

STATE WATER RESOURCES CONTROL BOARD MEETING
SACRAMENTO, CALIFORNIA
SEPTEMBER 15, 1977

In the Matter of the Petition
of Shell Oil Company for
Review of Order No. 75-22
(NPDES Permit No. CA0000809),
of the California Regional
Water Quality Control Board,
Los Angeles Region. Our
File No. A-101.

WQ 77-24

BY THE BOARD:

On March 10, 1975, the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), adopted Order No. 75-22 (NPDES Permit No. CA0000809) establishing waste discharge requirements for Shell Oil Company's Wilmington-Dominguez refinery in Carson, California. On April 9, 1975, the State Water Resources Control Board (State Board) received a petition for review of Order No. 75-22 filed by Shell Oil Company (Petitioner).

Background

Shell operates a petroleum refinery consisting of two sections, approximately 2.5 miles apart with street addresses of 20945 South Wilmington Avenue (Dominguez Section), and 1622 East Sepulveda Boulevard (Wilmington Section). Both sections discharge into the Dominguez Channel, a navigable water of the United States. Discharge No. 001 (Dominguez Section) discharges just south of Del Amo Boulevard and discharge No. 002 (Wilmington Section) discharges just west of Alameda Street.

During dry weather, the combined discharge of both sections is 1.6 mgd (million gallons per day) of cooling tower bleed-off which includes boiler blowdown, demineralizer wastes, and other nonprocess wastes. The wastes flow through an API-type oil-water separator before being discharged. During wet weather, No. 001 discharges combined wastewater up to 28.4 mgd and No. 002 discharges combined wastewater up to 6.6 mgd.

1. Contention: Shell contends that effluent limitations should be expressed either in terms of concentration limits or mass emission rates, but not both.

Findings: This same contention was made by the petitioner with regard to the permit issued for its Mormon Island marine terminal storage facility and was dealt with by the State Board in its Order No. 76-13. In that order the State Board found that it was appropriate to establish both mass emission rates in order to protect receiving waters and concentration limits for some constituents to eliminate the possibility that pollutants could be discharged in high concentrations. The same principles apply to the contention in this case as applied in Order No. 76-13, and we again conclude that the action of the Regional Board was appropriate. However, as was stated in our Orders 77-18 and 77-19 (regarding the Texaco Wilmington refinery and Carson Sulfur Recovery Plant, respectively) the State Board enthusiastically supports water conservation and directs the Regional Board to amend the concentration

limits to allow reasonable water conservation if and when the petitioner submits to the Regional Board a specific plan for water conservation which it intends to implement.

2. Contention: Shell contends that the expiration date should be changed to December 26, 1979, which is more consistent with a five-year permit term rather than June 30, 1978, as contained in Order No. 75-22.

Findings: This contention was also dealt with in State Board Order No. 76-13. As we stated in that Order, five years is the maximum term for an NPDES Permit, not a mandatory term. The action of the Regional Board in this regard was appropriate.

3. Contention: Shell contends that Standard Provision 11¹/₁ is inadequate in that it fails to provide protection against non-compliance during malfunction, start-up and shut-down operations and due to the acts of third parties.

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1. In the event the discharger is unable to comply with any of the conditions of this Order due to:

- (a) breakdown of waste treatment equipment;
- (b) accidents caused by human error or negligence; or
- (c) other causes such as acts of nature,

the discharger shall notify the Executive Officer by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the non-compliance and shall indicate what steps were taken to correct the problem and the dates thereof, and what steps are being taken to prevent the problem from recurring.

Findings: This same contention was made to the State Board by Union Oil Company of California in its petition for review of San Francisco Regional Board Order No. 74-152 (NPDES Permit No. CA0005053) and by Texaco, Inc., in its petition for review of Los Angeles Regional Board Orders 75-90 (NPDES Permit No. CA0003778) and 75-24 (NPDES Permit No. CA0002020). Our response to that contention is found in State Board Orders Nos. WQ 75-16, 77-18, and 77-19, wherein it is stated:

"We recognize that influent quality changes, equipment malfunction, facilities start up and shutdown or other circumstances may sometimes result in the effluent exceeding permit limitations despite the exercise of reasonable care by petitioner. In these cases the petitioner may come forward to demonstrate to the Regional Board that such circumstances exist. The Regional Board will consider these factors in exercising their (sic) discretionary authority in determining noncompliance and for enforcement purposes."

The Regional Board is not required to include a provision related to upsets, breakdowns, malfunctions of the treatment facility or treatment equipment in NPDES permits and did not err in adopting Order No. 75-22 without such provision or allowance.

4. Contention: Shell contends that certain effluent limitations are more stringent than Environmental Protection Agency (EPA) promulgated effluent guidelines, and are unnecessary to maintain water quality objectives and protect beneficial uses. Petitioner objects to the

imposition of effluent limitations more stringent than required by EPA Guidelines in the absence of a waste load allocation demonstrating that such limitations are necessary.

Findings: Waste discharge requirements must be adopted which meet EPA effluent guidelines and any more stringent limitations necessary to implement water quality control plans, or for the protection of beneficial uses or to prevent nuisance.^{2/} The need for more stringent limitations is discussed below on a limitation-by-limitation basis. However, it should be noted generally that the intent of waste load allocation requirements is not to limit the authority of the Regional Board but to assure that limitations are sufficiently stringent that water quality objectives are met. Waste load allocations are needed only for pollutants which probably would otherwise exceed water quality objectives in the receiving waters.^{3/}

5. Contention: Shell contends that the chromium limits in the requirements are too stringent.

Findings: Order No. 75-22 limits the discharge of total chromium in excess of 0.01 mg/l daily maximum and 0.005 mg/l monthly average, effective July 1, 1977. These concentration limits are similar to those prescribed for ocean discharge

2. Section 13379, California Water Code.

3. See State Board Order No. 76-13 regarding the Shell Oil Mormon Island Marine Terminal, particularly footnote 6 and the accompanying text.

in the Water Quality Control Plan for Ocean Waters of California (Ocean Plan).

This discharge to the Dominguez Channel is not covered by the Ocean Plan, but to impose less restrictive limits would encourage discharge to the Channel which is more vulnerable to adverse effects than the ocean due to its lower dilution capacity and lower flushing capacity.

Shell contends that no suitable substitutes exist which would eliminate the necessity of using corrosion inhibitors which contain chromium within this type of facility and that use of inhibitors which do not contain chromium diminishes effectiveness and efficiency and would result in a substantial increase in water and energy consumption.

We are aware of the difficulties involved in complying with Ocean Plan limits for chromium and it is possible that this limit will be changed as a result of the Ocean Plan review before the Table B limits become effective.

The effective date of the chromium limit in Order No. 75-22 was originally July 1, 1977, and not July 1, 1978, as required by the Ocean Plan. However, petitioner's permit was amended by the Regional Board on August 22, 1977 to include the July 1, 1978 compliance date. Petitioner's amended permit also provides that Shell will be given the same opportunity afforded to ocean dischargers to request an extension of the implementation date beyond July 1, 1978, but not exceeding July 1, 1983 (see State Board Resolution No. 74-5).

6. Contention: Shell contends that the phenol limits in the requirements are too stringent.

Findings: Order No. 75-22 contains interim limits for the discharge of phenols of 1.0 mg/l maximum and 0.5 mg/l monthly average and limits the discharge of phenols after July 1, 1977, to no more than 0.2 mg/l maximum and 0.1 mg/l monthly average. These limits apply to each discharge point separately.

We have examined Shell's self monitoring data for phenols for 1973-1975 and the 1972 phenol data submitted with Shell's permit application. During these periods summarized, in no instance did Shell discharge phenols in excess of the interim requirements of Order No. 75-22. Because Shell's discharge is consistently significantly less than these interim requirements for both discharge points, we find that the interim limits were appropriate.

The phenol limits which apply after July 1, 1977, are five times more stringent than the corresponding requirements contained in Table B of the Ocean Plan. Based upon the record, the phenol requirements contained in the Ocean Plan are adequate for the protection of the beneficial uses of the receiving water. Water Quality Criteria (SWRCB Publication 3-A) reports that a phenol concentration of 0.2 mg/l in the receiving water will not interfere with fish

and aquatic life. An effluent concentration limitation of 0.5 and 1.0 mg/l average and maximum, respectively, is adequate to ensure that the receiving water concentration of phenols will not exceed 0.2 mg/l. Therefore, we find that the phenol limits for discharges after July 1, 1977 should be revised to 0.5 mg/l average and 1.0 mg/l maximum. (For similar rulings, see State Board Order No. 76-13, Shell Oil, Mormon Island Marine Terminal; Order No. 77-22 and 77-24, Mobil and Union Oil, respectively, both adopted this date).

7. Contention: Shell contends that no method is provided for determining monthly concentration averages under Order No. 75-22.

Findings: The requirements provide methods for determining the daily discharge rate and the 30-day average mass emission discharge rate.^{4/} However, no method is provided for determining monthly concentration limits. The minimum sampling frequency according to the self-monitoring program for oil and grease, total organic carbon, and phenols is monthly except during periods of stormwater flow when weekly samples are required. Because of these requirements the 30-day average effluent concentration limitation can only be determined during periods of continuing stormwater flows.

4. Effluent limitation A3 and A4.

Monitoring programs developed for NPDES permits are intended to give the Regional Board a representative sample of the wastes being discharged. If the Regional Board has reason to believe that the discharge is in violation of the conditions of the permit then the Regional Board may impose more stringent monitoring requirements to see if these conditions are being met. To require that a more stringent monitoring program be used during all periods of discharge may place an unreasonable burden on the discharger.

The following provision should be included in Order No. 75-22:

The 30-day average effluent concentration shall be the arithmetic average of all the values of daily discharge concentrations calculated using the results of analysis of all samples collected during any 30 consecutive calendar day period. If fewer than four samples are collected and analyzed during any 30 consecutive calendar-day period, compliance with the 30-day average concentration limitation shall not be determined.

8. Contention: Shell contends that certain stormwater monitoring requirements are unreasonable.

Findings: Order No. 75-22 provides that to determine compliance with certain concentration limits, the daily maximum shall be the arithmetic average of values

obtained from four discrete samples taken at fifteen minute intervals during the first hour of discharge.^{5/}

Shell requests that they be allowed to extend the one hour sampling period to two hours and use one hour continuous composite samples instead of four discrete samples during the first hour of discharge.

In the early stages of stormwater discharge, large quantities of pollutants are washed out of the system increasing the discharge rates for a short period of time. Grab samples at 15 minute intervals during the first hour of discharge give an accurate description of these high pollutant concentrations while a one-hour composite over the same period will only give the average value for that hour which is usually much less than the maximum concentration. Therefore, we find that the monitoring program contained in Order No. 75-22 is appropriate.

9. Contention: Shell has requested that they be given the option of basing the results of their monitoring program on an either up to 24-hour composite samples or grab samples. In the past, Shell has used 12-hour composite samples for monthly reports to the Regional Board.

Findings: Due to the nature of the discharge and its variations in flow, composite samples would not be appropriate. Some pollutants may only be discharged for a few hours each day in a high concentration and when a

5. See footnote 4, page 3, Order No. 75-22.

24-hour composite sample is used this high concentration may be diluted many times. A smaller maximum concentration value will result. Some of these variations in the discharge were described in footnote (gz) of Shell's NPDES Permit Application as follows:

Boiler Blowdown

Volume 10,000 gpd
 Frequency most blowdown continuous;
 some 1 to 3 times/day

Boiler feed water treatment

Wash and rinse volume 122,000 gpd
 Frequency 4 times/day

Boiler washing and cleaning

Wash volume 700 gpd
 Frequency 1 boiler/month

It is the responsibility of the discharger to ensure that the samples taken are representative of the effluent discharged. We find that frequency and type of samples required by Order No. 75-22 are appropriate in this regard.

10. Contention: Shell contends that the interim oil and grease limitations are too stringent and inappropriate.

Findings: The interim oil and grease limitations contained in Order No. 75-22 applied until July 1, 1977^{6/}. More

6. <u>Constituent</u>	<u>Discharge Rate (lbs/day)</u>		<u>Concentration Limit (mg/l)</u>	
	<u>Maximum Daily</u>	<u>30-Day Average</u>	<u>Average</u>	<u>Maximum</u>
Oil and grease	8,760	4,380	15 ^{4/}	25 ^{4/}

stringent limitations consistent with EPA Effluent Guidelines became effective July 1. The numerical interim limits for oil and grease prescribed by the Regional Board were based on the limited data available to the Regional Board regarding limits which could be met with proper operation of the air flotation unit in use at the facility at the time the requirements were adopted. However, more complete data subsequently submitted to the Regional Board indicates that Shell Oil Co., Wilmington, could not have complied with those limits consistently and violations of such limits were inevitable. Therefore, we find that the prescribed interim limits were too stringent and should have been modified. However, since the interim requirements were only effective until July 1, 1977, we find no reason to change the outdated interim limits to specify reasonable interim limits.

In addition, Shell requested that during periods of storm water discharge, the interim effluent limitations for oil and grease in Order No. 75-22 of 15 and 25 mg/l average and maximum be changed to "no visible oil, grease, fats, waxes, oily slicks, or foam".

Presently, some of the runoff flows directly to the oil-water separators and the rest is held in retention ponds and is pumped to the separators at a later time. Because

of this, the stormwater runoff should receive the same degree of treatment as the dry weather flow. However, we previously found there is no reason for recommending change in the interim limits to specify reasonable interim limits.

11. Contention: Shell contends that the Regional Board erred in applying final stormwater flow effluent limitations for Total Organic Carbons in that oil and grease limitations were also prescribed.

Findings: On October 25, 1976, the Regional Board adopted Order No. 76-177 which deletes the TOC limitations from Order No. 75-22 and other orders. Consequently, this issue is moot.

Conclusions and Order

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

1. The Regional Board should revise the concentration effluent limits for phenols to be consistent with the Ocean Plan phenol limitations.
2. A provision should be included in the petitioner's permit prescribing the method for determining compliance with the monthly concentration limits prescribed in the permit.
3. The interim oil and grease limitations included in Order No. 75-22 were too stringent. However, these requirements were only in effect until July 1, 1977 and this issue is now moot.

4. In all other respects the action of the Regional Board in adopting Order No. 75-22 was appropriate and proper.

IT IS HEREBY ORDERED that this matter be referred back to the Regional Board for reconsideration and modifications as herein discussed.

Dated: *September 22, 1977*

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John E. Bryson, Chairman

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W. Don Maughan, Vice-Chairman

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W. W. Adams, Member