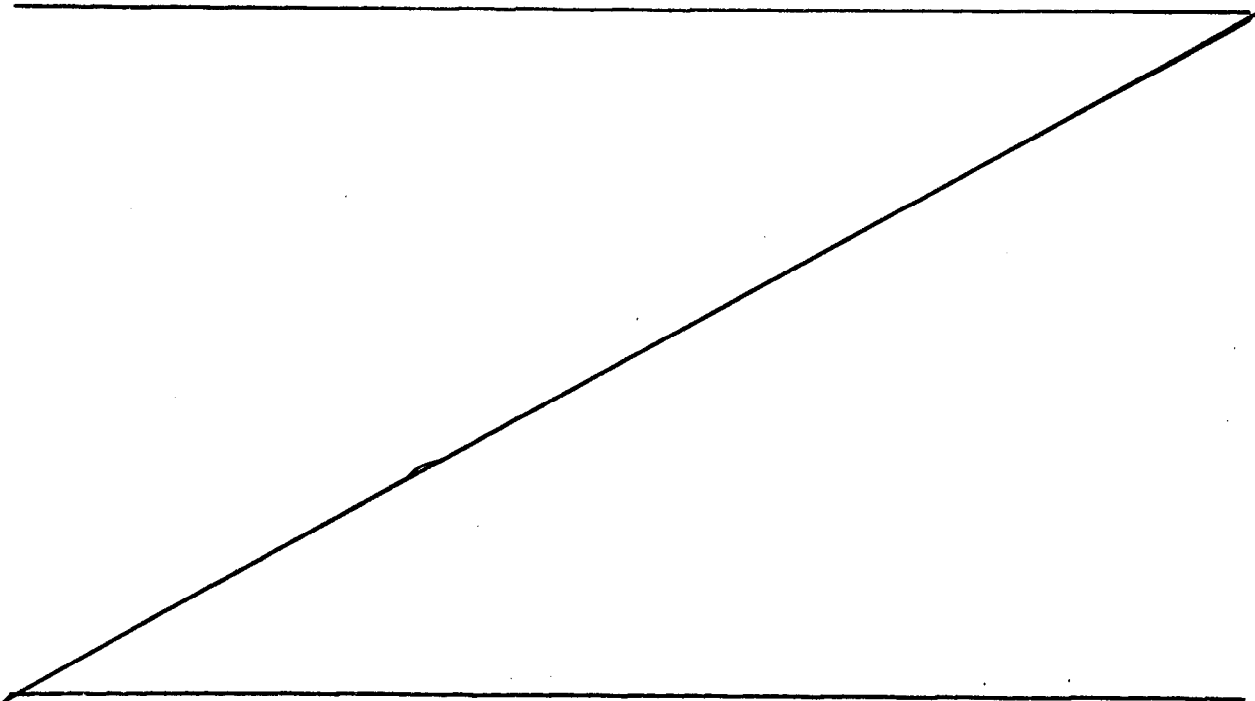
III. CONCLUSIONS

After review of the entire record, and for the reasons heretofore expressed, we have reached the following conclusions:

1. The total residual chlorine effluent limitations of 0.0 mg/l contained in San Francisco Regional Board Orders Nos. 76-60, 76-61, and 76-63 and in Central Valley Regional Board Order No. 76-133, shall be interpreted to mean a concentration below the limit of detectability by conventional methods.

2. The actions of the San Francisco Regional Board in adopting Orders Nos. 76-60, 76-61 and 76-63 were appropriate and proper.

3. The actions of the Central Valley Regional Board in adopting Order No. 76-133 were appropriate and proper.



IV. ORDER

IT IS THEREFORE ORDERED that the petitions for review of San Francisco Regional Board Orders Nos. 76-60, 76-61 and 76-63 and the petition for review of Central Valley Regional Board Order No. 76-133 are denied.

Dated: May 19, 1977

We Concur

/s/ W. Don Maughan
W. Don Maughan, Vice Chairman

/s/ John E. Bryson
John E. Bryson, Chairman

/s/ W. W. Adams
W. W. Adams, Member

/s/ Roy E. Dodson
Roy E. Dodson, Member

/s/ Jean Auer
Jean Auer, Member