California Regional Water Quality Control Board
Central Coast Region

Winston H. Hickox
Secretary for
Environmental
Protection

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Gray Davis
Governor

September 3, 2003

Mr. James M. Willison, Director
Environmental and Natural Resources
P.O. Box 5004
Monterey, CA 93944-5004

Dear Mr. Willison:

DoD – PRESIDIO OF MONTEREY, REQUEST FOR A TECHNICAL REPORT ON EMERGENT CHEMICALS, SOURCES AND SAMPLING

The California Regional Water Quality Control Board ("Regional Board") is the public agency with primary responsibility to protect groundwater and surface water quality within this Region. We request your assistance in identifying potential sources of emergent chemicals, [perchlorate, n-nitrosodimethylamine (NDMA), 1,4-dioxane, 1,2,3-trichloropropane, chromium VI, and polybrominated diphenyl ether (PBDE)], in soil, groundwater or surface water. Our priority in this regard is assessing the groundwater quality associated with former and active military facilities for the presence of emergent chemicals of concern. We are requesting you submit a Source Evaluation Report, identifying sources of emergent chemicals at all areas of concern (AOC), installation restoration (IR) and operable unit (OU) sites within the facility. We recognize that due to your site's age and limited groundwater, the applicability of these requirements may be limited. We therefore encourage you to work closely with your Regional Board representative in fulfilling the requirements of this letter.

SUMMARY

The detections of emergent chemicals in groundwater, above State and Federal maximum contaminant levels (MCLs) or action levels (ALs) have caused this Regional Board to reassess the threat posed to groundwater resources used for domestic and municipal supply. Furthermore, many drinking water supply wells have been shut down throughout California due to pollution from one or more of these emergent chemicals. These recent developments have raised concerns about losing beneficial uses of groundwater due to the presence of these chemicals in soil, surface water, or groundwater. Enclosed is a California Environmental Protection Agency (CalEPA) letter expressing these concerns, and a request for cooperation on addressing these concerns.

The presence of these emergent chemicals can increase the costs of effective remediation and has caused the reassessing of cleanup remedies. At certain concentrations, all these emergent chemicals have acute to chronic health effects in humans and some of are suspected carcinogens. The enclosure to this letter provides additional emergent chemical information.

Based upon our knowledge of military facilities, we believe that sources for emergent chemicals potentially exist at former or active military facilities, which can date back to the early 1940's. Facilities that have taken a proactive approach and already evaluated source areas, and collected data on the emergent chemicals, should respond to the following request by verifying the agencies have the information.

DIRECTIVES

We are requesting your assistance in identifying sources of emergent chemicals at all AOC, IR and OU sites within the facility for Regional Board review, regardless of which agency is lead for the facility. The intent in requesting the multiple emergent chemicals is to streamline regulatory review by not sending individual requests. These AOC, IR, and OU, sites should include, but are not limited to:

Potential Source Areas for Emergent Chemicals Associated with Explosives

- Ordnance detonation/disposal sites.
- Missile/rocket test sites and launch pads.
- Catch basins, waste sumps, clarifiers, and settling ponds.
- Decommissioned missile silos.
- Suspected areas where chemicals and pesticides were stored, used, transferred, processed, incinerated, or disposed.
- Firing and bombing ranges.
- Mock battle-training locations.

Potential Source Areas for Emergent Chemicals Associated with Solvent Release Sites

- Catch basins, waste sumps, clarifiers, and settling ponds.
- Paint maintenance, hobby shops, plating shops, and degreasing activities.
- Weapons maintenance or cleaning areas.
- Known release sites, as appropriate.
- Suspected areas where these chemicals and pesticides were stored, used, transferred, processed, incinerated, or disposed.

In order to assist us in identifying potential sources of emergent chemicals we are asking that a Source Evaluation Report be prepared. Please prepare and submit a Source Evaluation Report for Regional Board review, by **October 28, 2003.** At a minimum, the source evaluation report should include the following:

1. Property ownership and land use history from original land grant.
2. Locations where emergent chemicals were used and stored on-site.
3. Location and time specific quantities of emergent chemicals used, if available.
4. Handling and storage procedures for the use of emergent chemicals and emergent chemical wastes used and/or generated on site.
5. Emergent chemical data from soil, surface water, and groundwater already collected.

Schedule for when environmental samples will be collected at sites with no existing soil, surface water and groundwater data on emergent chemicals.

Facilities completing the evaluation of sources for the emergent chemicals finding no potential sources should also report the results of the evaluation.

Due to the prevalence of these chemicals in groundwater, all sites with groundwater pump and treat systems should sample the influent to the systems, regardless of whether an identified potential source exists.

Following review of the source evaluation report, there will be a determination made by this Regional Board staff to determine if a proposal for collecting emergent chemical data for soil, surface water and groundwater is necessary. If it is determined that a sampling proposal is required, the sampling proposal should include the following:

1. Locations, numbers, and identity of proposed wells, surface water locations, and treatment systems to be sampled.
2. The rationale for sampling these selected wells.
3. Proposed soil sampling locations and rationale.
4. A brief description of the methodology proposed to be used to collect the soil and/or water samples.
5. A schedule for sampling these soils, surface waters and wells.

Samples should be collected as described in a Board approved sampling proposal. Ideally, at those sites with potential sources, selected groundwater monitoring wells and surface water locations should be sampled during the next scheduled monitoring event for the emergent chemicals and the results transmitted to the agencies in the next groundwater monitoring report for the facility.

TESTING REQUIREMENTS

Listed below are the emergent chemicals of concern and our recommendations with respect to acceptable testing procedures for each of the specified emergent chemicals:

Emergent Chemical	**Acceptable Test Method ***	**Reporting Limit**
Perchlorate	USEPA Method 314.0	4 mg/L
N-Nitrosodimethylamine (NDMA)	USEPA Method 1625	0.002 mg/L
1,4-Dioxane	USEPA Method 8270	2 mg/L
1,2,3-Trichloropropane	USEPA Method 524.2	0.005 mg/L
Total/Hexavalent Chromium	USEPA Method 200.8/218.6	1 mg/L/0.3 mg/L
Polybrominated Diphenyl Ether	USEPA Method 8270	2 mg/L

* These test methods may require modification, e.g. selected ion monitoring, to achieve the recommended reporting limits.

The use of these analytical testing procedures by a California Certified Laboratory will provide consistency in the analysis of environmental samples and the high quality data necessary to make appropriate regulatory decisions.

If you have any questions regarding this letter, please contact **Grant Himebaugh at (805) 542-4636,** or Michael LeBrun at (805) 542-4645.

Sincerely,

for Michael LeBrun

Roger W. Briggs
Executive Officer

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Enclosures
1. July 21, 2003 Cal EPA letter to Mr. John Paul Woodley Jr.
2. Emergent Chemical information sheet.

cc w/ enclosures:

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Base Environmental Coordinator
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Mr. Glenn Mitchell
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Winston H. Hickox
Agency Secretary,
Cal/EPA

State of California
California Environmental Protection Agency

Gray Davis
Governor

July 21, 2003

Mr. John Paul Woodley, Jr.
Assistant Deputy Undersecretary of Defense for Environment
Department of Defense
3400 Defense Pentagon
Washington, D.C. 20301-3400

Dear Mr. Woodley:

I write to express my appreciation for your July 8 visit to Sacramento to discuss issues related to perchlorate and other emergent contaminants as they relate to military installations in California, and to memorialize some salient aspects of our discussion.

The California Environmental Protection Agency (Cal/EPA) and the California Department of Health Services (CDHS) are heartened to hear that Department of Defense (DoD) understands and appreciates the critical importance of perchlorate contamination in California. We are also pleased that addressing perchlorate-related issues is one of the highest environmental priorities for DoD. As evidence of this, you offered DoD's aggressive efforts to find alternatives to perchlorate in military uses as well as efforts to respond to the variety of inquiries from federal and state legislators and regulatory agencies.

Going into the meeting, our most pressing concerns regarded receiving a timely response from California's military installations to letters from California's Regional Water Quality Control Boards (regional boards) that directed each installation to provide information and testing data related to perchlorate and other emergent contaminants. In response to our concerns, you offered the following statements and commitments:

1. DoD intends to act and comply with any regulatory standard that is promulgated by any regulatory entity (including a California drinking water maximum contaminant limit (MCL) when adopted by the California Department of Health Services), and will not attempt to delay compliance efforts until other standards, such as a federal MCL, are adopted.

2. DoD will help form and participate in a federal/state interagency working group that will:

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a. Help set priorities for determining the source and magnitude of perchlorate problems at military and defense facilities.
b. Help to communicate and understand California's requirements related to perchlorate and other emergent chemicals.
c. Assist in marshalling "assets and resources," including
    i. The latest research in investigation and remediation of perchlorate;
    ii. Expedited assessment and implementation of treatment technologies;
    iii. Collaboration on source identification and interception techniques.
d. This working group will not be involved in or attempt to influence the establishment of California's perchlorate public health goal (PHG) or MCL.

3. In response to the regional board letters to the military installations, I understand that DoD intends to:
    a. Work through the proposed federal/state interagency working group to assess the list of bases to which requests were sent in order to help identify activities regarding perchlorate and other emergent contaminants and to prioritize responses.
    b. Instruct military installations to be forthcoming with available information on perchlorate history and use and to sample for perchlorate at those sites. As you know, we also urge you to test for the other contaminants listed in the regional board letters.
    c. By September 1, 2003, provide to the pertinent regional board that information regarding perchlorate that is on-hand, and schedules for testing.

4. DoD believes the proposed amendment to the Range Readiness Rule is a codification of current practice and not an exemption from environmental liability. The Rule is not intended to affect DoD's liability for perchlorate contamination, unless that contamination is totally within the boundaries of an active, operational range.

Cal/EPA and CDHS very much appreciate these commitments. I would like to repeat a very significant point that we shared in the meeting. While your commitments were specific to perchlorate issues, considering and looking for all emergent contaminants while testing for perchlorate would represent a significant efficiency and economy for both DoD as well as for California's regulatory agencies. I encourage you to instruct the commands of each military service branch and the California military installations to include emergent contaminants along with perchlorate as they review records and conduct testing.

I believe we made important progress in our time together, and I look forward to that spirit of cooperation continuing as we work together to address this very critical public health, environment, economic and water supply issue in California. Please feel free to contact me at any time on this important matter. In addition, you can contact Rick Brausch, at (916) 445-3131 (or rbrausch@calepa.ca.gov), or Jim Spagnole, at (916) 324-1327 (or jspagnol@calepa.ca.gov).

Sincerely,

Winston Hickox

Winston H. Hickox
Agency Secretary

cc: Ms. Kathy Fletcher
Deputy Secretary for External Affairs
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Mr. Kurt Schuparra
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Mr. Rick Brausch
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cc: Mr. Art Baggett, Chair
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Ms. Celeste Cantú
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Mr. Ed Lowry, Director
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bcc: Regional Board Chairs
Regional Board Executive Officers

EMERGENT CHEMICAL INFORMATION

Perchlorate (ClO_4-) originates as a contaminant in the environment from the inorganic salts of ammonium, potassium, magnesium or sodium perchlorate. This pollutant is exceedingly mobile in aquifer systems. It can persist for many decades under typical groundwater and surface water conditions, because of its resistance to react with other available constituents. Perchlorate is among a group of unregulated chemicals requiring monitoring pursuant to Title 22, California Code of Regulations § 64450.

N-Nitrosodimethylamine, also known as NDMA ($C_2H_6N_2O$) is a product from the decomposition of unsymmetrical dimethyl hydrazine, a component used in the production of rocket fuel (Aerozine 50). This chemical is used as an additive in liquid propellant fuel for rocket engines. NDMA is used primarily in research (NTP, 2000), but it can also be formed inadvertently in a number of industrial processes. NDMA is identified as a carcinogen under California's Health and Safety Code Section 25249.5, *et seq.*, and the Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65"). In addition, the USEPA identifies NDMA as a "probable human carcinogen" (USEPA, 1997).

1,4-Dioxane is used as a stabilizer for chlorinated solvents or volatile organic compounds (VOCs), particlarly 1,1,1-trichloroethane approximately 90% of the 1,4-dioxane produced. Releases of chlorinated solvents or VOCs may be a primary source of 1,4-dioxane in the environment. 1,4-dioxane has a high potential for entering the environment due to its volatility and solubility in water. Spent chlorinated solvents disposed of improperly can contaminate ground and surface water, and 1,4-dioxane has been detected in surface waters throughout the United States. Exposure to small amounts of 1,4-dioxane may lead to significant adverse health effects. The primary routes of exposure include inhalation, ingestion and dermal contact. USEPA has classified 1,4-dioxane as a Group B2, probable human carcinogen of low carcinogenic hazard.

1,2,3-Trichloropropane (TCP): This chemical has been used primarily as a solvent and extractive agent. As a solvent, it has commonly been used as a paint and varnish remover, a cleaning and degreasing agent and a cleaning and maintenance solvent. TCP is not a naturally occurring chemical. Releases to the environment are likely to occur as a result of its manufacture, formulation, and use as a solvent and extractive agent, paint and varnish remover, cleaning and degreasing agent, cleaning and maintenance reagent, and chemical intermediate. 1,2,3-Trichloropropane (TCP)is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of malignant tumor formation at multiple sites in multiple species of experimental animals.

Hexavalent Chromium: Dissolved heavy metals, like hexavalent chromium (chromium VI), because of their widespread use are being detected in the environment. Chromium VI, in particular, is a known human carcinogen when has impacted drinking water aquifers statewide, resulting in some well shutdowns. There is no Federal or State regulatory standard for chromium VI. However, SB 351 proposes to have one in place starting January 1, 2004. For now, the regulatory standards being used apply only to total chromium, the combined concentrations of chromium III and chromium VI. The risk-based California drinking water standard or maximum contaminant level (MCL) of 50 µg/L has been established for total chromium (chromium III and chromium VI).

Polybrominated Diphenyl Ether (PBDE): A family of flame-retardants used in polyurethane foam, textiles, and plastic electronic casings. This chemical bioaccumulates in marine mammals, birds, and humans.