



National Association  
of Attorneys General

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**Adopted**

**Summer Meeting**

**June 18-22, 2002**

**Farmington, Pennsylvania**

**RESOLUTION**

**SUPPORTING THE PRINCIPLE THAT FEDERAL FACILITIES BE SUBJECT TO  
THE SAME ENVIRONMENTAL STANDARDS AS PRIVATE INDUSTRY**

**WHEREAS**, our nation has enacted a series of environmental laws designed to protect human health and the environment by regulating the emission of pollutants and by requiring remediation of environmental contamination; and

**WHEREAS**, such environmental laws include the Resource Conservation and Recovery Act, the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, and the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund); and

**WHEREAS**, the Congress, in enacting each of these laws, intended that federal agencies be subject to each of these laws, and therefore included in each law a waiver of the federal government's sovereign immunity; and

**WHEREAS**, the States are the primary implementers of the Resource Conservation and Recovery Act, the Clean Air Act, the Clean Water Act, and the Safe Drinking Water Act, and are key partners with the Environmental Protection Agency in implementing Superfund, and

**WHEREAS**, despite Congress' long-standing adherence to the principle that federal agencies should be subject to the same environmental standards and enforcement as private industry, the states have experienced significant difficulty in bringing federal agencies into compliance with federal and state environmental laws because federal agencies continue to dispute the extent of waivers of immunity in the environmental laws; and

**WHEREAS**, federal agencies have long been recognized as the nation's largest polluters with thousands of contaminated sites across the nation, which will cost hundreds of billions of dollars to remediate; and



**WHEREAS**, data from the Environmental Protection Agency demonstrate that clear waivers of federal sovereign immunity are necessary to ensure federal agencies comply with state and federal environmental laws; and

**WHEREAS**, on several occasions, legislation has been proposed that could alter or impair state authority over federal facility environmental compliance; such proposed legislation is often not subjected to regular order with hearings before the Congressional committees with jurisdiction over the environmental laws, but instead is proposed as amendments to authorization or appropriations bills; and

**WHEREAS**, consideration and adoption of proposed legislation through regular order, with full and open hearings before the Congressional committees of jurisdiction, is one of the fundamental procedural safeguards of the legislative process, because it allows an opportunity for interested parties to present their views, allows for construction of a record upon which the need for legislation can be judged, and allows for debate on the merits of any proposed legislative language; and

**WHEREAS**, the importance of regular order in considering legislation that could alter or impair state authority over federal facility environmental compliance is particularly important because of the close scrutiny federal courts give waivers of federal sovereign immunity:

**NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL ASSOCIATION OF ATTORNEYS GENERAL:**

1. Urges the Congress to consider legislation affecting federal agency compliance with environmental requirements only through regular order;
2. Urges Congress to solicit and consider the views of affected states in considering any such legislation;
3. Urges Congress to strengthen and clarify existing waivers of immunity in Superfund and the Clean Water Act, and in the other environmental laws, as appropriate;
4. Establishes a Federal Facilities Working Group, composed of representatives of the offices of interested Attorneys General, to serve as a resource to the Attorneys General, NAAG, and the NAAG Environment Committee regarding federal agency compliance with state and federal environmental laws; to monitor proposed legislation and regulatory actions in this area; and to assist the Attorneys General in formulating such responses to such proposed legislation and regulatory actions as may be timely and appropriate; and
5. Authorizes the Executive Director to transmit this resolution to Congress, the Administration, and other interested organizations and individuals; and to monitor and report back on proposed legislation that might impair state authority over federal facilities.

**Readiness and Range Preservation Initiative Summary**  
(April 30, 2002)

**Introduction.** The Department of Defense has embarked on a multifaceted effort to improve readiness today and in the future. As part of that effort, the Department is recommending that Congress clarify the way that several provisions of environmental laws apply to military training and testing activities. For the most part, these changes simply confirm the way existing laws and regulations are currently administered, thereby safeguarding these existing practices against litigation seeking to overturn them. From an environmental perspective, each element of the package ranges from neutral to strongly positive in its effects. From a readiness perspective, however, these amendments are of great significance.

The changes are designed to save the lives of America's young men and women by preparing them and their equipment for combat on the first day of battle. A battlefield is not the place for soldiers, sailors, airmen, or Marines to learn how a military tactic or weapon really works. We often say that we need to train as we fight. The reality is we fight as we train. With the many restrictions placed on military training and weapons testing in recent years, training is losing its realism. Having to "unlearn" artificial training restrictions can have serious implications. To employ weapons systems and handle and use munitions properly on the battlefield, our troops must experience that use in a realistic training environment. The battlefield is not the place to learn these skills.

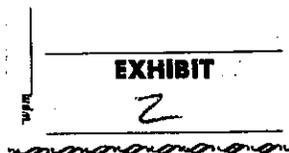
The sustainable readiness initiative is narrow in scope, addressing only military readiness activities—the training, testing, and operations that relate to combat. It does not affect the wide range of Defense Department activities that do not directly relate to combat, such as our wastewater treatment plants, dry cleaners, or routine transportation. And it does not affect our closed bases, or those bases that close in the future: For those bases, DoD's cleanup responsibilities remain unchanged.

The initiative also contains several proposals that will enhance environmental protection by protecting additional habitat around existing bases—a win/win for the environment and readiness. By encouraging creation of such buffer zones for our bases, the initiative will create new protection for wildlife and natural resources while simultaneously protecting our bases from encroachment by inconsistent development.

**Specific Provisions.**

**Endangered Species Act.** The legislation would confirm the prior Clinton Administration's decision that there is no need to designate critical habitat on military installations for which an Integrated Natural Resources Management Plan has been completed. These plans for conserving natural resources on military property, required by the Sikes Act, are developed in cooperation with state wildlife agencies, the U.S. Fish and Wildlife Service, and the public. They offer superior protection for species because they consider the base's environment holistically, rather than using an obsolete and unscientific species-by-species analysis.

**Need for Legislation:** The Clinton Administration's decision that INRMPs provide for



appropriate endangered species habitat management is being challenged in court by environmental groups, who cite Ninth Circuit caselaw suggesting that a California habitat management program was an insufficient basis for the Fish and Wildlife Service to avoid designating Critical Habitat. This legislation would insulate the Fish and Wildlife Service's policy from such challenges.

***Effect on the Environment: Neutral to Positive***

- This legislation confirms existing policy of the last two Administrations.
- INRMPs are a superior form of habitat and species protection, as the both the Clinton and Bush Administrations have affirmed. Such plans are required to provide for fish and wildlife management, land management, forest management, and fish and wildlife-oriented recreation; fish and wildlife habitat enhancement; wetland protection, enhancement, and restoration; establishment of specific natural resource management goals, objectives, and timeframes; and enforcement of natural resource laws and regulations.
- In 1999, the Fish and Wildlife Service stated in a Notice of Proposed Rulemaking that "we have long believed that, in most circumstances, the designation of 'official' critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources... [W]e have long believed that separate protection of critical habitat is duplicative for most species."
- The legislation explicitly requires that the Defense Department continue to consult with the Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act (ESA); the other provisions of the ESA, as well as other environmental statutes such as the National Environmental Policy Act, would continue to apply, as well.

***Effect on Readiness: Critical***

- Absent this policy, environmental litigants would have forced the Fish and Wildlife Service to designate over 50% of the 12,000-acre Marine Corps Air Station (MCAS) Miramar and over 65% of the 125,000-acre Marine Corps Base (MCB) Camp Pendleton. Prior to adoption of this policy, 72% of Fort Lewis and 40% of the Chocolate Mountains Aerial Gunnery Range were designated as critical habitat for various species, and analogous habitat restrictions were imposed on 33% of Fort Hood. These are vital installations.
- Unlike Sikes Act INRMPs, critical habitat designation imposes rigid limitations on military use of bases, denying commanders the flexibility to manage their lands for the benefit of both readiness and endangered species.

**Marine Mammal Protection Act.** The legislation would codify the National Research Council's recommendation that the current overly broad definition of "harassment" of marine mammals, which includes "annoyance" or "potential to disturb," be focused on biologically significant effects. As recently as 1999, the National Marine Fisheries Service asserted that under the sweeping language of the existing statutory definition harassment "is presumed to occur when marine mammals...react to the generated sounds or visual cues"—in other words, whenever a marine mammal notices and reacts to an activity, no matter how transient or benign the reaction. Both the Clinton and Bush Administrations have sought to refine this

overbroad definition. This legislation would apply to military readiness activities a definition of harassment consistent with the recommendation of the National Research Council and developed by the Departments of Commerce, Interior, and Defense under the last two Administrations.

**Need for Legislation:** Environmental groups challenge the National Marine Fisheries Service's policy of using a more scientific, effects-based standard of harassment as inconsistent with the sweeping statutory standard and have announced that they will challenge NMFS' permitting of vital national security technology under that standard. Although reauthorization of the MMPA with a similar provision would obviate such a suit, global MMPA reauthorization is likely to be protracted and could be delayed by other issues. A narrow amendment for military readiness activities is fully consistent with a subsequent general reauthorization.

**Effect on the Environment: Neutral**

- The legislation confirms existing policy of the last two Administrations, endorsed by the National Research Council.
- Although excluding transient, biologically insignificant effects from regulation, the MMPA would remain in full effect for biologically significant effects—not only death or injury but also disruption of significant activities.
- The Defense Department already exercises extraordinary care in its maritime programs: all DoD activities worldwide result in fewer than 10 deaths or injuries annually (as opposed to 4800 deaths annually from commercial fishing activities).
- DoD currently funds much of the most significant research on marine mammals, and will continue this research in future.

**Effect on Readiness: Critical**

Application of the current hair-trigger definition of "harassment" has profoundly affected both vital R&D efforts and training. Navy operations are expeditionary in nature, which means world events often require planning exercises on short notice. This challenge is especially acute for the Atlantic Fleet, which over the past two years has often had to find alternate training sites for Vieques. To date, the Navy has been able to avoid the delay and burden of applying for a take permit only by curtailing and/or dumbing down training and research/testing.

- For 6 years, the Navy has been working on research to develop a suite of new sensors and tactics (the Littoral Advanced Warfare Development Program, or LWAD) to reduce the threat to the fleet posed by ultraquiet carrier-killer diesel submarines operating in the littorals and shallow seas like the Persian Gulf, the Straits of Hormuz, the South China Sea, and the Taiwan Strait. These submarines are widely distributed in the world's navies, including "Axis of Evil" countries like Iran and North Korea and other potentially hostile great powers.
  - o In the 6 years that the program has operated, over 75% of the tests have been impacted by environmental considerations.
  - o In the last 3 years, 9 of 10 tests have been affected. One was cancelled entirely, and 17 different projects have been scaled back.
- Deployment of the Surveillance Towed – Array Sensor System (SURTASS) Low Frequency Active (LFA) sonar system, a key defense against ultraquiet diesel

submarines, has been delayed for over six years, in large measure by the MMPA's definition of "harassment."

- o The Navy sponsored a \$10 million scientific research project conducted by the Woods Hole Oceanographic Institute and Cornell University.
- o In 1998 these scientists concluded that although some marine mammals could be "harassed" (though not injured) by LFA, LFA would not adversely affect marine mammal populations.
- o The Navy still awaits the Letter of Authorization (LOA) to allow incidental taking of marine mammals in connection with the LFA program. Once the LOA is issued, DoD anticipates a lawsuit challenging, among other things, interpretation of harassment by the Navy and NMFS and the NMFS decision to issue a permit based on that interpretation.

**Migratory Bird Treaty Act.** The legislation would reverse a March 2002 judicial decision applying the MBTA to training activities at the Farallon de Medinilla (FDM) range in the Western Pacific that are vital to Operation Enduring Freedom. The provision would require that the military services take practical steps to prevent injuries to birds in the course of training.

**Need for Legislation:** Without clarifying the scope of the MBTA, DoD now faces the potential for an injunction that would halt military training if it could result in the death or injury of any migratory birds. In the FDM litigation, the judge himself stated that Congress should take up the current inflexible MBTA requirements.

- Although DoI may attempt to address this problem by regulation, a formal rulemaking process would entail at least 18-24 months, and subsequent litigation is likely since the FDM plaintiffs have already stated that they do not believe Interior has authority to issue either regulations or permits for military readiness activities. (An emergency interim regulation, by contrast, would be subject to further procedural challenge.)
- DoI's ability to address the problem by issuance of "special purpose" permits is also qualified by the fact that it would be very difficult administratively to issue site-specific special-purpose permits for the hundreds of DoD bases and activities implicating the MBTA. Programmatic special-purpose permits for categories as broad as "low-level military aviation" would likely entail at least 24-36 months to complete the requisite environmental documentation, and a subsequent lengthy legal challenge would be likely since the FDM plaintiffs have argued to the court that DoI may not lawfully issue MBTA incidental take permits that do not conduce to the net benefit of migratory birds.

**Effect on the Environment: Neutral to Positive**

The legislation merely restores the legal and regulatory status quo as it existed for over 80 years, until the FDM decision last month. The military already undertakes extensive mitigation efforts, not just at FDM but throughout all our aviation activities, because bird strikes represent a critical threat to pilot safety. Our legislation would expand that by committing to reduce injuries to migratory birds to the extent possible.

**Effect on Readiness: Critical**

- Senior commanders have testified that loss of FDM will have important detrimental effects on Operation Enduring Freedom.
  - o VADM Metzger: "FDM [has] become a necessity for training and readiness in the

war against terrorism...Closing FDM will mean that units transiting to the Seventh Fleet area of responsibility may not have adequate range training time before they are required to engage in combat operations in support of Operation Enduring Freedom.”

- Maj. Gen. Cartwright: “FDM’s critical role in Marine aviation military readiness, and therefore national security, has dramatically increased since the September 11, 2001 terrorist attacks.”
- Almost all species of birds everywhere are migratory, and the FDM case was brought in the D.C. Circuit, which has jurisdiction over all DoD activities.
- As a result, the holding in the FDM case puts at risk **all** military aviation, military telecommunications, and live-fire training nationwide and as far afield as FDM.

**Clean Air Act.** The legislation would provide more flexibility for the Defense Department in ensuring that emissions from its military training and testing are consistent with State Implementation Plans under the Clean Air Act by allowing DoD and the state a slightly longer period to accommodate or offset emissions from military readiness activities.

*Need for Legislation:* The Clean Air Act’s “general conformity” requirement, applicable only to federal agencies, has repeatedly threatened deployment of new weapons systems and base closure/realignment despite the fact that relatively minor levels of emissions were involved.

- The planned realignment of F-14s from NAS Miramar to NAS Lemoore in California would only have been possible because of the fortuity that neighboring Castle Air Force Base in the same airshed had closed, thereby creating offsets.
- The same fortuity enabled the homebasing of new F/A-18 E/Fs at NAS Lemoore.
- The realignment of F/A-18 C/Ds from Cecil Field, Florida to NAS Oceana in Virginia was made possible only by the fortuity that Virginia was in the midst of revising its Implementation Plan and was able to accommodate the new emissions. The Hampton Roads area in which Oceana is located will likely impose more stringent limits on ozone in the future, thus reducing the state’s flexibility.

As these near-misses demonstrate, under the existing requirement there is limited flexibility to accommodate readiness needs, and DoD is barred from even beginning to take readiness actions until the requirement is satisfied.

- The Clean Air Act permits the President to issue renewable one-year waivers for individual federal sources upon a paramount national interest finding, or to issue renewable three-year regulations waiving the Act’s requirements for weaponry, aircraft, vehicles, or other uniquely military equipment upon a paramount national interest finding.
  - Use of such time-limited authorities in the context of activities that are (a) ongoing indefinitely, and (b) largely cumulative in effect would be difficult under a paramount interest standard, and would require needless revisiting of the issue annually or triennially.

***Effect on the Environment: Strongly positive***

The new legislation would greatly facilitate the 2005 base closure round authorized by Congress by facilitating realignment of military units from closing bases. This round will substantially reduce aggregate DoD emissions nationwide, both by reducing the number of

DoD facilities and by enabling upgrade of aging infrastructure at the remaining facilities. By contrast, the new emissions the legislation would *temporarily* authorize are typically less than .5% of the total emissions in air regions—several hundred tons in airsheds with emissions budgets of tens of thousands of tons.

***Effect on Readiness: Major***

- The provision is necessary to facilitate a new base closure round critical to military transformation.
- The more efficient and powerful engines that are being designed and built for virtually all new weapons systems will burn hotter and therefore emit more NOx than the legacy systems they are replacing, even though they will also typically emit lower levels of VOCs and CO. Without greater flexibility, the conformity requirement could be a significant obstacle to basing military aircraft in any Southern California location, as well as a potentially serious factor for the siting of the Joint Strike Fighter and the Marine Corps' Advanced Amphibious Assault Vehicle.

**RCRA and CERCLA.** The legislation would confirm that military munitions are subject to EPA's Military Munitions Rule while on range, and that cleanup of operating ranges is not required so long as material stays on the range. If such material moves off range, it still must be addressed promptly under existing environmental laws. Moreover, if munitions cause an imminent and substantial endangerment *on range*, EPA will retain authority to address it on range under CERCLA section 106.

***Need for Legislation.***

- Because of the broad statutory definition of "solid waste" in RCRA, and because states possess broad authority to adopt more stringent RCRA regulations than EPA (enforceable both by the states and by environmental plaintiffs), EPA has limited ability to afford DoD regulatory relief under RCRA.
- The broad statutory definition of "release" under CERCLA, combined with EPA's past assertions that munitions are a hazardous substance subject to CERCLA response authorities, may also limit EPA's ability to afford DoD regulatory relief.
- The President's site-specific, annually renewable waiver (under a paramount national interest standard in RCRA and a national security standard in CERCLA) are inapt for the reasons discussed above.

***Effect on the Environment: Neutral***

- The legislation codifies virtually uniform existing regulatory policy.
- The legislation does not modify the overlapping protections of the Safe Drinking Water Act, NEPA, and the ESA against environmentally harmful activities at operational military bases.
- The legislation does nothing to modify EPA's CERCLA section 106 authority to address imminent and substantial endangerment on operational military bases.
- The legislation clarifies and confirms the applicability of both RCRA and CERCLA to migration of munitions constituents off-range.
- The legislation does not modify DoD's existing cleanup responsibilities at Formerly Used Defense Sites, closed, closing, or transferring ranges, or currently operational bases that may close in the future.

***Effect on Readiness: Potentially Significant***

- Environmental plaintiffs have filed suit alleging RCRA and CERCLA violations at Fort Richardson, Alaska. If successful, plaintiffs could force remediation of the Eagle River Flats impact area, precluding live-fire training at the only mortar and artillery impact area at Fort Richardson and dramatically degrading readiness of the 172<sup>nd</sup> Infantry Brigade, the largest infantry brigade in the Army.
- If successful, the Fort Richardson litigation could set a precedent fundamentally affecting military training and testing at virtually every test and training range.

**Additional Provisions.**

- The legislation provides DoD with additional authority to work with conservation groups to address urban encroachment of its installations that threatens military testing, training, and operations, including purchase of land around existing installations that would be managed to protect habitat for sensitive species and to prevent development incompatible with the installation.
- In addition, it would provide legislative authority to transfer surplus property without charge to state and local government or private organizations for conservation purposes.

FILED  
U.S. DISTRICT COURT  
DISTRICT OF ALASKA

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IN THE UNITED STATES DISTRICT COURT  
DISTRICT OF ALASKA AT ANCHORAGE

ALASKA COMMUNITY ACTION ON TOXICS, )  
COOK INLET KEEPER, THE CHICKALOON )  
VILLAGE TRADITIONAL COUNCIL, JANET )  
DANIELS, RICHARD MARTIN, and THE )  
MILITARY TOXICS PROJECT )

Plaintiffs,

v.

UNITED STATES DEPARTMENT OF THE )  
ARMY, UNITED STATES DEPARTMENT OF )  
DEFENSE, and DONALD RUMSFELD IN HIS )  
OFFICIAL CAPACITY AS UNITED STATES )  
SECRETARY OF DEFENSE, )

Defendants.

Civil Action No: A02-0083 CV (SWS)

AMENDED COMPLAINT FOR  
DECLARATORY AND  
INJUNCTIVE RELIEF

EXHIBIT  
3

**AMENDED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF**

Plaintiffs allege as follows:

**NATURE OF THE CASE**

1. This is a citizens' suit brought pursuant to the provisions of Clean Water Act 33 U.S.C. §1251, *et seq.*, the Solid Waste Disposal Act, 42 U.S.C. §6901, *et seq.*, and the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. §9601, *et seq.*

**JURISDICTION**

2. This Court has jurisdiction over the subject matter of the First Count herein pursuant to 33 U.S.C. §1365(a)(1). Defendants have waived sovereign immunity to the First Count pursuant to 33 U.S.C. §§1323(a) and 1365(a)(1).

3. This Court has jurisdiction over the subject matter of the Second Count pursuant to 42 U.S.C. §6972(a)(1)(A). The Defendants have waived sovereign immunity to the Second Count pursuant to 42 U.S.C. §§6961(a) and 6972(a)(1)(A).

4. This Court has jurisdiction over the subject matter of the Third Count pursuant to 42 U.S.C. §9659(a)(1). The Defendants have waived sovereign immunity to the Third Count pursuant to 42 U.S.C. § 9659(a)(1).

5. By letter dated June 15, 2001, the Plaintiffs gave notice of their intent to commence this action as required by 33 U.S.C. § 1365(b)(1) and 42 U.S.C. §§ 6972(b)(1) and 9659(d)(1). Shortly following the Defendants' receipt of said letter, the Plaintiffs and Defendants commenced negotiations aimed at reaching a settlement of the claims asserted herein.

At the request of the Defendants, Plaintiffs agreed that they would not commence this action

until such time as the Plaintiffs and Defendants ceased their negotiations. By letter dated about April 10, 2002, the Defendants terminated said negotiations. Plaintiffs commenced this action as soon as possible thereafter.

### THE PLAINTIFFS

6. Plaintiff, Alaska Community Action on Toxics ("ACAT") is a non-profit corporation incorporated under the laws of the State of Alaska. The purposes for which ACAT exists include ensuring that the environment of the State of Alaska is safe and healthful for its members and that the environment is suitable for recreation and enjoyment by its members. Members of ACAT have consumed and/or continue to consume fish and game taken from the waters and the lands in the area of the upper Cook Inlet in the vicinity of the Eagle River, the Eagle River Flats and the Knik Arm. As a result of the land and water pollution resulting from the Army's discharge of munitions and/or the constituents and/or byproducts and/or residues of munitions as described below, said members have reduced their consumption of fish and/or game taken from these areas. If the relief requested herein were granted, said members would consume somewhat greater amounts of fish and/or game taken from these areas. The members of ACAT also have engaged and continue to engage in watching animals, particularly waterfowl and other wildlife, in areas very near the Eagle River, Eagle River Flats and the Knik Arm. As a result of the water pollution resulting from the Army's discharge of munitions and/or the constituents and/or by-products and/or residues of munitions as described below and the adverse effects of said pollution on animals, said members' opportunities to watch, and their enjoyment when watching, the animals has been reduced. If the relief requested herein were granted, these members' opportunity to watch, and their enjoyment in watching, animals in these areas would

be increased.

7. Plaintiff, Cook Inlet Keeper, is a non-profit corporation. The purposes of Cook Inlet Keeper include protection of the lands and waters in the vicinity of Cook Inlet against pollution and/or other degradation. Members of Cook Inlet Keeper have consumed and/or continue to consume fish and game taken from the waters and the lands in the area of the upper Cook Inlet in the vicinity of the Eagle River, the Eagle River Flats and the Knik Arm. As a result of the land and water pollution resulting from the Army's discharge of munitions and/or the constituents and/or byproducts and/or residues of munitions as described below, said members have reduced their consumption of fish and/or game taken from these areas. If the relief requested herein were granted, said members would consume somewhat greater amounts of fish and/or game taken from these areas. The members of Cook Inlet Keeper also have engaged and continue to engage in watching animals, particularly waterfowl and other wildlife, in areas very near the Eagle River, Eagle River Flats and the Knik Arm. As a result of the water pollution resulting from the Army's discharge of munitions and/or the constituents and/or by-products and/or residues of munitions as described below and the adverse effects of said pollution on animals, said members' opportunities to watch, and their enjoyment when watching, the animals has been reduced. If the relief requested herein were granted, these members' opportunity to watch, and their enjoyment in watching, animals in these areas would be increased.

8. Plaintiff, the Chickaloon Village Traditional Council ("Chickaloon"), is a federally recognized native American tribe. As a traditional part of the Chickaloon cultural heritage, the Chickaloon members engaged in hunting of water fowl and the gathering of water fowl eggs in and on lands and waters in the near vicinity of Fort Richardson, the Eagle River,

be increased.

7. Plaintiff, Cook Inlet Keeper, is a non-profit corporation. The purposes of Cook Inlet Keeper include protection of the lands and waters in the vicinity of Cook Inlet against pollution and/or other degradation. Members of Cook Inlet Keeper have consumed and/or continue to consume fish and game taken from the waters and the lands in the area of the upper Cook Inlet in the vicinity of the Eagle River, the Eagle River Flats and the Knik Arm. As a result of the land and water pollution resulting from the Army's discharge of munitions and/or the constituents and/or byproducts and/or residues of munitions as described below, said members have reduced their consumption of fish and/or game taken from these areas. If the relief requested herein were granted, said members would consume somewhat greater amounts of fish and/or game taken from these areas. The members of Cook Inlet Keeper also have engaged and continue to engage in watching animals, particularly waterfowl and other wildlife, in areas very near the Eagle River, Eagle River Flats and the Knik Arm. As a result of the water pollution resulting from the Army's discharge of munitions and/or the constituents and/or by-products and/or residues of munitions as described below and the adverse effects of said pollution on animals, said members' opportunities to watch, and their enjoyment when watching, the animals has been reduced. If the relief requested herein were granted, these members' opportunity to watch, and their enjoyment in watching, animals in these areas would be increased.

8. Plaintiff, the Chickaloon Village Traditional Council ("Chickaloon"), is a federally recognized native American tribe. As a traditional part of the Chickaloon cultural heritage, the Chickaloon members engaged in hunting of water fowl and the gathering of water fowl eggs in and on lands and waters in the near vicinity of Fort Richardson, the Eagle River,

Eagle River Flats and the Knik Arm. As a result of the water and land pollution described below, the members of the Chickaloon have substantially reduced and/or altogether eliminated their traditional hunting and egg gathering in these areas. Members of the Chickaloon have also traditionally eaten fish taken from waters in the vicinity of the upper Cook Inlet, including without limitation the waters in the vicinity of the Knik Arm and the streams and rivers adjacent thereto. As a result of the pollution of lands and waters described below, the members of the Chickaloon have reduced their consumption of fish caught in such areas. If the relief requested herein were granted, the members of the Chickaloon would increase their hunting of water fowl and egg gathering in these areas, and would consume greater amounts of fish taken from these areas.

9. Plaintiff, Janet Daniels is an individual who is a member of Plaintiffs ACAT, Cook Inlet Keeper, Chickaloon and MTP. Ms. Daniels has consumed and/or does consume fish taken from waters in the vicinity of the Eagle River, Eagle River Flats and/or the Knik Arm, including without limitation fish taken from Moose Creek and fish caught at a native fish camp in Eklutna. As a result of the land and water pollution resulting from the Army's discharge of munitions and/or the constituents and/or byproducts and/or residues of munitions as described below, Ms. Daniels has reduced and/or eliminated her consumption of fish taken from these areas. For example, Ms. Daniels has completely eliminated her consumption of fish taken at the native fish camp near Eklutna. Even when Ms. Daniels consumes fish taken from areas such as Moose Creek, her enjoyment of said fish is greatly reduced due to her fear that the fish contain harmful levels of toxic or otherwise hazardous substances resulting from the Army's activities. If the relief requested herein were granted, Ms. Daniels would consume greater amounts of fish

taken from these areas.

10. Plaintiff, Richard Martin, is an individual and a member of Plaintiffs ACAT and Chickaloon. Mr. Martin has consumed and/or does consume fish taken from waters in the vicinity of the Eagle River, Eagle River Flats and/or the Knik Arm, including without limitation fish taken from Peters Creek and areas nearby. As a result of the land and water pollution resulting from the Army's discharge of munitions and/or the constituents and/or byproducts and/or residues of munitions as described below, Mr. Martin has reduced and/or eliminated his consumption of fish taken from these areas. If the relief requested herein were granted, Mr. Martin would consume greater amounts of fish taken from these areas.

11. Plaintiff, Military Toxics Project ("MTP"), is a non-profit organization formed for the purpose of, among other things, protecting the health and welfare of its members from environmental pollution caused by the activities of the United States military. While MTP has members nationwide, MTP has members that live in the vicinity of Fort Richardson and who consume fish and/or game taken from the lands and/or waters in the vicinity and who have reduced or eliminated their consumption of such fish and/or game as a result of the pollution of the lands and/or waters on or near Fort Richardson described below. If the relief requested herein were granted, said members would, once again, consume greater amounts of fish and/or game taken from these areas. The members of MTP also have engaged and continue to engage in watching animals, particularly waterfowl and other wildlife, in areas very near the Eagle River, Eagle River Flats and the Knik Arm. As a result of the water pollution resulting from the Army's discharge of munitions and/or the constituents and/or by-products and/or residues of munitions as described below and the adverse effects of said pollution on animals, said members'

opportunities to watch, and their enjoyment when watching, the animals has been reduced. If the relief requested herein were granted, these members' opportunity to watch, and their enjoyment in watching, animals in these areas would be increased.

### FIRST COUNT

#### VIOLATIONS OF CLEAN WATER ACT

12. Plaintiffs hereby incorporate each of the foregoing allegations by reference as though fully set forth in this cause of action.

13. This First Count is brought against Defendants, United States Department of the Army and the United States Department of Defense only.

14. Each of the Plaintiffs is a "citizen" as said term is defined in 33 U.S.C. § 1365(g), in that they are persons having an interest which is or may be adversely affected by the actions of the Defendants described in this First Count. Each of the Plaintiffs likewise has one or more interests that are or may be adversely affected by the actions or inactions of the Defendants described in the Second and Third Counts below.

15. Defendants, United States Department of the Army and United States Department of Defense (collectively the "Army"), maintain jurisdiction and/or control over a military installation consisting of approximately 60,000 acres known as Fort Richardson, located north of Anchorage, Alaska. Fort Richardson lies within this district.

16. As part of its operations at Fort Richardson, beginning at a time currently unknown to the Plaintiffs and continuing to the present, the Army has and/or continues to and/or plans to discharge munitions, and the constituents and/or by-products and/or residues of munitions, in to and on various lands and waters on and/or in the vicinity of Fort Richardson.

17. The Army has and/or continues to and/or plans to discharge munitions, and the constituents and/or by-products and/or residues of munitions, into waters and/or on to lands on or in the vicinity of Fort Richardson, using cannons, rifles, artillery and/or other point sources.

18. The waters into which the Army has and/or continues to and/or plans to discharge munitions, and the constituents and/or by-products and/or residues of munitions, include the waters of the Eagle River, Eagle River Flats and/or Knik Arm.

19. The Army has not applied for, nor has it been issued, a permit from the United States Environmental Protection Agency ("EPA") authorizing the discharge of munitions into waters as described in this First Count.

20. The Army therefore has violated, continues to violate and/or threatens to violate 33 U.S.C. §§1311(a) and 1323(a), as well as 40 C.F.R. §122.21.

21. The waters of the Eagle River on and in the vicinity of Fort Richardson violate the water quality standards established by 18 Alaska Administrative Code 070.20(b) in that among other things such waters contain toxic or otherwise hazardous substances at levels exceeding the water quality standards, and said toxic or otherwise hazardous substances pose a danger to the health or well being of fish, birds, mammals, other animals, and plants, and many of said substances are capable of accumulating, and do accumulate, in fish, birds, mammals, other animals and plants, thereby posing a health risk to persons who consume the fish and/or birds and/or mammals or other animals. Said toxic or otherwise hazardous substances are and/or threaten to be transported by natural processes such as currents, tides, and ice movement, in to the waters of the Cook Inlet and the streams and/or rivers in the vicinity thereof. The waters of the Eagle River also violate the water quality standards in other ways that will be proven at trial.

22. The Army's discharge of munitions and/or the constituents and/or by-products and/or residues of munitions into and on lands and waters as described herein, has caused and/or contributed, and continue to cause and/or contribute, to violations of Alaska water quality standards in the Eagle River. The Army therefore has violated and continues to violate 18 Alaska Administrative Code 070.10 and 33 U.S.C. §1323(a). The State of Alaska has identified the Army's military activities as the cause for the Eagle River's violation of the quality standards.

23. The Army's discharge of munitions and the constituents, by-products and/or residues of munitions as described herein, has polluted and/or added to the pollution of the land and/or waters on and/or in the vicinity of Fort Richardson. Said lands and/or waters include lands and/or waters in, on and/or under the Eagle River, Eagle River Flats, and/or the Knik Arm. The Army's actions therefore have violated and continue to violate Alaska Statutes 46.03.710 and 33 U.S.C. § 1323(a).

24. As a result of the Army's actions, large amounts of munitions and the constituents and/or by-products and/or residues of munitions now exist in and on the lands and waters in and near the Eagle River. These munitions and the constituents and/or by-products and/or residues of munitions have been, are being, and threaten to be released to the Eagle River and such release has caused and continues to cause the waters of the Eagle River to violate the Alaska water quality standards.

25. The Army has never adopted or carried out any plan to clean up the munitions and constituents and/or by-products and/or residues of munitions from these lands and waters. By failing to adopt and carry out such a clean-up plan, the Army has caused and contributed, and continues to cause and contribute, to violations of the water quality standards in the Eagle River;

and therefore has violated and continues to violate 18 A.A.C. 070.10 and 33 U.S.C. § 1323(a).

### SECOND COUNT

#### VIOLATIONS OF SOLID WASTE DISPOSAL ACT

26. Plaintiffs hereby incorporate each of the foregoing allegations by reference as though fully set forth in this cause of action.

27. This Second Count is brought against Defendants, United States Department of the Army and the United States Department of Defense only.

28. As described in the First Count above, the Army has violated and continues to violate Alaska Statutes §§46.03.710.

29. The Army's violations of Alaska Statutes §§46.03.710 constitute a violation of 42 U.S.C. §6961(a).

### THIRD COUNT

#### VIOLATIONS OF CERCLA

30. Plaintiffs hereby incorporate each of the foregoing allegations by reference as though fully set forth in this cause of action.

31. This Third Count is brought against all of the Defendants named above.

32. In 1994, due to a high level of pollution, the Environmental Protection Agency placed Fort Richardson on the National Priorities List, a list of the nation's most polluted facilities that are to be given priority for cleanup.

33. Shortly thereafter, the EPA, the State of Alaska, and the Army entered into an "interagency agreement" (as that term is used in 42 U.S.C. §9620(e)) entitled "Federal Facility Agreement Under CERCLA Section 120 Administrative Docket Number 1092-05-02-120"

(hereinafter the "FFA") regarding Fort Richardson.

34. Unexploded ordnance, also referred to as ordnance and explosives ("OE") exists in, on, and/or under the lands and/or water on Fort Richardson, including without limitation the lands and/or waters of the Eagle River, Eagle River Flats and/or the Knik Arm, as well as the lands and/or waters in an area of Fort Richardson referred to by the Army as the OB/OD pad. OE may also exist in, on, and/or under other lands and/or waters on or in the vicinity of Fort Richardson. The Army caused this OE to be released to the lands and/or waters as described above. The Army intends to allow this OE to remain in and/or on the lands and/or waters permanently, and the Army does not intend to clean up or remove this OE.

35. As a result of the release of OE in and/or on the lands and/or waters described above, toxic or otherwise hazardous substances (including without limitation explosive compounds and heavy metals) have been, are being, and/or threaten to be released to the waters and lands on Fort Richardson. These toxic or otherwise hazardous substances pose a danger to the health or well being of fish, birds, mammals, other animals, and plants, and many of said substances are capable of accumulating, and do accumulate, in fish, birds, mammals, other animals and plants, thereby posing a health risk to persons who consume the fish and/or birds and/or mammals or other animals. Said toxic or otherwise hazardous substances are being and/or threaten to be transported by natural processes such as currents, tides, and ice movement, in to the waters of the Cook Inlet and the streams and/or rivers in the vicinity thereof. Natural processes also have transported and/or threaten to transport unexploded ordnance off of Fort Richardson and in to and/or on lands or waters in the vicinity of Fort Richardson, thereby posing an explosive danger to persons and wildlife off of Fort Richardson.

36. This OE in, on and/or under the lands and/or waters of Fort Richardson constitutes and contains "hazardous substances" and/or "pollutants or contaminants" as those terms are defined in 42 U.S.C. §§9601(17) and 9601(33). The Army, however, has taken, and continues to take, the position that this OE neither constitutes nor contains "hazardous substances" and/or "pollutants or contaminants" as those terms are defined in 42 U.S.C. §§9601(17) and 9601(33).

37. The Army has never commenced, nor has it performed, a remedial investigation or feasibility study (RI/FS) regarding OE on Fort Richardson.

38. The Army's failure to commence or perform such an RI/FS has violated and continues to violate 42 U.S.C. §9620(e)(1) as well as paragraphs 8.8 and 8.9 and Attachment 1 of the FFA (including without limitation section 3.1 of Attachment 1).

39. The Army has never adopted a plan for remediation of the OE described above; nor has the Army commenced or performed remediation of such OE. The Army therefore has violated and continues to violate 42 U.S.C. §§9620(e)(2)-(e)(4) as well as ¶8.10 and Attachment 1 to the FFA.

#### REQUEST FOR RELIEF

Plaintiffs respectfully request the following relief:

40. Declare that the Army's discharge of munitions into waters as described in the First Count herein has violated and continues to violate 33 U.S.C. §§1311(a) and/or 1323(a).

41. Order the Army to stop discharging munitions into any waters, including the waters of the Eagle River, Eagle River Flats and/or the Knik Arm until such time as the Army obtains a permit authorizing the discharge from the EPA.

42. Declare that the Army's discharge of munitions and the constituents and/or by-products and/or residues of munitions to lands and waters as described in the First and Second Counts herein has violated and/or continue to violate 18 A.A.C. §070.10, Alaska Statutes §§46.03.710 and/or 33 U.S.C. §1323(a) and/or 42 U.S.C. §6961(a).

43. Issue appropriate injunctive relief prohibiting the Army from continuing to discharge munitions and the constituents and/or by-products and/or residues of munitions to lands and waters as described in the First and Second Counts in violation of 18 A.A.C. §070.10, AS §§46.03.710 and/or 33 U.S.C. §1323(a) and/or 42 U.S.C. §6961(a).

44. Declare that the Army's failure to adopt or implement a plan to clean-up munitions in and on lands and waters as described in the First Count herein has violated and continues to violate 18 A.A.C. §070.10 and 33 U.S.C. § 1323(a).

45. Issue appropriate injunctive relief requiring the Army to adopt and implement a plan to clean up munitions so as to reduce and/or eliminate violations of Alaska's water quality standards.

46. Declare that the OE in, on, and/or under the lands and waters on Fort Richardson constitutes and contains "hazardous substances" and/or "pollutants or contaminants" as those terms are defined in CERCLA, 42 U.S.C. §§9601(17) and 9601(33).

47. Order the Army to commence and fully perform an RI/FS regarding OE on Fort Richardson.

48. Order the Army to pay the Plaintiffs' costs and attorneys fees as provided by statute, including 33 U.S.C. §1365(d) and 42 U.S. §§ 6972(e) and 9659(f).

49. Order the Army to pay appropriate civil penalties as provided by 33 U.S.C. §

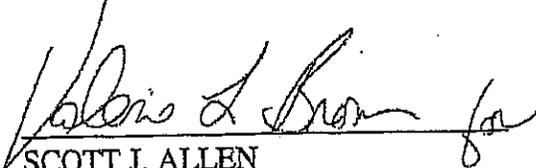
1319(d), 42 U.S. C. § 6928(g), 42 U.S.C. §§ 9609(a)(1)(E), 9609(b)(5), 9622(l), and/or 9659(c).

50. Issue other and further relief as the court deems just and proper.

Dated: June 26, 2002

COX & MOYER

By:

  
SCOTT J. ALLEN

Attorneys for Plaintiffs

F:\Richardson009.Amended Complaint.wpd

Certificate of Service

I CERTIFY THAT I SERVED A COPY OF:

AMENDED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF,

ON JUNE 26, 2002 TO:

VIA HAND DELIVERY:

US DEPT. OF JUSTICE ATTORNEYS OFFICE  
DISTRICT OF ALASKA  
222 W. 7<sup>TH</sup> AVE. #9 ROOM 253  
ANCHORAGE, AK 99513-7567

VIA FAX AND FEDERAL EXPRESS:

SCOTT WILLIAMS  
TRIAL ATTORNEY  
U.S. DEPT. OF JUSTICE  
ENVIRONMENT & NATURAL RESOURCES DIVISION  
ENVIRONMENTAL DEFENSE SECTION  
501 D STREET, N.W.  
WASHINGTON, DC 20004

  
JOANNA PARKER  
Legal Assistant  
Trustees For Alaska

Cox & Moyer  
703 Market Street, Suite 1800  
San Francisco, CA 94103

walkers to maintain records for three years containing information about testing, inspections, sales and distribution of these products.

The records of testing and other information required by the regulations allow the Commission to determine if baby-bouncers, walker-jumpers, and baby-walkers comply with the requirements of the regulation codified at 16 CFR 1500.18(a)(6). If the Commission determines that products fail to comply with the regulations, the records required by 16 CFR 1500.86(a)(4) enable the firm and the Commission to: (i) Identify specific models of products which fail to comply with applicable requirements; and (ii) notify distributors and retailers in the event those products are subject to recall.

#### Additional Information About the Request for Extension of Approval of a Collection of Information

*Agency address:* Consumer Product Safety Commission, Washington, DC 20207.

*Title of information collection:* Requirements for Baby-Bouncers, Walker-Jumpers, and Baby-Walkers, 16 CFR 1500.18(a)(6) and 1500.86(a)(4).

*Type of request:* Extension of approval without change.

*General description of respondents:* Manufacturers and importers of baby-bouncers, walker-jumpers, and baby-walkers.

*Estimated number of respondents:* 28.

*Estimated average number of hours per respondent:* 2 per year.

*Estimated number of hours for all respondents:* 56 per year.

*Estimated cost of collection for all respondents:* \$1,590.40 per year.

*Comments:* Comments on this request for extension of approval of information collection requirements should be submitted by January 23, 2003 to (1) the Office of Information and Regulatory Affairs, Attn: OMB Desk Officer for CPSC, Office of Management and Budget, Washington DC 20503; telephone: (202) 395-7340, and (2) the Office of the Secretary, Consumer Product Safety Commission, Washington, DC 20207. Written comments may also be sent to the Office of the Secretary by facsimile at (301) 504-0127 or by e-mail at [cpsc-os@cpsc.gov](mailto:cpsc-os@cpsc.gov).

Copies of this request for extension of the information collection requirements and supporting documentation are available from Linda Glatz, management and program analyst, Office of Planning and Evaluation, Consumer Product Safety Commission, Washington, DC

20207; telephone: (301) 504-0416, ext. 2226.

Dated: December 19, 2002.

Todd A. Stevenson,  
Secretary, Consumer Product Safety  
Commission.

[FR Doc. 02-32437 Filed 12-23-02; 8:45 am]

BILLING CODE 6355-01-P

## DEPARTMENT OF DEFENSE

### Department of the Air Force L5 Civil Signal Interface Control Document (ICD) Revision 2

AGENCY: Department of the Air Force, DoD.

ACTION: Request for public comment of L5 Civil Signal Interface Control Document (ICD) Revision 2.

**SUMMARY:** This notice informs the public that the Global Positioning System (GPS) Joint Program Office (JPO) has released the current ICD-GPS-705 dated 2 December 2002, Navstar GPS Space Segment/User Segment L5 Interfaces, for public review and comment. This ICD describes the interface characteristics of L5, a signal to be incorporated into the GPS system for the benefit of the civilian community. The ICD can be reviewed at the following Web site: <http://gps.losangeles.af.mil>. Click on "Public Interface Control Working Group (ICWG)." Hyperlinks to the ICD and review instructions are provided. The reviewer should save the ICD to a local memory location prior to opening and performing the review. All comments and their resolutions will be posted to the web site.

**ADDRESSES:** Submit comments to SMC/CZERC, 2420 Vela Way, Suite 1467, El Segundo, CA 90245-4659. A comment matrix is provided for your convenience at the web site and is the preferred method of comment submittal. Comments may be submitted to the following Internet address: [smc.czerc@losangeles.af.mil](mailto:smc.czerc@losangeles.af.mil). Comments may also be sent by fax to 1-310-363-6387.

**DATES:** The suspense date for comment submittal is January 17, 2003.

**FOR FURTHER INFORMATION CONTACT:** CZERC at 1-310-363-6329, GPS JPO System Engineering Division, or write to the address above.

**SUPPLEMENTARY INFORMATION:** The civilian and military communities use the Global Positioning System which employs a constellation of 24 satellites to provide continuously transmitted signals to enable appropriately configured GPS user equipment to

produce accurate position, navigation, and time information.

Pamela D. Fitzgerald,  
Air Force Federal Register Liaison Officer.  
[FR Doc. 02-32335 Filed 12-23-02; 8:45 am]  
BILLING CODE 5001-05-P

## DEPARTMENT OF DEFENSE

### Presidential Determination on Classified Information Concerning the Air Force's Operating Location Near Groom Lake, NV

AGENCY: Department of the Air Force, DOD.

ACTION: Notice.

**SUMMARY:** Notice is hereby given that the President has exempted the United States Air Force's operating location near Groom Lake, Nevada from any Federal, State, interstate, or local provision respecting control and abatement of solid waste or hazardous waste disposal that would require the disclosure of classified information to any unauthorized persons.

**FOR FURTHER INFORMATION CONTACT:** Mr. W. Kipling At Lee, Jr., Deputy General Counsel (Military Affairs), Office of the Secretary of the Air Force, Washington DC 20330; telephone (703) 695-5663.

**SUPPLEMENTARY INFORMATION:** 42 U.S.C. 6961 makes each department, agency and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any solid waste management facility or disposal site, or (2) engaged in any activity resulting, or which may result, in the disposal or management of solid waste or hazardous waste subject to all Federal, State, interstate, and local requirements, both substantive and procedural (including any requirement for permits or reporting or any provisions for injunctive relief and such sanctions as may be imposed by a court to enforce such relief), respecting control and abatement of solid waste or hazardous waste disposal and management in the same manner, and to the same extent, as any person is subject to such requirements, including the payment of reasonable service charges. 42 U.S.C. 6961 also states that the President may exempt any solid waste management facility of any department, agency, or instrumentality in the executive branch from compliance with such a requirement if he determines it to be in the paramount interest of the United States to do so and that any exemption shall be for a period not in excess of one year.



On September 13, 2002, the President exempted the Air Force's operating location near Groom Lake, Nevada from any Federal, State, interstate, or local provisions respecting control and abatement of solid waste or hazardous waste disposal that would require the disclosure of classified information concerning that operating location to any unauthorized person. Therefore, the text of the Memorandum from the President to the Secretary of the Air Force is set forth below.

**Pamela D. Fitzgerald,**  
*Air Force Federal Register Liaison Officer.*

Presidential Determination No. 2002-30  
September 13, 2002  
Memorandum for Administrator of the  
Environmental Protection Agency [and] the  
Secretary of the Air Force  
Subject: Classified Information Concerning  
the Air Force's Operating Location Near  
Groom Lake, Nevada

I find that it is in the paramount interest of the United States to exempt the United States Air Force's operating location near Groom Lake, Nevada, the subject of litigation in *Kasza v. Browner* (D. Nev. CV-S-94-795-PMP) and *Frost v. Perry* (D. Nev. CV-S-94-714-PMP), from any applicable requirement for the disclosure to unauthorized persons of classified information concerning that operating location. Therefore, pursuant to 42 U.S.C. 6961(a), I hereby exempt the Air Force's operating location near Groom Lake, Nevada, from any Federal, State, interstate or local provision respecting control and abatement of solid waste or hazardous waste disposal that would require the disclosure of classified information concerning the operating location to any unauthorized person. This exemption shall be effective for the full one-year statutory period.

Nothing herein is intended to: (a) imply that in the absence of such a Presidential exemption, the Resource Conservation and Recovery Act (RCRA) or any other provision of law permits or requires disclosure of classified information to unauthorized persons; or (b) limit the applicability or enforcement of any requirement of law applicable to the Air Force's operating location near Groom Lake, Nevada, except those provisions, if any, that would require the disclosure of classified information.

The Secretary of the Air Force is authorized and directed to publish this determination in the Federal Register.

George W. Bush

[FR Doc. 02-32334 Filed 12-23-02; 8:45 am]  
BILLING CODE 5001-01-P

## DEPARTMENT OF EDUCATION

### Notice of Proposed Information Collection Requests

**AGENCY:** Department of Education.

**SUMMARY:** The Leader, Regulatory Management Group, Office of the Chief

Information Officer, invites comments on the proposed information collection requests as required by the Paperwork Reduction Act of 1995.

**DATES:** Interested persons are invited to submit comments on or before February 24, 2003.

**SUPPLEMENTARY INFORMATION:** Section 3506 of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires that the Office of Management and Budget (OMB) provide interested Federal agencies and the public an early opportunity to comment on information collection requests. OMB may amend or waive the requirement for public consultation to the extent that public participation in the approval process would defeat the purpose of the information collection, violate State or Federal law, or substantially interfere with any agency's ability to perform its statutory obligations. The Leader, Regulatory Management Group, Office of the Chief Information Officer, publishes that notice containing proposed information collection requests prior to submission of these requests to OMB. Each proposed information collection, grouped by office, contains the following: (1) Type of review requested, e.g. new, revision, extension, existing or reinstatement; (2) Title; (3) Summary of the collection; (4) Description of the need for, and proposed use of, the information; (5) Respondents and frequency of collection; and (6) Reporting and/or Recordkeeping burden. OMB invites public comment.

The Department of Education is especially interested in public comment addressing the following issues: (1) Is this collection necessary to the proper functions of the Department; (2) will this information be processed and used in a timely manner; (3) is the estimate of burden accurate; (4) how might the Department enhance the quality, utility, and clarity of the information to be collected; and (5) how might the Department minimize the burden of this collection on the respondents, including through the use of information technology.

Dated: December 18, 2002.

**John D. Tressler,**

*Leader, Regulatory Management Group,  
Office of the Chief Information Officer.*

### Office of Educational Research and Improvement

*Type of Review:* Revision.

*Title:* Integrated Postsecondary Education Data System (IPEDS), Web-Based Collection System.

*Frequency:* Annually.

**Affected Public:** Not-for-profit institutions; Businesses or other for-profit; State, Local, or Tribal Gov't, SEAs or LEAs.

**Reporting and Recordkeeping Hour Burden:**

Responses: 63,550.

Burden Hours: 183,080.

**Abstract:** IPEDS is a system of surveys designed to collect basic data from approximately 9,600 postsecondary institutions in the United States. The IPEDS provides information on numbers of students enrolled, degrees completed, other awards earned, dollars expended, staff employed at postsecondary institutions, and cost and pricing information. The amendments to the Higher Education Act of 1998, Part C, Sec. 131, specify the need for the "redesign of relevant data systems to improve the usefulness and timeliness of the data collected by such systems." As a consequence, in 2000 IPEDS began to collect data through a web-based data collection system and to concentrate on those institutions that participate in Title IV federal student aid programs; other institutions may participate on a voluntary basis.

Written requests for information should be addressed to Vivian Reese, Department of Education, 400 Maryland Avenue, SW, Room 4050, Regional Office Building 3, Washington, DC 20202-4651 or to the e-mail address [vivian\\_reese@ed.gov](mailto:vivian_reese@ed.gov). Requests may also be faxed to 202-708-9346. Please specify the complete title of the information collection when making your request.

Comments regarding burden and/or the collection activity requirements should be directed to Kathy Axt at her e-mail address [Kathy.Axt@ed.gov](mailto:Kathy.Axt@ed.gov). Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-877-8339.

[FR Doc. 02-32306 Filed 12-23-02; 8:45 am]  
BILLING CODE 4000-01-P

## DEPARTMENT OF EDUCATION

### Submission for OMB Review; Comment Request

**AGENCY:** Department of Education.

**SUMMARY:** The Leader, Regulatory Management Group, Office of the Chief Information Officer invites comments on the submission for OMB review as required by the Paperwork Reduction Act of 1995.

**DATES:** Interested persons are invited to submit comments on or before January 23, 2003.



COPY

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P.O. BOX 3378  
HONOLULU, HAWAII 96801

In reply, please refer to  
EMU/SHW

November 20, 2001

U11035RC

Colonel William E. Ryan III  
Director of Public Works  
Headquarters, U.S. Army Garrison Hawaii  
Schofield Barracks, Hawaii 96857-5000

Dear Colonel Ryan:

SUBJECT: Pohakuloa Training Area  
Building 343  
Facility ID No. 9-601658  
Withdrawal of Field Citation No. 2038

This letter is in response to your letter dated May 22, 2001, notifying the Hawaii Department of Health (DOH) that the United States Department of the Army (Army) had corrected the violation cited in DOH's Field Citation No. 2038. The Field Citation was issued during DOH's May 8, 2001, inspection of the Pohakuloa Training Area, Building 343. DOH's inspector determined that the Army had violated Hawaii Administrative Rules (HAR) Section 11-281-51(a) by failing to provide a release detection method for UST Nos. 343-7 and 343-8. Your letter and the Army's comments in the "Description of Corrections" section of the Field Citation (attached to your letter) indicate that the Army has taken appropriate steps to correct the violation. DOH appreciates the Army's efforts to correct the violation.

Your letter also advised DOH that the Army could not agree to pay the proposed \$600 penalty because the Army is not authorized to waive the sovereign immunity of the United States for penalties imposed by states for violations of state UST rules.

Under HAR Section 11-281-126, if an owner or operator of a facility that has received a Field Citation does not correct the violations, pay the penalty, and sign and return the Field Citation/Settlement Agreement to DOH within thirty (30) days after the issuance of the Field Citation, the Field Citation is automatically withdrawn, and DOH may proceed with a more formal enforcement action.

EXHIBIT  
5

Enclosure 1

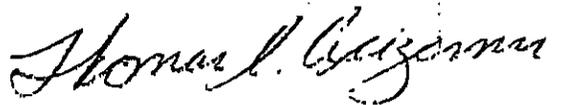
COPY

Colonel William E. Ryan III  
November 20, 2001  
Page 2

Even though the Army corrected the violation, it has failed to sign and return the Field Citation/Settlement Agreement, and has refused to pay the penalty. Therefore, the Field Citation has been automatically withdrawn, and DOH is authorized to pursue more formal enforcement action. DOH has referred this matter to the Hawaii Department of the Attorney General.

Should you have any questions regarding this matter, please contact Gregory Olmsted of the Solid and Hazardous Waste Branch at (808) 586-4226.

Sincerely,



GARY GILL  
Deputy Director  
Environmental Health Administration

c: Dana Viola, Deputy Attorney General, Honolulu  
Norwood Scott, U.S. EPA, Region 9, San Francisco

FEB 25 2002



DEPARTMENT OF THE ARMY  
HEADQUARTERS, UNITED STATES ARMY BARRISON, HAWAII  
SCHOFIELD BARRACKS, HAWAII 96857-5000



February 20, 2002

*2/16/02*

REPLY TO  
ATTENTION OF

Directorate of Public Works

Mr. Gregory Olmstead  
Solid and Hazardous Waste Branch  
Hawaii State Department of Health (DOH)  
919 Ala Moana Boulevard, Room 212  
Honolulu, Hawaii 96814

*Bob*  
*G-601658*

COPY

RE: Field Citation No. 2038

Dear Mr. Olmstead:

The Army acknowledges receipt of your letter dated November 20, 2001, at enclosure 1, concerning the above referenced field citation. The Army wishes to reaffirm its position that the federal government has sovereign immunity and is not required to pay such state penalties.

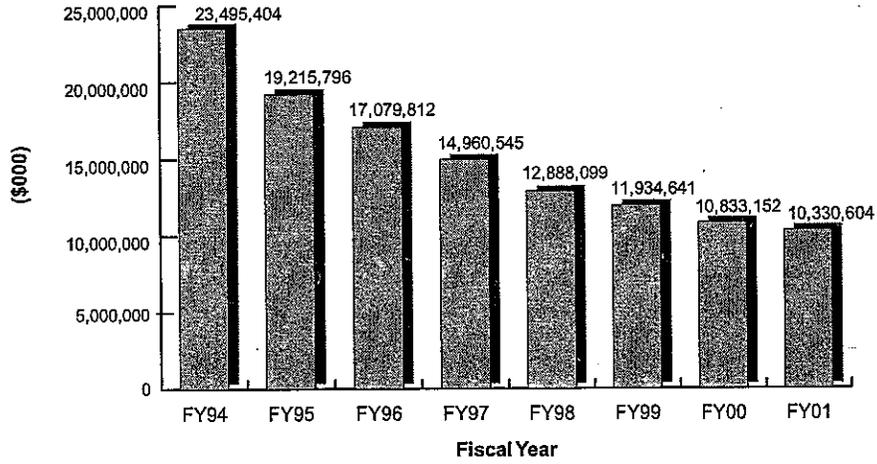
The Army remains committed to its mission of environmental stewardship. If there are any questions, contact Ian Beltran, Environmental Division, Directorate of Public Works, 656-2878 extension 1026 or Jeanne Prussman, Staff Judge Advocate, 438-6724.

Sincerely,

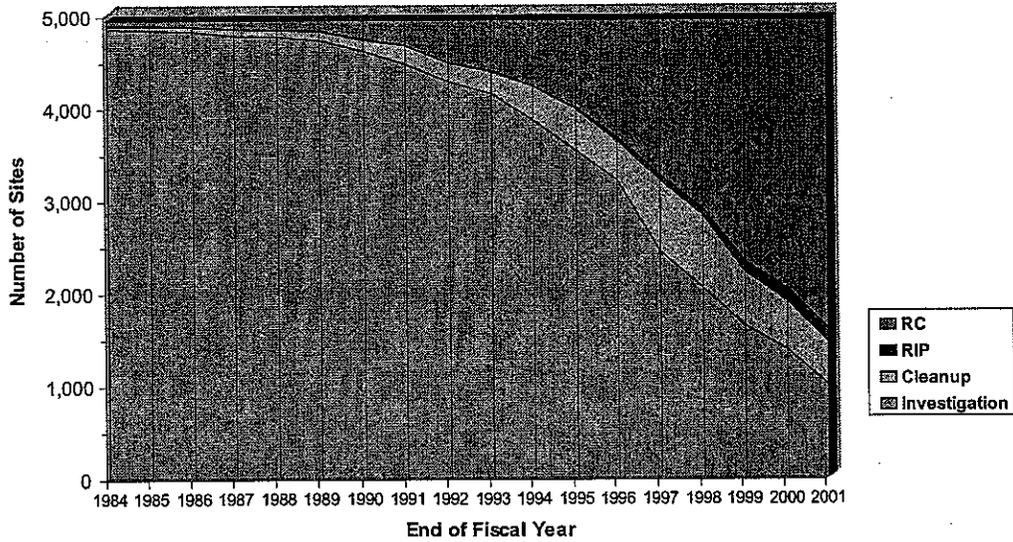
William E. Ryan III  
Colonel, U.S. Army  
Director of Public Works

Enclosure

**Figure 8**  
**Active Installation Cost-to-Complete Trends**  
 (Excluding FUDS, in \$000)

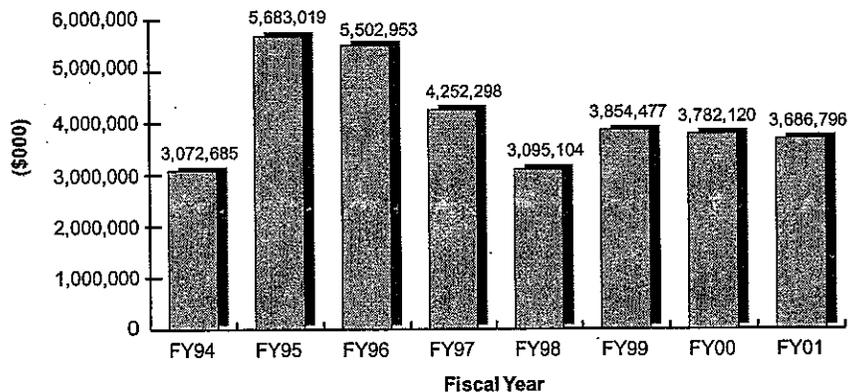


**Figure 9**  
**BRAC Installation Site Progress Over Time**



Based on DoD-wide BRAC Site inventory of 4,928 sites  
 Includes all site types

**Figure 10**  
**BRAC Installation Cost-to-Complete**  
**Estimate Trends\*†**  
 (in \$000)



\*FY95 and FY96 funding includes compliance in addition to restoration funding.

†Based on the Department's agency-wide FY01 financial statements, the unfunded BRAC environmental liability (Cost-to-complete) was approximately \$4 Billion as of Sept. 30, 2001.

into restoration in FY98, additional funding was required, as shown by the increase in cost-to-complete estimates from FY98 to FY99.

BRAC cost-to-complete estimates are not declining at the same rate as the estimates for active installations. This is attributed, among other reasons, to a greater proportion of sites in study or cleanup phases, and a greater range of contaminants considered in the environmental restoration process. Requirements to address these issues to a greater extent at BRAC installations than active installations has impacted BRAC funding requirements and cost-to-complete estimates.

□ □ □

In this chapter, DoD presented a comprehensive overview of the resources that have allowed the Department to achieve its current successes protecting human health and the environment and the resources it will need to guide the program to completion.

The next two chapters provide an in-depth look at the status and progress and differing requirements of the DERP's Installation Restoration and Military Munitions Response sub-programs.



# 2,4- and 2,6-DINITROTOLUENE

CAS # 121-14-2 and 606-20-2

Agency for Toxic Substances and Disease Registry ToxFAQs

June 1999

This fact sheet answers the most frequently asked health questions (FAQs) about 2,4- and 2,6-dinitrotoluene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

**HIGHLIGHTS:** 2,4- and 2,6-Dinitrotoluene are used in a number of industries. Exposure to high levels may affect the nervous system and the blood. Both are known to cause cancer in laboratory animals. These substances have been found in at least 69 (2,4-DNT) and 53 (2,6-DNT) of the 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

## What are 2,4-dinitrotoluene (2,4-DNT) and 2,6-dinitrotoluene (2,6-DNT)?

(Pronounced 2,4- and 2,6-dī' nī trō tōl' yōō ēn)

Both 2,4-DNT and 2,6-DNT are pale yellow solids with a slight odor. They are two of the six forms of the chemical called dinitrotoluene (DNT).

DNT is not a natural substance. It is made by mixing toluene with nitric acid. DNT is usually used to make flexible polyurethane foams used in the bedding and furniture industries. DNT is also used to produce explosives, ammunition, and dyes. It is also used in the air bags of automobiles.

## What happens to 2,4- and 2,6-DNT when they enter the environment?

- DNT has been found in the soil, surface and ground water, and air.
- It has been found at hazardous waste sites that contain buried ammunition wastes.
- DNT does not usually evaporate; it is found mostly in the air of manufacturing plants.
- DNT does not stay in the environment because it is broken down by sunlight and by bacteria.

- In water, DNT tends to be more stable and less likely to break down.
- DNT can be transferred to plants by root uptake from contaminated water or soil.

## How might I be exposed to 2,4- and 2,6-DNT?

- Most people will not be exposed to 2,4- and 2,6-DNT.
- Breathing contaminated air near manufacturing plants.
- Drinking contaminated water or eating contaminated food.
- Breathing air near a hazardous waste site that contains buried ammunition wastes.

## How can 2,4- and 2,6-DNT affect my health?

Workers who have been exposed to 2,4-DNT showed a higher than normal death rate from heart disease. However, these workers were exposed to other chemical as well. 2,4- and 2,6-DNT may also affect the nervous system and the blood of exposed workers.

One study showed that male workers exposed to DNT had reduced sperm counts, but other studies did not confirm this finding.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, Public Health Service  
Agency for Toxic Substances and Disease Registry



ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

Animals exposed to high levels of DNT had lowered number of sperm and reduced fertility. Animals also showed a reduction in red blood cells, nervous system disorders, and liver and kidney damage.

### **How likely are 2,4- and 2,6-DNT to cause cancer?**

In animal studies, both 2,4- and 2,6-DNT caused liver cancer in rats. There are no studies on the effects of 2,4- and 2,6-DNT on people. The International Agency for Research on Cancer (IARC) has determined that 2,4- and 2,6-DNT are possible human carcinogens.

### **How can 2,4- and 2,6-DNT affect children?**

It is unlikely that children would be exposed to 2,4- and 2,6-DNT unless they live near a manufacturing plant or a waste site that contains these compounds. Children are at risk of exposure if DNT has leached into a community's drinking water supply from a nearby hazardous waste site, since they drink more fluids in proportion to their body weight than adults. Children playing in DNT-contaminated surface water might be more exposed than adults, because of their larger skin area in proportion to their body weight.

The health effects of DNT on children have not been studied. It is not known if DNT affects children differently than adults, or what long-term effects might appear in adults exposed as children.

### **How can families reduce the risk of exposure to 2,4- and 2,6-DNT?**

If your doctor finds that you have been exposed to significant amounts of 2,4- or 2,6-DNT, ask if children may also be exposed. When necessary your doctor may need to ask your state Department of Public Health to investigate.

### **Is there a medical test to show whether I've been exposed to 2,4- and 2,6-DNT?**

Both 2,4- and 2,6-DNT and the chemicals they change into in the body can be measured in the blood and urine. The urine must be collected within 24 hours of exposure. These tests cannot show how much 2,4- or 2,6-DNT a person has been exposed to. They are not usually available in a doctor's office, but they can be performed in special laboratories.

### **Has the federal government made recommendations to protect human health?**

EPA requires that spills or accidental releases of more than 1,000 pounds of DNT be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) requires that total DNT (all forms) in workplace air should not exceed 1.5 mg per cubic meter (1.5 mg/m<sup>3</sup>) for an 8-hour workday, 40-hour workweek.

The National Institute of Occupational Safety and Health (NIOSH) recommends a workplace limit of 1.5 mg/m<sup>3</sup>. This is the average concentration for a 10-hour day over a 40-hour workweek.

### **Source of Information**

Agency for Toxic Substances and Disease Registry (ATSDR). 1998. Toxicological profile for 2,4- and 2,6-dinitrotoluene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.





**RDX**  
CAS # 121-82-4

Agency for Toxic Substances and Disease Registry ToxFAQs

September 1996

This fact sheet answers the most frequently asked health questions (FAQs) about RDX. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

**SUMMARY:** RDX is an explosive. Few people will be exposed to RDX. Exposure to large amounts can cause seizures. RDX has been found in at least 16 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

### What is RDX?

(Pronounced RDX)

RDX stands for Royal Demolition eXplosive. It is also known as cyclonite or hexogen. The chemical name for RDX is 1,3,5-trinitro-1,3,5-triazine. It is a white powder and is very explosive.

RDX is used as an explosive and is also used in combination with other ingredients in explosives. Its odor and taste are unknown. It is a synthetic product that does not occur naturally in the environment. It creates fumes when it is burned with other substances.

### What happens to RDX when it enters the environment?

- Particles of RDX can enter the air when it is disposed of by burning.
- RDX can enter the water from disposal of waste water from Army ammunition plants, and it can enter water or soil from spills or leaks from improper disposal at these plants or at hazardous waste sites.
- RDX dissolves very slowly in water, and it also evaporates very slowly from water.

- It does not cling to soil very strongly and can move into the groundwater from soil.
- RDX can be broken down in air and water in a few hours, but it breaks down more slowly in soil.
- RDX does not build up in fish or in people.

### How might I be exposed to RDX?

Few people will be exposed to RDX. Fewer than 500 people are known to work with RDX. These people can be exposed by:

- Breathing dust with RDX in it.
- Getting RDX on their skin.
- Drinking contaminated water or touching contaminated soil near factories that produce RDX.

### How can RDX affect my health?

RDX can cause seizures (a problem of the nervous system) in humans and animals when large amounts are inhaled or eaten. The effects of long-term (365 days or longer), low-level exposure on the nervous system are not known. Nausea and

ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

vomiting have also been seen. No other significant health effects have been seen in humans.

Rats and mice that ate RDX for 3 months or more had decreased body weights and slight liver and kidney damage.

It is not known whether RDX causes birth defects in humans; it did not cause birth defects in rabbits, but it did result in smaller offspring in rats. It is not known whether RDX affects reproduction in people.

### How likely is RDX to cause cancer?

The EPA has determined that RDX is a possible human carcinogen.

In one study, RDX caused liver tumors in mice that were exposed to it in the food. However, carcinogenic effects were not noted in rat studies and no human data are available.

### Is there a medical test to show whether I've been exposed to RDX?

Medical tests are available that can measure RDX levels in your blood or urine. However, these tests can only be used if you have come in contact with RDX in the last few days. These tests can determine if you have been exposed to RDX, but they cannot be used to determine how much RDX entered your body.

These tests aren't available at most doctors' offices, but can be done at special laboratories that have the right equipment. However, they cannot be used to determine long-term health effects from RDX.

The usual immediate health effects (seizures, muscle twitching, or vomiting) from very high exposures would probably occur before you had the blood or urine test.

### Has the federal government made recommendations to protect human health?

The Department of Transportation (DOT) has many regulations on the transportation of explosives.

The EPA recommends a drinking water guideline of 2 micrograms ( $\mu\text{g}$ ) RDX per liter for lifetime exposure for adults.

The National Institute for Occupational Safety and Health (NIOSH) has recommended an exposure limit of 1.5 milligrams RDX per cubic meter of air ( $1.5 \text{ mg/m}^3$ ) for a 10-hour workday, 40-hour workweek.

The NIOSH short-term exposure limit, which is the highest level of RDX that they recommend workers be exposed to for 15 minutes, is  $3 \text{ mg/m}^3$ .

The American Conference of Governmental Industrial Hygienists (ACGIH) also recommends an exposure limit of  $1.5 \text{ mg/m}^3$  in workplace air for an 8-hour workday, 40-hour workweek.

### Glossary

Carcinogen: A substance that can cause cancer.

CAS: Chemical Abstracts Service.

Dissolve: To disappear gradually.

Evaporate: To change into a vapor or a gas.

Microgram ( $\mu\text{g}$ ): One millionth of a gram.

Milligram (mg): One thousandth of a gram.

Tumor: An abnormal mass of tissue.

### Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for RDX. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.





# 2,4,6-TRINITROTOLUENE (TNT) CAS # 118-96-7

Agency for Toxic Substances and Disease Registry ToxFAQs

September 1996

This fact sheet answers the most frequently asked health questions (FAQs) about 2,4,6-trinitrotoluene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

**SUMMARY:** Exposure to 2,4,6-trinitrotoluene occurs through eating, drinking, touching, or inhaling contaminated soil, water, food, or air. Health effects reported in people exposed to 2,4,6-trinitrotoluene include anemia, abnormal liver function, skin irritation, and cataracts. This substance has been found in at least 20 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency.

## What is 2,4,6-trinitrotoluene?

(Pronounced 2,4,6-trī' nī'trō-tōl' yōō ēn)

2,4,6-Trinitrotoluene is a yellow, odorless solid that does not occur naturally in the environment. It is commonly known as TNT and is an explosive used in military shells, bombs, and grenades, in industrial uses, and in underwater blasting.

2,4,6-Trinitrotoluene production in the United States occurs solely at military arsenals.

## What happens to 2,4,6-trinitrotoluene when it enters the environment?

- 2,4,6-Trinitrotoluene enters the environment in waste waters and solid wastes resulting from the manufacture of the compound, the processing and destruction of bombs and grenades, and the recycling of explosives.
- It moves in surface water and through soils to groundwater.
- In surface water, it is rapidly broken down into other chemical compounds by sunlight.
- It is broken down more slowly by microorganisms in water and sediment.
- Small amounts of it can accumulate in fish and plants.

## How might I be exposed to 2,4,6-trinitrotoluene?

- Drinking contaminated water that has migrated from chemical waste disposal sites.
- Breathing contaminated air.
- Eating contaminated foods such as fruits and vegetables.
- Eating contaminated soil.

## How can 2,4,6-trinitrotoluene affect my health?

Workers involved in the production of explosives who were exposed to high concentrations of 2,4,6-trinitrotoluene in workplace air experienced several harmful health effects, including anemia and abnormal liver function.

Similar blood and liver effects, as well as spleen enlargement and other harmful effects on the immune system, have been observed in animals that ate or breathed 2,4,6-trinitrotoluene.

Other effects in humans include skin irritation after prolonged skin contact, and cataract development after long-term (365 days or longer) exposure.

ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>

It is not known whether 2,4,6-trinitrotoluene can cause birth defects in humans. However, male animals treated with high doses of 2,4,6-trinitrotoluene have developed serious reproductive system effects.

### How likely is 2,4,6-trinitrotoluene to cause cancer?

The EPA has determined that 2,4,6-trinitrotoluene is a possible human carcinogen. This assessment was based on a study in which rats that ate 2,4,6-trinitrotoluene for long periods developed tumors of the urinary bladder.

### Is there a medical test to show whether I've been exposed to 2,4,6-trinitrotoluene?

Laboratory tests can detect 2,4,6-trinitrotoluene or its breakdown products in blood or urine. Detection of its breakdown products in urine is a clear indication of exposure. This test isn't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

A simpler, but less specific test of 2,4,6-trinitrotoluene exposure is a change in the color of urine to amber or deep red due to the presence of its breakdown products. However, none of these tests can predict whether a person will experience any health effects.

### Has the federal government made recommendations to protect human health?

Since 2,4,6-trinitrotoluene is explosive, flammable, and toxic, EPA has designated it as a hazardous waste.

The Department of Transportation (DOT) specifies that when 2,4,6-trinitrotoluene is shipped, it must be wet with at least 10% water (by weight) and it must be clearly labeled as a flammable solid.

The Occupational Safety and Health Administration (OSHA) set a maximum level of 1.5 milligrams of 2,4,6-trinitrotoluene per cubic meter of workplace air (1.5 mg/m<sup>3</sup>) for an 8-hour workday for a 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH) recommend an exposure limit of 0.5 mg/m<sup>3</sup> in workplace air for a 40-hour workweek.

### Glossary

Anemia: A decreased ability of the blood to transport oxygen.

Breakdown product: A substance that is formed when a chemical breaks down in the body.

Carcinogen: A substance that can cause cancer.

CAS: Chemical Abstracts Service.

Cataract: Clouding of the lens or capsule of the eye, causing partial or total blindness.

Milligram (mg): One thousandth of a gram.

### Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for 2,4,6-trinitrotoluene (update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is <http://www.atsdr.cdc.gov/toxfaq.html>. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.



## 1. PUBLIC HEALTH STATEMENT

This statement was prepared to give you information about white phosphorus and white phosphorus smoke and to emphasize the human health effects that may result from exposure to it. The Environmental Protection Agency (EPA) identifies the most serious hazardous waste sites as in the nation. These sites make up the National Priorities List (NPL) and are the sites targeted for long-term federal clean-up activities. White phosphorus has been found in at least 77 of 1,430 current or former NPL sites. However, the total number of NPL sites evaluated is not known. As more sites are evaluated, the number of sites at which white phosphorus is found may increase. This is important because exposure to white phosphorus may harm you and because these sites are sources of human exposure to white phosphorus.

When a substance is released from a large area, such as an industrial plant, or from a container, such as a drum or bottle, it enters the environment. This release does not always lead to exposure. You can be exposed to a substance only when you come in contact with it. You may be exposed by breathing, eating, or drinking substances containing the substance or by skin contact with it.

If you are exposed to a substance such as white phosphorus, many factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and your individual characteristics such as age, sex, nutritional status, family traits, lifestyle, and state of health.

### 1.1 WHAT ARE WHITE PHOSPHORUS AND WHITE PHOSPHORUS SMOKE?

Pure white phosphorus is a colorless-to-white waxy solid, but commercial white phosphorus is usually yellow. Therefore, it is also known as yellow phosphorus. White phosphorus is also called phosphorus tetramer and has a garlic-like smell. In air, it catches fire at temperatures

## 1. PUBLIC HEALTH STATEMENT

10-15 degrees above room temperature. Because of its high reactivity with oxygen in air, white phosphorus is generally stored under water. White phosphorus does not occur naturally. Industries produce it from naturally occurring phosphate rocks.

White phosphorus is used mainly for producing phosphoric acid and other chemicals. These chemicals are used to make fertilizers, additives in foods and drinks, cleaning compounds, and other products. Small amounts of white phosphorus have been used as rat and roach poisons and in fireworks. In the past, white phosphorus was used to make matches, but another chemical with fewer harmful health effects has since replaced it.

In the military, white phosphorus is used in ammunitions such as mortar and artillery shells, and grenades. When ammunitions containing white phosphorus are fired in the field, they burn and produce smoke. The smoke contains some unburnt phosphorus, but it mainly has various burned phosphorus products. In military operations, such smoke is used to conceal troop movements and to identify targets or the locations of friendly forces. White phosphorus munitions are intended to burn or firebomb the opponents, in other words, to effectively produce widespread damage but not kill the enemy.

You will find more information on the physical properties and uses of white phosphorus and white phosphorus smoke in Chapters 3 and 4 of this profile.

### 1.2 WHAT HAPPENS TO WHITE PHOSPHORUS AND WHITE PHOSPHORUS SMOKE WHEN IT ENTERS THE ENVIRONMENT?

White phosphorus enters the environment when industries make it or use it to make other chemicals and when the military uses it as ammunition. It also enters the environment from spills during storage and transport. Because of the discharge of waste water, white phosphorus is likely to be found in the water and bottom deposits of rivers and lakes near facilities that make or use it. It may also be found at sites where the military uses phosphorus-containing ammunition during training exercises. Rainwater washout of these sites may contaminate nearby waterways and their bottom deposits. Hazardous waste sites that contain white phosphorus are also

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potential sources of exposure to people. However, because white phosphorus reacts very quickly with oxygen in the air, it may not be found far away from sources of contamination.

The fate of white phosphorus smoke is similar to the fate of reaction products of white phosphorus vapor in air. White phosphorus vapor in air reacts with oxygen and is changed to relatively harmless chemicals within minutes. However, particles in the air may have a protective coating that makes them unreactive for a longer time. White phosphorus reacts mainly with oxygen in water and may stay in water for hours to days. However, chunks of white phosphorus coated with protective layers may stay in water and soil for years if oxygen levels in the water and soil are very low.

In water with low oxygen, white phosphorus may react with water to form a compound called phosphine. Phosphine is a highly toxic gas and quickly moves from water to air. Phosphine in air is changed to less harmful chemicals in less than a day. In water, white phosphorus builds up slightly in the bodies of fish. The other chemicals in white phosphorus smoke are mainly changed to relatively harmless chemicals in water and soil. White phosphorus may stay in soil for a few days before it is changed to less harmful chemicals. However, in deeper soil and the bottom deposits of rivers and lakes where there is no oxygen, white phosphorus may remain for several thousand years. White phosphorus binds moderately to soil and typically doesn't move deep in soil with oxygen-depleted rainwater.

Chapter 5 provides more information about the fate and movement of white phosphorus in the environment.

### 1.3 HOW MIGHT I BE EXPOSED TO WHITE PHOSPHORUS AND WHITE PHOSPHORUS SMOKE?

You may be exposed to white phosphorus by breathing in air that contains white phosphorus or by swallowing water or food contaminated with it. White phosphorus has rarely been found in air. Therefore, unless you are near military facilities during training exercises that use white phosphorus ammunition, exposure to it by breathing air will be insignificant. White phosphorus

## 1. PUBLIC HEALTH STATEMENT

has not been found in drinking water or any food other than fish caught in contaminated water and game birds from contaminated areas. The maximum level found was 207 milligrams of white phosphorus per kilogram (207 mg/kg) in the muscle of channel catfish caught from the Yellow Lake in Pine Bluff, Arkansas. Some people are exposed to low levels of white phosphorus by eating contaminated food. People who work in industries that produce or use white phosphorus, people who eat contaminated fish or game birds, and people who live near phosphorus-containing waste sites may be exposed to white phosphorus at higher levels than the rest of the population. Other than exposure of certain workers at the Pine Bluff Arsenal in Arkansas, very few studies exist that have information on exposure to high levels of white phosphorus.

Most known cases of fatal or severe exposure to white phosphorus resulted from adults or children accidentally or deliberately swallowing rat poisons or fireworks or handling munitions containing white phosphorus. Other known instances of severe exposure of workers were a result of accidents in white phosphorus loading plants. People, particularly those in the military who use phosphorus-containing ammunitions, may be exposed to white phosphorus smoke during warfare, training exercises, and accidents.

### 1.4 HOW CAN WHITE PHOSPHORUS AND WHITE PHOSPHORUS SMOKE ENTER AND LEAVE MY BODY?

White phosphorus can enter your body when you breathe air containing white phosphorus. We do not know if white phosphorus in your lungs will enter the blood. White phosphorus can also enter your body when you eat food or drink water containing white phosphorus or when you are burned by it. We do not know if white phosphorus can enter your body through skin that has not been cut or burned. If it enters your body when you eat, drink, or are burned, white phosphorus enters the blood rapidly. We do not know if it changes into other compounds in the blood. Most of the white phosphorus that enters your body leaves in urine and feces after several days. White phosphorus smoke can enter your lungs when you breathe air containing it. When that happens, we do not know if it will enter your blood or how it will leave your body. For more information, please read Chapter 2.

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### 1.5 HOW CAN WHITE PHOSPHORUS AND WHITE PHOSPHORUS SMOKE AFFECT MY HEALTH?

Breathing in white phosphorus can cause you to cough or develop a condition known as phossy jaw that involves poor wound healing in the mouth and a breakdown of the jaw bone. Damage to the blood vessels of the mouth has been observed in rats breathing air containing white phosphorus. Most of what is known about the health effects of breathing this compound is from studies of workers. Current levels of white phosphorus in workplace air are much lower than in the past. If you eat or drink a small amount of white phosphorus (less than one teaspoon), you may vomit; have stomach cramps; have liver, heart, or kidney damage; become extremely drowsy; or die. Most of what is known about the health effects of eating or drinking white phosphorus is from reports of people eating rat poison or fireworks that contained it. White phosphorus is no longer found in rat poison or fireworks. The levels of it that you might be exposed to in food or water are much lower than the levels that were in rat poison or fireworks. We do not know if more serious health effects will occur in people who eat or drink white phosphorus-containing substances for a long time. If burning white phosphorus touches your skin, it will burn you. If you are burned with white phosphorus, you may also develop heart, liver, and kidney damage. We do not know if it can cause cancer or birth defects, or if it affects the ability of people to have children. Because of the lack of cancer studies on animals or people, the EPA has determined that white phosphorus is not classifiable as to human carcinogenicity (that is, whether or not it causes cancer). If you breathe white phosphorus smoke, you may damage your lungs and throat. We do not know how white phosphorus smoke can affect your health if it gets on your skin. For more information, please read Chapter 2.

### 1.6 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO WHITE PHOSPHORUS AND WHITE PHOSPHORUS SMOKE?

There are no medical tests to tell if you have been exposed to white phosphorus or its smoke. However, the health effects that can follow exposure may lead your physician to suspect exposure. For more information, please read Chapters 2 and 6.

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## 1.7 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

EPA requires industry to report spills of white phosphorus of more than 1 pound. White phosphorus levels in workplace air are regulated by the Occupational Safety and Health Administration (OSHA), and recommendations for safe levels have been made by the National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH). All three organizations set the inhalation exposure limit for white phosphorus in the workplace during an 8-hour workday at 0.1 milligram per cubic meter of air (mg/m<sup>3</sup>). There are no federal government recommendations for white phosphorus smoke. More information can be obtained from Chapter 7.

## 1.8 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns, please contact your community or state health or environmental quality department or:

Agency for Toxic Substances and Disease Registry  
Division of Toxicology  
1600 Clifton Road NE, Mailstop E-29  
Atlanta, Georgia 30333  
(404) 639-6000

This agency can also provide you with information on the location of occupational and environmental health clinics. These clinics specialize in the recognition, evaluation, and treatment of illness resulting from exposure to hazardous substances.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUN 18 1999

OFFICE OF  
RESEARCH AND DEVELOPMENT

SUBJECT: Interim Assessment Guidance for Perchlorate

FROM: Norine E. Noonan *Norine E. Noonan*  
Assistant Administrator (8101R)

TO: Regional Administrators  
Regional Waste Management Division Directors  
Regional Water Management Division Directors

The purpose of this memorandum is to transmit the attached interim assessment guidance from the Office of Research and Development (ORD) relevant to Agency activities related to perchlorate. The development of this guidance is in response to requests to ORD from some of the Regional offices, as well as from individual States.

As you know, the Office of Solid Waste and Emergency Response (OSWER) has recently forwarded to you the final report of the February 1999, External Peer Review of the document entitled "Perchlorate Environmental Contamination: Toxicology Review and Risk Characterization." The external review document (ERD), subject of the peer review, was developed by ORD's National Center for Environmental Assessment (NCEA).

The human health and ecological assessment issues related to environmental contamination by perchlorate are complex. The ERD addressed an immediate need to bring more science into the assessment process, but at the time of the February 1999 peer review meeting, several key studies on perchlorate were underway or planned. These studies will provide some critical assessment information. These new data will be incorporated into the revised assessment document that will undergo a second external peer review in January 2000. Because ORD is committed to bringing the latest available science to bear on the human and ecotoxicology estimates, ORD is recommending that until the completion of the second review, EPA risk assessors and risk managers follow the attached interim guidance. This guidance has been reviewed by the Office of Water (OW), Office of Solid Waste and Emergency Response (OSWER), and the Office of General Counsel and is supported by both OW and OSWER.

We look forward to working with you as we come to closure on this aspect of the perchlorate contamination issues over the next nine months. If there are any questions or if you require additional information, do not hesitate to contact Annie Jarabek at 919-541-4847 (voice); 919-541-1818 (FAX); or [jarabek.annic@epa.gov](mailto:jarabek.annic@epa.gov) (E-mail).

Attachment

cc: Tim Fields, OSWER  
Jonathan C. Fox, OW  
William Farland, NCEA  
Lt. Col. Dan Rogers, DoD  
Annie Jarabek, NCEA

## ORD Interim Guidance for Perchlorate

Because of remaining significant concerns and uncertainties that must be addressed in order to finalize a human health oral risk benchmark for perchlorate, the Office of Research and Development (ORD) recommends that Agency's risk assessors and risk managers continue to use the standing provisional RfD range of 0.0001 to 0.0005 mg/kg-day for perchlorate-related assessment activities. This recommendation is based on the determination that important new emerging data may have an impact on the proposed revised oral human health risk benchmark contained in the February 1999 External Review Document (ERD). Some background information and the reasons for this recommendation are detailed below.

In February 1999, an external peer review meeting was held in San Bernadino, California to review the document entitled "Perchlorate Environmental Contamination: Toxicology Review and Risk Characterization." This ERD was developed by ORD's National Center for Environmental Assessment (NCEA). The ERD, available on the Internet at <http://www.epa.gov/ncea/perch.htm>, was developed as part of a wider interagency effort to address environmental contamination issues related to perchlorate. More information on this effort is available at <http://www.epa.gov/ogwdw/cc1/perchlor/perchlo.html>. The external peer review was sponsored by the Office of Solid Waste and Emergency Response (OSWER) and the Office of Water. The final peer review report of the February 1999 meeting has recently been transmitted to you by OSWER.

As explained in the ERD, the current range of a provisional RfD value for perchlorate spans from 0.0001 mg/kg-day to 0.0005 mg/kg-day; this range was issued by the NCEA Superfund Technical Support Center based on assessments in 1992 and revised in 1995. If state or local environmental authorities decide to pursue site-specific clean-up or other water management decisions based on this provisional RfD range by applying the standard default body weight (70 kg) and water consumption level (2 L/day), the resulting provisional clean-up levels or action levels would range from 4-18 parts per billion (ppb). It should be noted that no cancer assessment was performed at this time.

The ERD presented an updated human health risk assessment as well as a screening-level ecological assessment of newly performed studies on the toxicity of perchlorate. The updated health assessment harmonizes noncancer and cancer approaches to derive a single oral risk benchmark based on precursor effects for both neurodevelopmental effects and thyroid neoplasia. Both of these are historically established effects often observed after disturbances in the hypothalamic-pituitary-thyroid feedback system. By their nature, each of these effects is likely to have a biological threshold. The proposed revised oral human health risk benchmark is protective of potential carcinogenic effects based on new perchlorate data on the lack of its genotoxicity and the reversibility of induced thyroid hypertrophy/hyperplasia. The proposed revised oral human health risk benchmark is 0.0009 mg/kg-day. No traditional RfD or cancer slope factor was proposed in the ERD. If state or other local environmental authorities choose to apply the same default values as above to the revised oral benchmark, a site-specific clean-up or action level of 32 ppb would result.

The Agency has committed to another external peer review as part of the process to more completely and accurately characterize the human and ecotoxicological risks associated with perchlorate contamination and to make this information available through the Integrated Risk Information System (IRIS). In the next assessment, NCEA will address comments made in the February 1999 report, as well as review and incorporate data from additional studies that were either nearing completion or recommended at that time. In addition to recommended studies on pharmacokinetics, developmental effects testing in another species and repeat motor activity evaluations are underway. Another important recommended activity underway is a National Toxicology Program-sponsored pathology working group (PWG) review of the thyroid and brain tissue from all previous and pending studies. This PWG review will provide for a common nomenclature of lesions and for a consistent pathology review across studies, with the goal to reduce variability in the data. Further, an interlaboratory validation study of the hormone analyses (T4, T3, and TSH) across participating laboratories will be performed. Additional ecotoxicology studies, including some site-specific and farm gate analyses of food crops, are also either being reviewed or already underway.

The purpose of the next external peer review will be to evaluate these additional data and to review the draft final NCEA assessment. All of the perchlorate testing and study activities, whether underway, in review, or planned, are being timed to support the goal of the next external peer review in January 2000. As mentioned above, this next peer review is intended as part of the IRIS process. After revision to reflect any additional comments or recommendations, the final NCEA assessment will then go to IRIS consensus review.

Because new analyses and data are to be considered, we can predict that the human and ecotoxicology benchmarks are likely to change. The new estimates will reflect greater accuracy and may be either higher or lower than the harmonized benchmark proposed in the February 1999 document (0.0009 mg/kg-day). *Therefore, ORD recommends that Agency risk assessors and risk managers continue to use the standing provisional RfD range of 0.0001 to 0.0005 mg/kg-day because of continued uncertainty with respect to the impact of the pending data and analyses on the final estimate.* This recommendation helps to ensure that the Agency bases its risk management decisions on the best available peer reviewed science and is in keeping with the full and open participatory process embodied by the proposed series of peer review workshops. It should be noted, that due to the uncertainty of whether the final oral human health risk benchmark will increase or decrease based on the new data and analyses, the standing provisional RfD range is the more conservative of the estimates available at this time and, therefore, more likely to be public health protective in the face of this uncertainty. This is also consistent with Agency practice that existing toxicity estimates remain in effect until the review process to revise them is completed.

This document provides guidance to EPA Regions concerning Agency activities related to perchlorate. It also provides guidance to the public and the regulated community on how EPA intends to exercise its discretion in carrying out these activities. The guidance is designed to implement national policy on these issues. The document does not, however, substitute for EPA statutes or regulations; nor is it a regulation itself. Thus, it cannot impose legally-binding requirements on EPA or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA decisionmakers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate. EPA may change this guidance in the future.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I  
ONE CONGRESS STREET SUITE 1100  
BOSTON, MASSACHUSETTS 02114-2023**

**emorandum**

**ate:** 26 July 2001

**rom:** Sarah Levinson, Human Health Risk Assessment Support  
Technical Support Branch

**o:** Todd Borci, Project Manager  
MMR Project Team

**ubj:** Recommendations Regarding Human Health Risk Evaluation of Perchlorate: Application to MMR  
Project Activities

In response to detections of perchlorate in groundwater samples at MMR, perchlorate has become a chemical of interest at the MMR. Neither EPA nor MA DEP has formally adopted a safe drinking water standard or health advisory for perchlorate in public water supplies. However, the Agencies are aware and are concerned about the potential for perchlorate to cause adverse human health effects (especially on the thyroid) were exposure to occur. As such, the purpose of this letter is to communicate current EPA policy regarding human health risk evaluation of perchlorate in groundwaters. This policy is based upon my communications with the perchlorate chemical manager Annie Jarabek (ORD), Peter Grevatt (OSWER Sr. Scientist HQ), and other EPA Regional toxicologists.

While the issues surrounding risk evaluation of perchlorate are complex and are the subject of review at present, it has been and continues to be the position of EPA that human health risk evaluation of perchlorate should proceed using the provisional oral reference dose (RfD) issued by EPA's NCEA Superfund Technical Support Center of 0.0001 to 0.0005 mg/kg-day. This position was articulated in a guidance of June 18, 1999 from Norine Noonan (ORD) to all Regional Administrators and all Waste and Water Management Division Directors (copy attached). While issued as interim guidance, it was to remain in effect until such time that a final assessment of the hazard to human health posed by exposure to perchlorate was formally adopted and placed on EPA's IRIS database. The range of oral reference doses issued by EPA in 1992 and later revised in 1995 of 0.0001 to 0.0005 mg/kg/day is based on adverse effects of the thyroid gland and has not been superceded by an IRIS value at present.

Since 1995, EPA has attempted to bring the latest available scientific information to bear on a health protective benchmark value for perchlorate and in 1999, EPA released an External Peer Review

Draft document ("Perchlorate Environmental Contamination: Toxicology Review and Risk Characterization"). However, because EPA believes important new studies that were not available in 1999 are either underway or planned and are anticipated to have an impact on the proposed human health risk benchmark, EPA does not recommend use at this time of the 0.0009 mg/kg/day health risk benchmark contained in the 1999 External Review Document. This policy helps to ensure that EPA bases its risk management decisions on the best available peer reviewed science and is consistent with EPA practice that existing toxicity estimates remain in effect until the review process to revise them is completed.

Thus, using the range of provisional oral reference doses (0.0001 to 0.0005 mg/kg-day) suggested be used in this interim period and in keeping with prudent public health measures assuming that a young child (15 kg body weight, 1 l/day water ingestion rate) represents a plausible receptor, the concentration of perchlorate in water that would not exceed the provisional reference dose for a child equates to approximately 2 ppb - 8 ppb (1.5 ppb - 7.5 ppb). Were one only concerned about effects on adults (2 l/day ingestion rate, 70 kg body weight), then the concentration of perchlorate in water that would not exceed the provisional reference dose for an adult approximates 4-18 ppb (3.5ppb -17.5 ppb). As the child receptor is consistent with the beneficial use of the aquifer as a public drinking water supply, I strongly advise consideration be given to protecting the young child receptor population for remedial decisions involving perchlorate in groundwater at MMR.

Attachment (EPA Memo from N. Noonan to Regional Administrators 6/18/99)

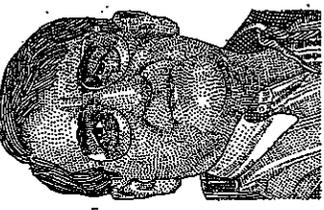
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**RANCHO CORDOVA, Calif.**—For years, Greg and Doris Voetsch felt they were living a suburban dream here on the banks of the American River.

Just 15 miles from downtown Sacramento, they raised four kids on home-grown cherries, pears, cucumbers and string beans, along with salmon and rainbow trout caught in the Sierra-fed waters flowing just beyond their back door. Mr. Voetsch, a landscaper, used tobacco juice, instead of pesticides, to keep the aphids at bay. Snow-melt was their air-conditioning, cooling the hot summer breezes. The cost of living was "almost nothing," Mr. Voetsch says.

But trouble seeped into their paradise. In 1983, 13 years after the family moved here, surgeons removed two tumors, each of a different type of cancer, from Mr. Voetsch's thyroid gland. Shortly after, his two older daughters, both in their 20s at the time, had surgery to treat thyroid-related problems. Last year, his 67-year-old wife, who has had thyroid trouble for years, had a benign brain tumor removed. The couple's daughter-in-law, who grew up nearby, also has thyroid problems. Her son—the Voetsches' grandson—is autistic.



Greg Voetsch

Five years ago, the Voetsches learned that the home they bought in 1970 lies on the edge of a so-called plume of underground water polluted with waste from a nearby missile factory. Among the chemicals found in local drinking wells is perchlorate, the main ingredient of solid rocket fuel and a known toxin. The Voetsches believe it was in their water and, they suspect, their garden soil. "We lived off the land and never thought twice about it," Mr. Voetsch says.

In the human body, perchlorate affects production of thyroid hormones—a phenomenon that the Environmental Protection Agency says can cause thyroid ailments such as Graves' disease and cancer in adults. Fetuses and newborns, the EPA says, are at even greater risk, susceptible to neurological and other developmental damage.

For decades, millions of Americans have been unknowingly exposed to perchlorate through their local water supplies. No one denies that the chemical is toxic. But the level at which it becomes dangerous in drinking water is the subject of a fierce debate that pits the EPA against the Pentagon and its defense-industry allies. As a result, the U.S. is still years away from establishing a nationally enforced standard, and until it does so, a poisonous chemical lingers in the environment in amounts that could still be causing the slow spread of serious disease on a large scale.

To date, the EPA has identified 75 perchlorate releases in 22 states, including Arizona, Texas, Nebraska, Iowa, New York, Maryland and Massachusetts, as well as California. The Colorado River, the main water source for about 15 million homes across the Southwest, contains perchlorate at roughly seven parts per billion—seven times the level that the EPA's National Center for Environmental Assessment says is safe.

Defense-industry dumping is suspected in nearly all these cases, though perchlorate has also been linked to fireworks and other explosives, automobile airbags and Chilean fertilizers, some of which may have been used near the Voetsches' home. The EPA says it will take hundreds of years and cost several billion dollars to clean up the known plumes.

## Perchlorate in America

For decades, millions of Americans have been unknowingly exposed to perchlorate, a chemical linked to thyroid ailments. Though federal water supplies to date, the EPA has identified 75 releases of perchlorate in 22 states.



States highlighted in map are among those with perchlorate releases. EPA has identified 75 releases of perchlorate in 22 states.

## Seeping Threat

# A Fuel of Cold War Defenses Now Ignites Health Controversy

Perchlorate Runoff Makes Way

To Water Supply of Millions;

Pentagon Clashes With EPA

Greg Voetsch's Two Tumors

By PETER WALDMAN

# Perchlorate Reaches Water Supply of Millions

The EPA wants suspected water supplies tested nationwide for perchlorate, but the Pentagon, which argues perchlorate is safe, says it is not. Please Turn to Page A9, Column 1

*Continued From First Page*

ate isn't dangerous in small doses, is resisting in many cases. Instead, the Pentagon has asked Congress for an exemption from environmental laws covering the cleanup of explosive residues at operational sites.

It's impossible to determine definitively whether perchlorate caused the Voetsches' ailments and similar maladies reported by hundreds of other people in affected areas. California's Department of Health Services is studying local health statistics for correlations between perchlorate levels in local drinking water and rates of thyroid and other disorders associated with the chemical. Eight states have passed advisory limits on perchlorate, ranging from one part per billion in Maryland, Massachusetts and New Mexico, to two ppb in California and 18 ppb in Nevada.

The EPA worries even the smallest traces of perchlorate are dangerous, particularly to infants at risk of neurological damage because thyroid-hormone production is crucial to normal brain development. In January, the agency's national assessment center proposed a draft "reference dose" for perchlorate in drinking water of one part per billion. That recommendation, when finalized after a peer review process, goes to the EPA's Office of Water, which ultimately proposes a national standard after weighing costs and benefits.

"After everything I've seen on perchlorate, I'm a lot more concerned about even subtle deficiencies of thyroid hormone on brain development than I was before," says biologist Thomas Zoeller, an endocrine expert at the University of Massachusetts at Amherst and one of the 17 peer reviewers of the EPA's draft reference-dose report.

## Billions in Cleanup Costs

The Pentagon and several of its major contractors, all facing billions of dollars in possible cleanup and liability costs, say perchlorate is perfectly safe in trace amounts. They argue the chemical, an ordinary salt ion similar to nitrate, should be allowed in drinking water in concentrations up to 200 ppb. "The scientific basis for believing there's harm has not been established," says Maureen Koetz, assistant undersecretary of defense for the environment.

That perchlorate is an issue at all is a legacy of the Cold War, when the priorities of containing communism trumped domestic considerations for the environment and public safety. The military started using perchlorate in solid rocket fuel and other propellants in the 1940s. At the time, the chemical wasn't considered very toxic. Millions of tons of it were simply flushed onto the ground, left to flow unimpeded into streams and underground aquifers.

The polluting continued for years af-

ter evidence began to mount of the dangers of perchlorate. A three-month investigation by The Wall Street Journal has found that even after California regulators tried to control disposal of the chemical in the 1950s, companies dumped it with impunity. It wasn't until the 1970s, after passage of federal clean-water laws, that the defense industry began trying to contain perchlorate waste for treatment. But by then, the chemical had already begun its long, slow seep into water supplies nationwide.

As late as 1976, in fact, Aerojet-General Corp., operator of the missile plant near the Voetsches' home, built a special, 3,500-foot pipeline to dump toxic waste into unlined earthen pits—directly disobeying a local water-board order issued just months earlier, state documents show. At first, Aerojet told investigators the pipe was just a stopgap measure to bypass a clogged holding pond.

"A 3,500-foot pipeline may not quite be temporary," acknowledges William Phillips, longtime general counsel of Aerojet's parent, GenCorp of Sacramento. But Mr. Phillips and other defense-industry officials say that the contractors' disposal practices were state-of-the-art at the time, particularly for a chemical they didn't—and still don't—consider very harmful. Moreover, the defense suppliers say they followed all orders and guidelines issued by the Pentagon, which owned and

managed most of the perchlorate supply and put its own inspectors inside factories to ensure proper handling.

The Pentagon, for its part, says its job is national security, not environmental safety. "We are no different from any other set of individuals who operate in states and localities and follow the laws," says Ms. Koetz, the assistant undersecretary of defense. "We do not consider it our job to get out in front of the health and environmental regulatory agencies in terms of discovering" pollution risks.

"Should someone have connected the dots in 1962, 1972 or 1982? Absolutely," says Kevin Mayer, an EPA Superfund official in San Francisco and the agency's point man on perchlorate. "But it didn't happen. There isn't any one person or one agency that definitively dropped the ball. Everyone did nothing."

That's what upsets people living in perchlorate-polluted areas. Though tests revealed high levels of perchlorate in the Voetsches' neighborhood water as far back as 1963—seven years before they moved in—state water regulators declared local wells safe. The Voetsches joined a class-action lawsuit in 1998, filed in Sacramento state court, accusing Aerojet, Boeing Co. and two local water utilities of negligence and fraud. The defendants contest the allegations, and the case is pending.

"I think they knew it was dangerous and just kept doing it," says Mr. Voetsch, now 68 years old. "There was nobody there to stop them, and nobody was the wiser."

Perchlorate fueled the takeoff of American rocketry. During World War II,

the Navy tapped Theodore von Karman, a Hungarian-born aeronautics professor at California Institute of Technology, to develop engines powerful enough to lift planes off the short flight decks of aircraft carriers. He and some other rocket hobbyists from CalTech founded Aerojet in Pasadena, Calif. Their breakthrough: so-called jet-assisted takeoff rockets, fueled by solid perchlorate compounds that were highly charged but stable enough to be handled safely aboard ships.

Perchlorate, dubbed "powdered oxygen," is combusted inside a rocket engine with aluminum powder and a rubber-like polymer to stoke an intense burn. To propel a rocket, the solid fuel must be ground and molded into a particular shape. Over time, the fuel breaks down, requiring continual replacements. That's why, for more than 40 years, tons of perchlorate were routinely flushed from rockets and missiles onto the ground and into water supplies.

Aerojet began manufacturing at a plant in the San Gabriel Valley town of Azusa, Calif., about 40 miles east of down-

town Los Angeles. Nearly from the start, it had discharge problems. In 1949, the Los Angeles County engineer warned the company in a letter that dumping its hazardous waste into "cesspools" and "seepage beds" posed an "extreme hazard" to the underground water supply. "I cannot too strongly emphasize the necessity of obtaining a sewer connection in the shortest possible time," pleaded the county engineer, who noted Aerojet was already in violation of local discharge restrictions. Aerojet was never punished, and its Azusa plant was connected to an industrial sewer line in 1952.

## Move Out of the City

Hemmed in by the burgeoning Los Angeles suburbs, Aerojet moved most of its rocket operations north to some abandoned gold-dredging fields in Rancho Cordova, about 15 miles east of Sacramento. In 1951, shortly after buying the site, an Aerojet employee calculated that about 1,000 gallons of liquid waste, plus 300 pounds of ammonium perchlorate, would flow into the underground aquifer every day. Most of the waste would have "a deleterious effect on both plant life and the underground water supply," he warned in an internal memo. But ammonium perchlorate might "be beneficial in a sewage stream and possibly be slightly beneficial on-plant life," he added.

As in the San Gabriel Valley, Aerojet designed a system in Rancho Cordova to channel waste into unlined leaching ponds, apparently assuming whatever pollutants did reach groundwater would

be diluted to safe levels. But when those designs were circulated for comment to California's water, health, and fish-and-game departments in Sacramento, the regulators unanimously panned the proposed "percolation beds" as posing grave pollution risks to streams and underground aquifers, state documents show.

Officials sought specific toxicity advice on perchlorate from a botany professor at the University of California at Davis. He replied that perchlorate was "known to be toxic to plant life" and was unlikely to break down "in course of percolation through gravel." For treatment, he recommended evaporation in "sealed beds" and "absorption and contact with organic matter."

Today, this so-called biological method is a common way of extracting perchlorate from water. "It's astonishing how right he was," says Mr. Mayer of the EPA.

On May 15, 1952, California's Central Valley Regional Water Pollution Control Board, over Aerojet's objections, issued Resolution No. 127, barring "entry" of perchlorate and eight other chemicals into local groundwater and the nearby American River. That same year, medical researchers published their findings that perchlorate blocks the uptake of essential iodide into the thyroid gland, thus inhibiting thyroid-hormone production.

Neither the medical findings nor the water board's order had much effect. By 1955, regulators were finding perchlorate in local groundwater. Though hampered by primitive test methods and Navy secrecy, a state hydraulic engineer reported that untreated discharges of some 310 pounds a day of perchlorate were being dumped into "abandoned gold dredger pits." The good news, he reported, was that the waste was seeping into the ground more slowly than expected. The bad news, reported a few months later, was that a nondrinking well on Aerojet's property was contaminated with 1,000 ppb of perchlorate, indicating "waste water from the sump is commingling with underlying groundwater."

Mr. Phillips, the GenCorp general counsel, says Aerojet's disposal practices met all safety and regulatory requirements of the day. "You were supposed to put [perchlorate] in these pits," he says. "We thought the pits were impermeable."

In 1957, a national task group on underground waste reported perchlorate contamination had spread over "several square miles" east of Sacramento. The group's report, published in the American Water Works Association Journal, described perchlorate as a "weedicide" toxic to plants at 1,000 to 2,000 ppb. It said the perchlorate plume near Sacramento ranged from 3.5 million to five million ppb. Also that year, some Harvard University researchers, using studies on guinea pigs, found that perchlorate, after passing through the placenta from the mother, depleted thyroid-hormone production in fetuses.

In 1958, the Water Pollution Control Board notified Aerojet that its discharges

were "consistently in violation of the board's requirements." At a special briefing for state agencies in 1960, board engineers described Aerojet's operations as a mess, with "four or five major discharges" into a creek feeding the American River and many smaller releases onto the ground. Aerojet, citing security, wouldn't tell regulators all the chemicals it was using, according to regulators' documents from the briefing.

"We pointed out that just because we do not know what is going on in this area, an area of extremely permeable sediments, the board should not give industry a blank check to discharge anything [it] desired to the groundwater basin," a state engineer wrote after the briefing.

The upshot was Resolution 62-21, the board's 1962 order to Aerojet not to discharge anything "deleterious to human, animal, plant, or aquatic life" into local waters. The resolution set maximum discharge levels for 21 chemicals—1,000 ppb for perchlorate—and ordered Aerojet, for the first time, to "disinfect" all waste before it left Aerojet's property.

But this was the year of the Cuban missile crisis, and Aerojet had other concerns. A unit of General Tire at the time, Aerojet was playing a big part in helping the U.S. close the missile gap with the Soviet Union. At the height of the rocket race in the early 1960s, Aerojet's Sacramento County facility employed 22,000 workers in three shifts, seven days a week. In 1962, they helped build and deploy the first solid-fuel intercontinental ballistic missile, the Minuteman I. Because it didn't require

hours to load, as liquid-fuel rockets do, the Minuteman is believed to have helped steel President Kennedy's nerve during the Cuban missile crisis.

Aerojet's operations were overseen by 300 to 400 full-time Pentagon inspectors who approved every facet of design, production and waste disposal, says Aerojet's Mr. Phillips. "Had we known we could have done something to keep this [perchlorate contamination] from happening, they would have given it to us," he says. "Everybody involved thought they were doing the right thing."

### Burning the Stuff

In 1961, Aerojet had begun burning its excess perchlorate, along with drums of the chlorinated solvent trichloroethylene, or TCE, which is now considered carcinogenic. Still, large quantities of the chemicals continued to go into the ground, according to accounts by former Aerojet employees given to California investigators in a 1979 criminal probe. (That state investigation was dropped in the mid-1980s, when Aerojet agreed to sign a consent decree to clean up its waste.)

In write-ups of those witness accounts obtained by the Journal, several employees described a chemical "sludge" left over after burning that Aerojet would let seep into the ground or would bury in separate pits. Former employees, including one identified as the foreman of Aerojet's chemical-waste-disposal unit from 1963 to

1968, said they dumped hazardous chemicals into a septic lagoon meant for human waste. Witnesses also said many workers continued dumping perchlorate and TCE into "rock piles" and open ponds. (TCE was heavily used to clean missile parts laden with solid rocket fuel.)

Meanwhile, tests of the underground aquifer at the Aerojet site showed steadily rising concentrations of perchlorate—from 18,000 ppb in the mid-1950s to 91,000 ppb in 1979. In the decade after 1955 alone, Aerojet processed roughly 19 million pounds of ammonium perchlorate at "grind station" Line 03, company documents say. The "daily washdown" of the area flowed into unlined ponds.

The water board issued more discharge orders, with little effect. In February 1976, for example, the board granted permission to Aerojet's Cordova Chemical unit to dig an injection well for inserting waste deep underground. The board's order explicitly barred "pollution" and discharging waste to any "surface drainage courses." Yet just three months after that order came out, Cordova built the 3,500-foot pipeline to channel waste straight into an unlined dredger pit.

"That's the worst thing I know about on this whole place," says Aerojet's Mr. Phillips. The general counsel says that Aerojet never hid its perchlorate contamination. He points out that the company notified the water board in the mid-1970s that it detected perchlorate in its groundwater at 50 times the board's allowable limit. No one worried about it then, Mr. Phillips says, because, among other reasons, Aero-

jet's wells weren't for drinking.

Perchlorate became a drinking-water concern in 1985, when the EPA detected it in wells serving about 42,000 households near Aerojet's original facility in the San Gabriel Valley, near Los Angeles. The agency found concentrations ranging from 110 ppb to 2,600 ppb. But five of the six so-called field blanks—samples of purified water that were also tested to assure data quality—inexplicably tested positive for perchlorate. Flummoxed, EPA reviewers threw out most of the test results as unreliable. (Today, some EPA officials believe those field blanks probably came from Colorado River water or other tainted sources.)

EPA scientists asked the federal Centers for Disease Control in Atlanta for guidance on possible health risks from perchlorate. The response, written by the Agency for Toxic Substances and Disease Registry on Jan. 26, 1986, underscored the same toxicity concerns the Pentagon and EPA are still arguing about 17 years later. The agency "strongly recommended" retesting the San Gabriel wells.

"Although the limited data available does not suggest that several [thousand ppb] of perchlorates would represent an acute threat to public health," the toxic-substance agency letter concluded, "the effects of continued low-level perchlorate ingestion need to be described as soon as possible."

## Superfund Sites

Those effects remained undescribed for more than a decade afterward. In 1992, the EPA, citing the 1952 study on perchlorate's effects on thyroid-hormone production, issued its first health assessment of the chemical, proposing an initial reference dose for perchlorate of four ppb in drinking water. By then, Aerojet's facilities in Northern and Southern California had both been named EPA Superfund sites because of contamination by TCE and other known carcinogens. The Sacramento facility, in fact, was treating groundwater for other toxic agents and reinjecting it into the aquifer with 8,000 ppb of perchlorate still in it—with regulators' full assent.

"We did not have any data which indicated that perchlorate had been identified as a contaminant of concern," testified Thomas Pinkos, who oversaw Aerojet's cleanup for the regional water board from 1979 through 1988, in a recent deposition.

After the EPA's 1992 health warning, state officials watched warily as Aerojet's perchlorate plume spread toward drinking wells in Rancho Cordova. At the time, the most-sensitive test equipment could detect perchlorate at levels only above 400 ppb. The defense industry, meanwhile, was fighting the EPA's health assessment, arguing in a 1995 report to the EPA that the reference dose should be 42,000 ppb in drinking water. Aerojet itself grew less cooperative with state officials, regulators say. "Plumes tended to stop at their fences," one quips.



Kevin Mayer

The logjam broke in early 1997, when a California state lab, prodded by residents in Rancho Cordova, developed a new method for measuring perchlorate down to four ppb. With the lower detection limit, the substance quickly turned up in Rancho Cordova's wells at levels reaching 300 ppb.

The Voetsches learned in the media about the thyroid-disrupting contaminant shuttering nearby wells. Mr. Voetsch says he attended several community meetings, following up with various public and private officials to pursue his family's case. But the only person who returned his calls, he says, was a local geographer and Navy vet named Larry Ladd, who has made perchlorate pollution his passion. The Voetsches then joined the class-action lawsuit, led by the law firm that employs Erin Brockovich, the toxic-tort paralegal played by Julia Roberts in the film of the same name. The suit, among several filed over perchlorate contamination, is mired in the courts, and Mr. Voetsch says he hasn't heard from the lawyers in years.

"I'm thoroughly convinced, no one wants to know what's going on here," Mr. Voetsch says.

The firm's chief attorney, Edward Masry, says the perchlorate clients haven't been contacted in several years because a judge put a stay on their case, pending legal motions, but should be hearing from the firm shortly.

With more-sensitive tests, perchlorate quickly turned up in several water supplies in Southern California. In 1997, the San Gabriel Valley plume—11 years after its initial discovery—had spread to a five-square-mile area beneath about 250,000 residents, according to the San Gabriel Basin Water Master.

In nearby San Bernardino County, perchlorate plumes prompted closure of dozens of wells, threatening some communities with water shortages. When local De-

fense Department officials got wind of a plume in Redlands, Calif., they circulated an internal "bellringer" report telling colleagues to keep the information secret. The June 1997 report noted 250,000 residents could be "adversely affected," with "pregnant women and children" among the most at risk. Yet, citing the local outrage at perchlorate's discovery in wells near Sacramento several months earlier, the report warned of "far reaching ramifications when the public learns of the situation." Its conclusion: "Future procurement programs could be adversely affected due to increased environmental costs."

## Plumes Spread

In 1997, the Pentagon and several defense contractors, under EPA pressure, launched the first toxicological studies to determine perchlorate's effects at low exposure levels—the same studies that ultimately led to the EPA's reference dose this year. Meanwhile, perchlorate plumes popped up at defense sites all across the country—Texas and Utah in 1998, then Kansas, Missouri, Nebraska, Iowa, West Virginia and Maryland the next year.

When the Metropolitan Water District of Southern California found the chemical in taps in Los Angeles, scientists traced the plume 400 miles up the Colorado River to Lake Mead, above Hoover Dam. From there, they tracked the plume 10 miles westward, up a desert riverbed called the Las Vegas Wash, to Kerr-McGee Corp.'s giant ammonium perchlorate plant in Henderson, Nev.

The Navy built the plant in the 1940s to make perchlorate compounds for the war. Inherited by Kerr-McGee in a 1967 merger, the facility spilled thousands of pounds of perchlorate waste every day through the mid-1970s into unlined evaporation ponds. The chemical leached into shallow groundwater over the years, seeping into the Las Vegas Wash, the main drain into Lake Mead for wastewater coming from Las Vegas.

Perchlorate was detected in Kerr-Mc-

Gee's groundwater back in the mid-1980s, and it was ignored. The company was then treating the aquifer for the metal chromium-6, and reinjecting high levels of perchlorate-tainted water back underground, say officials of Nevada's Division of Environmental Protection. "The guidance on perchlorate was lacking," says Patrick Corbett, director of environmental affairs for Kerr-McGee, based in Oklahoma City.

Kerr-McGee is spending roughly \$70 million to extract perchlorate, too, but is catching only about half the 900 pounds a day seeping into the Las Vegas Wash, EPA officials say. The company, which has filed a lawsuit seeking Pentagon reimbursement for the cleanup costs, says it's adding new systems to capture much more of the perchlorate. Still, so much perchlorate has already entered Lake Mead that the levels below Hoover Dam—all the way out to Los Angeles—have hardly budged in five years, ranging from five to 10 ppb.

## 'Decades of Dilution'

"It will probably take decades for the dilution effect to flush it all out," says Douglas Zimmerman, an environmental regulator in Nevada.

In addition to slaking thirsts across the Southwest, the Colorado River water irrigates 95% of America's winter lettuce crop, grown in Yuma, Ariz., and California's Imperial Valley. The EPA says it still doesn't know if lettuce and other vegetables accumulate perchlorate from irrigation water, but preliminary indications aren't good. Tests on several vegetable samples from a perchlorate-contaminated farm in Redlands found the plants concentrated perchlorate from local irrigation water by an average factor of 65, according to calculations by Renee Sharp of the Environmental Working Group in Oakland, Calif., one of the few nonprofit groups focused on perchlorate contamination. That means the perchlorate dose in the vegetables was 65 times the amount in the water.

"If people are eating it, on top of drinking it, the EPA will have to lower its proposed drinking-water standard substantially," Ms. Sharp says.

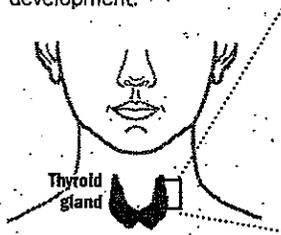
For now, that standard is only a recommendation. Enactment of a national standard will have to wait until either the EPA or the defense establishment prevails. Meanwhile, Aerojet and Lockheed Martin Corp. are already spending hundreds of millions of dollars to extract perchlorate from aquifers they polluted in California, with much of it being reimbursed by the Pentagon.

Sandra Lester thinks it's too little, too late to help her. She grew up on Rancho Cordova's perchlorate plume, near the Voetsch family, and fell sick with Graves' disease at age 15. Now 20, she wants to become a large-animal veterinarian, but is still enfeebled by skin problems, muscle pains and other complications of her disease. She blames perchlorate and had joined another class-action suit, but she heard this month that the law firm is dropping her case.

"It doesn't seem like the government cares very much about this problem," she says. "It's not like perchlorate is killing people. It's slow."

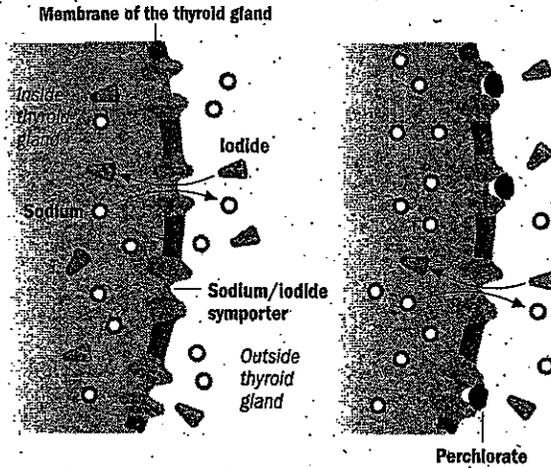
### Blocking Agent

In the human body, perchlorate inhibits production of thyroid hormones, essential to normal organ development in babies, especially brain development.



**1** Iodide from foods, such as salt, enters the body.

Sources: Environmental Protection Agency; Environmental Working Group



**2** Iodide is transported into the thyroid by the sodium/iodide symporter (NIS) as sodium is transported out. The iodide is then used to produce thyroid hormones.

**3** If perchlorate is ingested, it blocks the symporter, disrupting the uptake of iodide.



**Greg and Doris Voetsch** (left) believe perchlorate made their family sick. Sandra Lester (bottom left) got thyroid disease at 15. Larry Laadd (bottom), with daughter Melody, pressed California and Aerojet to test for perchlorate in local drinking wells.



## The Debate Over Safety Levels

Perchlorate is one of a newly recognized group of toxins called endocrine disrupters—chemicals such as dioxin and PCBs that can alter hormonal balances and thus impede human reproduction and development.

The debate is over how much perchlorate causes harm, and whether fetuses and infants are more susceptible than adults to perchlorate's effects at very low doses.

The EPA, citing experiments on rats and epidemiological studies in Arizona and California, says perchlorate is dangerous in drinking water at levels above one part per billion. The Pentagon and defense industry, citing human experiments and epidemiological studies in Chile, say perchlorate is safe in drinking water below 200 ppb. Billions of dollars in cleanup and liability costs may hang in the balance, since most perchlorate plumes in the U.S., including the Colorado River, range between four and 100 ppb.

In 1993, several defense contractors, backed by the Pentagon, created the Perchlorate Study Group to research toxicity. The group's "goal," according to an internal document written in 1996 by GenCorp's Aerojet subsidiary, was "to provide EPA with a scientific-based argument to justify a higher [reference dose] and thus a more reasonable remediation standard." The industry group has spent roughly \$7 million on toxicity studies.

Yet, as with other contentious toxins such as arsenic and lead, the more information EPA scientists learned about perchlorate, the more they worried about its effects. Their main concern focuses on changes found in the brain size of laboratory rat pups exposed to low doses of perchlorate in utero. Such changes in so-called

brain morphometry indicate perchlorate's thyroid effects may cause permanent neurological damage—in rats as well as people, the EPA says, because the thyroid system works similarly in both species.

The Pentagon and its allies say the rat studies, which the industry's study group directed and sponsored, used poor autopsy techniques on the rats. And why trust rat data, they argue, when human data are available? The Pentagon and its allies cite an Oregon study that found small doses of perchlorate, given orally to adult volunteers, had little effect on thyroid-hormone levels.

The EPA says the human study didn't examine the most sensitive subgroups—pregnant mothers and infants—and was much too brief to measure the effects of long-term exposure.

To counter, the defense establishment cites an epidemiological study of three Chilean villages with varying levels of naturally occurring perchlorate in their drinking water. The study's conclusion: Perchlorate had little effect on the thyroid-hormone levels of newborns and children in the three villages studied.

The EPA prefers a different epidemiological study that it claims shows "strong evidence" of perchlorate's danger to infants. That study found California babies born to mothers exposed to trace amounts of perchlorate in drinking water had lower thyroid-hormone levels at birth than did infants of nonexposed moms. California's Office of Environmental Health Hazard Assessment recently used that study, and other human data, to derive its own "health goal" for perchlorate in drinking water of two ppb.

—Peter Waldman



State officials want to complete the work near the rotary before the busy Memorial Day weekend, Marks said.

According to an agreement signed yesterday, the Army Corps of Engineers will begin digging by mid-May.

Crews will begin digging the pipeline from both ends, and are expected to link up by June 28.

#### **Future supplies**

The Bourne district includes about half of the Upper Cape town, including neighborhoods of Cataumet, Pocasset and Monument Beach. About 19,000 people are served by the district during the summer.

The district does not include customers in Sagamore, South Sagamore or Buzzards Bay.

District officials say they are still evaluating the problem and aren't sure what costs they'll run into. For now, the military funding will pay for the supply line to the base and other costs.

While all tainted supply wells are now shut off, there remains concern in the community about future water supplies.

During a meeting last night of the panel that monitors the Camp Edwards cleanup, more than 100 Bourne residents crowded into a Best Western Hotel reception room to learn more about the problem.

#### **Health concerns**

Both residents and Impact Area Review Team members pressed the state's Department of Public Health to assess whether past exposure to the contamination has affected public health.

While perchlorate is not considered a cancer causing substance, it can affect the thyroid gland, potentially slowing metabolism, growth and development, according to the federal Environmental Protection Agency.

The state has suggested that no "sensitive" people - including children and pregnant women - consume water contaminated with even small traces of the chemical.

David Williams of the DPH said last night that there is no evidence that the chemical has caused health problems to date.

But Richard Hugus of Falmouth, a member of the Impact Area Review Team, said it would be "a miracle" if the military caught the perchlorate plume before it reached the water supply.

He and others pushed the DPH to look at past records to determine whether there are any higher levels of thyroid disease in the region.

In the meantime, the military has scrambled funds for the problem in near-record time, said Mike Minior of the Air Force Center for Environmental Excellence, which is running the cleanup of the southern portion of the Massachusetts Military Reservation.

"The folks above us recognized the seriousness of the situation," he said. "And they did everything they could to expedite moving the money to the Bourne Water District."

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THIS STORY HAS BEEN FORMATTED FOR EASY PRINTING

## Work to clean Cape Cod pollution continues as Pentagon seeks environmental exemptions

By Melissa B. Robinson, Associated Press, 5/27/2002 12:34

WASHINGTON (AP) Five years of investigation at the Massachusetts Military Reservation on Cape Cod has yielded evidence that groundwater pollution is more extensive than even the U.S. Environmental Protection Agency thought when it ordered the military to look into the problem.

Now, environmental experts are wondering if there's enough clean water left on the upper Cape to correct a shortfall in drinking water for local residents, due to base pollution, that could reach 11 million gallons per day by 2020.

"This was an area that was the hope for the future of the Cape's water supply," said Betsy Higgins, director of environmental review for EPA's New England office. "They're finding a lot more contamination than anyone ever thought we would find."

The reservation is a 22,000-acre military base that's been used for training by the Army, Air Force and National Guard since 1911.

Underneath is Cape Cod's sole source aquifer, the only drinking water source for the Cape's 200,000 year-round and 500,000 seasonal residents. Sandy soil makes the aquifer vulnerable to contamination, which can travel quickly.

The EPA's precedent-setting cleanup order in 2000 marking the first time the military was required to clean an active training ground is focused on Camp Edwards, an Army National Guard training range and impact area occupying the northern 15,000 acres. Otis Air National Guard Base occupies the southern third of the area.

Progress has been made since 1997, when the EPA first ordered the investigation that led to the cleanup. The Guard took a series of immediate actions to contain pollution, and feasibility studies are ongoing in five major cleanup areas.

But as work has gone on, more and more pollution has turned up, sometimes at very high levels.

Most recently, perchlorate, a pollutant associated with rocket fuel that's suspected of causing thyroid disease, showed up in water supply wells in Bourne, forcing the community to connect to an alternate water supply provided by the military. The supply is permanent but now provides about 3 million gallons a day, a fraction of what will ultimately be needed.

On the camp itself, explosives contaminants have turned up in about 100 monitoring wells, and in 53 of them at levels exceeding EPA's health advisory, EPA data showed. More than 200 monitoring wells have been installed throughout the camp.

In the part of the camp known as demolition area 1, the explosives-related, possibly cancer-causing contaminant RDX has been found in groundwater at concentrations as high as 370 parts per billion, well above the EPA's standard of two parts per billion, data showed.

In the range's southeast corner near the most productive part of the aquifer perchlorate concentrations as high as 311 parts per billion have been found near the base boundary, upgrade from Snake Pond, a swimming pond for a children's camp, data showed. EPA doesn't have a standard established for the contaminant but suggests a range of 4-18 parts per billion for adults.

If people are exposed to contaminants at levels above EPA standards, which generally are based on the risk of long-term health effects after a lifetime of exposure, it doesn't necessarily mean they will get sick, only that they are at increased risk for health problems.

Even so, many who live near the base, which is surrounded by Bourne, Falmouth, Mashpee and Sandwich, have long worried about the potential negative impact on health as well as on water supplies, which are already stressed by dry weather and population growth.

"Everybody drinks bottled water," said Joel Feigenbaum of Sandwich, who has compiled state public health data to track cancer rates on the upper Cape. "Even in areas where it's safe, nobody believes it's safe because there's been so much happening."

Overall, the military has committed \$350 million over 15 years to the cleanup, and EPA believes it will take all of that to get the project done. It is expected to be several years before EPA knows the full extent of damage to the aquifer, after which the military will have to figure out how to provide enough clean water for the neighboring communities.

"We will be looking at long-term solutions," said Ray Fatz, the Army's deputy assistant secretary for the environment.

Meanwhile, national military leaders who have complained about the reservation cleanup order are worried that they will be forced to take similar actions elsewhere.

"The potential for cessation of live-fire training at other ranges is of great concern to us," Mario P. Fiori, assistant Army secretary for installations and environment, complained in testimony to a House subcommittee on military readiness earlier this year.

Defense officials have aggressively sought environmental exemptions from Congress, arguing that soldiers can't properly train if they can't use live fire or are otherwise restricted due to laws protecting air, land, water, wildlife and plants.

In Massachusetts, because soldiers have been limited to plastic, frangible and green ammunition, Army Reserve and Guard troops have had to do some training at Fort Drum in New York, adding 12 hours of travel time to already tight training schedules, Fiori said.

The outlook for the exemptions is unclear.

The House voted to exempt military installations from having to designate habitat areas for endangered species if a separate natural resources management plan is in place, and to excuse forces for accidental kills of migratory birds during operations fewer exemptions than the Pentagon originally sought.

In the Senate, a key committee failed to endorse the changes. However, individual senators could propose such exemptions as amendments to larger bills up for debate in the coming months.

On The Net:

New England EPA: <http://www.epa.gov/region1/>

National Guard: <http://www.ngb.dtic.mil/>



<http://www.sunspot.net/news/health/bal-water04,0,4562084.story?coll=bal-local-headlines>

From Friday's Sun

## Group calling for cleanup of perchlorate in Aberdeen

### 1 well shut after chemical was detected this week

By Lane Harvey Brown  
Sun Staff

October 3, 2002, 10:32 PM EDT

The community watchdog group that monitors environmental cleanup at Aberdeen Proving Ground called on the Defense Department Thursday to authorize an immediate cleanup of chemical contamination found in the town of Aberdeen's wells.

The call was made after tests this week found perchlorate, a chemical used in rocket fuel and explosives, in the town's treated drinking water at a level of 1 part per billion, the state's maximum allowable level.

The test results spurred city officials to shut down one well and halve production at two others.

"The Aberdeen well field is contaminated with perchlorate from military activities, and this contamination must be treated now," the Aberdeen Proving Ground Superfund Citizens Coalition said in a statement.

The Army is in "constant discussions with EPA" about the perchlorate issue, and is very concerned about avoiding public health hazards, John Paul Woodley Jr., assistant deputy undersecretary of Defense for environmental matters, said Thursday. He added that the Environmental Protection Agency has not issued a regulatory standard for perchlorate. "The first question is if the levels that have been found are hazardous to the people who are exposed to it," he said.

EPA spokeswoman Robin Woods said Thursday that it could be five years before a regulatory standard is adopted, but that the agency could alter that schedule.

Steven R. Hirsh, an EPA remedial project manager, said the agency can order a site cleanup without a regulatory standard. Asked whether such a measure is being considered at APG, he said, "Yes, that's a possibility."

Woodley said that if the EPA or the state identified hazards and recommended ways to deal with them, the Department of Defense "would be anxious to avoid a hazardous condition whether there was an order or not."

APG officials acknowledge that the perchlorate is probably the result of training exercises using smoke grenades and explosive devices in the northern corner of the training ground.

Perchlorate was discovered at the installation in March last year, and two still poorly defined "plumes" containing the chemical, ranging from 10 parts per billion to 20 parts per billion, have gravitated to some of Aberdeen's production wells, which are along the post boundary.

Perchlorate interferes with thyroid function and can cause neurological damage to fetuses, newborns and children, experts say. In some cases, prolonged exposure to perchlorate has been linked to thyroid cancer.



Thomas Zoeller, a professor of biology at the University of Massachusetts Amherst, said much remains to be learned about perchlorate. That is why advisory levels such as Maryland's tend to be low, he said.

The city and Army tested the finished water three times this week. One test detected the chemical in the water at 1 part per billion. The two subsequent tests found levels lower than the reporting limit of 1 part per billion.

Randolph C. Robertson, Aberdeen's director of public works, said Thursday he is confident that the city can maintain a safe supply of drinking water by curtailing the flow from the contaminated wells and using more county water.

"The water is safe," he said. "We wouldn't put it out if it weren't."

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