CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-00-119

NPDES NO. CAG915001

# WASTE DISCHARGE REQUIREMENTS FOR GENERAL ORDER FOR DISCHARGE TO SURFACE WATERS OF GROUNDWATER FROM CLEANUP OF PETROLEUM FUEL POLLUTION

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The presence of petroleum constituents in the groundwater at various sites throughout the region poses a threat to existing and potential beneficial uses of the groundwater. As responsible parties investigate and remediate these sites, the number of groundwater cleanups of petroleum constituents is increasing. Remediation at many of these sites includes groundwater treatment, with discharge of the treated groundwater. This permit covers the discharge of treated groundwater from cleanups of petroleum constituents to waters of the United States.

2. Discharges in excess of 200,000 gallons per day (gpd) will not be covered by this Order.

3. The Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The attached Fact Sheet is part of this Order.

4. The discharge of wastewater from a groundwater treatment system to navigable water, other than through a community wastewater collection and treatment system, is a discharge of waste that could affect the quality of the waters of the United States.

5. Wastewater from a groundwater cleanup can include the following:

   a. Treated groundwater which had been polluted with petroleum constituents,

   b. Potentially polluted groundwater pumped from beneath a layer of free product in order to establish a cone of depression to aid in the containment and extraction of the free product,

   c. Potentially polluted groundwater extracted during short- and long-term pump tests,

   d. Potentially polluted well development water,
   e. Potentially polluted purge water prior to well sampling.

These wastewaters may be produced and treated on a continuous or batch basis.

The Board may prescribe requirements for any discharge, in accordance with Section 13263 of the California Water Code.

7. A Notice of Intent must be filed for each discharge in order to be eligible for coverage under this Order. The Notice of Intent shall consist of the Report of Waste Discharge, filing fee and at a minimum, the contents detailed in **Attachment A**, Application Requirements.

8. This Order shall apply to individual property owners and/or operators ("Discharger") to whom a Notification of Applicability has been issued by the Executive Officer. Individual Dischargers are not covered by this Order until they have been issued a Notification of Applicability by the Executive Officer. If significant public comments are received during the 15 day public commenting period, the proposed discharge may be considered for an individual permit or for coverage under this General Order at a meeting of the Regional Board. The public commenting period is generally limited to 15 days upon notice of the Discharger's proposed action. Those actions and public notification procedures are described in the application process contained in Attachment A.

9. The primary pollutants in petroleum products are: Total Petroleum Hydrocarbons (gasoline, diesel, kerosene, fuel oil and heavier ranges); Benzene; Toluene; Ethylbenzene; Xylene; Naphthalene; Polynuclear Aromatic Hydrocarbons (PAHs); Ethylene Dichloride; Ethylene Dibromide; Methyl Tertiary Butyl Ether (MTBE), Methanol and other oxygenates; and Organic Lead.

   Other oxygenate compounds which have been or may be used in petroleum fuel formulations include Ethanol, Tertiary Butyl Alcohol (TBA), Di-isopropyl Ether (DIPE), Ethyl Tertiary Butyl Ether (ETBE), and Tertiary Amyl Methyl Ether (TAME). Monitoring for these compounds is required by this Order. Additional oxygenate compounds or other additives or problematic components of petroleum fuels may become evident in groundwater. Effluent limitations and/or receiving water limitations have not yet been developed for these constituents. In the event that such limitations are developed, this General Order may be reopened and effluent limitations and receiving water limitations included in this Order for those compounds. If this Order is reopened and new and/or more stringent effluent limits imposed, a phase-in period may be allowed if needed for existing discharges to allow for adjustment of treatment processes.

10. Existing wastewater treatment technology, primarily utilizing air stripping and/or activated carbon, is capable of dependably removing these constituents to concentrations that are non-detectable by current analytical technology. The commonly achieved reporting levels are as follows:

| Constituent | Reporting Level | Units | Analytical Method |
|---|---|---|---|
| Total Petroleum Hydrocarbons Gasoline, Diesel, Jet Fuel | 50 | µg/l | EPA Method 8015/5030 |
| Benzene | 0.5 | µg/l | EPA Method 8021B or 8260B |
| Toluene | 0.5 | µg/l | EPA Method 8021B or 8260B |
| Ethylbenzene | 0.5 | µg/l | EPA Method 8021B or 8260B |
| Xylenes, Total | 1.0 | µg/l | EPA Method 8021B or 8260B |
| MTBE (Methyl Tertiary Butyl Ether) | 5.0 | µg/l | EPA Method 8021B or Method 8260B |
| Ethylene Dichloride (1,2-Dichloroethane) | 0.5 | µg/l | EPA Method 8021B or Method 8260B |
| Ethylene Dibromide | 0.5 | µg/l | EPA Method 8021B or 8260B |
| Organic lead (as total lead) | 1 | µg/l | EPA Method 1639/200.9 |
| Methanol | 20 | µg/l | TLC or EPA Method 8260B |
| Ethanol | 20 | µg/l | TLC or EPA Method 8260B |
| Naphthalene | 5.0 | µg/l | TLC or EPA Method 8260B |
| Tertiary Butyl Alcohol (TBA) | 20 | µg/l | TLC or EPA Method 8260B |
| Di-isopropyl Ether (DIPE) | 5.0 | µg/l | TLC or EPA Method 8260B |
| Ethyl Tertiary Butyl Ether (ETBE) | 5.0 | µg/l | TLC or EPA Method 8260B |
| Tertiary Amyl Methyl Ether (TAME) | 5.0 | µg/l | TLC or EPA Method 8260B |

11. If other constituents of concern are identified as being present or potentially being present in groundwater discharged under this Order, then this Order may be reopened and effluent limits and receiving water limitations may be established for those constituents. Such an action may render discharges permitted by the existing Order as invalid and may necessitate the filing of a new Report of Waste Discharge by each Discharger operating under this Order. If this Order is reopened and new and/or more stringent effluent limits imposed, a phase-in period may be allowed for existing discharges, if needed, to allow for adjustment of treatment processes.

12. The U.S. Environmental Protection Agency (EPA) and the Board generally classify this type of discharge as a minor discharge. If an individual discharge is classified as a major discharge, it will not be covered by this General Permit.

13. This Order does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control the discharge of groundwater cleanup wastewater subject to their control. Discharges allowed by this order to local storm water collection and conveyance facilities must obtain approval from the agency responsible for operation and maintenance of the facility per D 2 of Attachment A (application requirements).

14. When individual waste discharge requirements are issued to a Discharger otherwise subject to this Order, the applicability of this Order to the Discharger is automatically terminated on the effective date of the individual Order.

15. The Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins and Second Edition, for the Tulare Lake Basin* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan. USEPA adopted the *National Toxics Rule* on 5 February 1993 and the *California Toxics Rule* on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule.*

16. The designated beneficial uses of groundwater within the Central Valley Region are municipal and domestic, industrial, and agricultural supply, except where lesser beneficial uses are specifically designated in the Water Quality Control Plans.

17. The designated beneficial uses of surface water downstream of the discharge are municipal and domestic, industrial, and agricultural supply; water contact and non-contact recreation; esthetic enjoyment; navigation; groundwater recharge, fresh water replenishment; hydropower generation; and preservation and enhancement of fish, wildlife and other aquatic resources, except where other beneficial uses are designated in the Water Quality Control Plans.

18. The Water Quality Control Plans contain water quality objectives established for the reasonable protection of designated beneficial uses or the prevention of nuisance.

19. The Water Quality Control Plans encourage the disposal of wastewater on land where practicable, and require applicants for discharge permits to evaluate land disposal as an alternative. Where studies show that year-round land disposal is not practicable, the Board will require Dischargers to evaluate dry season land disposal as an alternative.

20. The permitted discharge is consistent with the anti-degradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution No. 68-16. With adoption of this Order, the impact on existing water quality will be insignificant.

21. Statewide plans and policies potentially applicable to this discharge and not referenced in the Basin Plan include the "Policy Statement on Wastewater Discharge to Watercourses in Water Deficient Areas, Resolution No. 79-45" and the "Policy with Respect to Water Reclamation in California, Resolution No. 77-1".

22. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301, 302, 304, and 307 of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

23. These discharges are presently governed by General Waste Discharge Requirements Order No. 92-150, adopted by the Board on 3 December 1992.

24. The action to adopt an NPDES permit is exempt from the provisions of California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), in accordance with Section 13389 of the California Water Code.

25. The Board has notified interested agencies and persons of its intent to prescribe waste discharge requirements in this General Order and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

26. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

27. This Order shall serve as an NPDES permit pursuant to Section 402 of the Clean Water Act, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

**IT IS HEREBY ORDERED**, that Order No. 92-150 is rescinded and that Dischargers, in order to meet the provisions contained in Division 7 of the California Water Code, and regulations and guidelines adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder shall comply with the following:

## A. Applicability

1. All discharges covered by this Order shall be limited to groundwater from the investigation and cleanup of petroleum fuel pollution.

2. Persons seeking coverage under this Order shall submit an NPDES Application Form 1 and 2D for Permit to Discharge and a complete Report of Waste Discharge (as detailed in **Attachment A**) along with an appropriate filing fee.

3. If the Executive Officer finds that the proposed discharge qualifies for coverage under this General Order, the Discharger will be issued a Notification of Applicability. If a proposed discharge does not qualify for this general permit, or if significant public comments are received on the application, the proposed discharge may be considered for an individual permit or for coverage under this General Order at a meeting of the Regional Board.

4. Upon completion of treatment and cessation of the discharge, the Discharge shall request official termination of coverage under this General Order from the Executive Officer. Failure to do so will result in the Discharger's continuing responsibility for payment of the annual fee associated with the General Order.

## B. Discharge Prohibitions

1. Discharge of material other than groundwater from the investigation and cleanup of petroleum fuel pollution, or discharge from the investigation of petroleum fuel pollution where other contaminants exist in the ground water, is prohibited.

2. Creation of pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code, is prohibited. As such, violation of any applicable water quality objective is also prohibited.

3. A discharge in excess of 200,000 gallons per day (gpd) is prohibited.

## C. Effluent Limitations

1. The discharge of an effluent in excess of the following limits is prohibited:

| Constituents | Units | 30-Day Median | Daily Maximum |
|---|---|---|---|
| Total Petroleum Hydrocarbons (jet fuel, Gasoline, diesel, motor oil) | µg/l | <50 | 100 |
| Benzene | µg/l | <0.5 | 0.35 |
| Toluene | µg/l | <0.5 | 42 |
| Ethylbenzene | µg/l | <0.5 | 29 |
| Xylenes (total) | µg/l | <1.0 | 17 |
| Naphthalene | µg/l | <5.0 | 20 |
| Carcinogenic PAHs* | µg/l | <0.05 | <0.05 |
| MTBE plus other ether oxygenates ** | µg/l | <5.0 | 5 |
| Ethylene Dichloride (1,2-Dichloroethane) | µg/l | <0.5 | <0.5 |
| Ethylene Dibromide | µg/l | <0.5 | <0.5 |
| Tertiary Butyl Alcohol | µg/l | <20 | <20 |
| Methanol | µg/l | <20 | 3,500 |
| Lead*** | µg/l | 2 | 2 |

*Polynuclear Aromatic Hydrocarbons; the sum of benzo[a]pyrene, benz[a]anthracene, benzo[b]fluoranthene, benzo[j]fluoranthene, benzo[k]fluoranthene, dibenz[a,j]acridine, dibenz[a,h]acridine, dibenz[a,h]anthracene, 7H-dibenzo[c,g]carbazole, dibenzo[a,e]pyrene, dibenzo[a,h]pyrene, dibenzo[a,i]pyrene, dibenzo[a,l]pyrene, indeno[1 ,2,3-c,d]pyrene, 5-methylchrysene, 1-nitropyrene, 4-nitropyrene, 1,6-dinitropyrene, 1,8-dinitropyrene, 6-nitrocrysene, 2-nitrofluorene, and chrysene.
** The limit applies to the sum of MTBE, Di-isopropyl Ether (DIPE), Ethyl Tertiary Butyl Ether (ETBE), and Tertiary Amyl Methyl Ether (TAME).
*** For discharge to water bodies with a hardness less than 80 mg/l, the maximum effluent limitation is established in accordance with the following formula: 1.46203 – [(ln {hardness})(0.145712)]

2. The discharge shall not have a pH of less than 6.5 nor greater than 8.5.

3. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay - - - - - - - - - - - - - - - - - - 70%
Median for any three or more consecutive bioassays - - - - 90%

**D. Solids Disposal:**

1. Collected screenings, sludges, and other solids removed from liquid wastes or used to treat liquid wastes shall be disposed of in a manner that is consistent with Division 3, Title 27, of the CCR and approved by the Executive Officer.

2. Any proposed change in solids use or disposal practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.

**E. Receiving Water Limitations:**

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in the receiving water:

1. The Total Dissolved Solids to exceed 1000 mg/l.

2. Concentrations of dissolved oxygen to fall below 7.0 mg/l.

3. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

4. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

5. Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

6. Esthetically undesirable discoloration.

7. Fungi, slimes, or other objectionable growths.

8. The monthly average increase for turbidity to exceed the following:

a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
d. More than 10% where natural turbidity is greater than 100 NTUs.

9. The monthly average ambient pH to fall below 6.5, exceeds 8.5, or change by more than 0.5 units.

10. Deposition of material that causes nuisance or adversely affects beneficial uses.

11. The monthly average ambient temperature to increase more than 5°F.

12. Taste or odor-producing substances that impart undesirable tastes or odors to the water, to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.

13. Violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

**F. Provisions:**

1. Dischargers currently covered by Order No. 92-150 are automatically granted coverage under this Order for a period of 180 days following adoption of this Order. Within 90 days of adoption of this Order, the Discharger may file a new application for coverage under this Order. Coverage under this Order is terminated after 180 days unless a new Notice of Applicability (NOA) has been approved by the Executive Officer.

2. If other constituents of concern are identified as being present or potentially being present in groundwater discharged under this Order, then this Order may be reopened and effluent limits and receiving water limitations may be established for those constituents. Such an action may render discharges permitted by the existing Order as invalid and may necessitate the filing of a new Notice Of Intent by each Discharger operating under this Order.

3. The Discharger shall use the best practicable cost-effective control technique currently available to limit mineralization to no more than a reasonable increment.

4. The Discharger shall comply with the Monitoring and Reporting Program contained in Attachment B of this Order.

5. The Discharger shall comply with all applicable Standard Provisions (NPDES), dated 1 March 1991, contained in Attachment C of this Order.

6. Neither the discharge, nor the operation or servicing of treatment facilities, nor other conditions associated with the activities covered under this General Order shall create a nuisance.

7. The Discharger may be required to submit technical reports as directed by the Executive Officer.

8. Prior to making significant change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Rights).

9. 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 shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

10. The Discharger shall notify the Board when the clean-up activities covered by these requirements are complete, so that the Notice of Applicability may be withdrawn and the Discharger will no longer be covered by this Order or be responsible for payment of annual fees.

11. This Order expires on **1 June 2005**. Upon reissuance of the General Order by the Board, the Dischargers seeking coverage under the new General Order shall file a revised Notice of Intent.

I, GARY M. CARLTON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 16 June 2000.

GARY M. CARLTON, Executive Officer

Attachments

GKV:lm

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

# ATTACHMENT A

TO

GENERAL ORDER NO. 5-00-119
FOR DISCHARGE OF GROUND WATER FROM CLEANUP OF PETROLEUM FUEL POLLUTION
TO SURFACE WATERS

## APPLICATION REQUIREMENTS

An NPDES Application for Permit to Discharge (Forms 1 and 2D), a Report of Waste Discharge (Form 200 plus supplemental information) and filing fee must be submitted for each proposed discharge. The Report of Waste Discharge shall be prepared by a California Registered Civil Engineer, Registered Geologist, or Certified Engineering Geologist and shall provide at least the following information or if a Problem Assessment Report has been approved it may be submitted. The Report of Waste Discharge shall be signed by a person meeting the qualifications listed in Reporting Requirements D.6 of Standard Provisions. Additional data may be requested for specific sites.

### A. Wastewater treatment system and characteristics

1. An evaluation of land disposal options, including discharge to a municipal wastewater collection system, and justification for selecting a surface water disposal alternative.

2. Description of event(s) which caused the ground water pollution, including type and source of the contaminants and date(s) when the discharge occurred or was discovered.

3. Narrative and schematic descriptions of the proposed extraction, treatment, and disposal systems. If the proposed treatment system uses activated carbon, submit an estimate of the breakthrough time for each carbon treatment unit.

4. A map(s) showing the location of the facility, plume, extraction well(s), monitoring wells, treatment system, disposal facilities, site boundaries, and the flow path of the proposed discharge to a major river or lake.

5. Any water supply wells, and surface waters within 0.5 miles of the site shall be identified on the map.

6. The anticipated average and maximum flows from the treatment system, and the design flow of the treatment and disposal systems.

7. An operation plan describing general operations and maintenance procedures, process controls, monitoring and pumping rates shall be supplied.

8. A minimum of one of each of the following analyses of the ground water which will be treated and discharged:

    a. Chlorinated volatile hydrocarbons (EPA Method 601 or 8260)

    b. Aromatic volatile hydrocarbons (EPA Method 602 or 8020)

c. Total Petroleum Hydrocarbons in the Gasoline and Diesel ranges (Method 8015/5030). Additional or alternative TPH analyses may be required if the suspected pollutants contain hydrocarbon fractions outside the range of these tests.

d. Lead, soluble lead or tetraethyl lead (EPA Method 1639/200.9 or equivalent)

e. Chlorinated pesticides (EPA Method 608 or 8080)

f. General mineral analysis, including electrical conductivity, total dissolved solids, chloride, sulfate, nitrate and pH.

**B. Site hydrogeology**

1. Depth to ground water, including seasonal variations, if known.

2. Direction and gradient of ground water flow, if known.

3. Vertical and lateral extent of pollution, if known, including details on the location, construction, and analytical results from ground water monitoring wells used to define the plume. (Note: Full definition of the plume is not a necessary condition for compliance with this Order.)

4. A statement on the potential impact of the wastewater discharge on the containment and rate of movement of the ground water plume.

5. Effects of the extraction system on the ground water gradient and the plume.

6. An estimate of the anticipated length the time extraction will be needed.

**C. Receiving Water**

1. Description of the receiving waters including general flow conditions, beneficial uses, aquatic resources, and downstream water Users.

2. Demonstration of compliance with Section E. of the permit, Receiving Water Limitations.

3. If proposed discharge is to a publicly owned or operated storm water collection or conveyance system the applicant must comply with D 2 below.

## D. Public Notice Requirements

1. The Applicant shall submit to the Board a list of names and mailing addresses of nearby residents, including all adjacent property owners, and all residents within a 500 foot radius of the treatment system and discharge point.

2. Discharges to publicly owned and operated storm water collection and conveyance systems must have written approval (submitted with the application) of the public agency that owned or operates the facility.

3. The applicant shall send letters, in an approved format, to each of the above interested parties listed in 1 and 2 above, the local County Health Department and the California Department of Fish and Game describing the proposed project and including the following information:

    a) Describe the cleanup project and the involved chemicals of concern,
    b) Location of treatment system and discharge (both narrative and on map),
    c) Explain permit application and project implementation time schedule,
    d) Describe permit discharge limits and monitoring program,
    e) State in letter that interested parties have two weeks from date of letter to submit comments to Regional Board office.

4. The Applicant shall submit a copy of the "Public Notification Letter" described in 3 above and shall submit a certification on who was sent a copy of the letter.

16 June 2000
GKV/lm

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 5-00-119

ATTACHMENT B TO GENERAL ORDER NO. 5-00-119
FOR DISCHARGE TO SURFACE WATERS
OF GROUND WATER FROM CLEANUP OF
PETROLEUM FUEL POLLUTION

## INFLUENT MONITORING

Influent samples shall be collected after the last connection before the wastes enter the treatment process. Influent samples should be representative of the volume and nature of the influent. Time of collection of a grab sample shall be recorded. The following shall constitute the influent monitoring program:

| Constituents | Units | Type of Sample | Sampling Frequency |
|---|---|---|---|
| Total Petroleum Hydrocarbons (Gasoline, diesel, motor oil) | mg/l | Grab | Monthly |
| Benzene | µg/l | Grab | Monthly |
| Toluene | µg/l | Grab | Monthly |
| Ethylbenzene | µg/l | Grab | Monthly |
| Xylene(Total) | µg/l | Grab | Monthly |
| Methyl Tertiary Butyl Ether (MTBE)** | µg/l | Grab | Monthly |
| Lead (total)* | µg/l | Grab | Monthly |
| Methanol** | µg/l | Grab | Monthly |
| Ethanol** | µg/l | Grab | Monthly |
| Tertiary Butyl Alcohol (TBA)** | µg/l | Grab | Monthly |
| Di-isopropyl ether (DIPE)** | µg/l | Grab | Monthly |
| Ethyl Tertiary Butyl Ether (ETBE)** | µg/l | Grab | Monthly |
| Tertiary Amyl Methyl Ether (TAME)** | µg/l | Grab | Monthly |

* If lead is not detected in the first 2 sampling events, then testing may be discontinued thereafter.

** If these constituents are not present in any monitoring well or extraction well at the cleanup site, the monitoring well documentation may be submitted in lieu of the influent monitoring for these constituents. Confirmation samples on an annual basis shall be submitted to verify the absence of these chemicals. If three consecutive monthly influent sampling events result in non-detectable concentration, at appropriate detection limits, then the sampling frequency shall be reduced to Quarterly. If three consecutive quarterly sampling events results in non-detectable concentration, at appropriate detection limits, then the sampling frequency shall be reduced to annually. If a detectable concentration is determined to be present in the wastewater the frequency will be monthly.

## EFFLUENT MONITORING

Effluent samples shall be collected from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and nature of the discharge. Time and specific location of collection of the grab sample shall be recorded. The following shall constitute the effluent monitoring program:

| Constituents | Units | Type of Sample | Sampling Frequency |
|---|---|---|---|
| Flow | mgd | continuous | Monthly |
| Specific Conductivity | µmhos/cm | Grab | Monthly |
| pH | pH units | Grab | Monthly |
| Temperature | °F | Grab | Monthly |
| Total Dissolved Solids | mg/l | Grab | Monthly |
| Total Petroleum Hydrocarbons (Gasoline, diesel, motor oil) | mg/l | Grab | Monthly** |
| Benzene | µg/l | Grab | Monthly** |
| Toluene | µg/l | Grab | Monthly** |
| Ethylbenzene | µg/l | Grab | Monthly** |
| Xylene (Total) | µg/l | Grab | Monthly** |
| MTBE | µg/l | Grab | Monthly** |
| Lead (total)* | µg/l | Grab | Monthly** |
| Bioassay*** | % Survival | Grab | Quarterly |
| Methanol | µg/l | Grab | Monthly** |
| Ethanol | µg/l | Grab | Monthly** |
| Tertiary Butyl Alcohol (TBA) | µg/l | Grab | Monthly** |
| Di-Isopropyl Ether (DIPE) | µg/l | Grab | Monthly** |
| Ethyl Tertiary Butyl Ether (ETBE) | µg/l | Grab | Monthly** |
| Tertiary Amyl Methyl Ether (TAME) | µg/l | Grab | Monthly** |

* If lead is not detected in the first 2 sampling events, then testing may be discontinued thereafter.

** 1) Analyses shall be conducted weekly for four consecutive weeks following initial discharge from the treatment system. 2) If any sample shows detectable TPH, Benzene, Toluene, Ethylbenzene, Xylene, MTBE or other oxygerates the Discharger shall immediately resample and reanalyze the effluent for the detected constituent(s), and shall continue sampling the effluent on a weekly basis until the constituent(s) concentrations are below permitted levels. 3) If three consecutive monthly sampling events result in non-detectable concentration, at appropriate detection limits, then the sampling frequency shall be reduced to Quarterly. 4) If a detectable concentration is determined to be present in the wastewater the frequency will revert back to monthly. 5) If a constituent is not present in the influent sample, then the testing for that constituent may be discontinued until detected in the influent.

*** The acute bioassays samples shall be analyzed using EPA/600/4-90/027F, or later amendment with Board staff approval. Temperature and pH shall be recorded at the time of bioassay sample collection. Test species shall be fathead minnows (Pimephales promelas), with no pH adjustment unless approved by the Executive Officer.

If other constituents of concern are identified as being present or potentially being present in groundwater discharged under this Order, then this Order may be revised or a new monitoring and reporting program issued to include monitoring requirements for those constituents.

## RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water samples shall be taken from the following:

| Station | Description |
|---|---|
| R - 1 | upstream from the point of discharge at a location approved by staff. |
| R - 2 | downstream from the point of discharge at a location approved by staff. |

| Constituents | Units | Station | Sampling Frequency |
|---|---|---|---|
| Estimated flow | cfs | R-1, R-2 | Monthly |
| Dissolved Oxygen | mg/l | R-1, R-2 | Monthly |
| pH | pH Units | R-1, R-2 | Monthly |
| Temperature | °F | R-1, R-2 | Monthly |
| Specific Conductivity | µmhos/cm | R-1, R-2 | Monthly |
| Turbidity | NTU | R-1, R-2 | Monthly |
| Total Dissolved Solids | mg/l | R-1, R-2 | Quarterly |

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1 and R-2. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens, or coatings
f. Fungi, slimes or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

## THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA 600/4-91-002, or later amendment. Chronic toxicity samples shall be collected at the last point of discharge prior to its

entering the receiving water. A dilution series is not required if the receiving water is considered ephemeral. 24-hour composite samples shall be representative of the volume and quality of the discharge. Time of collection samples shall be recorded. The effluent tests must be conducted with concurrent reference toxicant tests. Monthly laboratory reference toxicant tests may be substituted upon approval. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum
Frequency: Once per year
Dilution Series: (If applicable)

| | Dilutions (%) | | | | | Controls | |
|---|---|---|---|---|---|---|---|
| | 100 | 50 | 25 | 12.5 | 6.25 | Receiving Water | Lab Water |
| % WWTP Effluent | 100 | 50 | 25 | 12.5 | 6.25 | 0 | 0 |
| % Dilution Water* | 0 | 50 | 75 | 87.5 | 93.75 | 100 | 0 |
| % Lab Water | 0 | 0 | 0 | 0 | 0 | 0 | 100 |

* Dilution water shall be receiving water from upstream in the receiving water, or out of the influence of the discharge. If there is not dilution water in the receiving water unaffected by the discharge, then a dilution series test is not applicable. The dilution series may be altered upon approval of Board staff.

## REPORTING

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements. The highest daily maximum for the month, monthly averages, and medians should be determined and recorded.

The report will also include an evaluation of the ground water cleanup progress, trends, monitoring well analyses and plume containment. If this evaluation is already submitted to the Regional Board in a separate groundwater monitoring report, then the Discharger may reference the date and title of the most recent report in lieu of including it with the NPDES monitoring report.

Quarterly monitoring reports shall be submitted to the Regional Board by the **1st day of the second month following each calendar quarter (February, May, August, and November).** If monitoring is done at a frequency less than that specified in the influent and effluent under "monitoring frequency" due to the allowance under **footnotes for influent and effluent monitoring, then justification must be specified in each quarterly report as to the presence or non-presence of that constituent during the last three sampling event. Failure to supply the justification for less frequent sampling, when sampling less frequent than specified in the Monitoring and Reporting Program, shall result in a Board determination

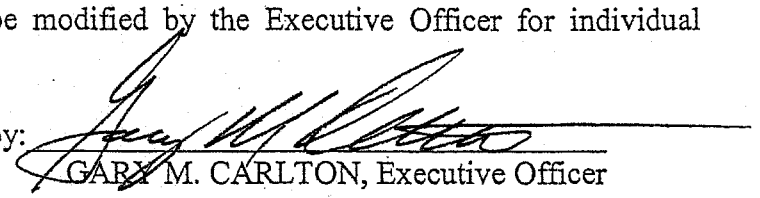
of non-compliance of this Order. Also, the results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall also be reported to the Board.

The Discharger may also be requested to submit an annual report to the Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of the Notice of Applicability.

This Monitoring and Reporting Program may be modified by the Executive Officer for individual discharges.

Ordered by: 
GARY M. CARLTON, Executive Officer

16 June 2000
Date

GKV:lm

# FACT SHEET

ORDER NO. 5-00-119
GENERAL ORDER FOR DISCHARGE
TO SURFACE WATERS OF
GROUND WATER FROM CLEANUP OF
PETROLEUM FUEL POLLUTION
ATTACHMENT C

This Order serves as a general NPDES Permit for the discharge to surface water of groundwater from the investigation and cleanup of groundwater polluted with petroleum products, such as gasoline, diesel, and heavier fuel oils. The wastewater will be discharged to surface water and surface water drainage courses. The treatment and discharge of groundwater polluted with other chemicals, such as industrial solvents or pesticides, are not covered by this Order. Also not covered by this Order are: 1) Treated wastewaters discharged (with the permission of the owner of the municipal system) to a municipal wastewater collection, treatment, and disposal system which is already covered by waste discharge requirements from the Board, and 2) discharges to ponds, infiltration basins, spray disposal areas, subsurface infiltration, or other methods not involving discharge to surface waters and surface water drainage courses (which are covered by individual WDRs or by general waste discharge requirements for land disposal adopted by the Board).

The presence of petroleum constituents in the groundwater poses a threat to existing and potential beneficial uses of the groundwater. The number of proposed and ongoing groundwater cleanups of petroleum constituents is significant. The primary constituents of concern with petroleum products are: Total Petroleum Hydrocarbons in the jet fuel, gasoline, diesel and heavier ranges; Benzene; Toluene; Ethylbenzene; Xylene; Methyl Tertiary Butyl Ether (MTBE); and Organic lead. In addition, other oxygenates and additives such as methanol, ethanol, Tertiary Butyl Alcohol (TBA), Di-Isopropyl Ether (DIPE), Ethyl Tertiary Butyl Ether (ETBE), Tertiary Amyl Methyl Ether (TAME), or other compounds may also be of concern. Existing wastewater treatment technology, primarily utilizing air stripping and/or activated carbon, is capable of dependably removing these constituents to concentrations that are generally non-detectable by current analytical technology. MTBE has become a more recent concern and can also be removed using the same wastewater treatment technology, although it is more difficult to remove and may require larger systems. The MTBE secondary drinking water standard is 5.0 µg/l based on the taste and odor threshold. Dischargers with MTBE present have reasonable potential to exceed those concentrations that requires the establishment of an effluent limit in their permit.

Wastewater from a groundwater cleanup may include: treated groundwater which had been polluted with petroleum constituents; unpolluted groundwater pumped from beneath a layer of free product in order to establish a cone of depression to aid in the containment and extraction of the free product; extracted water from short- and long-term pump tests; well development water; and purge water prior to well sampling. These wastewaters may be produced and treated on a continuous or batch basis. Treated wastewater will be disposed of to surface water and surface water drainage courses.

**Salinity, Total Dissolved Solids, and Electrical Conductivity**

Salinity, total dissolved solids (TDS), and electrical conductivity (EC) are measures of dissolved salts in water. Salinity is a measure of the mass fraction of salts (measured in parts per thousand), whereas TDS is a measure of the concentration of salts (measured in mg/l). Since the electrical conductivity (EC) of water generally changes proportionately to changes in dissolved salt concentrations, EC is a convenient surrogate measure for TDS.

Receiving water bodies in the Central Valley can contain significant seasonal, and wet weather related fluctuations in EC levels due to urban runoff and agricultural drainage.

Federal regulations, 40 CFR Part 122.44 (d)(1)(i), require that NPDES permit effluent limitations must control all pollutants which are or may be discharged at a level which will cause or have the reasonable potential to cause or contribute to an in-stream excursion above any State water quality standard, including any narrative criteria for water quality. Beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards. For municipal and domestic supply beneficial uses, federal and state promulgated maximum contaminant levels (MCL's) are appropriate minimum water quality objectives. Furthermore, Delta waterways and portions of the San Joaquin River have been identified as Water Quality limited Segments, and are listed on the California CWA Section 303(d) List for elevated dissolved solids concentrations and elevated EC. The Basin Plan objectives set receiving water objectives at 700 umhos/cm and 1000 umhos/cm for winter and summer periods, respectively.

The CA Department of Health Services has established a Secondary maximum contaminant level (MCL) for EC ranging from 900 to 1,600 µmhos/cm. Due to the ephemeral nature of some of the Central Valley's receiving waters, and associated lack of receiving water assimilative capacity in other Delta waters, most proposed discharges have the reasonable potential to exceed, and cause the waters of the State to exceed, the lower limit of the DHS Secondary MCL water quality objective, potentially impacting the MUN beneficial use. Additionally, elevated dissolved solids may contribute to a failure of acute or chronic toxicity testing, and associated Basin Plan narrative toxicity criteria.

**Effluent Limits Development**

Effluent limits and receiving water limits have been established as follows:

a. Effluent 30-Day Median Concentrations for TPH, Benzene, Toluene, Ethylbenzene, Xylene, and MTBE are established as 'non-detectable', that is, less than the detection concentrations for specified, commonly available treatment and analytical technology.

These concentrations are more restrictive than effluent limits prescribed by the *California Toxic Rule*. Non-detectable is further defined as "below the practical quantitation limit (PQL) or below the method reporting limit (MRL). A 'median' is used rather than an 'average' or 'arithmetic mean' to allow for the detection of a constituent in individual samples without automatically causing violation of the monthly limitation, as would occur with an 'average' or 'mean' limit. If a constituent monitored on a monthly frequency exceeds an effluent limitation, additional samples should be collected to develop a monthly median.

Routine effluent sampling would be conducted monthly. The treatment technologies utilized for ground water cleanup of petroleum constituents are not normally subject to sudden upset or bypass, so rapid changes in effluent quality are not expected. If detectable concentrations of petroleum constituents are found, the monitoring program requires weekly monitoring of the effluent until 'non-detected' conditions are reestablished. The effluent sampling is not a substitute for process control monitoring by the Discharger.

b. Daily maximum effluent concentrations are established to allow for some effluent quality variation and for the false positive analytical results inherent in analyses near the limits of detection. However, most constituents daily maximum concentrations are based on implementation of the *California Toxics Rule,* water quality criteria for the protection of human health, set at the secondary MCL standard, or established at the taste and odor threshold. These constituents include MTBE, TPH, Benzene, Toluene, Ethylbenzene, and Xylene.

c. The California Department of Health Services (DHS) has established water quality criteria for electrical conductivity (EC) with a Drinking Water Secondary MCL of 900 umhos/cm. The recommended DHS criteria included an upper level of 1600 umhos/cm and a short-term level of 2200 umhos/cm. The DHS associated Total Dissolved Solids (TDS) Drinking Water Secondary MCL is 500 with an upper level of 1000 mg/l and a short-term level of 1500 mg/l. The agricultural water quality goal is 450 mg/l and the taste and odor threshold is 250 mg/l.

These revised WDRs establish a water quality based receiving water limitation for Dissolved Solids (TDS) of 1000 mg/l as a daily maximum. The receiving water at times may not contain dilution water at the point of discharge; therefore without a sufficient quantity of flow the potential beneficial use of small quantities of effluent in effluent dominated streams is minimal. The discharge may have reasonable potential to cause or contribute to short-term in-stream excursion above the water quality objective. However, this discharge of a small volume and/or short duration of wastewater may be necessary to cleanup a contaminated groundwater body. The permitted discharge is consistent with

the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution No. 68-16. The Order provides for an increase in the volume and mass of pollutants discharged. The increase will not cause significant impacts on drinking water supplies, agricultural supply, or aquatic life, which are the beneficial uses most likely affected by the discharge of total dissolved solids. The increase will not cause a long-term violation of water quality objectives. The increase in the discharge allows the discharger to cleanup a contaminated groundwater source and the subsequent cleanup is considered to be a benefit to the people of the State.

These requirements require that, during the application phase and prior to discharge, a determination of whether the proposed discharge will cause or contribute to an exceedance to the water quality objectives. The Order does not specify how the prospective dischargers will achieve this receiving water limit and it is recognized dissolved solids are not readily amendable to conventional, cost effective treatment. If the proposed discharge causes the receiving water to increase concentrations in the receiving water above the water quality objective set forth by this Order (as determined by a comparison of upstream and downstream receiving water monitoring stations) or would cause or contribute to the decrease of a beneficial use of the receiving water, than an individual permit will be necessary to develop site-specific objectives. The Discharger is required to submit calculations demonstrating compliance with the receiving water limitation as a part of their "Attachment A" application requirements.

Applicable receiving water quality criteria are shown below for the constitutes covered by this order along with the basis of consideration. Receiving water standards, however, are generally set at the detection limit based on Best Available Technology considerations and the anti-degradation policy of this Board.

These values come from the staff report *A Compilation of Water Quality Goals*, March 1998 edition along with more recent information. These recommended limits are used to interpret applicable Basin Plan water quality objectives for the protection of existing or potential sources of drinking water. Sources of drinking water are surface and ground waters that have the beneficial use of municipal and domestic supply (MUN), as designated in the applicable Water Quality Control Plan (Basin Plan) or the State Water Quality Control Board's Policy, Resolution 88-63. Water quality objectives applicable to such waters include California drinking water MCLs and narrative objectives prohibiting toxicity and adverse taste and odors. Where available, numerical water quality limits are presented to implement each of these objectives. The most stringent of the listed limits for each chemical would implement all three objectives. Objectives protective of aquatic life are included but were not found to be the most sensitive criteria or no criteria have been developed.

Several of the recommended limits are based on taste and odor that these chemicals can impose as an adverse impact to the water quality beneficial use. For these chemicals, an impact on the palatability of the water occurs at lower concentrations than those that could cause health effects. Taste and odor related criteria are applicable, since both health effects and palatability are relevant to the assessment of beneficial use protection. Also, some of the recommended limits are lower than applicable analytical detection limits in water. In these cases, the detection of any amount of these constituents in water indicates that beneficial uses have been impaired.

In establishing the general limitations in this permit additional consideration was given to the following policies regarding the assessment of existing and potential water quality impacts: State Board Resolution Nos. 68-16, *Statement of Policy With Respect to Maintaining High Quality of Water in California,* and 92-049, *Policies and Procedures for Investigation of Cleanup and Abatement of Discharges Under Water Code Section 13304.* Requiring cleanup to technologically and economically achievable levels which are lower than beneficial use-protective limits, would be consistent with these policies for highest degree of protection of the State's water resources.

USEPA adopted the *National Toxics Rule* on 5 February 1993 and the *California Toxics Rule* on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule.*

Evaluation of the proposed effluent limitations contained in this permit with the *California Toxics Rule* (CTR) resulted in the constituent lead as having more restricted effluent criteria than previously drafted in tentative WDRs. EPA did not promulgate human health criteria for lead, but recommended State's use their existing narrative toxicity criteria. The freshwater chronic criteria may vary based on the water effects ratio (WER) and will vary based on water hardness. Conservatively, for the purposes of this general permit, the WER and the conversion factor of dissolved to total lead are both assumed to be equal to 1. The public health protection standard is not established in the CTR but using the California public health protection standard the effluent limitation would be 2 ug/l (based on Office of Environmental Health Hazard Assessment, OEHHA). However, for water hardnesses below 80 mg/l the CTR standard is more restrictive than the State drinking water standard of 2 ug/l. Therefore, an effluent limitation is established at 2 ug/l unless the discharged water hardness is less than 80 mg/l whereas the effluent limitation is established in accordance with the following formula: 1.46203 – [(ln {hardness})(0.145712)] to protect freshwater aquatic life.

In establishing effluent limitations for the protection of the receiving waters the following water quality criteria were considered:

| Constituent | Level | Units | Consideration |
|---|---|---|---|
| Total Petroleum Hydrocarbons | 100 | µg/l | Taste and Odor |
| Benzene | 0.35 | µg/l | Human health |
| Toluene | 42 | µg/l | Taste and Odor |
| Ethylbenzene | 29 | µg/l | Taste and Odor |
| Xylene | 17 | µg/l | Taste and Odor |
| Naphthalene | 20 | µg/l | USEPA Health Advisory |
| Carcinogenic PAHs* | 0.0029 | µg/l | Human Health |
| MTBE | 5 | µg/l | Taste and Odor |
| Ethylene Dichloride (1,2-Dichloroethane) | 0.4 | µg/l | Ca Public Health goal |
| Ethylene Dibromide | 0.0097 | µg/l | Human Health |
| Tertiary butyl alcohol | 12 | µg/l | Ca DHS Drinking Water Action Level |
| Methanol | 3,500 | µg/l | USEPA ISIS ref dose |
| Total Lead | 2 | µg/l | CA Public Health & CTR |
| TDS | 1000 | mg/l | CA Drinking Water goal |

* Polynuclear Aromatic Hydrocarbons; the sum of benzo[a]pyrene, benz[a]anthracene, benzo[b]fluoranthene, benzo[j]fluoranthene, benzo[k]fluoranthene, dibenz[a,j]acridine, dibenz[a,h]acridine, dibenz[a,h]anthracene, 7H-dibenzo[c,g]carbazole, dibenzo[a,e]pyrene, dibenzo[a,h]pyrene, dibenzo[a,i]pyrene, dibenzo[a,l]pyrene, indeno[1 ,2,3-c,d]pyrene, 5-methylchrysene, 1-nitropyrene, 4-nitropyrene, 1,6-dinitropyrene, 1,8-dinitropyrene, 6-nitrocrysene, 2-nitrofluorene, and chrysene.

The flow of wastewater from the groundwater treatment systems to be covered by this Order is generally less than 150 gallons per minute (216,000 gallons per day (gpd)). For the purposes of this Order, discharges less than 200,000 gpd will be considered to be low volume discharges. Discharges in excess of 200,000 gpd will not be covered by this Order.

The monitoring program enclosed within this general permit has been set up for a typical groundwater extraction/treatment facility. The monitoring program can be changed to address site-specific concerns (sensitivity of receiving waters, reliability of treatment unit, etc.) by issuing a separate Monitoring and Reporting Program that either increases or decreases the monitoring frequency. If the monitoring frequency is decreased, the monitoring program may need to be re-noticed and sent out for comments.

INFORMATION SHEET
GENERAL ORDER FOR DISCHARGE
TO SURFACE WATERS
OF GROUND WATER FROM CLEANUP OF
PETROLEUM FUEL POLLUTION
ATTACHMENT C

NPDES Application Forms (1 and 2D), a Report of Waste Discharge, and a filing fee will be submitted by each proposed Discharger, providing information on the discharge as detailed in **Attachment A**. If a proposed discharge does not qualify for this general permit, the Regional Board may consider it for adoption as an individual permit. If the Executive Officer finds that the proposed discharge qualifies for coverage under this General Order, the Discharger will be issued a Notification of Applicability. If significant public comments are received during the 15 day public commenting period, described in Attachment A, the proposed discharge may be considered for an individual permit or for coverage under this General Order at a meeting of the Regional Board. The public commenting period is generally limited to 15 days upon notice of the Discharger's proposed action. Those actions and public notification procedures are described in the application process contained in Attachment A.

Upon completion of treatment and cessation of the discharge, the Discharge shall request official termination of coverage under this General Order from the Executive Officer. Failure to do so will result in the Discharger's continuing responsibility for payment of the annual fee associated with the General Order.

16 June 2000
GKV/lm