



Matthew Rodriguez
Secretary for
Environmental Protection

California Regional Water Quality Control Board San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • FAX (510) 622-2460
<http://www.waterboards.ca.gov/sanfranciscobay>



Edmund G. Brown Jr.
Governor

March 8, 2012

TO: Refinery Wastewater Dischargers (attached list)

SUBJECT: Water Code Section 13267 Technical Report Order Requiring Submittal of Information on Nutrients in Refinery Wastewater Discharges

This order requires the refinery wastewater dischargers in the San Francisco Bay Region to monitor and report nutrient (nitrogen and phosphorus) concentrations and mass loadings in their treated process wastewater discharges. The information we require includes a report of historical nutrient data, a sampling plan, quarterly reports, an interim report, and a final report. Details of these requirements, their due dates, and the basis for the requirements are described below.

Please direct your questions to Tong Yin at 510-622-2418, or by e-mail TYin@waterboards.ca.gov.

Applicability

This order is intended for, and applicable to, the Bay Region's five refinery wastewater dischargers (see the attached mailing list) operating under an NPDES¹ permit.

Purpose and Basis of Requirements

Nitrogen and phosphorus are essential nutrients for the growth of all living organisms in ecosystems. However, excessive nutrients may cause algae blooms in surface waters (eutrophication). Harmful algae blooms reduce or deplete oxygen in the water, produce toxins, stress or kill fish, and block sunlight reaching aquatic plants. There is also some evidence that certain forms of nutrients, e.g., ammonium, may inhibit phytoplankton productivity or have other effects on biota.

The San Francisco Bay estuary has long been recognized as a nutrient-enriched estuary. Despite this, the abundance of phytoplankton in the estuary is lower than would be expected, due to a number of factors, including strong tidal mixing, light limitation due to high turbidity, and grazing by clams. Bay monitoring data are indicating a significant increase in phytoplankton biomass and a small decline in dissolved oxygen concentrations in many areas of the San Francisco Bay estuary, suggesting that the historic resilience of the estuary to the effects of nutrient enrichment may be weakening.

Currently, the Regional and State Water Boards are in the process of developing nutrient water quality objectives for the San Francisco Bay estuary, using an approach known as the Nutrient Numeric Endpoint (NNE) framework. The NNE approach will likely require models that link ecological response indicators to nutrient loads and other management controls. This effort must

¹ National Pollutant Discharge Elimination System

be supported by accurate nutrient loading estimates from a variety of sources, including wastewater. There have been published studies that have developed some loading estimates; however, these studies are outdated, inadequate, or limited geographically. Thus, nutrients loads to the San Francisco Bay estuary from external sources are still poorly understood, and it is important to get an accurate estimate of the loadings.

The Regional Water Board recently issued an order to all municipal wastewater discharges in the Bay Region with requirements similar to this order (*Water Code Section 13267 Technical Report Order Requiring Submittal of Information on Nutrients in Wastewater Discharges*, dated March 2, 2012). The information collected under both orders will be used by the Regional Water Board to evaluate nutrient loadings from wastewater discharges in comparison to loads from other sources, to support modeling and evaluation of loading reduction scenarios, and to inform the need for additional wastewater treatment to address nutrients. The data may also be used in the future to support development of TMDLs or other regulatory strategies.

The Regional Water Board is working on studies as part of a regional nutrient strategy. Loads analysis and modeling are included in this strategy. The San Francisco Estuary Institute (SFEI) is supporting this effort. Therefore, this order includes providing all compiled data to SFEI.

Nutrient Parameters to be Monitored , Sampling Frequency, and Study Duration

Analytically, nitrogen and phosphorus are divided into a number of chemical forms. This order requires effluent monitoring for the following nitrogen and phosphorus forms as well as some ancillary parameters:

- Total Dissolved Nitrogen (TDN)
- Total Kjeldahl Nitrogen (TKN)
- Soluble Kjeldahl Nitrogen (SKN)
- Nitrate (NO_3^-)
- Nitrite (NO_2^-)
- Total Ammonia (NH_3 and NH_4^+)
- Total Phosphorus
- Total Phosphorus (soluble)
- Orthophosphate (dissolved/total)
- pH
- Temperature
- Total Suspended Solids (TSS)

This list includes pH and temperature, which are required for calculating ammonium (NH_4^+) from measured total ammonia concentrations. TSS results may be used to evaluate the correlation between TSS and some nutrient parameters, such as with total phosphorus.

On-going studies are investigating ammonium inhibition effects of diatom blooms in Suisun Bay and the lower Sacramento River. Therefore, data on ammonium discharges will provide better understanding of their impacts on primary productivity.

This Order requires the refinery dischargers to sample the parameters listed in Table 1 below for two years. However, after one year of monitoring, the dischargers may request to the Regional Water Board to reduce sampling frequency for the second year if monitoring data show little variability or mass loadings are insignificant compared to other dischargers in this region. The Regional Water Board may also require additional sampling, if available data indicate significant variability that cannot be characterized by the current sampling frequency.

This Order only requires monitoring of treated process wastewater discharges from these facilities; monitoring of discharges of once-through cooling water, discharges consisting solely of non-process wastewater, such as stormwater, and groundwater seepage is not required.

Table 1. Parameters to be Monitored and Sampling Frequency

Parameters	Units	Monthly Effluent Sampling Frequency (1)	Peak Wet Weather Effluent Sampling Frequency (2)	Sample type ⁽³⁾	Suggested Analytical Methods ⁽³⁾⁽⁴⁾
Total Dissolved Nitrogen ⁽⁵⁾	mg/L and kg/day as Nitrogen (N)	1/Month	2/Wet season	24-hour composite	Standard method 4500-N
Total Kjeldahl Nitrogen	mg/L and kg/day as N	1/Month	2/Wet season	24-hour composite	Standard method 4500-N (organic)
Soluble Kjeldahl Nitrogen	mg/L and kg/day as N	1/Month	2/Wet season	24-hour composite	Standard method 4500-N (organic)
Nitrate	mg/L and kg/day as N	1/Month	2/Wet season	24-hour composite	Standard method 4500-N
Nitrite	mg/L and kg/day as N	1/Month	2/Wet season	24-hour composite	Standard method 4500-N
Total Ammonia	mg/L and kg/day as N	1/Month	2/Wet season	24-hour composite	Standard method 4500-NH ₃
Total Phosphorus	mg/L and kg/day as Phosphorus (P)	1/Month	2/Wet season	24-hour composite	Standard method 4500-P
Total Phosphorus (soluble) ⁽⁶⁾	mg/L and kg/day as P	1/Month	2/Wet season	24-hour composite	Standard method 4500-P
Orthophosphate (dissolved/total) ⁽⁶⁾	mg/L and kg/day as P	1/Month	2/Wet season	24-hour composite	Standard method 4500-P
Flow ⁽⁷⁾	mgd	1/Month	2/Wet season	Continuous	---
pH ⁽⁸⁾	Standard unit	1/Month	2/Wet season	Continuous/Grab	---
Temperature ⁽⁸⁾	Degree C	1/Month	2/Wet season	Continuous/Grab	---
TSS	mg/L	1/Month	2/Wet season	24-hour composite	Standard Method 2540D

Footnotes for Table 1:

- (1) Effluent sampling shall be at the compliance monitoring locations currently specified in the discharger's NPDES permit. Sampling dates shall be as random as feasible, i.e., sampling is not to occur on the same day or weekday of a month except the two wet season events that shall coincide with the peak wet weather flows.
- (2) Wet season is normally from November through April. Dischargers shall estimate the best dates of sampling for peak wet weather flow scenarios; this decision may be based on historical peak wet weather flows, storm forecast, etc.
- (3) 24-hour composites may be made up of a minimum of four discrete grabs, collected over the course of 24 hours or during a 24-hour period the plant is staffed, and volumetrically or mathematically flow-weighted. Grab samples may be combined prior to analysis. If only one grab sample will be collected, it should be collected during periods of maximum peak flows.
- (4) Dischargers may propose other U.S. EPA-approved analytical methods, if available, with detection limits low enough to quantify concentrations in wastewater.
- (5) Standard methods for the examination of water and wastewater, American Public Health Association.
- (6) Soluble or dissolved is defined as filtering the sample through a 0.45 µm filter.
- (7) Report daily average flow, which shall correspond to the same time period when the composite samples are collected; also report daily peak flow during which grab samples are collected.
- (8) Report daily maximum, minimum and average values.

Abbreviations:

mg/L = milligrams per liter

kg/day = kilograms per day

mgd = million gallons per day

1/Month = once per month

2/Wet season = two times each wet season

Equations for calculating mass loadings

Mass loading (kg/day) = mg/L × mgd × 3.78

You are hereby required to provide technical information in accordance with the following:**1. Technical reports containing available historical nutrient, flow, and other water quality data.**

- a. This order requires each discharger to submit a report that identifies what types and quantity (nutrient parameters from Table 1, number of samples, frequency of data collection, i.e., which calendar years and detection limits) of data that are available for the period of January 1, 1975, through February 29, 2012. This report is due to the Regional Water Board June 1, 2012; submit the report to [Tong Yin, tyin@waterboards.ca.gov or via FTP].
- b. Within 90 days of the date of the report submittal in 1(a) above, each discharger shall compile and submit electronically all nutrient data available for the time period of March 1, 2004, through February 28, 2009, other than data already submitted to the Regional Water Board via the Electronic Reporting System (ERS) for compliance purposes. This submittal shall also include all available effluent flow, pH, temperature, total suspended solids, and salinity data for that time period, and be submitted to the Regional Water Board [Tong Yin, tyin@waterboards.ca.gov or via FTP] and SFEI [David Senn, sfbayeffluent@sfei.org].

2. A Sampling and Analysis Plan for Collecting Required Information due April 30, 2012.

Dischargers shall submit a sampling and analysis plan to the Regional Water Board, [Tong Yin, tyin@waterboards.ca.gov or via FTP]. The sampling plan shall include, but not be limited to, a sampling schedule, contract labs to be used, analytical methods to be used, and detection limits of the methods. The sampling plan shall also clearly identify any proposed deviations from the requirements of this order, such as proposing to monitor for fewer or different parameters, and include the bases for any proposed deviations. Dischargers are encouraged to collectively submit one sampling plan.

If the Regional Water Board does not provide comments on the sampling plan within 45 days, the discharger shall start monitoring by July 1, 2012.

3. Quarterly reports due 30 days after the end of each calendar quarter.

Monitoring results for the parameters listed in Table 1 shall be tabulated in Excel spreadsheets and reported to the Regional Water Board [Tong Yin, tyin@waterboards.ca.gov or via FTP] and SFEI, [David Senn, sfbayeffluent@sfei.org. The spreadsheets shall include the name of parameters, units, sampling location, date and times of data collection, analytical method, method detection limit, reporting level, and sampling results. A spreadsheet template will be developed for dischargers use to ensure consistency in data reporting. The Western States Petroleum Association may develop a spreadsheet template for this purpose and make it available to all dischargers. If not, Regional Water Board staff will provide the template. Dischargers are encouraged to compile their data as a group prior to submittal to the Regional Water Board.

4. An interim report due July 31, 2013.

The interim report shall include all data collected through June 30, 2013, for the parameters listed in Table 1, with a cover letter summarizing significant findings, changes or upsets in treatment operations or changes in influent sources that may affect interpretation of the data, and an analysis of any issues identified during data collection effort.

5. A final report due July 31, 2014.

The report shall include the information collected under this study, with the same information as required under the “interim report” above.

These requirements are made pursuant to California Water Code section 13267, which allows the Regional Water Board to require technical or monitoring program reports from any person who has discharged, discharges, proposes to discharge, or is suspected of discharging waste that could affect

water quality. Failure to respond or late response may subject you to civil liability imposed by the Regional Water Board up to a maximum amount of \$1,000 per day. The attached fact sheet provides additional information about these requirements. Any extension in the above deadlines must be confirmed in writing by Regional Water Board staff.

Sincerely,

Bruce H. Wolfe
Executive Officer

Attachments: Fact Sheet for Section 13267 Orders
Refinery Dischargers Mailing List

Fact Sheet – Requirements for Submitting Technical Reports *Under Section 13267 of the California Water Code*

What does it mean when the Regional Water Board requires a technical report?

Section 13267¹ of the California Water Code provides that "...the regional board may require that any person who has discharged, discharges, or who is suspected of having discharged or discharging, or who proposes to discharge waste...that could affect the quality of waters...shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires."

This requirement for a technical report seems to mean that I am guilty of something or at least responsible for cleaning something up. What if that is not so?

The requirement for a technical report is a tool the Regional Water Board uses to investigate water quality issues or problems. The information provided can be used by the Regional Water Board to clarify whether a given party has responsibility.

Are there limits to what the Regional Water Board can ask for?

Yes. The information required must relate to an actual or suspected or proposed discharge of waste (including discharges of waste where the initial discharge occurred many years ago), and the burden of compliance must bear a reasonable relationship to the need for the report and the benefits obtained. The Regional Water Board is required to explain the reasons for its request.

What if I can provide the information but not by the date specified?

A time extension may be given for good cause. Your request should be promptly submitted in writing, giving reasons.

Are there penalties if I don't comply?

Depending on the situation, the Regional Water Board can impose a fine of up to \$5,000 per day, and a court can impose fines of up to \$25,000 per day as well as criminal penalties. A person who submits false information or fails to comply with a requirement to submit a technical report may be found guilty of a misdemeanor. For some reports, submission of false information may be a felony.

Do I have to use a consultant or attorney to comply?

There is no legal requirement for this, but as a practical matter, in most cases the specialized nature of the information required makes the use of a consultant and/or attorney advisable.

What if I disagree with the 13267 requirements, and the Regional Water Board staff will not change the requirement and/or date to comply?

You may ask that the Regional Water Board reconsider the requirement and/or submit a petition to the State Water Resources Control Board. See California Water Code sections 13320 and 13321 for details. A request for reconsideration to the Regional Water Board does not affect the 30-day deadline within which to file a petition to the State Water Resources Control Board.

If I have more questions, whom do I ask?

Requirements for technical reports include the name, telephone number, and email address of the Regional Water Board staff contact.

¹ All code sections referenced herein can be found by going to www.leginfo.ca.gov.

Permitted Refineries Mailing List

Chevron Products Company
841 Chevron Way
Richmond, CA 94801
Attn: Pascha McAlister
(Pascha.McAlister@Chevron.com)
Environmental Specialist

ConocoPhillips
1380 San Pablo Avenue
Rodeo, CA 94572-1354
Attn: Dennis Quilici
(Dennis.R.Quilici@conocophillips.com)
Water Compliance Specialist

Shell Oil Products US and
Equilon Enterprises LLC
3485 Pacheco Blvd
Martinez, CA 94553
Attn: Mike Armour
(michael.armour@shell.com)
Senior Staff Engineer

Tesoro Refining & Marketing Co.
150 Solano Way
Martinez, CA 94553
Attn: Peter Carroll
(Peter.J.Carroll@tsocorp.com)
Environmental Engineer

Valero Refining Company
3400 East Second Street
Benicia, CA 94510-1005
Attn: Sky Bellanca
(sky.bellanca2@valero.com)
Senior Environmental Engineer