

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of)
Shell Oil Company for Review of)
Order No. 75-23 (NPDES Permit)
No. CA0003557), California)
Regional Water Quality Control)
Board, Los Angeles Region)

ORDER NO. WQ 76-13

BY THE BOARD:

On March 10, 1975, the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) adopted Order No. 75-23 (NPDES Permit No. CA0003557) providing waste discharge requirements for the Shell Oil Company (petitioner) for a discharge to the Los Angeles Harbor from the Mormon Island marine terminal located in Wilmington, California.

On April 9, 1975, the petitioner filed a petition for review of Order No. 75-23 raising issues primarily of a technical nature.

I. BACKGROUND

The petitioner utilizes the Mormon Island marine terminal (terminal) for the temporary storage and transfer of petroleum products to and from ocean vessels and the Carson refinery.

Wastewater from the terminal consists of 0.6 mgd of ship ballast water, noncontact cooling water containing no additives, pipeline displacement water, tank rinse and up to an additional 0.56 mgd of rainfall runoff during wet weather. The wastewater

from the terminal is discharged directly to the Los Angeles inner harbor after passing through a baffled oil-water separator.

The Los Angeles-Long Beach inner harbor is an enclosed bay within the meaning of the Enclosed Bays and Estuaries Policy.^{1/} The policy provides that treated ballast waters may be discharged to enclosed bays and estuaries when the beneficial uses of the receiving waters are protected by waste discharge requirements.^{2/}

II. CONTENTIONS AND FINDINGS

The contentions of the petitioner and our findings relative thereto are as follows:

1. Contention: The petitioner requests that the expiration date of Order No. 75-23 be extended from August 31, 1977 to December 26, 1979.

Findings: The Federal Water Pollution Control Act and federal and state regulations provide that NPDES permits may be issued for some fixed term not to exceed five years.^{3/} There is no statutory or regulatory requirement which prescribes any minimum duration for an NPDES permit and the duration of the

1/ Water Quality Control Policy for the Enclosed Bays and Estuaries of California, adopted by the State Water Resources Control Board on May 16, 1974, Resolution No. 74-43.

2/ Chapter I, A, Footnote 2, Enclosed Bays and Estuaries Policy.

3/ 33 U.S.C.A. 1342; 40 C.F.R. 125.41; Section 2235.7, Subchapter 9, Chapter 3, Title 23, California Administrative Code.

permit adopted by the Regional Board is within the limits prescribed by federal and state law. Although the petitioner would find, apparently, a permit of longer duration more desirable that is not sufficient reason to overrule the Regional Board's exercise of discretion in establishing the duration of this permit.

2. Contention: The Regional Board may not prescribe more stringent effluent limitations than are required by applicable federal effluent limitations unless a waste load allocation is prepared.

Findings: In considering this contention, reference should be made to the following provision:

Section 2235.5(b)(3), Article 5, Subchapter 9, Chapter 3, Title 23, California Administrative Code:

"If the waste discharge requirements contain an effluent limitation for a parameter more stringent than the applicable effluent limitation for the parameter developed pursuant to Sections 301, 302, 306 and 307 of the Federal Water Pollution Control Act, a waste loading allocation must be prepared to insure that the discharge authorized is consistent with applicable water quality standards."

Applicable effluent limitations within the meaning of Section 2235.5(b)(3) have not, as yet, been promulgated by the Federal Environmental Protection Agency (EPA). EPA has proceeded no further to develop effluent guidelines for the petitioner's discharge than the draft of a development document.^{4/} The petitioner incorrectly concluded that

^{4/} Development Document for Proposed Effluent Limitation Guidelines on New Source Performance Standards for the Waterborne Shipping Segment of the Transportation Industry Point Source Category, April 1974--Draft

effluent limits for ballast found within the Effluent Limitations Guidelines for the Petroleum Refining Point Source Category regulations were applicable effluent limitation guidelines for the wastewater discharged from its marine terminal.^{5/}

In addition, it was intended that Section 2235.5(b)(3), California Administrative Code, only require waste load allocations to allocate assimilative capacity for the parameters in violation of applicable water quality objectives in a water quality class segment. The Los Angeles Harbor is not designated as a water quality class segment. Thus, a waste load allocation is not legally required by the authorities cited by the petitioner.^{6/}

^{5/} 40 C.F.R. 419.

^{6/} The language of Section 2235.5(b)(3) is ill chosen. The requirement of a waste load allocation was not intended to limit the power of a Regional Board to set effluent limitations more stringent than applicable guidelines where appropriate. The actual intent of Section 2235.5(b)(3) and of applicable federal regulations was to assure that limitations are, at a minimum, sufficiently stringent to bring water quality limited segments of receiving waters into compliance with water quality objectives.

Effluent limitations for a parameter more stringent than the applicable effluent limitations for the parameter developed pursuant to Sections 301, 302, 306, and 307 of the Federal Water Pollution Control Act may be imposed without waste load allocations in a number of instances including implementations of water quality standards containing effluent limitations such as the Ocean Plan and the Thermal Plan, imposing more stringent limitations established pursuant to any state law or regulation, imposing more stringent limitations necessary to meet any other federal law or regulation, or requiring continued compliance with effluent levels that can be met by a facility as demonstrated by prior experience.

3. Contention: Effluent limitations in Order No. 75-23 should be expressed in terms of either mass emission rates (e.g., pounds per day) or in terms of concentration rates (e.g., mg/l).

Findings: Our regulations provide that "[e]ffluent limitations shall specify the average and maximum allowable mass emission of pollutants in terms of pounds per day, or, if not appropriate, in another technically correct and precise manner."^{7/} The quantity of the wastewater discharged from the marine terminal is highly variable and, without adequate controls, the quality of the wastewater could be correspondingly variable. Under such circumstances, it is appropriate for the Regional Board to require both mass emission rates in order to protect receiving waters and concentration limits to eliminate the possibility that pollutants could be discharged in high concentrations.

^{7/} Section 2235.5(b)(4), Article 5, Subchapter 9, Chapter 3, Title 23, California Administrative Code.

4. Contention: The petitioner alleges that effluent limitation A.2^{8/} in Order No. 75-23 limiting concentrations of five-day biological oxygen demand (BOD) to 20 mg/l average and 30 mg/l maximum is inappropriate because: (1) effluent from the terminal fails, consistently, to meet the BOD effluent limitations; and (2) EPA has promulgated effluent limitations for ballast water for the Effluent Limitations Guidelines for the Petroleum Refining Point Source Category indicating that BOD limitations of 26 mg/l average and 48 mg/l maximum would provide the best practicable control technology currently available.

Findings: As indicated within Contention 2 the effluent limitations for ballast water found within the Effluent Limitations Guidelines for the Petroleum Refining Point Source Category, are not applicable to marine terminals.

8/ Effluent limitation A.2 of Order No. 75-23 provides:

"A. Effluent Limitations

* * * * *

"2. The discharge of an effluent in excess of the following limits is prohibited.

"Constituent	Discharge Rate (lbs/day)		Concentration Limit (mg/l)	
	Daily	30-Day Average	Average	Maximum
BOD ₅ 20°C ^{3/}	290	193	20	30
Oil and grease	145	97	10 ^{2/}	15 ^{2/}
Phenols	1.93	0.97	0.1 ^{2/}	0.2 ^{2/}
Sulfide	0.50 ^{3/}	0.50 ^{3/}	--	0.1
Suspended solids ^{3/}	375	250	50	75
Settleable solids ^{3/}	--	--	0.1 ^{4/}	0.2 ^{4/} "

However, the Water Quality Control Plan for the Los Angeles River Basin^{9/} does justify control of oxygen consuming materials in order to protect the beneficial uses of the receiving waters.

This Water Quality Control Plan establishes the following dissolved oxygen standards for the receiving waters of the Los Angeles Long Beach Harbor:

"Dissolved oxygen shall not fall below 5.0 mg/l at any time as the result of waste discharges; when natural factors cause lesser concentrations, then controllable water quality factors shall not cause further reduction.

"For that area known as the outer harbor area of Los Angeles-Long Beach Harbors, the mean annual dissolved oxygen concentrations shall be 6.0 mg/l or greater, provided that no single determination shall be less than 5.0 mg/l. When natural conditions cause lesser concentrations, then controllable water quality factors shall not cause further reduction."^{10/}

While dissolved oxygen concentrations in the inner harbor are above 5.0 mg/l a majority of the time, there are, on occasion, dissolved oxygen concentrations at or lower than 5.0 mg/l in the receiving waters. In the inner harbor, maintenance of the 5.0 mg/l dissolved oxygen objective in the receiving waters is primarily dependent upon the total daily mass loading of oxygen

9/ Water Quality Control Plan Report, Los Angeles River Basin (4B).

10/ Water Quality Control Plan Report, Los Angeles River Basin (4B), Part I, Chapter 4, I-4-7.

consuming substances within the inner harbor and not upon the concentration at which such substances are discharged.

Nevertheless, both federal and state regulations require dischargers to "...maintain in good working order and operate as efficiently as possible any facilities or systems of control installed...to achieve compliance with waste discharge requirements."^{11/} BOD removal is one measure of the efficiency of a treatment system such as that of the petitioner.

Consequently, although the dissolved oxygen objective for the inner harbor is primarily dependent upon total mass loading of oxygen consuming substances rather than discharge concentration, we conclude that the Regional Board may, under the circumstances of this case, prescribe BOD effluent limitations in Order No. 75-23 in order to assure efficient operation of petitioner's treatment facilities. However, the record before us does not demonstrate that the BOD concentration limits of Order No. 75-23 were based upon the BOD limits which would be achieved by petitioner's system if it were efficiently maintained and operated.

5. Contention: Effluent limitation A.2 ^{12/} limiting concentrations of phenols to 0.1 mg/l average and to 0.2 mg/l maximum is unjustified.

^{11/} Section 2235.6(d), Article 5, Subchapter 9, Chapter 3, Title 23, California Administrative Code; 40 C.F.R. 124.45(f).

^{12/} See Footnote 6, supra.

Findings: The petitioner's discharge is not solely ballast waters. Ballast water, line displacement water and tank rinse become mixed with indeterminate quantities of petroleum products and related compounds including phenols. Phenols are toxic to aquatic life.

The Basin Plan requires that the receiving waters in the Los Angeles-Long Beach harbor shall be protected from toxic substances,^{13/} and the Enclosed Bays and Estuaries Policy requires that "...toxic substances shall be removed from...waste to the maximum extent practicable through source control or adequate treatment prior to discharge."^{14/}

A survey of technical literature indicates that toxic concentrations (96 hr Tlm) of phenols have been shown to range from 5 mg/l to 25 mg/l for various forms of marine life. The

13/ Water Quality Control Plan Report, Los Angeles River Basin (4B), Part I, Chapter 4, I-4-8, provides:

"Toxicity

"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."

"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."

14/ Chapter I, C, 1, Enclosed Bays and Estuaries Policy.

same technical authorities suggest that receiving water concentration of phenols of 0.2 mg/l will not interfere with fish and aquatic life.^{15/}

While it is patently clear that the Regional Board is empowered to establish concentration limits to protect receiving waters from toxic substances, the concentration limits established for phenols^{16/} are equivalent to five times more stringent than those contained in the Ocean Plan.^{17/} The Ocean Plan limitation of 0.5 mg/l average and 1.0 mg/l maximum will protect aquatic life and in order to avoid encouraging the discharge of wastes to more limited bodies of water possessing less dilutional capacity than the ocean, the phenol limitation should not be less stringent than required by the Ocean Plan. However, no inference should be drawn from this finding that the State Board also concludes that the time extension for compliance with the phenol limitation in the Ocean Plan should be made applicable to the discharger by the Regional Board.

6. Contention: The petitioner requests that Order No. 75-23 be amended to include a specific method for

^{15/} Water Quality Criteria, Second Edition, 1963, McKee and Wolf, California State Water Resources Control Board Publication 3-A.

^{16/} 0.1 mg/l average and 0.2 mg/l maximum; see Footnote 7, supra.

^{17/} Water Quality Control Plan for Ocean Waters of California, Chapter IV, Table B, provides:

	<u>Table B</u> <u>Concentration Not to be Exceeded More Than:</u>		
	<u>Unit of Measurement</u>	<u>50% of time</u>	<u>10% of time</u>
	***	***	***
Phenolic Compounds	mg/l	0.5	1.0"

determining compliance with the effluent parameters expressed in terms of 30-day average concentration limits.

Findings: We find that the petitioner's request is reasonable and that the following paragraph is appropriate for inclusion in Order No. 75-23:

"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."

7. Contention: The petitioner requests that compliance with the effluent limitation for oil and grease^{18/} be determined by the Hexane Soxhlet Extraction method,^{19/} as opposed to Trichlorotrifluorethane Extraction method (Standard Method 137)^{20/} as required by Order No. 75-23.

Findings: Regulations of the State Water Resources Control Board (State Board) require that "[m]onitoring requirements shall include any national monitoring...requirement specified in Federal regulations."^{21/} Federal regulations require

^{18/} See Footnote 7, supra.

^{19/} Methods for Chemical Analysis of Water and Wastes, 1971, page 226, U. S. Environmental Protection Agency (EPA-625/6-74-003).

^{20/} Standard Method 137, Standard Methods for the Examination of Water and Waste Water, 13th Edition, 1971, American Public Health Association.

^{21/} Section 2235.13(d), Article 5, Subchapter 9, Chapter 3, Title 23, California Administrative Code.

that Standard Method 137 shall be used to determine compliance with effluent limitations for oil and grease.^{22/} It should be noted, however, that federal regulations also make provision for the discharger to make application for alternate test procedures with the State Board.^{23/} Unless the petitioner makes application for the alternate test procedure and receives approval, the Regional Board must require the test method specified by federal regulations.

8. Contention: The petitioner requests that the requirement for storm water monitoring in Order No. 75-23 be modified to permit the collection of samples by a composite sampler and to extend the time over which sampled results are average to determine compliance with daily maximum concentration limitations.

Findings: Of particular concern in resolving the petitioner's request are the following provisions in Order No. 75-23 relating to monitoring for oil and grease and phenols:

Effluent limitation A.2, Footnote 2:

"During periods of storm water discharge, 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. The daily average shall be the arithmetic average of values obtained from all discrete samples taken during a 30-day sampling period."

Monitoring and Reporting Program No. 1596 for Shell Oil Company (Mormon Island Terminal) (CA0003557), page T-1, Footnote 1:

"Weekly during periods of storm flow. Sampling shall consist of four discrete samples taken at fifteen-minute

^{22/} 40 C.F.R. 136.

^{23/} 40 C.F.R. 136.4.

intervals during the first hour of discharge. Each separate discharge period shall be sampled, but no more than one set of samples per week need be obtained."

Technical literature indicates that when monitoring for oil and grease a composite sampler is not as accurate as the grab sample method because of the greater loss of oil and grease that will occur on the composite sampling equipment. On this basis we conclude that the "grab sample" method specified in Order No. 75-23 is appropriate.

During the early stages of a storm, rainwater runoff collects large quantities of pollutants. Rainwater runoff will usually result in peak pollutant loading of the petitioner's waste treatment system during the first hour following a storm. Under such circumstances a discharger is required to make maximum effort to comply with its effluent limitations. However, the monitoring procedures provided by Order No. 75-23 recognize the petitioner's difficulty in this situation by allowing computation of compliance with the daily maximum effluent limitation to be determined by averaging four samples over the first hour of storm water discharge. After the first hour of storm water discharge, the quality of the wastewater discharged from the petitioner's waste treatment system should be substantially improved. Given these conditions, it would be inappropriate for the Regional Board to permit the discharger to determine compliance with effluent limitations for oil and grease and phenols by averaging sampling results over a longer period of time.

9. Contention: The petitioner requests that the monitoring program in Order No. 75-23 be modified to permit monitoring results to be based on composite samples of up to 24 hours as opposed to the use of grab samples.

Findings: As indicated under Contention 8, a composite sampler is not technically satisfactory to monitor for oil and grease. Additionally, due to variations in flow and constituent loading to the petitioner's waste treatment system, some pollutants may only be discharged for a few hours each day in relatively high concentrations. The use of a composite sampler over several hours could disguise the discharge of high concentration of pollutants and could make a mockery of the maximum concentration limitations in Order No. 75-23. For these reasons we conclude that the sampling procedure in Order No. 75-23 is appropriate.

10. Contention: Petitioner contends that Order No. 75-23 should contain a proviso governing situations where noncompliance is due to plant upset, breakdown, malfunction of the treatment facility or other circumstance beyond the petitioner's control.

Findings: This same contention was made to the State Board by Union Oil Company of California in its petition for review of Order No. 74-152 (NPDES Permit No. CA0005053). Our response to that contention is found in State Board Order No. WQ 75-16, at page 6, 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. Regional Board enforcement actions must be reasonably based pursuant to public hearing and due process protections. Limitless facts and possibilities exist regarding upset conditions and each case must be reviewed on its own merits. To limit this discretion of the Regional Board would be to impair seriously the purpose and enforcement provisions of the Federal Water Pollution Control Act."

The Regional Board is not required to include a provision related to upsets, breakdowns, or malfunctions of the treatment facility or treatment equipment in NPDES permits and did not err in adopting Order No. 75-23 without such provision or allowance.

III. CONCLUSIONS

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

1. The Regional Board should revise concentration effluent limitations for BOD contained in Order No. 75-23 to those concentration limitations which will assure efficient operation of the waste treatment system necessary to meet the other requirements of Order No. 75-23.

2. The effluent concentration limitations for phenol in Order No. 75-23 should be identical to the Ocean Plan limitations for phenol.

3. The following paragraph should be included in Order No. 75-23:

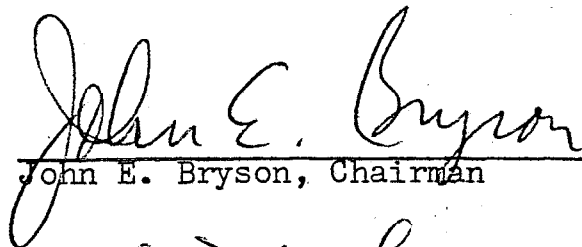
"The 30-day average effluent concentration shall be the arithmetic average of all the values of daily discharge concentrations calculated using the results of analysis of all samples collected during any 30 consecutive calendar day period. If fewer than four samples are collected and analyzed during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

4. The Regional Board's adoption of Order No. 75-23 was not otherwise inappropriate with regard to the contentions raised by the petitioner and discussed under the contentions numbered 1, 2, 3, 7, 8, 9 and 10 of this order.

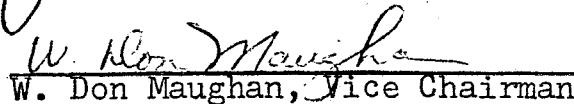
IV. ORDER

IT IS HEREBY ORDERED that the California Regional Water Quality Control Board, Los Angeles Region, shall review and revise Order No. 75-23 consistent with the provisions of this order.

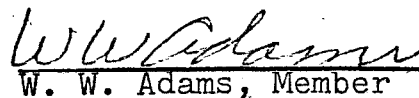
Dated: AUG 19 1976



John E. Bryson, Chairman



W. Don Maughan, Vice Chairman



W. W. Adams, Member



Roy E. Dodson, Member



Jean Auer, Member