

HOLD UNTIL RELEASED  
BY THE COMMITTEE

**STATEMENT OF**

**MR. ALEX BEEHLER**

**ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE  
(ENVIRONMENT, SAFETY, & OCCUPATIONAL HEALTH)**

**BEFORE THE  
SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS  
MATERIALS  
OF THE  
HOUSE ENERGY AND COMMERCE COMMITTEE**

**April 25, 2007**

Chairman Wynn, Congressman Shimkus, and distinguished members of the Subcommittee, I appreciate the opportunity to appear before you today to address the Department of Defense's activities related to the chemical compound perchlorate, especially as there continue to be some misperceptions about the Department's response to perchlorate.

### ***Overview***

Perchlorate is both man-made and naturally occurring. Since the 1940s, DoD has used potassium and ammonium perchlorate as an oxidizer in explosives, pyrotechnics, rocket fuel, and missiles. It is by far the safest, most efficient and stable propellant oxidizer available. Perchlorate has a high ignition temperature, controllable burn rate, and stable chemical characteristics that reduce handling and storage risks and the likelihood of unexpected detonations.

Private industry uses perchlorate in explosives, the production of matches, dyes, road flares, fireworks, and paints. It is also found naturally in some fertilizers used in agriculture. Perchlorate is highly soluble in water and EPA and several states have taken or are considering measures to address public health concerns.

### ***DoD Policy***

Due to a potential public health threat, DoD has had perchlorate policies specifically directing perchlorate assessment since November 2002. DoD's most recent perchlorate policy, generated in January 2006, requires perchlorate sampling in drinking water, groundwater, and wastewater discharges. In this policy, DoD also established a 24 part per billion (ppb) "level of concern" in water that is based on the science review by the National Academy of Sciences and EPA's reference dose. The DoD "level of concern" is simply a departure point for site-specific risk analyses in the absence of any applicable Federal or state standards. Site-specific risk

analyses may include consideration of the relative source contribution of perchlorate in food and water. I want to make it clear to the Committee that DoD has, and will continue to comply with applicable Federal or state standards regarding perchlorate.

### ***DoD's Integrated Risk Management Approach to Perchlorate***

DoD has adopted a three-pronged approach to risk management of perchlorate -- Assessment of potential releases, taking appropriate response actions where necessary, and investing in research and development.

#### *Assessment of Potential Releases*

Cumulatively through FY 2006, perchlorate sampling has been conducted at 237 DoD installations or former properties. The majority of samples taken at sites where perchlorate releases may have occurred have resulted either in “non-detects” or levels well below the current EPA reference dose, which translates to a drinking water equivalent level of 24.5 ppb; in fact, of the 146 installations that reported sampling in FY 2006, only nine installations reported a detection above 4 ppb in any media. Eight installations indicated detection above 24 ppb in a media. Some of these detections are in point-source wastewaters subject to limits in state discharge permits. Since 2004, sampling results have been posted on our publicly accessible web site (<https://www.denix.osd.mil/denix/Public/Library/Water/Perchlorate/perchlorate.html>).

Perchlorate has been a particular concern in California. DoD and the State of California worked collaboratively to develop a prioritization protocol for assessing DoD sites with *potential* perchlorate releases. I emphasize the word “potential” -- 924 current and formerly used Defense sites in California were jointly reviewed by DoD and the State – so far, 97 percent do not currently appear to pose a threat to drinking water related to perchlorate. The remaining 3

percent have some confirmation sampling underway or the completed assessments are still being reviewed by Californian regulatory agencies.

### Response Actions

Site-specific risk assessments are conducted under the Defense Environmental Restoration Program (DERP), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and in accordance with the National Contingency Plan. They are also conducted in coordination with EPA and/or state regulators. Where a site-specific assessment indicates that a release presents an unacceptable risk to human health or the environment, DoD is taking appropriate response actions. The DERP Annual Report to Congress provides summaries of cleanup actions at DoD installations. This report is publicly available at <https://www.denix.osd.mil/denix/Public/News/news.html#osd>

Even before there was any clear regulatory requirement, DoD began cleanup at a number of bases including Massachusetts Military Reservation; Redstone Arsenal, Alabama; Vandenberg Air Force Base, California; Edwards Air Force Base, California; and the Naval Weapons Industrial Reserve Plant McGregor, Texas. At McGregor, the Navy's in-situ biological treatment system is treating perchlorate in groundwater and soil; this is the first – and world's largest – full-scale bio-wall application for groundwater remediation of perchlorate and volatile organic compounds. Recent groundwater data shows a marked decrease in the amount of perchlorate in groundwater. In fact, last October, McGregor became the first U.S. Navy facility to receive a "Ready for Reuse" determination from the EPA. This verifies that environmental conditions at the property are protective of human health and the environment for its current and future commercial, industrial and agricultural uses.

### Research and Development

DoD has invested over \$114 million in research related to perchlorate toxicity, treatment technologies, perchlorate substitutions in munitions and training materials, perchlorate recycling, and analytical and detection advancements. Our investments are paying dividends -- we have advanced the state-of-technology regarding perchlorate treatment in water and have found suitable substitutes for a number of military-specific applications.

For example, our research and development has achieved advances in ex-situ treatment using bio-reactors and ion exchange, and in-situ treatment using bioremediation, permeable reactive barriers, substrate injection, soil composting, and phytoremediation. In Fiscal Years 2005 through 2007, DoD competitively selected and deployed six water treatment technology demonstrations in California in Rialto, Colton, Fontana, West Valley and East Valley. Both the water purveyors and the California Department of Health Services were involved. These projects added approximately 5,000 gallons per minute of new treatment capacity in the Inland Empire region with significant cost reduction potential in capital and operation and maintenance costs.

Regarding military unique applications, research and development has led to finding perchlorate substitutes for ground burst simulators and hand grenade simulators. These simulators accounted for a majority of expended perchlorate on Army training ranges in past years. Production of the replacement is scheduled to begin in 2008. Work is underway to eliminate perchlorate in pyrotechnic flare compositions. Lab-scale testing has identified perchlorate-free red, green, and yellow signal flare compositions and they are currently in the full-scale demonstration phase. Finally, alternatives to potentially replace ammonium

perchlorate in solid rocket propellants are undergoing testing and evaluation. The alternatives must meet high performance specifications and have a low environmental burden.

Over the past several years, the nation has learned more about a number of natural and man-made sources of perchlorate that can cause low-level, wide-spread contamination. These sources include road flares, fireworks, certain natural mineral formations, and agricultural fertilizers. The situation is far more complex than originally thought. Now that an ability to differentiate between different sources of perchlorate exists, responsible parties can be identified with greater confidence.

### ***Conclusion***

The latest round of DoD-wide perchlorate sampling data shows that we are taking appropriate response actions and DoD installations, overall, do not appear to be a significant source of perchlorate releases to the nation's drinking water. In summary, we believe that DoD has acted responsibly at each step as the science and understanding of perchlorate has evolved. Protection of human health and the environment is an important component within DoD's mission. In closing, I sincerely thank the Committee for this opportunity to highlight the Department's activities related to perchlorate.