

California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2004-0021

ID No.

GENERAL WASTE DISCHARGE REQUIREMENTS
FOR

IN SITU, BIOREMEDIATION OF PETROLEUM HYDROCARBONS

BY THE ADDITION OF NUTRIENTS, MICROORGANISMS, AND/OR AN OXYGEN
SOURCE TO GROUNDWATER AND/OR SOIL

All Counties

The California Regional Water Quality Control Board, North Coast Region (hereinafter the Regional Water Board), finds that:

1. Section 13260(a) of the California Water Code (CWC) requires that all persons discharging waste or proposing to discharge waste that could affect the quality of waters of the state file a report of waste discharge with the Regional Water Board. Under these General Waste Discharge Requirements a Notice of Intent to Comply (NOI) serves as the equivalent of a report of waste discharge.
2. Section 13260(a) also requires that the appropriate filing fee be submitted along with the report of waste discharge. For the purposes of determining the appropriate filing fee, discharges regulated by these General Waste Discharge Requirements are considered to have a threat to water quality rating of 3, and a complexity rating of A, as defined in Section 2200 of the California Water Code. The associated fee must accompany the NOI submitted by a discharger seeking coverage under these General Waste Discharge Requirements.
3. The addition of nutrients (nitrogen, phosphorus, and/or nutrient formula), microorganisms, and/or an oxygen source (magnesium peroxide, calcium peroxide, hydrogen peroxide, and other similar compounds), and air to groundwater and/or soil can be an effective treatment technology capable of enhancing the bioremediation of petroleum hydrocarbons in groundwater, and reducing cleanup times.
4. The injection of nutrients, microorganisms and and/or an oxygen source to groundwater and/or soil is a discharge of waste subject to section 13260 of the California Water Code. However, the discharge of nutrients, microorganisms and/or an oxygen source to soil and groundwater is intended to provide an environmentally beneficial and efficient cleanup, and is anticipated to reduce costs compared to other traditional cleanup remedies such as pump and treat.
5. The Regional Water Board Water Quality Control Plan for the North Coast Region (Basin Plan) includes water quality objectives and receiving water limitations.

6. The beneficial uses of groundwaters in the North Coast Region include:
 - a. Municipal and domestic water supply;
 - b. Agricultural water supply;
 - c. Industrial service supply; and
 - d. Industrial process supply;
7. The action to adopt these General Waste Discharge Requirements is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) (CEQA) because it: (1) authorizes activity that will result in a minor modification to land pursuant to Title 14, California Code of Regulations, Section 15304; (2) consists of an action by a regulatory agency authorizing actions for the protection of the environment pursuant to Title 14, California Code of Regulations, Section 15308; and (3) authorizes minor cleanup actions costing \$1 million or less that are taken to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance pursuant to Title 14, California Code of Regulations, Section 15330. The determination by the Executive Officer that a particular discharge is covered under these General Waste Discharge Requirements is a ministerial decision not subject to CEQA pursuant to Title 14, California Code of Regulations, Section 15268.
8. The Regional Water Board has notified the discharger and interested agencies and persons of its intent to prescribe general waste discharge requirements for this in-situ treatment technology, and has provided them with an opportunity to submit their written comments and recommendations.
9. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to these General Waste Discharge Requirements.
10. The permitted discharge is consistent with the antidegradation provision of State Water Resources Control Board Resolution No. 68-16. Any adverse impact on existing water quality is expected to be short-term and insignificant.

THEREFORE, IT IS HEREBY ORDERED that persons filing a Notice of Intention to comply (hereinafter the discharger) with the provisions of these General Waste Discharge Requirements Order No. R1-2004-0021, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder shall comply with the following:

A. CONDITIONS OF ELIGIBILITY

1. To obtain coverage under these General Waste Discharge Requirements, a discharger shall submit a complete NOI that describes the proposed action and includes:
 - a. The background water quality of the aquifer into which the nutrients, microorganisms, and/or an oxygen source will be added. Groundwater parameters to be evaluated include nutrient concentrations, nitrate, nitrite, ferric iron, ferrous iron, sulfate, sulfide, total nitrogen, total phosphorous, oxygen,

- carbon dioxide, oxidation-reduction potential, alkalinity, pH, temperature, specific conductivity, total dissolved solids, oxygen reductive potential;
- b. Description and schematic of the treatment system, including a schematic of the area of application;
 - c. Complete definition of all preferential pathways and buried utilities;
 - d. Description and volume of any chemical additives;
 - e. Results of a preliminary study to evaluate the effectiveness and feasibility of the in situ soil and groundwater bioremediation. The preliminary study should include geologic and hydraulic aspects of the site such as soil stratification and hydraulic conductivity;
 - f. Description of expected breakdown products and potential impacts;
 - g. Description and quantities of specific microorganisms to be used; and
 - h. Description and quantities of nutrients to be used.
2. The discharger shall submit a monitoring plan to monitor the effectiveness of the treatment system and groundwater quality. The monitoring plan shall describe the locations to be sampled and will include the following: (1) an up-gradient sampling point; (2) a down-gradient sampling point and; (3) sampling points within the contaminated zone. The monitoring plan shall also address the constituents in the table of sampling parameters found in **Attachment A** to this Order.
 3. The discharger shall submit a sensitive receptor study that includes identification of all sensitive receptors within 1500 feet and all beneficial uses of groundwater for the specific site.
 4. The discharger shall publish a notice of proposed discharge of constituents in accordance with these General Waste Discharge Requirements in a newspaper of general circulation in the affected area, post a copy of the notice at the site in a prominent location(s), and shall provide notice to contiguous property owners and any interested parties.

B. NOTIFICATION OF COVERAGE

Project coverage under these General Waste Discharge Requirements shall not take effect until the Executive Officer notifies the Discharger in writing that coverage has been issued. The Executive Office shall not issue notification project coverage under the General Waste Discharge Requirements prior to providing notice and a 30-day public comment period on the proposed issuance of coverage. Notification of project coverage under these General Waste Discharge Requirements shall not be issued if the Executive Officer finds that there may be significant impacts to water quality, or finds that significant public controversy has arisen or will likely arise

from the issuance of project coverage by these General Waste Discharge Requirements and that individual Waste Discharge Requirements should be considered at a regularly scheduled Regional Water Board meeting.

C. DISCHARGE PROHIBITIONS

1. The discharge of any nutrients, microorganisms, and/or an oxygen source not specifically regulated by this Order is prohibited.
2. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC), is prohibited.
3. The discharge of nutrients, microorganisms, and/or an oxygen source to land, surface waters or to groundwater in areas other than that proposed is prohibited.
4. The discharge of nutrients, microorganisms, and/or an oxygen source to property that is not under the control of the discharger is prohibited.
5. The migration of any byproducts produced as part of the treatment process beyond the boundaries of the property owned or controlled by the discharger is prohibited.

D. PROVISIONS

1. A copy of this Order shall be maintained at the project site and be available at all times to operating personnel.
2. Severability

Provisions of these General Waste Discharge Requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.

3. Operation and Maintenance

The discharger must maintain in good working order and operate as efficiently as possible any facility or control system installed by the discharger to achieve compliance with the General Waste Discharge Requirements.

4. Change in Discharge

The discharger must promptly report to the Regional Water Board any material change in the character, location, or volume of the discharge.

5. Change in Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger must notify

the succeeding owner or operator of the following items by letter, in advance of the transfer of ownership or control, a copy of the notice must be forwarded to the Regional Water Board:

- a. existence of this Order; and
 - b. the status of the dischargers' annual fee account
6. Vested Rights

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from his liability under Federal, State, or Local laws, nor create a vested right for the discharger to continue the waste discharge.

7. Monitoring

The discharger must comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the Monitoring and Reporting Program developed for the specific discharge as described in condition of ELEGIBILITY REQUIREMENT A.2 above, and any modifications to these documents as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein. Chemical, bacteriological, and bioassay analyses must be conducted at a laboratory certified for such analyses by the State Department of Health Services.

8. Signatory Requirements

- a. All reports, NOI, or other documents required by these General WDRs, and other information requested by the Regional Board shall be signed by a person described below or by a duly authorized representative of that person.
 - i. for a corporation: by a responsible corporate officer such as: (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; (b) any other person who performs similar policy or decision making functions for the corporation; or
 - ii. the manager of one or more manufacturing, production, or operating facilities if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- b. Reports required by this Order, other information requested by the Regional Water Board, and NOI's may be signed by a duly authorized representative provided:

- i. the authorization is made in writing by a person described in paragraph (a) of this provision;
 - ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and
 - iii. the written authorization is submitted to the Regional Water Board prior to or together with any reports, information, or applications signed by the authorized representative.
- c. Any person signing a document under paragraph (a) or (b) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

9. Inspections

The discharger shall permit authorized staff of the Regional Water Board:

- a. entry upon the project site covered by these General Waste Discharge Requirements or in which any required records are kept;
- b. access to copy any records required to be kept under terms and conditions of this Order;
- c. inspection of monitoring equipment or records; and
- d. sampling of any discharge.

10. Noncompliance

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

- a. breakdown of waste treatment or monitoring equipment;

- b. accidents caused by human error or negligence; or
- c. other causes such as acts of nature;

the discharger must 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 noncompliance and shall indicate the steps taken to correct the problem and the dates thereof, and the steps being taken to prevent the problem from recurring.

11. Revision of Requirements

The Regional Water Board may review this Order periodically and may revise requirements when necessary. In addition, the discharger shall file a report of waste discharge with the Executive Officer at least 120 days before making any material change or proposed change in the character, location, or volume of the discharge.

12. Termination of Coverage

Project coverage under these General Waste Discharge Requirements may be terminated, by the Executive Officer at any time upon giving reasonable notice to the discharger.

Certification

I, Catherine E. Kuhlman, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on May 12, 2004.

Catherine E. Kuhlman
Executive Officer