CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2003-0056

WASTE DISCHARGE REQUIREMENTS
FOR
NAVAL BASE VENTURA COUNTY,
PORT HUENEME FACILITY
(FIELD DEMONSTRATION AND VALIDATION
OF A NEW DEVICE FOR MEASURING GROUNDWATER AND SOLUTE FLUX)
(FILE NO. 94-073)

The California Regional Water Quality Control Board, Los Angeles Region, (hereafter Board) finds that:

1. The U.S. Navy, hereinafter called the Discharger, in cooperation with the University of Florida, is planning to demonstrate and evaluate a new device for measuring groundwater and solute fluxes at Naval Base Ventura County, Port Hueneme. The Discharger filed a Report of Waste discharge on September 11, 2002, for the discharge of alcohol. A regional map is provided as Figure 1. The discharge will occur at locations A-1 and A-2 (Latitude 34^{o} 9' 45", Longitude -119^{o} 12' 13") and location B (Latitude 34^{o} 9' 42", Longitude –119^{o} 12' 13"). Locations A-1 and A-2 are approximately 2,500 feet northeast of a tidally influenced flood control channel and location B is approximately 500 feet northeast of the same channel. The channel connects directly to the Pacific Ocean at Port Hueneme Harbor (Figure 2).

2. The Naval Base Ventura County, Port Hueneme Facility is a U.S. Department of Defense facility, owned by the U.S. government.

3. Naval activities began at the Port Hueneme facility in 1940. The facility is an active Navy Base with a deep-water port. Before 1940, the area was used for agricultural purposes.

4. A plume of groundwater contaminated with dissolved fuel hydrocarbons, including benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE), is present downgradient of the Naval Exchange (NEX) gas station. The gas station, built in 1950, is located at the southeast corner of 23rd Avenue and Dodson Street (Figure 2). Detectable MTBE is present approximately 5,400 feet downgradient (southwest) of the former tank area at the NEX. Detectable BTEX is present approximately 1,000 feet downgradient of the former tank area. The plume at the demonstration/validation sites will only contain MTBE. The contaminated groundwater plume from the NEX gasoline station is currently monitored quarterly. The MTBE plume migration is currently controlled by a line of extraction wells aligned north-south along Tract 13 Road. This control system precludes further migration of the MTBE plume downgradient, and potentially into ocean waters, while still allowing scientific investigations, and pilot and demonstration projects related to MTBE pollution assessment and remediation. The contaminated groundwater plume at the evaluation sites is down gradient of the BTEX portion of the plume and is expected to contain only MTBE. It is anticipated that MTBE will be encountered at between 100 and 200 micrograms per liter (µg/L).

5. The MTBE plume at the Port Hueneme facility is part of the Department of Defense National Environmental Technology Test Site, and is used by several government, business and education groups to evaluate technologies for the treatment of MTBE and other contaminants in soil and groundwater.

6. The Discharger has submitted a document titled *Final Remedial Action Plan for the Solute Flux Measurement Device*, dated October 16, 2002, prepared by Base staff. The plan was approved in a letter from Regional Board staff dated October 21, 2002. The plan consists of information on the device itself, test procedures and methods for evaluating the effectiveness of the measurement device. The test is planned for 18 months.

7. There are no operating municipal water supply wells within 0.5 miles of the proposed demonstration and validation sites.

8. The demonstration and validation will take place in the perched aquifer located between approximately 7 feet and 20 feet below ground surface (bgs). Soil in the test area is silty from near the surface to a depth of approximately 7 to 9 feet bgs. Medium-grained sand is present below the silty zone to approximately 18 to 20 feet bgs. A clay-rich zone occurs at approximately 20 feet bgs, immediately below the sand. The clay-rich zone acts as an aquitard, preventing significant downward movement of the contaminant. This clay-rich zone is believed to separate the perched groundwater unit from underlying aquifers. The perched unit is not used as a source of agricultural or domestic water. The upper and lower aquifer systems, below the perched unit, are used for water supplies. The upper aquifer system consists of the Oxnard and Mugu Aquifer zones at a depth of 150 to 450 feet bgs. The Oxnard Aquifer and Mugu Aquifer are the principal sources of water for the agricultural irrigation in this area, however, other beneficial uses exist for ground water in this area, such as municipal and domestic supply, and shall be protected accordingly. The lower aquifer system consists of the Hueneme, Fox Canyon, and Grimes Canyon Aquifers at a depth of over 450 feet bgs. There is no potential for the test to adversely affect water supply wells.

9. The static groundwater gradient at the site is to the southwest at 0.001 to 0.003 foot/foot. The approximate hydraulic conductivity of the aquifer adjacent to the locations where the demonstration and validation study is planned ranges from 1,267 to 3,000 gallons/day/foot. Assuming an effective porosity of 35%, the calculated Darcy groundwater velocity ranges from 0.63 to 3.8 feet/day. Tracer studies conducted near the pilot test area indicate that the actual groundwater velocity ranges from 0.77 to 1.5 feet/day. Data from other nearby areas indicate velocities may be 1/3 to 1/10 of these values.

10. The test will be conducted at three locations; A-1, A-2, and B. Location A-1 and A-2 cover an area measuring about 100 feet by 25 feet and location B measures about 25 feet by 25 feet. Locations A-1 and A-2 are about 2000 feet from location B (Figures 2, 3a and 3b).

11. There will be 20 flux device wells at locations A-1 and A-2, and three at location B. Fifteen of the wells at locations A-1 and A-2 will receive three flux measurement devices. Tests will be run on the 15 wells twice, each test using three devices per well. Five of the wells at location A will receive two flux measurement devices. Tests will be run on the five wells once. The three wells at location B will each receive one device and be tested once.

12. It is expected that a total of 618 grams of biodegradable alcohol tracers will be automatically released to groundwater by the devices during the study. The alcohol tracers will break down to carbon dioxide and water.

13. Groundwater sampling from up gradient monitoring wells A1-1S and A1-1D at location A-1, up gradient monitoring wells A2-1S and A2-1D at location A-2, and up gradient monitoring well FTMWB-1 at location B will provide background water quality information (Figures 3a and 3b). Groundwater sampling from down gradient monitoring wells A1-2S, A1-2D, A1-3S and A1-3D at location A-1, down gradient monitoring wells

A2-2S, A2-2D, A2-2S, and A2-2D at location A-2, and down gradient monitoring well FTMWB-2 at location B will ensure that no adversely impacted groundwater migrates down gradient of the release points. The groundwater monitoring will provide sufficient information to assure that groundwater is not being adversely effected.

14. The Discharger has existing groundwater data from the monitoring wells near the locations for baseline groundwater parameters. During the test, groundwater will be monitored closely in the pilot test areas, starting one week after alcohol tracer discharge. Groundwater flowrates are known and well documented for the aquifer and the movement of the alcohol tracers can be readily estimated. Significant quantities of alcohol tracers will not leave the test areas.

15. Any discharge of alcohol into the groundwater is a discharge of waste as defined by the California Water Code. However, the location, small scale, and controlled nature of the test prevent the possibility of any adverse impact to groundwater quality. In addition, the Discharger operates a plume containment and control system down gradient of the test area. The containment and control system will intercept all liquids moving from the demonstration and validation areas.

16. Background groundwater near the site contains approximately 2,000 milligrams per liter (mg/L) Total Dissolved Solids (TDS).

17. The permitted discharge is consistent with the anti-degradation provisions of State Water Resources Control Board Resolution No. 68-16 (Anti-degradation Policy). The discharge may result in some localized exceedance of background concentrations of alcohols, however any parameter change resulting from the discharge:

    a. will be consistent with maximum benefit to the people of the State,
    b. will not unreasonably affect present and anticipated beneficial use of such waters, and
    c. will not result in water quality less than that prescribed in the Water Quality Control Plan for the Los Angeles Region.

18. The Water Quality Control Plan for the Los Angeles Region designates the groundwater in the unconfined and perched aquifers of the Oxnard Plain for existing beneficial uses including municipal and domestic supply, and agricultural supply, with industrial supply as a potential beneficial use.

19. This Regional Board has assumed lead agency role for this project under the California Environmental Quality Act and has conducted an Initial Study in accordance with title 14, California Code of Regulations, section 15063. Based on the Initial Study, the Regional Board prepared a Mitigated Negative Declaration that the project will not have a significant adverse effect on the environment.

20. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge and to the tentative requirements.

IT IS HEREBY ORDERED that the Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Limits

1. The discharge of alcohol tracers into shallow perched groundwater shall not exceed 618 grams, unless approved by the Regional Board Executive Officer. If extra alcohol release is required, written approval by the Executive Officer shall be obtained before such release is carried out.

2. The discharge of alcohols into the shallow aquifer shall only be performed during the 18-month evaluation and validation period. The 18 months shall commence with the installation of the first flux device.

B. Discharge Prohibitions

1. The Discharger shall provide hydraulic control, which provides full and complete containment of any released materials or by-products of chemical processes, for the duration of the project.

2. The discharge of alcohol tracers or any by-products into any surface water drainage course or to surface waters is prohibited.

3. The Discharger's activities shall not cause detectable alcohol tracers or by-products to migrate outside the evaluation and validation area as shown in Figures 2, 3a, and 3b.

4. The Discharger's activities shall not cause the groundwater outside the evaluation and validation area to contain taste, color or odor producing substances in concentrations that cause nuisance or adversely affect the beneficial uses thereof.

5. The Discharger's activities shall not cause the groundwater to contain concentrations of chemical constituents, including alcohol tracers and their by-products, in concentrations that may adversely affect municipal, domestic, industrial or agricultural uses.

C. Provisions:

1. This Order includes the attached "Standard Provisions Applicable to Waste Discharge Requirements" which are incorporated herein by reference. If there is any conflict between provisions stated herein and the attached Standard Provisions, those provisions stated herein prevail.

2. Discharge of wastes to any point other than specifically described in this Order is prohibited and constitutes a violation thereof.

3. In the event of any change in name, ownership, or control of this facility, the Discharger shall notify this Regional Board in writing and shall notify any succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this Regional Board.

4. A copy of this Order shall be maintained at an on-site office and be available at all times to operating personnel.

5. This Order includes the attached Monitoring and Reporting Program No. CI-8569 which is incorporated herein by reference. If there is conflict between provisions in the Monitoring and Reporting Program No. CI-8569 and the Standard Provisions, those provisions stated in the former prevail.

6. The Discharger shall notify Regional Board staff by telephone within 24 hours, followed by written notification within one week, in the event it is unable to comply with any of the conditions of this Order due to:

   a) Breakdown of equipment,
   b) Accident caused by human error or negligence,
   c) Other causes such as acts of nature, or
   d) Site construction or development operations.

7. In the event that wastes are transported and disposed of to a disposal site, the Discharger shall report types of wastes and quantity of each type; name and address of each hauler of wastes (or method of transport if other than by hauling); and location of the final point(s) of disposal for each type of waste.

8. The Discharger shall submit an 18-month evaluation and validation project Summary Report detailing the results of the 18-month evaluation and validation project. The report should include an evaluation of the effectiveness of the devices, the impact of alcohols or any by-products on the receiving groundwater quality, the hydraulic properties on the aquifer, and any other effects the devices may have caused.

9. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as specified in Monitoring and Reporting Program No. CI-8569. Violations may result in enforcement action, including Regional Board or court order requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

10. The use of the alcohol tracers shall not cause a condition of pollution or nuisance as defined by California Water Code, section 13050.

11. The Discharger shall cleanup and abate the effects of alcohol tracer release including extraction of any by-products which adversely affect beneficial uses and shall provide an alternate water supply source for any municipal, domestic or other water use wells that become contaminated in exceedance of water quality objectives as a result of using alcohol tracers.

12. All work must be performed by or under the direction of a registered civil engineer, registered geologist, or certified engineering geologist. A statement is required in all technical submittals that the registered professional in direct responsible charge actually supervised or personally conducted all the work associated with the project.

13. All technical submittals must be wet stamped by a California licensed civil engineer, registered geologist, or certified engineering geologist.

14. These requirements do not exempt the Discharger from compliance with any other laws, regulations, or ordinances, which may be applicable to the Discharger and the Discharger's facility. They do not legalize the waste treatment facility, and they leave unaffected any further restraints on the facility that may be contained in other statues of and/or required by other agencies.

15. This Order does not relieve the Discharger of the responsibility to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.

16. After notice and opportunity for a hearing, this Order may be terminated or modified for cause including, but not limited to:
    a. Violation of any term or condition contained in this Order;
    b. Obtaining this Order by misrepresentation, or failure to disclose all relevant facts;
    c. A change in any condition that requires either a temporary or permanent reduction or elimination of authorized discharge.

D. Expiration Date:

This Order expires on April 3, 2005.

The Discharger must file a Report of Waste Discharge in accordance with sections 13260 and 13264 of the California Water Code not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

I, Dennis A. Dickerson, 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, Los Angeles Region, on April 3, 2003.

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Dennis A. Dickerson,
Executive Officer

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