STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of Pacific Water Conditioning Association, Inc., for Review of Order No. 75-105 (NPDES Permit No. CA0105759) and Order No. 75-177 (NPDES Permit No. CA0105848) California Regional Water Quality Control Board, Santa Ana Region. Our Files Nos. A-122 and A-127.	Order No. WQ 79-14

BY BOARD CHAIRMAN MAUGHAN:

On September 12, 1975, the California Regional Water Quality Control Board, Santa Ana Region (Regional Board), adopted Order No. 75-105 (NPDES Permit No. CA0105759) prescribing waste discharge requirements for the City of Redlands. Pursuant to Water Code Section 13320, the Pacific Water Conditioning Association, Inc., (petititoner) filed with the State Water Resources Control Board (State Board) a petition dated October 10, 1975, which was received by the State Board on October 14, 1975. This petition sought review of Order No. 75-105 and requested a hearing. The State Board acknowledged receipt of this petition by a letter dated October 21, 1975.

On November 14, 1975, the Regional Board adopted Order No. 75-177 (NPDES Permit No. CA0105848) prescribing waste discharge requirements for the City of Corona. Pursuant to Water Code Section 13320, the petitioner filed with the State Board a petition dated December 11, 1975, which was received by the State Board on December 15, 1976. The State Board acknowledged receipt of this petition by letter dated February 4, 1976.

The State Board responded to the major legal issues involved with those petitions by Order No. WQ 77-16. Said order determined that a hearing regarding the factual issues was necessary and thereafter the State Board[1/] by a notice dated October 27, 1977, scheduled a public hearing in Sacramento on both said petitions for December 2, 1977; the State Board changed by a notice dated November 10, 1977, the place of hearing from Sacramento to Riverside to allow the local residents an opportunity to appear at the hearing; the State Board rescheduled the public hearing at the request of the petitioner by a notice dated November 23, 1977, for January 24, 1978, in Riverside. The State Board held the hearing on January 24, 1978; and the Regional Board and petitioner appeared and presented evidence.

I. BACKGROUND

The Santa Ana River Basin has a severe water quality problem caused by an adverse salt balance, that is, more salts enter the Basin than leave the Basin. The net result is a long-term general degradation of mineral quality in both surface and groundwater supplies due to the recycled use of water supplies. Very little salt is removed through discharge to the ocean. In 1970 the rate of buildup of dissolved salts was estimated

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1. The State Board sent petitioner on September 18, 1977, a copy of the draft Notice of Hearing. By a letter dated September 30, 1977, the petitioner objected to the scope of the hearing notice prepared by staff and to the consolidation of the proceedings. Although the State Board responded to this letter on October 14, 1977, these issues are considered infra.

to be 523,000 tons/year in the entire basin. Importation of Colorado River water accounts for over 30 percent of the total salt buildup. Domestic and agricultural sources account for approximately one-half of the total salt input.

As a consequence of this demonstrated water quality problem, the Regional Board in 1975 established in the Water Quality Control Plan, Santa Ana Basin (hereinafter referred to as the "basin plan"), a "Mineral Source Control Program". The basin plan summarizes the Mineral Source Control Program in part as follows:

> "The Mineral Source Control Program is expressed in terms of guidelines and Basin average limits to be applied, and is not a mandatory requirement for each waste discharger. The Basin average for discharges should be calculated by waste load allocation and balanced against plan projections at least every three to five years.
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> "Equivalent salt added by each type of user should average to about 1.3 tons/acre/year for the entire Basin. This is a Basin average requirement and should apply to all user groups who discharge wastes to surface or groundwater sources of the Basin. For discharges to groundwater, the average limits should apply to the salt that reaches the water table as a result of a point or nonpoint source. However, this requirement shall not be applied so as to preclude the pumping and use of the natural water supply in the same subbasin for irrigated agriculture, so long as the 'salt added' criteria are not violated.
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> "The Basin average for equivalent salt is further defined in terms of average limits on the 'salt added' component for municipal and industrial and agricultural users.
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> "Increment of 'salt added' by domestic and industrial users should average approximately 230 mg/l TDS for the entire Basin. Brine solutions from industrial processes or from commercial and home regenerative softeners should be excluded from the freshwaters of the Basin." (Water Quality Control Plan, Santa Ana Basin at 5-9 through 5-10 (footnotes omitted).)

The City of Redlands discharges up to 6.0 million gallons per day (mgd) of treated municipal effluent to Reach 4 of the Santa Ana River or as an alternative up to 6.0 mgd to percolation ponds overlying the Bunker Hill II groundwater subbasin, a groundwater basin which has an available assimilative capacity for salt. Since Reach 4 of the Santa Ana River is an ephemeral stream, the discharge of waste under either alternative would affect the Bunker Hill II groundwater basin. The beneficial uses of the underlying Bunker Hill II groundwater basin include agricultural supply, municipal and domestic supply industrial service supply, and industrial process supply.

Water quality objectives[2/] established in the basin plan for the Bunker Hill II groundwater basin include the following:

Filterable Residue	- 290 mg/l
Sodium	- 30 mg/l
Chloride	- 20 mg/l

As earlier stated, the Regional Board adopted Order No. 75-105, prescribing waste discharge requirements for the City of Redlands. Sections 1.b. and 1.c. of Order No. 75-105 state in part:

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2. A water quality objective is a receiving water standard, i.e., a water quality control parameter which is a standard to be obtained in the actual surface stream or groundwater aquifer. In contrast, an effluent limitation is a water quality control parameter which is a standard to be obtained in the effluent discharged from a point source such as a municipal treatment plant.

"1.b. The discharge of an effluent to the Santa Ana River (Reach 4) or to percolation ponds in excess of the following limits is prohibited:

Constituents	Discharge Serial No.	Units	4-Month Average Discharge Rate and Concentration	Maximum Daily Discharge Rate
		* * *		
Electrical Conductivity	001,002	micromhos/cm	940	---
Filterable Residue	001,002	Lbs/Day mg/l	26,000 520	32,000
Sodium	001,002	Lbs/Day mg/l	4,250 85	5,300
		* * *		
Chloride	001,002	Lbs/Day mg/l	3,750 75	4,700
		* * *		

"1.c. The effluent discharge shall not contain concentrations of any of the below named constituents which exceed the concentration of the same constituents in the water supply by more than the following limits:

Constituents	Discharge Serial No.	4-Month Average (mg/l)
Filterable Residue	001,002	230
Sodium	001,002	60
	* * *	
Chloride	001,002	55
	* * *	

"For effluent limitations 1.b. and c. that requirement which results in the minimum concentration shall predominate." (Emphasis added.)

In the fact sheet prepared for Order No. 75-105, the Regional Board summarized the quality of the water supply that was available to the City of Redlands in 1974 in part as follows:

Filterable residue - 250 mg/l
Sodium - 21 mg/l
Chloride - 16 mg/l

Assuming the quality of the water supply available to the City of Redlands has remained the same as in 1974, the effluent quality and the effluent limitation for the constituents of filterable residue, sodium, and chloride for the City of Redlands may be summarized as follows:

Constituent	Effluent Quality (mg/l) Period: Jan. 1974 to Feb. 1975. Source: Self-Monitoring Reports[3/]	Maximum Allowable from Section 1.b. (mg/l)	Maximum Allowable from Section 1.c. (mg/l)
Filterable Residue	485	520	480
Sodium	88	85	81
Chloride	76	75	71

Since the more restrictive effluent limitation applies, the effluent limitations imposed by Section 1.c. are the limiting constraints on the discharge of the mineral constituents by the City of Redlands and the City of Redlands is marginally out of compliance for the three mineral constituents.

The City of Corona discharges up to 5.5 mgd of treated municipal effluent to percolation ponds overlying the Temescal groundwater subbasins. During periods of emergency, there may be discharges to Temescal Creek, which is tributary to the Santa Ana River immediately upstream of Prado Dam.

3. Since compliance with Order No. 75-105 is determined using a four-month moving average, a thirteen-month average may not accurately reflect the variation in effluent quality over any four-month period.

The Regional Board considered two alternative methods of implementing the basin plan. First, the Regional Board considered utilizing the beneficial uses and the water quality objectives for the Temescal groundwater subbasin to develop the waste discharge requirements for the City of Corona. Second, the Regional Board considered utilizing the beneficial uses and water quality objectives of the Santa Ana River below Prado Dam. The Regional Board chose the latter approach because they concluded that the discharge affected the Santa Ana River immediately above and downstream of Prado Dam and that the discharge did not affect the Temescal groundwater basin. The beneficial uses of the Santa Ana River for Reach 2 and 3 include groundwater recharge, water contact recreation, warm freshwater habitat, and wildlife habitat.

The water quality objectives established in the basin plan for Reach 2 and 3 of the Santa Ana River include the following:

Filterable Residue	- 770 mg/l
Sodium	- 125 mg/l
Chloride	- 175 mg/l

The basin plan also includes a specific analysis concerning the regulation of the discharge of waste from the City of Corona. The basin plan states in part at page 5-17:

> "The Corona area wastewater collection system should be expanded to include the unsewered areas of Norco, Corona, Home Gardens and Temescal Canyon. One regional treatment facility should be provided for the entire service area. If the quality of the present sewage effluent is not markedly improved by the introduction of better quality water, wastewater should be discharged to the Santa Ana Regional Interceptor

(brine line to the ocean). The continued discharge of effluent at the present quality will cause adverse impacts on rising groundwaters near Prado Dam. This will make the water quality objectives at Prado more difficult to meet."

As earlier stated, the Regional Board adopted Order No. 75-177, prescribing waste discharge requirements for the City of Corona. Sections 1.b. and 1.c. of Order No. 75-177 states in part:

"1.b. The discharge of an effluent with a chemical quality in excess of the following limits is prohibited:

Constituents	Discharge Serial No.	Units	4-Month Average Discharge Rate and Concentration	Maximum Daily Discharge Rate
Filterable Residue	All	Lbs/Day mg/l	35,300 770	45,000
Sodium	All	Lbs/Day mg/l	5,700 125	7,100
		* * *		
Chloride	All	Lbs/Day mg/l	8,000 175	10,000
		* * *		

"1.c. The effluent discharge shall not contain concentrations of any of the below named constituents which exceed the concentration of the same constituents in the water supply by more than the following limits:

Constituents	4-Month Average (mg/l)
Filtrable Residue	230
Sodium	60
* * *	
Chloride	55
* * *	

"For effluent limitations 1.b. and c., that requirement which results in the minimum concentration shall predominate."

In the fact sheet prepared for Order No. 75-177, the Regional Board summarized the quality of the water supply available to the City of Corona in 1974 as follows:

Filterable Residue - 761 mg/1
Sodium - 92 mg/1
Chloride - 115 mg/1

Assuming the quality of the water supply available to the City of Corona has remained the same as in 1974,[4] the effluent quality and effluent limitations for the constituents of filterable residue, sodium, and chloride for the City of Corona may be summarized as follows:

Constituent	Effluent Quality (mg/1) Period: May 1974 to April 1975. Source: Self-Monitoring Reports[5]	Maximum Allowable from Section 1.b. (mg/1)	Maximum Allowable from Section 1.c. (mg/1)
Filterable Residue	1,016	770	991
Sodium	206	125	152
Chloride	215	175	170

Since the more restrictive effluent limitation applies, the effluent limitations imposed by Section 1.b. for filterable residue and sodium and the effluent limitation imposed by Section 1.c. for

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4. The City of Corona may receive State Water Project water in the future, which is of substantially better quality for most constituents.

5. Since compliance with Order No. 75-177 is determined using a four-month moving average, a thirteen-month average may not accurately reflect the variation in effluent quality over any four-month period.

chloride are the applicable constraints on the discharge of these constituents by the City of Corona and the City of Corona is out of compliance for all three constituents.

The petitioner is a trade association of retail dealers, manufacturers and suppliers in the "point of use" water conditioning industry in the seven western United States, and has members whose water conditioning businesses are located in or serve the City of Redlands and the City of Corona. The water conditioning industry sells or rents two principal types of water conditioners:

(1) the on-site-regenerative water softener, commonly called an "automatic" softener; and

(2) portable exchange softeners.

An automatic softener contains a bed of ion-exchange material through which the incoming hard water flows. The hard water is softened during its contact with the ion-exchange material as a result of an exchange of the sodium ions in the ion-exchange material for calcium and magnesium ions[6/] in the water supply. Periodically, the flow of water through the ion-exchange material is shut off and the ion-exchange material is recharged by a concentrated brine solution of sodium chloride (salt water).[7/] In other words, the calcium and magnesium ions, which have accumulated in the ion-exchange material, are replaced with sodium ions. The resulting brine containing sodium, magnesium, calcium

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6. Magnesium and calcium ions are the principal hardness-forming constituents of water.

7. Periodically, the operator of an automatic softener has to replenish the salt in the softener.

and chloride ions is discharged to the sewer system.[8] The portable exchange softener also contains a bed of ion-exchange material which operates in the same way as an automatic softener. The difference in the two units occurs during recharge of the ion-exchange material. For portable exchange units, the ion-exchange material must be recharged at a central processing plant.

Water softeners increase the filterable residue (mg/l) of domestic sewage in at least four ways.[9] First the atomic weights of sodium, calcium, and magnesium are respectively 23.00, 40.08, and 24.32. Since two sodium ions are exchanged for each calcium or magnesium ion, there is an increase in filterable residue

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8. If the exact quantity of concentrated salt water solution needed was used to recharge the ion-exchange material, the quantity of sodium ions and the quantity of chloride ions in the discharge brine would be minimized. Since such precision is practically impossible, automatic softeners frequently are set to allow more than the necessary quantity of such solution to recharge the ion-exchange material. The result is an incremental discharge of sodium and chloride ions to the sewer system with no corresponding benefit.

9. Total filterable residue, commonly called "filterable residue", is a measure of solid matter dissolved or suspended in water that will pass through a standard glass fiber filter disk. After filtration, the water is evaporated to dryness and the residue is weighed. Most of the residue in this test was dissolved in the water sample; however, some small fraction of the residue may be fine suspended matter that was able to pass through the pores of the filter. Tests for filterable residue can be conducted with drying temperatures of either 103-105°C to 180°C. At the higher temperature a smaller value for filterable residue may be obtained due to more complete removal of water and decomposition of salts such as carbonate and bicarbonate. Since October 16, 1973, tests conducted for the National Pollutant Discharge Elimination System (NPDES) Permit monitoring program must use the 180°C drying temperature. Since sodium chloride, common table salt, dissolves in water, the addition of sodium chloride to the sewer system by an automatic water softener increases the filterable residue of the sewage wastewater.

by each exchange. However, this increase can essentially be considered negligible. Second, the quantity of the concentrated brine solution used to recharge the ion-exchange material may be set too high. Consequently, after recharge the brine discharged to the sewer will contain excess sodium and chloride ions and thereby will increase the filterable residue. Third, the automatic softener may be set to recharge itself too frequently when in fact a longer period between recharging is all that is necessary to produce soft water. Fourth, even if the quantity of brine used in recharge and the period between recharging is set appropriately to reduce salt added to the sewer system, an automatic softener does discharge its brine to the sewer with the resulting increase in filterable residue. The first and fourth impacts above are unavoidable with the use of an automatic softener. The second and third impacts may be avoided by the operator of the automatic softener. In contrast, a portable exchange unit only has the first impact.[10/]

In summary, the use of automatic water softeners increases the sodium and chloride concentration in the domestic sewage while still reintroducing the magnesium and calcium that has been removed from the water supply. These impacts affect the

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10. Although portable exchange units must be recharged at a central facility, the use of such a facility allows the operator thereof to take measures to eliminate the brine from the domestic sewer system. For example, evaporation ponds may concentrate the brine for trucking, or the facility may be able to discharge to the brine line to the ocean.

filterable residue, sodium, and chloride concentration in the domestic sewage and the electrical conductivity of the sewage.[11/]

II. CONTENTIONS AND FINDINGS

1. Contention: The petitioner contends that the proceedings regarding Orders Nos. 75-105 and 75-177 were improperly consolidated by staff.

Findings: Section 2054, Subchapter 6, Chapter 3 of Title 23, California Administrative Code, is the applicable provision of our regulations. It states:

> "The board may order two or more proceedings which are legally or factually related to be consolidated or heard together unless any party thereto makes a sufficient showing of prejudice."

The petitioner's contention, as we understand it, relates both to the authority of the staff to consolidate the proceedings and to the alleged prejudice to the petitioner from said consolidation. As to the former, while Section 2054 refers to the Board and not to the staff, it has been the consistent administrative practice of the State Board to delegate to staff routine administrative function. Among such functions delegated has been the consolidation of proceedings under Section 2054 such as the present proceedings. The staff had adequate authority to take the action it did.

The petitioner contends that such consolidation was prejudicial to it because the quality of the water supply and

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11 Electrical conductivity is simply another way of measuring the salt content of water. Since limits on filterable residue are contained in Orders Nos. 75-105 and 75-177, the use of electrical conductivity as a control parameter is redundant and unnecessary. The Regional Board agrees as will be discussed infra.

resulting effluent differs greatly between the City of Redlands and the City of Corona and that such consolidation makes the burden more than twice as difficult because of the inherent confusion of having to clarify statements as to which discharge order or Regional Board hearing is being referred to.

The contentions of the petitioner are without merit. Although the water supply available to and the effluent discharged by the City of Redlands and City of Corona differs, this fact does not preclude consolidation of the two proceedings. The basic issue remains the same: The application of the Mineral Source Control Program in the Water Quality Control Plan to dischargers in the Santa Ana Basin. The last argument advanced by the petitioner is without merit. No such confusion was encountered in this consolidated proceeding. The advantages of consolidation such as reduction in administrative cost far outweigh any minor potential problems pointed out by petitioner.

2. Contention: The petitioner objected to the participation in the proceedings of two attorneys employed by the State Board -- one as counsel to the Hearing Officer and one as counsel to the Regional Board. Although the objection is not entirely clear, the substance of the objection seems to be that the petitioner would not receive a fair hearing because both attorneys are employed by the Board and because of the working relationship between them.

Findings: The State Board carefully avoids abuse in the present organization of the consideration of petitions for

review of Regional Board orders. After a hearing on a petition, the hearing engineers review the record and they prepare a staff report, which is forwarded to the hearing attorney. The hearing attorney then prepares a draft water quality order for consideration initially by the Executive Director and then by the State Board at a workshop and meeting. The Board member who was the Hearing Officer at the hearing consults with the hearing engineers and hearing attorney throughout this process. The Regional Board attorney does not participate in the proceeding except for appearing on behalf of the Regional Board at the State Board's hearing until the State Board workshop and meeting, when a petitioner has an equal opportunity to comment on the proposed water quality order. We discern no unfairness in this procedure and know of none occurring in the present proceedings.

3. Contention: The petitioner contends that the State Board should reconsider State Board Order No. WQ 77-16[12] in light of the petitioner's comments in a letter dated July 19, 1977.

Findings: As a matter of administrative law, petitions for reconsideration may be granted upon allegations such as change in law, new evidence, or error in law. The petitioner's letter dated July 19, 1977, may be construed as an argument that the State Board committed an error in law in adopting State Board

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12. By a letter dated July 14, 1977, the State Board sent the petitioner a copy of the proposed order on the legal issues referred to on page 2 above. The petitioner commented on the proposed order in a letter dated July 19, 1977. Thereafter, the State Board adopted the order as proposed (Order No. WQ 77-16).

Order No. WQ 77-16. Although petitioner's July 19, 1977, letter does, therefore, state grounds upon which reconsideration might be granted, we find no reason to exercise our discretion to grant the petitioner's request since the letter dated July 19, 1977, merely contains arguments fully considered by the State Board prior to adopting State Board Order No. WQ 77-16.

4. Contention: The petitioner contends that the Notice of Hearing erroneously excludes numerous issues contained in the two petitions and that the Notice of Hearing is not in conformance with State Board Order No. WQ 77-16. (The State Board's earlier order concerning the legal issues raised by these two petitions.)

Findings: The petitions filed in this matter contain a shotgun blast of issues that may be classified in two distinct categories: (1) Those issues that seek to reverse judgments reached in the applicable water qualtiy control plan (basin plan) and (2) those issues that relate to application of the basin plan to particular dischargers of waste. As to the first category, these issues may be restated to include the following:

> "(a) Whether the use of filterable residue in general as a water quality control parameter is technically, scientifically, logically, or environmentally unsound;
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> "(b) Whether the use of electrical conductivity in general as a water quality control parameter is technically, scientifically, logically, or environmentally unsound;
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> "(c) Whether the achievement of an average incremental increase in filterable residue of 230 mg/l for discharge of waste throughout the entire Santa Ana Basin is appropriate; and

"(d) Whether the achievement of an average groundwater quality of 500 mg/l in the Santa Ana Forebay groundwater basin by the year 2000 is appropriate."

As to the second category, these issues may be restated to include the following:[13]

"(1) Are the particular effluent limitations in Section 1.b. of Orders Nos. 75-105 and 75-177 for filterable residue, sodium and chloride reasonable and appropriate for implementation of the basin plan?

"(2) Is the effluent limitation for electrical conductivity in Section 1.b. of Order No. 75-105 reasonable and appropriate for implementation of the basin plan?[14]

"(3) Are the particular incremental effluent limitations in Section 1.c. of Orders Nos. 75-105 and 75-177 for filterable residue, sodium, and chloride reasonable and appropriate for implementation of the basin plan?

"(4) Did the petitioner raise substantial non-water quality environmental concerns before the Regional Board at the time of adoption of the permits in question?"

As to the issues enumerated in the first category, the petitioner essentially is trying to attack judgments made in the planning process leading up to the adoption of the basin plan for the Santa Ana Basin. The State Board has consistently held that attacks on the validity of the relevant basin plan as part of a petition for our review of individual waste discharge

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13. This restatement of the issues condenses the issues contained in the petitions and subsequently included in the Notice of Hearing.

14. The Regional Board conceded at the hearing that effluent limitations for electrical conductivity are not necessary for implemention of the basin plan. Therefore, no further discussion of this issue is warranted.

requirements are not appropriate.[15] Accordingly, as to the Issues in the first category, the State Board will not consider them further; as to the Issues in the second category, the State Board will consider them next.

5. Contention: The petitioner contends that the particular effluent limitations in Section 1.b. of Orders Nos. 75-105 and 75-177 for filterable residue, sodium and chloride are unreasonable and inappropriate for implementation of the basin plan.

Findings: When the basin plan was formulated, there was extensive data regarding filterable residue and a groundwater model of the Santa Ana Basin was developed with such data. In developing a mineral source control program, the Regional Board chose to use filterable residue as a water quality control parameter since filterable residue is an adequate indicator of overall salt loadings and since the data for filterable residue was the best available.[16] For these reasons the water quality

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15. Our refusal to review such issues should not be considered as an indication on our part that there is not a sufficient technical basis to support the judgments contained in the basin plan. Rather, the continuous planning process conducted by the Regional Board and the review undertaken by the State Board of amendments to the basin plan developed during such process is the appropriate mechanism for questioning the judgments contained in the basin plan.

16. Other water quality parameters such as electrical conductivity could have been used instead.

objectives for filterable residue were included within the basin plan as adopted by the Regional Board and approved by the State Board.

The Regional Board also included water quality objectives for sodium and chloride in the basin plan. These weter quality objectives were derived from the studies performed for filterable residue.

In State Board Order No. WQ 73-4 the State Board decided that the Santa Ana Regional Board must include effluent limitations in waste discharge requirements not exceeding the water quality objective for total dissolved solids in the waste discharge requirements where the basin which received the wastes had no assimilative capacity, unless substantial evidence in the record supported a higher limit because of system mixing or removal of the waste constituent as the waste percolated through the ground to the aquifer.

For the City of Redlands the Regional Board was considering a discharge to a basin with assimilative capacity. The total limits for a waste discharge in such a situation may be determined by adding to the water quality objective an increment allowing a reasonable use of the assimilative capacity. This is the process utilized by the Regional Board in deriving the limits

established in Section 1.b. of Order No. 75-105, and it was completely appropriate and proper insofar as the means selected to determine the limits. The next question is whether the incremental limits added to the water quality objectives were reasonable.

The water quality objectives for filterable residue, sodium, and chloride, the increment added to each water quality objective, and the resulting limitation in Section 1.b. of Order No. 75-105 may be restated as follows:

Constituent	Water Quality Objective	Increment (mg/l)	Effluent Limitation
Filterable Residue	290	230	520
Sodium	30	60	85[17/]
Chloride	20	55	75

Evidently, the petitioner abandoned at the hearing any objection to the reasonableness of the increment added to the water quality objective for filterable residue for the City of Redlands because the petitioner's principal expert witness, Dr. Keilin, specifically recommended an effluent limitation for the City of Redlands of 520 mg/l. (RT 124) Since the City of

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17. In the hearing James Anderson, Executive Officer of the Regional Board and its principal witness, indicated that an increment of 60 mg/l was added to the water quality objective for sodium to give an effluent limitation of 90 mg/l. He further indicated that the Regional Board reduced the effluent limitation for sodium from 90 mg/l to 85 mg/l because "the water supply available to the City of Redlands indicated that the full use of the assimilative capacity would not be justified." (RT 19)

Redlands is able to achieve this effluent limitation, no further discussion of the reasonableness of this effluent limitation is necessary. However, for the constituents sodium and chloride, there is insufficient evidence, for the reasons discussed in Contention 6, at pages 27 and 28, to conclude that the incremental limits, which were added to the appropriate water quality objectives, allow reasonable use of the assimilative capacity of the basin. Accordingly, the total limitations for sodium and chloride contained in Section 1.b. of Order No. 75-105 are inappropriate and improper to implement the basin plan; the total limitation for filterable residue contained in Section 1.b. of Order No. 75-105 is appropriate and proper to implement the basin plan.

For the City of Corona the Regional Board had a discharge which presented an unusual problem. Although the discharge occurs in the Temescal subbasin, a subbasin with no assimilative capacity, the effect of the discharge is on Reaches 2 and 3 of the Santa Ana River. Most of reaches 2 and 3 of the Santa Ana River are a perennial stream with no assimilative capacity available for filterable residue at present. Some assimilative capacity for filterable residue will be developed by 1985 under the recommended plan. Since the basin plan identified the City of Corona's waste discharge as creating a substantial water quality problem, the Regional Board applied

the rule in State Board Order No. WQ 73-4 and therefore included the water quality objectives for the Santa Ana River at Prado Dam as total effluent limitations on filterable residue, sodium, and chloride. The appropriateness of this decision is the crucial inquiry in this case.

Obviously the Regional Board had three choices available to it: (1) It could apply the rule for basins with assimilative capacity as explained in the discussion concerning the City of Redlands; (2) it could formulate a special rule for the City of Corona because of the unusual factual circumstances; (3) it could apply the rule contained in State Board Order No. WQ 73-4. The choice is not an easy one. If the first was chosen, the Regional Board would have ignored its responsibility to protect water quality by allowing a waste discharge to continue that was causing a substantial water quality problem. The second choice is both the most attractive and the most hazardous. While it is desirable to consider the special circumstances of the individual discharger and thereby to assure that reasonable requirements are prescribed for the particular waste discharge, the record before the State Board suggests no analysis that would establish a special rule to take into account the special circumstances of the discharge and to assure protection of water quality.[18/] The Regional Board chose the last alternative, and it was appropriate and proper.

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18. The petitioner does suggest effluent limitations for the City of Corona, but it fails to establish how those limits implement the basin plan. If petitioner or the discharger
(continued on next page)

6. Contention: The petitioner contends that the particular limitations in Section 1.c. of Orders Nos. 75-105 and 75-177 for filterable residue, sodium and chloride are unreasonable and inappropriate for implementation of the basin plan.

Findings: Section 1.c. contains incremental limits for the named constituents. The genesis of the increments used for filterable residue, sodium, and chloride may be found in a report prepared by the staff of the Regional Board entitled "A Study of Mineral Increments Inherent to Municipal Water Users", dated September 1, 1964. This document reviewed water supply data and sewage influent and effluent data for five communities: Sun City, City of Rialto, City of Perris, City of Riverside, and City of San Bernardino. As a consequence of this review, it recommended certain incremental limits for various water quality control parameters including filterable residue, sodium and chloride. The Regional Board considered the staff report and after a public hearing, established, among others, mineral increments for filterable residue,[19] sodium, and chloride, respectively, as follows: 280 mg/l, 75 mg/l, and 75 mg/l.

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18. (continued from page 22)

desires application of a special rule to this discharge, it is incumbent upon them to formulate and present the justification for such a rule to the Regional Board. Bald conclusions as presented in the present hearing are insufficient. The Porter-Cologne Act allows a discharger or an interested party, such as the petitioner, to request such action at any time and review by the State Board of the Regional Board's action or failure to act is authorized under Water Code Section 13320.

19. The filterable residue was measured by the low temperature method.

During the development of the present basin plan, the Regional Board analyzed through a computer study what the resulting water quality in the Santa Ana Region would be if present water management practices, including the use of the above increments by the Regional Board, were continued. This computer study concluded that a broad range of adverse water quantity and quality impacts would occur. The identification of these deficiencies led to the formulation of seven alternative plans for the Upper Santa Ana River watershed.

The Regional Board ultimately adopted a basin plan that specified water quality objectives that could be achieved, if the proposed implementation plan was carried out. Specifically, the basin plan concluded that the City of Corona would have to use a better quality water supply or discharge to the brine line to the ocean and that the Mineral Source Control Program be implemented, both explained supra.

The basin plan specified in the Mineral Source Control Program that the "Increment of 'salt added' by domestic and industrial users should average approximately 230 mg/1 TDS for the entire Basin." (Basin Plan, at 5-10) Since the basin plan did not specify increments for other constituents such as sodium or chloride, the Regional Board reduced the increments developed in the 1964 study in a proportion close to the reduction for filterable residue from 280 mg/1 to 230 mg/1.

The complaint of the petitioner, as we understand it, is twofold: (1) The Regional Board's use of the 230 mg/1 increment

in nearly all waste discharge requirements and (2) the Regional Board's use of the sodium and chloride increments, when they are not specified in the basin plan.

As to the former complaint, the facts are not in dispute. The Regional Board has almost universally used the 230 mg/l in waste discharge requirements prescribed by it. Undoubtedly, the Regional Board developed this practice because of the ease of administration. Nevertheless, the blind use of the 230 mg/l increment does not implement the basin plan. The words used in the basin plan, "should average", contemplate that some dischargers may have increments in waste discharge requirements for filterable residue less than 230 mg/l and likewise some dischargers may have increments that are larger. This concept is reinforced by the fact that the average increment of salt added by dischargers in the Region is now approximately 230 mg/l even though a number of dischargers are exceeding this figure.

Nonetheless, the establishment of an incremental limit for filterable residue on an individual basis for each discharger would be an incredibly difficult task. This difficulty may be resolved by using the following procedure. The use of the 230 mg/l increment in waste discharge requirements is appropriate absent any evidence to the contrary. Any interested person, including the discharger, may request prior to adoption of waste discharge requirements the use of an increment larger or smaller than the 230 mg/l increment. The burden of proof, at any necessary

hearing, would be on the interested party to establish that an increment other than 230 mg/l is appropriate. The Regional Board should consider at least the following factors in determining the appropriate increment: The water supply available to the contributors to the waste discharge, the past effluent quality of the discharger, the effluent quality achieved by other waste dischargers in similar situations, the good faith efforts or lack thereof of the discharger of waste to control the input of salt, the basin plan, including the water quality objectives and the implementation program, the measures necessary to achieve compliance, and other relevant matters.

The Regional Board should not grant any request for an increase in the 230 mg/l increment for filterable residue unless the discharger establishes that extraordinary measures are necessary to assure compliance or that it is in the interest of the State to allow such an increase for projects such as water reclamation. In any event, the Regional Board should assure that the 230 mg/l average increment is achieved for the Santa Ana Basin. The discharger or any other interested person should be given the opportunity, if desired, to present evidence on whether an increment for filterable residue other than 230 mg/l is appropriate in light of the criteria stated above. In the absence of any such presentation, the Regional Board's use of said increment was appropriate and proper.[20/]

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20. As explained, supra, the limit for filterable residue in Section 1.c. of Order No. 75-177 is not the limiting
(continued on next page)

Having considered the petitioner's contentions regarding the incremental limits imposed on the dischargers for filterable residue, we must now consider the incremental limits imposed for sodium and chloride. The reasonableness of the Regional Board's use of the sodium and chloride increments depends upon the usefulness of the analysis used by the Regional Board to derive the present increments. Initially, these increments were developed from the 1964 study mentioned above. The 1964 study used the "low temperature" method. In contrast, federal regulations since 1973 have required the use of the "high temperature" method. Consequently, direct comparison between the earlier filterable residue figures and the present is not possible. If the one effluent sample was analyzed by both methods, the "high temperature" method would result in a lower value. The degree to which it would be lower depends upon the relative quantity of the different constituents. Consequently, a minor problem with the 1964 study is the different laboratory techniques used.

The major problem with the 1964 study is the lack of proper statistical technique. For example, only a limited number of samples of both water supply and effluent were analyzed and the samples were taken only during the winter months.

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20. (continued from page 26)

effluent limitation on this constituent; the effluent limitation in Section 1.b. is the limiting effluent limitation. Since we see no reason to make the Regional Board undertake a useless act, their redetermination of the matter may be undertaken during the revision of these waste discharge requirements prior to July 1, 1979 -- the expiration date of Order No. 75-177.

There may be a seasonal variation in the effluent quality. One possible reason for such variation is the use of air conditioners in the summer. Some units use a small cooling tower to discharge excess heat to the environment. Such units typically "blowdown" a brine solution to the sewer. Obviously, such units are used less in the winter than the summer. Although we have no idea whether any of these matters will significantly affect the present incremental values used by the Regional Board, there is sufficient doubt in our mind concerning the usefulness of the 1964 study to require the Regional Board to undertake the analysis specified infra before including incremental values for sodium and chloride in Orders Nos. 75-105 and 75-177.

Finally, the most disturbing aspect of the Regional Board's use of the present sodium and chloride increments, which are reductions in the sodium and chloride increments adopted by the Regional Board following the 1964 study, is the lack of analysis establishing that the present sodium and chloride increments are appropriate to implement the basin plan. The somewhat proportional reduction in the sodium and chloride increments establishes nothing but a loose mathematical relationship.

If the Regional Board desires to include sodium and chloride increments in Orders Nos. 75-105 and 75-177, the Regional Board may use either of two independent justifications for the inclusion of said increments. First, the Regional Board may establish sodium and chloride increments that are appropriate to implement

the basin plan objectives for these constituents. To establish such increments on this basis, the Regional Board should undertake an analysis of inputs of said constituents to the Santa Ana Basin and the outflow therefrom in much the same manner as the current increment for total filterable residue was developed. Second, in the event that the Regional Board is unable to make such a direct tie between the water quality objectives and the effluent limitations, the Regional Board may establish sodium and chloride increments in Orders Nos. 75-105 and 75-177 if it determines that the constituents are in need of control. If it makes such a determination, it should establish sodium and chloride increments in Orders Nos. 75-105 and 75-177 that each municipality may be reasonably expected to achieve using reasonable methods to control the discharge of sodium and chloride. To establish such incremental limits, the Regional Board should review such evidence as the extensive data on sodium and chloride increments from self-monitoring reports from the many municipalities in the upper Santa Ana River basin and the control methods implemented by said municipalities. In applying these increments to individual municipalities, the Regional Board should adjust the limitations to reflect the circumstances affecting the discharge from that municipality. Simply stated, this approach requires dischargers of waste to waters of the State at a minimum to control constituents of a waste discharge that are of concern using "best efforts" methods and technology.

In either case (use of what is, in effect, a waste load allocation or use of the "best efforts" approach), the requirements issued by the Regional Board should ultimately result in compliance

with the objectives specified in the basin plan. Of course, if the Regional Board finds in the process of imposing individual waste discharge requirements that the efforts necessary to implement objectives seem out of proportion to the benefits obtained thereby, it may wish to consider amending the plan to make the objectives less stringent. On the other hand, either the "waste load allocation" or "best efforts" approach may be used to maintain water quality higher than that strictly required by the basin plan where the policy specified in State Board Resolution 68-16 (the "Non-degradation Policy") requires it.

In the interim, until the Regional Board can reevaluate the proper increment for sodium and chloride for waste discharge requirements for the City of Redlands and the City of Corona, the Regional Board should not include any effluent limitations for sodium or chloride in waste discharge requirements for either city unless the receiving water which receives the discharge has no assimilative capacity for either sodium or chloride. In that event, effluent limitations should not exceed the water quality objective for the particular receiving water.

7. Contention: The petitioner contends that the Regional Board totally ignored its responsibilities under the California Environmental Qualtiy Act (Public Resources Code Section 21000 et seq.; hereinafter referred to as "CEQA").

Findings: In State Board Order No. WQ 77-16 the State Board reviewed this contention of the petitioner and the State Board determined at that time that the State Board would receive evidence and oral argument at the factual hearing regarding whether any of the issues raised by the petitioner before the Regional Board

at the time of the adoption of the waste discharge requirements in question raised non-water quality environmental concerns and, if so, what action should be taken in response to those concerns. At the hearing the petitioner submitted no evidence on this issue. Therefore, no further consideration need be given to this issue.

III. REVIEW OF THE BASIN PLAN

During the State Board's review of the present waste discharge requirements several matters have caused us concern about the water quality objectives and the implementation program contained in the basin plan. Because of our concern, the Regional Board, as part of the continuing planning process, should review these areas. Specifically, the issues that should be reviewed and our comments concerning these issues are as follows:

To achieve the water quality objectives in the basin plan, is it necessary to include in waste discharge requirements effluent limitations for filterable residue and for sodium and chloride? The basin plan was principally developed using filterable residue. Since sodium and chloride are constituents of filterable residue, and if the filterable residue water quality objective were achieved through implementing the measures contained in the basin plan, would not the sodium and chloride water quality objectives be achieved? If the sodium and chloride water quality objective would not be achieved, what implementation measures should be followed and are the objectives reasonable?

Our request above is not intended to indicate any conclusion on our part at this time that sodium and chloride objectives are unnecessary where total filterable residue objectives have been established or that the current sodium and chloride objectives in the basin plan are unreasonable. The questions we've posed are simply matters that we feel should be answered in due course as a part of the continuing planning process.

IV. CONCLUSIONS AND ORDER

After review of the record and consideration of the contentions of the petitioners and for the reasons discussed, we conclude as follows with regard to the issues raised by the petitioner:

1. The proceedings regarding Orders Nos. 75-105 and 75-177 were properly consolidated by the staff.

2. The participation in the present proceedings by two attorneys from the Legal Division, one as counsel to the Hearing Officer and one as counsel to the Regional Board, created no unfairness to the petitioner.

3. The request to reconsider State Board Order No. WQ 77-16 is denied.

4. The Notice of Hearing in this matter was in conformance with State Board Order No. WQ 77-16 and did not exclude any issues that were properly before the State Board.

5. The effluent limitation contained in Section 1.b. of Order No. 75-105 for filterable residue is appropriate and proper and implements the basin plan.

6. The effluent limitations contained in Section 1.b. of Order No. 75-105 for sodium, chloride, and electrical conductivity are inappropriate and improper.

7. The effluent limitations contained in Section 1.b. of Order No. 75-177 for filterable residue, sodium and chloride are appropriate and proper and implement the basin plan.

8. The effluent limitations contained in Section 1.c. of Orders Nos. 75-105 and 75-177 for sodium and chloride are inappropriate and improper.

9. The effluent limitations contained in Section 1.c. of Orders Nos. 75-105 and 75-177 for filterable residue is appropriate and proper. However, the discharger and any interested person should be given the opportunity, if desired, to present evidence on whether an increment for filterable residue other than 230 mg/1 is appropriate in light of the criteria stated in response to Contention 6.

10. The Regional Board fully complied with CEQA.

11. The Regional Board should review the necessity for water quality objectives for sodium and chloride in the basin plan as explained supra.

IT IS HEREBY ORDERED that this matter be referred back to the Regional Board for modification of Orders Nos. 75-105 and 75-177 in conformance with this order.

Date: March 15, 1979

WE CONCUR:

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

/s/ William J. Miller
William J. Miller, Member

/s/ L. L. Mitchell
L. L. Mitchell, Member