

**Presentation of Col. Daniel Rogers, USAF,
to the National Academy of Science
Committee to Assess the Health Implications of Perchlorate Ingestion**

27 October 2003

On behalf of the Department of Defense, I appreciate the opportunity to address this Committee along with my colleague, Dr. Dave Mattie from Wright-Patterson Air Force Base.

For the past 7 years I've been working directly with the many professionals in this unique partnership including representatives from NASA, the Interagency Perchlorate Steering Committee, EPA, the States of Nevada, California, Texas, Utah, Arizona, among others, and numerous citizen stakeholder groups including the Native American Indian Tribes of the Lower Colorado. The Department has a long history of cooperation with federal, state, and local officials, and we will continue these efforts without reservation.

We are determined to protect human health and the environment as well as the health of our soldiers, sailors and airmen, and their families who live on base and in the surrounding communities. This is just one of the reasons we have invested millions of dollars in research to understand the potential human health effects of perchlorate ingestion, methods for detecting perchlorate in the environment, and technologies for treating it where it is found at levels that may harm human health or the environment. This is not just an abstract science issue to us. It concerns our people, too.

That said, the Committee must understand that perchlorate is a critical defense material. It is an extremely efficient oxidizer. It has precisely the properties needed for vital military and

important civilian uses. Most importantly, it is the safest energetic compound we know of, especially with respect to material handling. For example, perchlorate is used as a stabilizer in munitions and therefore serves to protect the safety of our troops. Perchlorate helps our troops stay safe even when they are otherwise in harm's way.

What does this mean for your review? Frankly, it means there is no room for reliance on science *policy* precaution for its own sake. Every additional layer of science *policy* precaution embedded into this risk assessment comes at the expense of the Department's ability to acquire and test propulsion and weapons systems to ensure that they actually work in accordance with design parameters. Every additional layer of science *policy* precaution inhibits our ability to train realistically and effectively. When we fail to train realistically and effectively, we put our combat forces and, ultimately, our nation at risk.

We support this review because we very much want to get the science right, because only credible science can lead to credible decisions. It is your enormous challenge to accomplish this task, and for that I applaud you. Thousands of men and women in the uniformed services of the United States of America eagerly await the results of your careful and considered and objective deliberations, for what you decide will have a greater impact on their lives than on any others.

Before Dr. Mattie speaks to you in detail about the rich body of toxicological knowledge that has been collected substantially due to our efforts, I want to raise four points we believe the Committee should consider very seriously during its review.

First, we believe it is essential that regulatory standards must be based on the highest quality scientific information available at the time that decisions must be made. This means decision-making should *not* be based on mere precaution when high quality scientific information is available. As I said earlier, excess precaution for its own sake in this case will have serious adverse effects on the fundamental national security mission of the Department. Government agencies have different perspectives about how to balance competing policy values, and these are matters the Administration will have grapple with after the Committee settles the handful of science questions at hand. Your heroic task is to get the science right so that these policy decisions can be made with the best objective, realistic and scientifically balanced information available.

Second, transparency is essential in risk assessment. Transparency requires a clear distinction between science and policy in any document that contains elements of both. It is perfectly reasonable to apply science policy defaults where science is lacking. However, these defaults must be discarded once high-quality science becomes available. The Department's commitment to funding and performing scientific research has been founded on the expectation that this will, in fact, occur. We have become increasingly concerned that science policy defaults are being used to trump science. That would be wrong for managing risk and for assessing risk: it sends the signal that scientific research does not affect public policy. Once policy makers become convinced that this is true, they will lose interest in funding critical scientific research.

Third, we believe that risk assessment must be objective, realistic and scientifically balanced. Our scientists, many of whom performed the research on which EPA has based its most recent draft risk assessment document, have painstakingly reviewed EPA's work and believe that this document is biased, unrealistic, and scientifically imbalanced. In certain cases, we believe that it signals a radical departure from past risk assessment practice. The Committee has been asked to focus on the quality, validity and reliability of the *underlying science*, not just the interpretations of that science contained in EPA's risk assessment document. We believe that after your careful and thorough review of the underlying scientific information, you too will agree with our scientists.

Finally, millions of dollars have been spent thus far on research. The vast bulk of this research has demonstrated that perchlorate does not cause adverse effects at levels typically found in the environment. Now, we understand that scientists instinctively yearn for just one more study, one more test, one more analysis, before they are willing to reach a conclusion. For that reason, we need advice from this Committee concerning what we shall call Objective Closure Criteria. We suggest three questions:

- First, is it reasonable to assume that a risk is present and to mine every data set in order to confirm one's preconceived notions?
- Second, is it reasonable to say that just because very smart people using very sophisticated technology can detect a chemical in the environment or detect the most mundane and inconsequential phenomenon in the human body, that the chemical in question poses a risk to human health?

- Third, how many studies showing no adverse effects does it take to conclude that enough is enough, that we have done enough research and we can be confident that there is no appreciable risk?

This last question asks you for Objective Closure Criteria: When is enough *enough*?

At this time, a national standard for perchlorate does not exist. In January 2002, EPA proposed a draft reference dose that would result in a drinking water level of about 1 part per billion. In December 2002, California proposed a Public Health Goal for perchlorate in drinking water in the range of 2 to 6 parts per billion. Other states, such as Texas and Massachusetts, have either proposed to set drinking water levels or have begun the process of doing so. Our scientists, and impartial experts who have reviewed the same scientific record you are reviewing, conclude that a much higher level of perchlorate in drinking water would still protect human health. Obviously, overly conservative standards will waste taxpayers' money because they will not be accompanied by appreciable reduction in public health benefits. But there are other reasons not to set overly stringent standards. Particularly in the West, there are limited supplies of fresh water, so unnecessarily stringent requirements will needlessly reduce that supply, result in shortages and prevent economic expansion. And, as I mentioned earlier, overly conservative standards compromise our ability to provide for national defense.

Our frustration mounts for other reasons, as well. We are accustomed to negative press accounts based on sloppy reporting that leads the public to think that perchlorate in drinking water has led to all sorts of ailments up to and including thyroid cancer.

Perchlorate does not cause cancer. In one rather startling case, a national newspaper implied that perchlorate caused Graves' Disease. As you know, of course, perchlorate is an effective *treatment* for Graves' Disease.

A few days ago we learned that EPA has written yet another risk assessment for perchlorate and provided it to the Committee under the guise of responding to public comments from the Defense Department and others. Evaluating this new document isn't part of your Charge, and of course we can't respond to it now because we just saw it for the first time. We will provide a response in due course. I can predict today that this new risk assessment will fan the flames of public misunderstanding. I can also predict that it will intensify demands for highly restrictive regulations long before your work here is done. We are very concerned about putting regulatory decision making before science, but that has been the practice with respect to perchlorate since 1992 when EPA issued its first "provisional" Reference Dose.

The Defense Department is ready and willing to provide any information you might need to complete your review. We would especially appreciate the opportunity to return to present our response to EPA's latest risk assessment. with more of the scientists who actually performed the primary research you are about to review. We also appreciate your commitment to a fair and balanced process focusing on the scientific matters in dispute.

With this as a backdrop, I present Dr David Mattie, the Air Force and DoD senior toxicologist who has been working this important issue as a part of our team.