

## **AB 826 Letters and Comments**

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August 31, 2005

Edward Nieto  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, CA 95812-0806  
*sent via email: enieto@dtsc.ca.gov*

Re: Perchlorate BMPs

Dear Mr. Nieto:

Physicians for Social Responsibility-Los Angeles (PSR-LA), an organization of 5,000 health professionals and supporters in Southern California, seeks the swift implementation of stringent Best Management Practices (BMPs) in the management of perchlorate. Please note that our organization has, in addition to this letter, signed a group letter, joining the Natural Resources Defense Council and other organizations, in support of applying hazardous waste requirements to all perchlorate-containing materials.

In addition, we must remind DTSC that the chief source of perchlorate pollution comes from the assembly, maintenance, testing and launching of rockets and missiles – especially the manufacture, mixing and loading of rocket fuel. Numerous California facilities use perchlorate in this fashion. Special effort must be made to contain perchlorate at these sources.

California sites currently conducting rocket launches and testing include:

- Vandenberg AFB (Santa Barbara County)
- Boeing/Rocketdyne - Santa Susana Field Lab (Ventura County)
- Edwards AFB - Air Force Research Laboratory, Propulsion Lab (Kern, Los Angeles and San Bernardino counties)
- Northrop - Capistrano Test Site (Orange County)
- Wyle Labs - San Bernardino and Norco Test Facilities (San Bernardino and Riverside counties)
- Sea Launch, Terminal Island (Los Angeles County)

Another site, the proposed Kelly Space & Technology test site in San Bernardino, may soon begin testing rocket engines.

California sites where perchlorate is mixed in rocket fuel include:

- Aerojet (Sacramento County)
- United Technologies (Santa Clara County)

California sites where perchlorate may be used in ordnance and rockets:

- Marine Corps Air Ground Combat Center, 29 Palms (San Bernardino County)
- Marine Corps Base, Camp Pendleton (San Diego County)
- Naval Air Weapons Station, China Lake (Kern County)
- Naval Air Weapons Station, Point Mugu (Ventura)
- Naval Surface Warfare Center, Corona (Riverside County)
- Naval Surface Warfare Center, Port Hueneme (Ventura County)
- Naval Weapons Station, Seal Beach; and detachments at Fallbrook and Concord (Orange, San Diego and Contra Costa counties)
- Sierra Army Depot (Lassen County)
- Yuma Training Range Complex (Imperial County)

On July 21, 2003, the State of California came to an agreement on perchlorate with the Department of Defense, attached, whereby DOD commits to abide by state environmental law. However, to date, DOD has in-part failed to fulfill its obligations of the MOU. Specifically, the agreement commits DOD to provide information on perchlorate contamination and schedules for testing. Unfortunately, DOD has not disclosed perchlorate pollution from all DOD sites in California. We ask that the BMPs re-affirm the 2003 agreement and compel DOD to document all perchlorate contamination.

PSR-LA believes that California BMPs must apply to all DOD facilities, including ranges. If DOD asserts they are not subject to state regulation, California must pursue every legal channel to compel DOD to obey state law and regulation.

On a related matter, perchlorate is also used in nuclear reactors. Please be certain to create BMPs for nuclear reactors which entail the following facilities in California:

- General Atomics (San Diego County)
- Diablo Canyon Power Plant (San Luis Obispo County)
- San Onofre Nuclear Generating Station (San Diego County)

Thank you for your attention to our request. Please feel free to contact our office for more information.

Sincerely,

Jonathan Parfrey  
 Executive Director  
 Physicians for Social Responsibility-Los Angeles  
 617 South Olive Street, Suite 810  
 Los Angeles, California 90014-1629  
 (213) 689-9170 x107  
 (213) 689-9199 fax  
 parfrey@psr.org  
 www.psr.org



Winston H. Hickox  
Agency Secretary,  
Cal/EPA

State of California  
California Environmental Protection Agency

Gray Davis  
Governor



Air Resources Board | Department of Pesticide Regulation | Department of Toxic Substances Control

Integrated Waste Management Board | Office of Environmental Health Hazard Assessment | State Water Resources Control Board | Regional Water Quality Control Board

July 21, 2003

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

Dear Mr. Woodley:

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

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

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

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

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, please see the Website at [www.flexyourpower.ca.gov](http://www.flexyourpower.ca.gov).

1001 I Street | Sacramento, CA 95814

phone: 916.445.3846 | fax: 916.445.6401

- a. Help set priorities for determining the source and magnitude of perchlorate problems at military and defense facilities.
  - b. Help to communicate and understand California's requirements related to perchlorate and other emergent chemicals.
  - c. Assist in marshalling "assets and resources," including
    - i. The latest research in investigation and remediation of perchlorate;
    - ii. Expedited assessment and implementation of treatment technologies;
    - iii. Collaboration on source identification and interception techniques.
  - d. This working group will not be involved in or attempt to influence the establishment of California's perchlorate public health goal (PHG) or MCL.
3. In response to the regional board letters to the military installations, I understand that DoD intends to:
- a. Work through the proposed federal/state interagency working group to assess the list of bases to which requests were sent in order to help identify activities regarding perchlorate and other emergent contaminants and to prioritize responses.
  - b. Instruct military installations to be forthcoming with available information on perchlorate history and use and to sample for perchlorate at those sites. As you know, we also urge you to test for the other contaminants listed in the regional board letters.
  - c. By September 1, 2003, provide to the pertinent regional board that information regarding perchlorate that is on-hand, and schedules for testing.
4. DoD believes the proposed amendment to the Range Readiness Rule is a codification of current practice and not an exemption from environmental liability. The Rule is not intended to affect DoD's liability for perchlorate contamination, unless that contamination is totally within the boundaries of an active, operational range.

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

Mr. John Paul Woodley, Jr.  
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July 21, 2003

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

Sincerely,

//Original signed by//

Winston H. Hickox  
Agency Secretary

cc: Ms. Kathy Fletcher  
Deputy Secretary for External Affairs  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, California 95814

Mr. Kurt Schuparra  
Deputy Secretary for Policy & Intergovernmental Relations  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, California 95814

Mr. Jim Spagnole  
Assistant Secretary for Military Base Remediation/Reuse  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, California 95814

Mr. Rick Brausch  
Assistant Secretary for Brownfields and Waste Programs  
California Environmental Protection Agency  
1001 "I" Street  
Sacramento, California 95814

Mr. John Paul Woodley, Jr.  
Page 4  
July 21, 2003

cc: Mr. Art Baggett, Chair  
State Water Resources Control Board  
P.O. Box 100  
Sacramento, California 95812-0100

Ms. Celeste Cantú  
Executive Director  
State Water Resources Control Board  
P.O. Box 100  
Sacramento, California 95812-0100

Mr. Ed Lowry, Director  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, California 95812-0806

Ms. Dorothy Rice  
Deputy Director  
Site Mitigation & Brownfields Reuse Program  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, California 95812-0806



DEPARTMENT OF THE NAVY  
COMMANDER NAVY REGION SOUTHWEST  
937 NO. HARBOR DR.  
SAN DIEGO, CALIFORNIA 92132-0058

IN REPLY REFER TO:

5090

Ser N45JRR.rr/0290

August 31, 2005

Peggy Harris, PE  
Chief, Regulatory and Program Development Division  
Hazardous Waste Management Program  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, CA 95812-0806

Dear Ms. Harris:

The Department of Defense Regional Environmental Coordinator (DoD REC 9) Team for Region 9 appreciates very much you taking the time to meet with them on August 25, 2005 to discuss DTSC's efforts in developing regulations for Best Management Practices for perchlorate containing materials. From the DoD REC representatives' perspective this was a very productive meeting with much substantive discussion. This letter serves to memorialize those discussions and identify any follow-up action items for the administrative record in the draft stages of this developing regulation. This letter also attempts to identify supporting documentation that DoD REC representatives discussed and or referenced in this meeting in Attachment One. Our desire is to provide the information you need to demonstrate that existing DoD programs satisfy the intent of Assembly Bill (AB) 826.

As we discussed in developing these perchlorate BMPs, DTSC is charged to do the following:

... before adopting regulations ..., review existing federal, state, and local laws governing the management of perchlorate materials to determine the degree to which uniform and adequate requirements already exist, so as to avoid any unnecessary duplication of, or interference with the application of, those existing requirements. Health and Safety Code (H&SC) 25210.6(2)

I believe we reached agreement that the DoD directives and instructions listed in Attachment One form the basis for DTSC to conclude that DoD has a program that is sufficiently protective of human health and the environment in the following areas:

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packaging, labeling, secondary containment, recordkeeping, and notification. We discussed U.S. EPA's analysis of this same issue when drafting the federal munitions rule (MR). In the context of that initiative, U.S. EPA provided the following in the final MR:

EPA has determined that the military's storage standards and practices for munitions provide a degree of protection that is comparable to, or better than, what RCRA regulation would provide. The storage of military munitions is regulated under standards developed and overseen by the Department of Defense Explosives Safety Board (DDESB), as well as Service-specific standards, which must be at least as stringent as the DDESB standards. As mentioned in the proposal, EPA has reviewed the DDESB standards in detail and concluded that the technical design and operating standards of the DDESB meet or exceed RCRA standards in virtually all-significant respects. 62 FR 6627 February 12, 1997.

U.S. EPA provided the following in the proposed MR:

Finally, EPA's proposal reflects the Agency's preliminary judgment that RCRA regulation of stockpiles of largely military "products" (only a very small portion of the stockpile would be "waste") would not significantly increase protection of human health and the environment. The military's storage standards and practices for munitions generally provide protection that is comparable to or better than RCRA regulation would provide. The storage of military munitions is regulated under standards overseen by the Department of Defense Explosives Safety Board (DDESB), an organization independent of the Services within DOD that was established by Congress and reports to the Secretary of Defense. EPA and one interested party, representing certain members of the waste treatment industry, have reviewed the DDESB standards in detail. Both concluded that the technical design and operating standards of the DDESB meet or exceed RCRA standards in virtually all respects. 60 FR 56473, November 8, 1995.

In trying to define the scope of DoD items that may fall under this regulation, we discussed the scope of the DDESB

standards as applying to all DoD military munitions wherever they are located. Specifically, the DDESB is charged with implementing and monitoring DoD's explosives safety management program which includes policies, procedures, standards, engineering, and resources that addresses potential probabilities and consequences of mishaps involving DoD military munitions to sustain operational capabilities and readiness and to protect people, property, and the environment.<sup>1</sup>

The significance of this is that the DDESB standards are more encompassing than the MR and would apply to perchlorate substances in the Research Development Test and Evaluation scenario as well as more traditional munitions and explosives items. The only difference between handling perchlorate substances in an RDT&E setting and in a traditional munitions setting is that the RDT&E activities start with the raw ingredient, ammonium perchlorate, which has differing regulatory standards based on the particle size. The services have individual instructions, procedures and protocols for safety and health protectiveness in their RDTE work. These procedures will be submitted to DTSC under a separate cover.

We discussed the fact that from DoD's perspective, the Resource Conservation and Recovery Act (RCRA) waiver of sovereign immunity and DTSC's resulting legal authority extends to "control and abatement of solid and hazardous waste." 42 USC 6961(a). At the point in time when a perchlorate containing substance becomes a waste, DTSC is authorized to regulate those items. Further, it is DoD's position that when military munitions are being used for their intended purpose, there is no RCRA regulatory authority. EPA has made this point very clear in the federal munitions rule.<sup>2</sup> We agreed to set those arguments

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<sup>1</sup> DoD Directive 6055.9E Explosives Safety Management and the DoD Explosives Safety Board, Aug. 19, 2005. Page 2.

<sup>2</sup> EPA emphasizes, as it did in the proposed rule, that this provision will not bring use of military munitions for their intended purposes e.g., the firing of military rounds-within the regulatory scope of RCRA. The use of a product for its intended purpose (in this case a military munition), in EPA's view, is not a waste management activity and does not constitute abandonment or disposal for the purposes of § 266.202(b)(1). 62 FR 6626, February 12, 1997.

Section 266.202(b)(2), proposed as § 261.2(g)(1)(ii), specifies that a military munition becomes a solid waste for regulatory purposes when it is removed from storage in a military magazine or other storage area for the purposes of disposal, burning, incineration, or other treatment prior to disposal. Unused military munitions, in EPA's view, are unused "products" comparable to unused commercial products stored by manufacturers or their customers. Under RCRA, *unused* products do not become "waste" until they become "discarded material." EPA believes that an unused product becomes "discarded" when an intent to discard the material is demonstrated. 62 FR 6622 February 12, 1997.

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aside for the purposes of engaging in a cooperative effort, and we appreciate the ability to demonstrate existing DoD regulations satisfy the intent of AB 826.

As to regulatory authority on a military range, it is DoD's position that to the extent there is a "release" that poses an "imminent and substantial endangerment of human health and the environment," DoD does have the legal responsibility and the programs in place to address the release. We outlined DoD's operational range sustainability directives and orders, identified in Attachment One, which directs the military services to establish operational range assessment programs. The Office of Secretary of Defense representatives in 2004, briefed the California perchlorate-working group on this program. Further, DoD has recently staffed The Operational Range Assessment Directive with the Environmental Council of States (ECOS) and we understand that California is fully engaged and has submitted comments. As to DTSC's last category for BMPs, "Disposal/Discharge Requirement," we intend to demonstrate that DoD has existing comprehensive programs that satisfy AB 826.

DTSC staff raised questions with respect to the extent to which any perchlorate residues remain after a munition item is expended. China Lake's technical personnel have done leading research on this subject and have documented the fact that very little if any perchlorate remains after a military munition item is expended. A copy of the technical paper titled "Emissions from the Energetic Component of Energetic Wastes During Treatment by Open Detonation" which includes a section on the detonation process is listed in Attachment One and will be provided under separate cover. As to items that may not have been expended on range in a manner that was intended, we discussed the myriad of operational range clearance directives, identified in specificity in Attachment One that ensures these items do not remain on the range and cause a release.

In closing, DoD provided background information on the forward leaning efforts we are taking in a cooperative effort with CALEPA/DTSC and the Water Boards to address perchlorate contamination aboard our active sites and Formerly Used Defense (FUDs) sites. Setting aside the issue of jurisdiction, we believe that DoD's existing programs governing the use of

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munitions more than adequately meets the intent of AB 826. Again, thank you for your time on this matter. We look forward to additional dialogue as DTSC continues through the rulemaking process. My point of contact for this issue is Mr. Rick Raines at (619) 524-6504.

Sincerely,

//Original signed by//

A. J. GONZALES  
Captain, U. S. Navy  
Program Director Environment

Attachment: 1. DoD Munitions Documents List

## **List of DoD Range/Munition Documents**

The Department of Defense's Explosive Safety Board website contains the documents:

DoD Directive 6055.9E - August 19, 2005;

DoD 6055.9 DoD Ammunition and Explosives Safety Standards" - Oct 5, 2004 ;

DoD Contractors' Safety Manual for Ammunition and Explosives" dated September 1997

DoD Directive 3200.15 "Sustainment of Ranges and Operating Areas" dated January 10, 2003

DoD Instruction "Operational Range Assessments - Draft" Dated November 16, 2004

OSD Transmittal Letter dated December 22, 2004

Memorandum for Secretaries of the Military Departments: Guidance for Fiscal Years 2006-2001 Sustainable Ranges Programs dated June 26, 2003

The Military Munitions Rule: Hazardous Waste Identification and Management Dated Feb 12, 1997

The DDESB's website is located at  
<http://www.ddesb.pentagon.mil/documents.html>

The Military Munitions Rule is located  
at:<https://www.denix.osd.mil/denix/Public/Policy/Range/mrule.html>

NAVSEA OP5; Ammunition and Explosives Ashore Safety Regulations for Handling, Storage, Production, Renovation, & Shipping

NAVSEA SW020-AF-ABK-010; Motor Vehicle Driver and Shipping Inspector's Manual for Ammunition, Explosives and Related Hazardous Materials

Navy Regional Explosive Hazardous Waste Management Plan is available  
at: <http://www.cnrsw.navy.mil/Environmental/CNRSW%20REHWMP%20-%2009%20APR%2004.doc>

8020.14C 04-03-22 Shore Station Explosives Safety Inspection Program

8020.15 04-03-08 Military Munitions Response Program Oversight

8020.18 CH-1 04-06-21 Transportation Accident/Incident Report  
Procedures Involving Ammunition and Explosives

8023.11A 04-08-20 Standard Operating Procedures Development,  
Implementation, and Maintenance for Ammunition and Explosives

8023.12 05-04-28 Conventional Ordnance Safety Review (COSR)

<https://intranet.nossa.navsea.navy.mil/open/instructions.asp>



CENTER FOR PUBLIC ENVIRONMENTAL OVERSIGHT  
c/o PSC, 278-A Hope Street, Mountain View, CA 94041

Voice: 650-961-8918 or 650-969-1545 Fax: 650-961-8918 <[lsiegel@cpeo.org](mailto:lsiegel@cpeo.org)>

<http://www.cpeo.org>

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August 31, 2005

Edward Nieto  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, CA 95812-0806

Dear Sir:

I appreciate the opportunity to comment on DTSC's efforts to establish Best Management Practices for perchlorate. We have a great opportunity to protect public health through sensible management of this widespread pollutant. I urge the state to move quickly to implement both the letter and spirit of the Perchlorate Contamination Prevention Act.

I don't have full command of the legal issues that surround the legislation, so my comments are practical in nature.

1. I don't believe food products—milk, lettuce, etc.—that contain perchlorate as the result of releases into soil or water should be subject to these regulations. The problem should be solved upstream.
2. Industrial products, feedstocks, and byproducts, including perchloric acid, should already be regulated. If not, they should be covered.
3. If legally possible, agricultural chemicals such as nitrate fertilizer and sodium chlorate herbicide, which sometimes contain small fractions of perchlorate, should be regulated. Any such compound known to be likely to contain perchlorate should be tested, and the state should look into banning their use if they contain perchlorate above a health-based threshold concentration of perchlorate.
4. Obviously propellants, explosives, and pyrotechnics should be included. This includes rocket motors, munitions, fireworks, and flares.

There should be a strong emphasis on collecting uncombusted materials such as rocket motors that fall back to land without fully burning their fuel, manufacturing wastes, fireworks duds, and partially burned road flares.

Furthermore, since the combustion of solid rocket fuel (and probably other perchlorate compounds) generates hydrogen chloride air pollution, both open burning and the various forms of incineration should not be permitted as disposal or treatment

methods. Instead, neutralization techniques, such as those developed by the Army Missile Command, should be required.

For products, such as road flares, for which there are substitutes that do not contain perchlorate, the state should encourage pollution prevention through substitution. For example, the California Highway Patrol should look into other types of road flares.

Sincerely,

(submitted electronically)

Lenny Siegel  
Executive Director



WESTON BENSHOOF  
ROCHFORT RUBALCAVA MACCUISH LLP  
ATTORNEYS AT LAW

(213) 576-1105  
srubalcava@wbcounsel.com

August 31, 2005

**VIA E-MAIL AND U.S. MAIL**  
**enieto@dtsc.ca.gov**

Department of Toxic Substances Control  
Attn: Ed Nieto – Perchlorate Workshop Comments  
P.O. Box 806  
Sacramento, California 95812-0806

Re: Perchlorate Best Management Practices

Dear Mr. Nieto:

These comments are submitted on behalf of the Motion Picture Association of America<sup>1</sup> (the “MPAA”), a trade association representing the major producers and distributors of filmed entertainment. We are writing this letter to discuss the proposed rulemaking to establish best management practices (“BMPs”) for perchlorate-containing materials. Our comments are directed at the use of perchlorate-containing pyrotechnic special effects devices used by theatrical and television motion picture companies (hereafter “motion picture companies”).

We believe that the relatively small amount of perchlorate used by our member companies puts us in a category similar to other consumers of manufactured products containing perchlorate, and that no new BMPs should be imposed on our use of perchlorate-containing pyrotechnic special effects. Our member companies’ usage of such products is already regulated in many respects, and we believe that additional regulation is neither necessary nor likely to result in greater protection of water resources.

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<sup>1</sup> The Motion Picture Association of America, Inc. includes: The Walt Disney Company; Metro-Goldwyn-Mayer Studios Inc.; Universal City Studios LLLP; Paramount Pictures Corporation; Sony Pictures Entertainment, Inc.; Twentieth Century Fox Film Corporation; Warner Bros. Entertainment Inc.

The MPAA's member companies use pyrotechnic special effects that may contain small amounts of perchlorate for some motion picture and television productions. These pyrotechnic effects devices include flash powder, A-5 matches for powder lifters, and spark producing squibs to name a few applications. The concentration of perchlorate varies depending upon the type of device used, but the total amount used by the industry for all such special effects is relatively insignificant and certainly substantially less than is present in other widely used consumer products such as flares and fireworks. Moreover, pyrotechnic special effects are designed to explode and, when they explode, the perchlorate is designed to be fully consumed.

Even though the amount of perchlorate used by the industry is relatively small, because of the potential safety hazards involved, the handling, use and disposal of pyrotechnic special effects devices is regulated in a number of ways. For example, Special Effects Pyrotechnic Operators are required to be licensed and are responsible for the transportation, packing, storing, discharging, disposing of, and otherwise handling of pyrotechnic devices or materials in a safe manner. See 19 California Code of Regulations ("CCR") sec. 992.6 and 27 Code of Federal Regulations ("CFR") sec. 555 et seq.. In most cases, the regulations for special effects were adopted for safety reasons, but they also protect the environment by establishing standards that prevent releases to the environment. Examples are provided below based on the categories identified at the workshop on August 19, 2005.

Packaging. The majority of pyrotechnic devices used by the motion picture companies are manufactured by two companies located in California. Pursuant to 19 CCR sec. 992.15, "[a]ll Special Effects Materials shall be packaged in accordance with Department of Transportation standards as contained in Title 49 of the Code of Federal Regulations, parts 172, 173 and 177, and shall remain in the prescribed containers until used or placed in a magazine." We are informed that such packaging requirements require, among other things, that the packaging must be weather resistant, durable, and not subject to crushing. While these regulations may not have been developed with the protection of water quality in mind, the packaging restrictions were designed to prevent spills and assure that such materials are transported safely. This seems to be entirely consistent with the approach to packaging BMPs (durable, water-resistant packaging) discussed at the August 19, 2005 workshop. We believe the existing regulations should be considered as adequate BMPs for the packaging of pyrotechnic special effects and that no additional packaging BMPs should be required.

Labeling. Our members are not manufacturers of special effects, and we believe that labeling requirements, if any, should apply only to the manufacturer. Manufacturers are subject to the strict labeling requirements found in Title 27, Part 555 of the Code of Federal Regulations.

Containment. State regulations also require that if a company stores special effects on site they must be stored in a magazine. See 19 CCR 992.9. Among other things, magazines are required to be waterproof. 27 CFR secs. 555.63 and 555.203 et seq. Again, while these regulations may have been developed as a safety measure, the storage of special effects in a waterproof magazine is a BMP that will protect water quality. We do not believe additional BMPs for pyrotechnic special effects are needed.

Recordkeeping. Existing federal regulations already require manufacturers, licensees, dealers and permittees to maintain records and, therefore, imposing further obligations on consumers, including the motion picture companies, is not warranted. See 27 CFR, Subparts D and G. Recordkeeping by end users should be required only if it can be shown that records are necessary to protect the environment. We suggest that packaging and labeling requirements provide an adequate level of protection to the environment.

Reporting. No reporting should be required on the end users of perchlorate, like the motion picture companies, because existing recordkeeping and reporting requirements are sufficient. See 27 CFR Subpart G. Further, there are many types of regulations adopted for the protection of the environment where plans must be prepared and records kept, but submittal of such plans and reporting of the data collected is not required. Examples include hazardous materials business plans, air quality permit recordkeeping requirements, and stormwater management plans. In such instances, the plans and records must be made available for inspection and the environment is protected without the need for reporting. We suggest that to the extent records must be kept, no reporting requirement is necessary.

Notification. Our members are not manufacturers of special effects, and we believe that notification requirements, if any, should apply only to the manufacturer. Also, since the amount of perchlorate used by our individual member companies is quite small, we do not believe that any type of notification should be required for this industry. We therefore suggest a de minimus level below which an end user is exempt from any notification.

Ed Nieto  
August 31, 2005  
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Disposal/Discharge Requirements. Pyrotechnic special effects are designed to explode and, when they explode, the perchlorate is designed to be consumed. On some occasions, a device will misfire and not explode. In these cases, federal hazardous waste regulations require that the device be disposed of as a hazardous waste if it retains its hazardous properties. We believe use of this well known and well understood procedure for dealing with hazardous waste is preferable than the development of a new regulatory scheme for perchlorate, which will only add a new level of complexity to hazardous waste regulation.

We appreciate the opportunity to provide these comments in this early stage of the regulatory process. We urge you to adopt regulations that are tiered based upon the level of risk posed by the perchlorate-containing materials and to review and consider the effect of existing regulations to the greatest extent possible before determining whether additional regulations are necessary. The motion picture companies already are adequately regulated with regard to the small quantities of perchlorate that they use. As consumers of perchlorate, additional BMPs are not feasible or practical, nor are they likely to serve the underlying purpose of AB 826.

Very truly yours,

//Original signed by//

/s/ Sharon Rubalcava  
WESTON BENSHOOF  
ROCHFORD RUBALCAVA & MacCUIISH LLP

SFR/dtc

**NATURAL RESOURCES DEFENSE COUNCIL,  
CLEAN WATER ACTION  
ENVIRONMENT CALIFORNIA  
ENVIRONMENTAL WORKING GROUP  
PHYSICIANS FOR SOCIAL RESPONSIBILITY - LA  
SIERRA CLUB CALIFORNIA**

August 31, 2005

Mr. Edward Nieto  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, CA 95812-0806  
[enieto@dtsc.ca.gov](mailto:enieto@dtsc.ca.gov)

Dear Mr. Nieto:

We are writing on behalf of a coalition of environmental and health organizations (Natural Resources Defense Council, Clean Water Action, Environment California, Environmental Working Group, Physicians for Social Responsibility – LA, and Sierra Club California) in support of stringent Best Management Practices (BMPs) for management of perchlorate and perchlorate-containing materials. In particular, we support either (a) applying hazardous waste requirements to all perchlorate-containing materials, or (b) adopting new regulations for all perchlorate materials that would be tailored to perchlorate risks. We do not support simply applying hazardous materials requirements to perchlorate, as these are designed to protect against physical hazards (reactivity/explosivity) and not against health hazards. We also do not support limiting new regulations to a subset of perchlorate-containing materials, such as proposals to exempt materials with unintentionally-added perchlorate, low concentrations of perchlorate, or consumer products.

Ammonium perchlorate ( $\text{NH}_4\text{ClO}_4$ ), is used as an oxidizer in rocket propellants. Sodium perchlorate ( $\text{NaClO}_4$ ) is used in explosives, and potassium perchlorate ( $\text{KClO}_4$ ) is used in road flares and air bags. Perchlorate salts are also used in nuclear reactors and electronic tubes, in lubricating oils, leather tanning, fabrics, electroplating, aluminum refining, rubber manufacture, and the production of paints<sup>1</sup>. As a consequence of widespread use and water solubility, huge amounts of perchlorate have leached into surface and groundwater used as drinking water sources. Perchlorate is highly mobile in water and can persist for decades under typical ground and surface water conditions<sup>2</sup>. Perchlorate has been detected in over 350 drinking water systems in California, serving more than seven million people. Perchlorate can also be taken up into food crops, resulting in

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<sup>1</sup> U.S. EPA Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization Based on Emerging Information (External Review Draft). Office of Research and Development, Washington, D.C. NCEA-1-0503, 1998.

<sup>2</sup> Ibid

additional pathways for human exposure. Finally, dairy products have also been reported to be contaminated with perchlorate.

Perchlorate inhibits iodide transport into the thyroid by interfering with the sodium-iodide symporter (NIS). As a result, the effect of perchlorate exposure is similar to that of iodine deficiency. Perchlorate induces a dose-dependent reduction in iodide uptake into the thyroid which can result in decreased production of thyroxine (T4). Even mild thyroid hormone suppression during pregnancy has been shown to impair neuropsychological development and to reduce IQ in the child.<sup>3</sup> Individuals with mild hypothyroidism, iodine deficiency, or exposures to other goitrogens, are especially susceptible to adverse effects from perchlorate. Many Californians are already exposed to perchlorate in water and food at or near levels determined to be of potential concern by Cal/EPA (ie. above the OEHHA PHG of 6 ppb). Therefore, there are strong public health reasons to control this hazardous pollutant extremely stringently in order to prevent additional human exposures.

AB 826 (Jackson) stated the clear legislative intent of “preventing contamination from management of perchlorate material and from generation, storage, treatment, and disposal of perchlorate or perchlorate-containing waste relative to emissions into the air and subsequent deposition and runoff into surface water or groundwater, and direct or indirect discharge to surface soils, subsurface soils, surface water, or groundwater of the State of California.” [Ch.608, §2(b), September 29, 2003] It is therefore clear that the legislative charge to DTSC in developing BMPs is quite broad, and requires that any exemptions from the most stringent option be clearly justified by showing that such exemptions will not result in environmental contamination or emissions into air, soil, or water.

The legislation goes on to define perchlorate as “all perchlorate-containing compounds” [§25210.5(b)], and perchlorate material as “perchlorate and all perchlorate-containing substances, including, but not limited to, waste perchlorate and perchlorate-containing waste.” [§25210.5(c)] The legislation does not provide a rationale for separating out substances with intentionally added perchlorate from those with unintentional perchlorate. The legislation also does not articulate any intention that there be exemptions for consumer products. In fact, the only rationale envisioned by the California legislature for narrowing the scope of the BMPs is related to the desire to avoid “unnecessary duplication of, or interference with the application of, ...existing requirements.” [§25210.6(b)(2)]

The materials prepared by DTSC for the August 19<sup>th</sup> workshop on perchlorate contained the question: “What Products, Materials, and Wastes Should be Subject to the Proposed Perchlorate Best Management Practices?” [Appendix B, p. 13] The flow chart presented in this appendix began with the basic language of AB 826. The second box in this chart refers to the possible exemption of “materials and wastes already adequately regulated”. We support this category in general, but will look to DTSC to show that existing regulations are adequate to prevent additional contamination of the environment by

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<sup>3</sup> Glorieux J, Desjardins M, Letarte J, Morissette J, Dussault JH. Useful parameters to predict the eventual mental outcome of hypothyroid children. *Pediatr Res* 24:6-8, 1988.

perchlorate from these sources. Beyond the second box in the flow chart, however, we have very serious concerns about proposed exemptions. For example, the proposal to exempt materials and wastes with low concentrations of perchlorate, materials or wastes with unintentionally added perchlorate, or perchlorate-containing consumer products, will not protect the environment or human health, especially if these materials or wastes are widespread. For example, perchlorate-contaminated fertilizer should certainly not be exempted, especially since fertilizer is intended for application to soil and food crops, and is known to run off into water. Similarly, road flares or fireworks sold to consumers may not contain much perchlorate on a per-item basis, but collectively are capable of contaminating huge areas of soil and water. Therefore we urge DTSC to exempt only perchlorate-containing materials and wastes that are already adequately regulated, and promulgate BMPs to cover all others, including those with low concentrations, unintentional perchlorate, or in products sold to consumers or household waste.

We are particularly concerned about any proposals to exempt fireworks and road flares from the most stringent possible regulations. A hydrogeologist from the Santa Clara Valley Water District concluded that “One unused road flare on the side of a highway is enough to contaminate more than 300,000 gallons of water with perchlorate to a level above 6 parts per billion, the public health goal in California.” [Mr. Tom Mohr as quoted in the Gilroy Dispatch, 2/24/05]. The Massachusetts Department of Environmental Protection recently did an analysis of sources of perchlorate that contained useful information about fireworks. The report concluded that “the average perchlorate content in all fireworks is assumed to be 40%, which is combusted...On the basis of this analysis, even with 99.9% destruction of perchlorates, tens of  $\mu\text{g/L}$  of perchlorate could be expected immediately (100 meters) downgradient of the fallout area, with trace amounts (1  $\mu\text{g/L}$  +/-) further downgradient. Higher concentrations could be expected with larger displays, use of pyrotechnics with higher amounts of perchlorates, less complete combustion, improper disposal of duds and misfires, excessive debris fallout and/or lack of post-display cleanup.” [<http://www.mass.gov/dep/files/clo4/perchlorate-sources-0805.pdf>, p. 21]. This information indicates that fireworks and road flares should be especially high priorities for regulation, as these are not currently effectively regulated and are widespread and likely significant sources of perchlorate.

We support the general range of BMP options described during the August 19<sup>th</sup> workshop and in the accompanying materials. It seems apparent, however, that applying only a subset of these BMP options will be unlikely to fully address the problem. In fact, DTSC will likely need to adopt all of these approaches in order to prevent further perchlorate contamination in California. For example, water-resistant packaging of perchlorate-containing materials should be combined with secondary containment where those materials are transported, stored or used. Recordkeeping and notification are also essential in order to allow DTSC to track the locations, quantities, and patterns of perchlorate use, and to make that information available to those who need to know, such as local Water Boards, health departments, and communities. It is obvious that there need to be serious restrictions on disposal and discharge of perchlorate, as that is the intent of AB 826, and the lack of such restrictions is the reason for our current perchlorate contamination crisis. Finally, labeling of perchlorate materials and wastes is essential to

inform workers, purchasers, and consumers of both the health and environmental risks of the perchlorate contained in the materials, and of the need for special handling and disposal of the materials. Therefore, in our opinion, DTSC should pursue all six of the BMP categories listed as options during the August 19<sup>th</sup> workshop.

In addition to the BMP categories proposed at the workshop, we would like to strongly urge DTSC to consider a range of other regulatory options. For example, where there are clear alternatives to perchlorate containing materials (eg. fertilizer), DTSC should promptly ban the contaminated products in California. DTSC should also consider banning certain practices, such as the open burning of spent fuel or other perchlorate containing products. DTSC could also take a leadership role in pollution prevention by encouraging substitution of non-perchlorate containing products (such as road flares) for the perchlorate containing versions. Substitution could be encouraged via a combination of research, education, incentives, and a gradual phase-out of the perchlorate containing product, or by increasingly stringent regulations that are phased-in over time.

We look forward to continuing to work with you as the process of developing these important BMPs continues over the coming months. Please keep us apprised of further developments.

Sincerely,

//Original signed by//

Gina M. Solomon, M.D., M.P.H.  
Senior Scientist  
Natural Resources Defense Council  
415-875-6100; [gsolomon@nrdc.org](mailto:gsolomon@nrdc.org)

Andria Ventura  
Environmental Health Organizer  
Clean Water Action  
415-369-9160; [aventura@cleanwater.org](mailto:aventura@cleanwater.org)

Sujatha Jahagirdar  
Clean Air-Clean Water Advocate  
Environment California  
213-251-3688 ext. 321; [sujatha@environmentcalifornia.org](mailto:sujatha@environmentcalifornia.org)

Renee Sharp  
Senior Analyst  
Environmental Working Group  
510-444-0973; [renee@ewg.org](mailto:renee@ewg.org)

Jonathan Parfrey  
Executive Director  
Physicians for Social Responsibility – LA  
213-689-9170; [parfrey@psr.org](mailto:parfrey@psr.org)

Bill Magavern  
Senior Legislative Representative  
Sierra Club California  
916-557-1100; [magavern@sierraclub-sac.org](mailto:magavern@sierraclub-sac.org)

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**Clean Water Action** is a national citizens' organization working for clean, safe and affordable water, prevention of health-threatening pollution, creation of environmentally-safe jobs and businesses, and empowerment of people to make democracy work

**Environment California** focuses exclusively on protecting California's air, water and open spaces by speaking out and take action at the local, state and national levels to improve the quality of our environment and our lives.

**Environmental Working Group** consists of scientists, engineers, policy experts, lawyers and computer programmers who use government data, legal documents, scientific studies and their own laboratory tests to expose threats to health and the environment, and to find solutions.

**Natural Resources Defense Council (NRDC)** is a national, nonprofit environmental organization with over 1.2 million members and online activists, more than 250,000 of whom reside in California.

**Physicians for Social Responsibility – LA** was founded in 1980 as a local affiliate of the national organization, Physicians for Social Responsibility (PSR) and focuses on working for peace, health and the environment.

**Sierra Club California** promotes the preservation, restoration, and enjoyment of California's environment by enabling members to speak with one voice in California's State Capitol.



## **SPECIAL DEVICES, INCORPORATED**

August 31, 2005

Ed Nieto  
Department of Toxic Substances Control  
P. O. Box 806  
Sacramento, California 95812-0806

***Sent by E-Mail***

**RE: Perchlorate Workshop Comments**

Dear Mr. Nieto:

Special Devices, Incorporated ("SDI") designs and manufactures pyrotechnic devices and ordnance, including air bag initiators which are sold to air bag inflator module manufacturers both within the United States and internationally. The majority of air bag initiators, related pyrotechnic vehicle occupant safety system components, and other products use explosive mixtures which contain potassium perchlorate as the oxidizer. Most of the explosives used are proprietary mixtures blended onsite using raw materials including potassium perchlorate.

SDI recently became aware of Assembly Bill 826 ("AB 826") and DTSC's efforts to promulgate regulations to implement AB 826. SDI is offering the enclosed comments for your consideration during the rule-making process (see Attachments 1 and 2).

Of particular interest, we note that (from the Introduction section of Appendix A - Perchlorate Best Management Practices on Page 5 of 14 of the Public Workshop for Draft Regulations document on DTSC's website):

- \* the primary goal of the Act is to reduce (or eliminate) the release of perchlorate into the environment;
- \* this reduction shall be accomplished by the adoption of regulations, by DTSC requiring compliance with best management practices for perchlorate materials (e.g., packaging, labeling, secondary containment, recordkeeping/reporting, notification, disposal/discharge, etc.); and
- \* these best management practices shall apply to all management activities and shall apply to all perchlorate containing materials.

Also of interest, we note that (from the Options for Perchlorate Best Management Practices (BMPs) section of Appendix A on Page 11 of 14):

- \* The overall goal of the proposed perchlorate BMPs is to prevent future contamination of surface and ground waters.
- \* Based on perchlorate's stability and solubility, it is assumed that any release of a perchlorate compound to the environment poses a significant opportunity for surface

or ground water contamination proportionate to the quantity of perchlorate released. These BMPs, therefore, would act to protect surface ground and ground water resources by preventing release of perchlorate materials to the environment and by identifying potential sources of future contamination by providing a record of the movement of perchlorate containing materials, products, and wastes.

One of our primary concerns is the assumption that all perchlorate containing materials have the potential to release perchlorate to the environment. In the case of air bag initiators, the perchlorate-containing explosive material is hermetically sealed (i.e., air tight) inside a metal housing. While inside the sealed initiator, there is no potential for the perchlorate to enter the environment and because there is no potential for the perchlorate to enter the environment, there is no need for BMPs.

For illustration, the life cycle of an air bag initiator is generally as follows:

1. The sealed initiators, containing explosive materials, are packaged and transported to customers (air bag inflator module manufacturers) according to rigorous Department of Transportation requirements. There is no reasonable potential for a release of perchlorate from the initiators during these activities.
2. The air bag inflator module manufactures insert the initiator into an air bag inflator module that is packaged and transported to customers according to rigorous Department of Transportation requirements. There is no reasonable potential for a release of perchlorate from the initiators during these activities.
3. The automobile manufacturers, automotive repair shops or other authorized installers of air bag inflator modules install the air bag inflator modules inside vehicles. Assuming the air bag is not deployed, the air bag inflator module, including the initiator, remains in its original condition until the end of the life of the vehicle. The majority of air bag initiators are never deployed during their service life. There is no reasonable potential for a release of perchlorate from the initiators during this activity.
4. At the end of the life of the vehicle, the air bag inflator module, including the initiator, is removed and reused or becomes a hazardous waste subject to the hazardous waste management requirements. In the Land Disposal Restrictions (22 CCR 66268 / 40 CFR 268), waste explosives cannot be placed in a landfill and must be treated by deactivation which typically involves thermal treatment (e.g., combusting the explosive which also destroys the perchlorate oxidizer). At this time, the responsibility to "prevent the release of perchlorate to the environment" must be placed on the person removing, reusing, treating or disposing of the initiator because they are the generator of the waste.
5. If the air bag module is deployed (e.g., the vehicle is involved in an accident), the explosive in the initiator, including the perchlorate oxidizer, is combusted. Computer modeling of the combustion process indicates that perchlorate is not present in the combustion products. Similarly, internal studies indicate that more than 99.99% of the

perchlorate in the initiator is combusted during the "burning" of the explosive. As in Item 4, the person removing the deployed air bag inflator module (e.g., an auto repair shop) is the generator of the waste initiator.

After the perchlorate-containing explosive material is inside a "sealed unit" (e.g., air bag initiator), there is no reasonable potential for the perchlorate to be released to the environment.

Further, with regard to air bag initiators, we doubt that DTSC would intend for the suggested BMPs to apply to essentially every vehicle owner/operator in the state (i.e., a person who is using a perchlorate material) nor intend for the location where vehicles are parked to be a "perchlorate facility". Similarly, we assume that DTSC would not want to track/monitor the location of every vehicle; record every deployment of an air bag module as a potential perchlorate release site; or regulate every car dealer, auto repair shop, or other location where air bag initiators are present as a perchlorate facility.

Although the above analysis is based on air bag initiators, the same rationale applies to other sealed, perchlorate-containing pyrotechnic devices (initiators) used in vehicle occupant safety systems including seat belt pretensioners, side-curtain restraint systems, and collapsible steering wheel columns. In each case, the sealed explosive containing device does not have a reasonable potential to release perchlorate to the environment.

As such, SDI believes that there is sufficient technical basis to conclude that perchlorate-containing materials inside sealed air bag initiators, other vehicle occupant safety system devices, and similar pyrotechnic devices do not present a reasonable risk of a perchlorate release to the environment and should be exempt from all perchlorate material related BMPs.

If you have any questions or require additional information, please call me at (805) 553-1295.

Respectfully submitted,  
Special Devices, Incorporated

//Original signed by//

William H. Welsh, R.E.A.  
Director of Environmental Affairs

## **ATTACHMENT 1 COMMENTS ON PERCHLORATE BMP APPLICABILITY**

Special Devices, Incorporated ("SDI") manufactures air bag initiators, other explosive-containing vehicle occupant safety system components (e.g., seat belt pretensioners), and similar sealed explosive-containing devices. When the explosives, including perchlorate-containing explosives, are in sealed units of the type described, there is no reasonable potential for a release of perchlorate to the environment. In this context, SDI is providing the following comments.

### **1.1 Perchlorate Materials that are Adequately Regulated**

Explosives, including perchlorate-containing explosives, used in air bag initiators and other sealed vehicle occupant safety system components are already heavily regulated including, but not limited to, the following:

- a. The Federal Bureau of Alcohol, Tobacco, Firearms and Explosives (BATFE) regulates the import, manufacture, and sale of explosives, including perchlorate-containing explosives. Requirements include, but are not limited to:
  - \* Inventories and accountability for explosives obtained from offsite, blended onsite, in magazine storage, used in process, shipped to customers, etc.
  - \* Reporting of loss or theft of explosives.
- b. The Federal Department of Transportation (DOT) regulates the transportation of explosives, including perchlorate-containing explosives, and has rigorous packaging, testing, labeling, marking, classification, and emergency response procedures. DOT also requires appropriate security measures both onsite and during transport.
- c. California OSHA (and Federal OSHA) have Process Safety Management (PSM) requirements for all explosive operations (8 CCR 5189 / 29 CFR 1910.119). There are 14 elements to PSM including activities such as evaluating processes for potential failure points (i.e., Process Hazards Analysis); methods to evaluate and track process changes (i.e., Management of Change); and training of all employees on the hazards of materials (i.e., Process Safety Information, Contractor Safety, Hazard Communications, etc.). CalOSHA also requires emergency response procedures to respond to material releases.
- d. Explosive material containing wastes, including those that contain perchlorate, are regulated as hazardous wastes. Similarly, waste potassium perchlorate is a hazardous waste. As DTSC is aware, the hazardous waste management requirements are comprehensive including packaging, labeling, marking, weekly inspections, employee training, and contingency planning in the event of release.
- f. Article 77 of the Uniform Fire Code specifically pertains to explosives, including perchlorate containing explosives, and explosive wastes and the SDI Facility is

**ATTACHMENT 1**  
**COMMENTS ON PERCHLORATE BMP APPLICABILITY**  
**(Continued)**

required to obtain and operate under an explosives permit from the fire department. Operating and magazine storage requirements include steps to prevent explosives from contact with storm water. [Articles 79 and 80 of the Uniform Fire Code also regulate perchlorate materials and permits are required for "flammable" and "hazardous" materials.]

- g. Many industrial facilities (including SDI) operate under a storm water permit and are required to prepare and implement a Storm Water Pollution Prevention Plan / Storm Water Monitoring Program that includes Best Management Practices to help prevent contamination of storm water.
- h. Many industrial facilities (including SDI) have hazardous materials and/or hazardous waste above the thresholds requiring the preparation of a Hazardous Materials Business Plan (HMBP). Even if perchlorate materials are not present in quantities above existing thresholds, the training, emergency procedures, and related systems required by the HMBP could be used.

As such, SDI believes that perchlorate-containing explosives, and facilities that use them to manufacture air bag initiators and similar vehicle occupant safety system devices, are adequately regulated and that new regulations, including BMPs, promulgated pursuant to AB 826 do not need to apply to perchlorate-containing explosives in general nor specifically to perchlorate-containing explosives contained in sealed units such as air bag initiators and other sealed vehicle occupant safety system components.

### **1.2 Materials with Low Perchlorate Concentration**

Although large quantities of a material having a low perchlorate concentration could still present a potential adverse impact to surface or ground water, it is reasonable to consider exempting "de minimis" concentrations in certain cases. It may also be reasonable to have multiple thresholds dependant on quantity and/or use of a material. However, if specific BMPs / exemptions are planned based on concentration, then they should apply to both "intentionally added" and "unintentionally added" perchlorate materials if all other things (e.g., quantities, concentrations, locations, etc.) are the same.

### **1.3 Materials Containing Small Quantities of Perchlorate**

Although a large number of items each containing a small quantity of perchlorate could still present a potential concern to surface or ground water if all of the items were to release their perchlorate (although possibly influenced by release rate and migration potential), its is reasonable to consider exempting de minimis quantities in certain cases.

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COMMENTS ON PERCHLORATE BMP APPLICABILITY  
(Continued)**

For example, a typical air bag initiator contains approximately 0.0002 to 0.0003 pounds of perchlorate and, as described, there is no reasonable potential for an air bag initiator or similar vehicle occupant safety system device to release perchlorate to the environment during normal use. Similarly, if the initiator deploys (i.e., is ignited), over 99.99% of the perchlorate is destroyed during combustion.

In addition, if the regulations / BMPs were applicable to facilities that manufacturers / managed perchlorate-containing air bag initiators or other similar vehicle occupant safety system components, then every vehicle owner would be using perchlorate materials; every place where a vehicle is parked would be a perchlorate facility; and every car dealer and auto repair shop would be using/storing perchlorate materials and be a perchlorate facility (as defined in Article 12.5 of Chapter 6.5 of Division 20 of the Health and Safety Code). This would be extremely costly to business, burdensome for DTSC to implement and monitor, and have essentially no benefit to reducing or eliminating the release of perchlorate into the environment.

<b>Submitted by:</b>	Bill Welsh
<b>Name &amp;</b>	Special Devices, Incorporated
<b>Contact Information</b>	14370 White Sage Road Moorpark, CA 93021 Phone (805) 553-1295 Fax (805) 553-1254 E-Mail <a href="mailto:bill.welsh@specialdevices.com">bill.welsh@specialdevices.com</a>

## **ATTACHMENT 2 COMMENTS ON PERCHLORATE BMP OPTIONS**

Special Devices, Incorporated ("SDI") manufactures air bag initiators, other explosive-containing vehicle occupant safety system components (e.g., seat belt pretensioners), and similar sealed explosive-containing devices. When the explosives, including perchlorate-containing explosives, are in sealed units of the type described, there is no reasonable potential for a release of perchlorate to the environment. In this context, SDI is providing the following comments.

### **2.1 Packaging**

No (additional) packaging BMPs should be imposed on perchlorate-containing explosives of the type described herein because:

- \* Explosives, including perchlorate-containing explosives, have stringent packaging requirements imposed by DOT. Packaging for waste explosives, including perchlorate-containing explosives, is regulated by the hazardous waste regulations which defer to DOT.
- \* Air bag initiators (seat belt pretensioners and similar vehicle occupant safety system pyrotechnic devices) are sealed units that have no reasonable potential of releasing perchlorate to the environment.

### **2.2 Labeling**

No (additional) labeling BMPs should be imposed on perchlorate-containing explosives of the type described herein because:

- \* Explosives, including perchlorate-containing explosives, have stringent labeling requirements imposed by DOT. Packaging for waste explosives, including perchlorate-containing explosives, is regulated by the hazardous waste regulations which defer to DOT.
- \* Air bag initiators (seat belt pretensioners and similar vehicle occupant safety system pyrotechnic devices) are sealed units that have no reasonable potential of releasing perchlorate to the environment.

### **2.3 Containment**

No (additional) containment BMPs should be imposed on perchlorate-containing explosives of the type described herein during shipment because:

- \* Explosives, including perchlorate-containing explosives, have stringent packaging requirements imposed by DOT. Packaging for waste explosives, including perchlorate-containing explosives, is regulated by the hazardous waste regulations which defer to DOT.

**ATTACHMENT 2**  
**COMMENTS ON PERCHLORATE BMP OPTIONS**  
**(Continued)**

- \* Air bag initiators (seat belt pretensioners and similar vehicle occupant safety system pyrotechnic devices) are sealed units that have no reasonable potential of releasing perchlorate to the environment.

During processing / manufacture, explosives, including perchlorate-containing explosives, must be managed in accordance with BATFE, CalOSHA, Uniform Fire Code and other rigorous safety procedures and any releases must be cleaned up immediately as a matter of worker safety. Because of these rigorous requirements to prevent releases and mitigate releases if they occur, there is no reasonable potential for there to be unmitigated releases having the potential to impact surface and/or ground water. At most, secondary containment BMPs pertaining to perchlorate-containing explosives should be limited to periods of outdoor transport or storage. It is not practical and potential for adverse worker safety issues could result if secondary containment were required inside processing / manufacturing areas where explosives are involved.

#### **2.4 Recordkeeping**

No (additional) recordkeeping BMPs should be imposed on perchlorate-containing explosives of the type described herein because:

- \* Explosives, including perchlorate-containing explosives, have stringent recordkeeping requirements imposed by BATFE and the Uniform Fire Code (e.g., magazine inventories, shipping documentation, etc.).
- \* Air bag initiators (seat belt pretensioners and similar vehicle occupant safety system pyrotechnic devices) are sealed units that have no reasonable potential of releasing perchlorate to the environment.
- \* Waste explosives and other hazardous wastes containing perchlorate (e.g., waste perchlorate) are subject to the hazardous waste recordkeeping requirements.

#### **2.5 Reporting**

No (additional) reporting BMPs should be imposed on perchlorate-containing explosives of the type described herein because:

- \* Although records related to the type, quantity, location of explosives, including perchlorate-containing explosives, stored onsite, manufactured, and/or shipped could be kept onsite for review during an agency inspection (as they are for a BATFE or Fire Department inspection), this is not the type of information that should be in the public domain in the Post 9/11 Era. It could identify facilities as a potential target for theft of explosives for the purpose of terrorism and/or vandalism. Similarly, the requirement

**ATTACHMENT 2**  
**COMMENTS ON PERCHLORATE BMP OPTIONS**  
**(Continued)**

for reporting certain types of information could serve to provide "Confidential Business Information" to competitors.

- \* Air bag initiators (seat belt pretensioners and similar vehicle occupant safety system pyrotechnic devices) are sealed units that have no reasonable potential of releasing perchlorate to the environment.

**2.6 Notification**

No (additional) notification BMPs should be imposed on perchlorate-containing explosives of the type described herein because:

- \* Air bag initiators (seat belt pretensioners and similar vehicle occupant safety system pyrotechnic devices) are sealed units that have no reasonable potential of releasing perchlorate to the environment.
- \* Waste explosives and other hazardous wastes containing perchlorate (e.g., waste perchlorate) are subject to the hazardous waste manifesting and biennial reporting requirements which are already provided to DTSC.

**2.7 Disposal / Discharge**

No (additional) disposal/discharge BMPs should be imposed on perchlorate-containing explosives of the type described herein because:

- \* Explosives, including perchlorate-containing explosives, are hazardous wastes (Waste Code D003) that have Land Disposal Restrictions requiring treatment by deactivation (DEACT) which typically involves thermal treatment. SDI is not aware of any commercial treatment facilities, thermal or otherwise, in California that can accept explosives (which is part of the reason DTSC is working on approval of a portable treatment unit that fire departments can use for the treatment / disposal of confiscated fire works).
- \* Explosive containing wastes, including perchlorate-containing explosives, that are hazardous wastes must be transported out of California for treatment/disposal in accordance with the hazardous waste and DOT regulations.

**2.8 Education/Training**

SDI believes that continuing education on the real, technical based issues associated with perchlorate is beneficial to the regulated community and the public. Simply knowing and understanding that a concern exists should reduce the potential for release of perchlorate to

**ATTACHMENT 2**  
**COMMENTS ON PERCHLORATE BMP OPTIONS**  
**(Continued)**

the environment. Most businesses and people want to do the right thing, but they need to be told and understand what the right thing is.

**2.9 General Comments**

As stated in Sub-section F (from the Options for Perchlorate Best Management Practices (BMPs) section of Appendix A on Page 12 of 14), "Much of the current perchlorate contamination in California is the result of historical land disposal of solid and aqueous perchlorate wastes...." The key word is "historical" because the releases were during a time when it was not known, recognized or accepted that perchlorate in water was a health concern.

Now that it is better recognized that perchlorate in water may be a health concern, the goal should be to educate people about the concerns, encourage them to identify alternatives to using perchlorate where possible, and to encourage them to take action to prevent releases of perchlorate to the environment of the type that caused the current problems (i.e., historical practices).

It appears that some, if not many, of the candidate BMPs will have little, if any, ability to prevent releases from occurring. They may make it easier to identify who had the release or how much was released, but not do anything to prevent the release.

Similarly the goal should be to try to prevent the release regardless of whether it came from industry/manufacturing or consumer commodities and regardless of whether the perchlorate was intentionally or unintentionally added. If perchlorate is in the water and it is affecting health, it shouldn't make a difference how it got there.

BMPs should initially focus on addressing the most likely pathways for perchlorate to get into surface and/or ground water in the future (i.e., proactive prevention). For example, it is almost a certainty that if perchlorate-containing fertilizers are used, then some of the perchlorate will be washed offsite into surface waters or percolate downward toward ground water by irrigation and/or rain. There would seem to be a greater benefit to the public to mitigate this type of known release activity than to impose onerous BMPs on items such as air bag initiators which pose no reasonable release of perchlorate to the environment.

**ATTACHMENT 2  
COMMENTS ON PERCHLORATE BMP OPTIONS  
(Continued)**

<b>Submitted by:</b>	Bill Welsh
<b>Name &amp; Contact Information</b>	Special Devices, Incorporated 14370 White Sage Road Moorpark, CA 93021 Phone (805) 553-1295 Fax (805) 553-1254 E-Mail <a href="mailto:bill.welsh@specialdevices.com">bill.welsh@specialdevices.com</a>



## THE ALLIANCE OF SPECIAL EFFECTS & PYROTECHNIC OPERATORS, INC.

12522 Moorpark Street, Suite 111 - Studio City, CA 91604  
818 506-8173 • 818 769-9438 (fax)

Wednesday, August 31, 2005

California Environmental Protection Agency  
Department of Toxic Substances Control  
Hazardous Waste Management Program  
1001 I Street, P.O. Box 806 Sacramento, CA 95812  
via facsimile (916) 322-1005 FAX

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Chuck Hughes, Vice President  
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Lucinda Strub

Regarding: Comments on perchlorate BMP applicability

Ladies and Gentlemen,

We are a non-profit, mutual-benefit, volunteer-run organization of special effects professionals who work in motion pictures, television and on stage. We are writing to you with our comments regarding the best management practices for perchlorates, as mandated by AB 826 the Perchlorate Contamination Prevention Act and as discussed at the DTSC Perchlorate BMP Workshop on August 19, 2005 with respect to the use and management of perchlorate-containing special effects materials intended for the purpose of producing a visible or audible effect as a necessary part of motion picture, television, theatrical or operatic production.

Let us begin by thanking DTSC for this opportunity to give input. Our organization's comments are as follows:

### Regarding the overall use of perchlorate-containing special effects materials in California

Actual film, television and entertainment production of special effects is undertaken mostly by small entities, often individuals, who are employed or contracted to do the work in practice and hence bear the brunt of regulatory compliance yet are ill-equipped to do so.

This being the case, we feel it is important that the government in general and the DTSC in specific view all

regulatory activity aimed at our industry with that in mind.

Good environmental stewardship is certainly a responsibility we all share and which our organization fully supports as we have in the past.

AB 826 is clearly focused on preventing environmental contamination from perchlorates and we're glad to say that we feel our industry has contributed little if at all to any existing contamination:

-A small amount of entertainment production actually involves the creation of special effects.

-Special effects is a broad term that includes many activities, such as simulation of wind, fog, snow, flying, etc., which do not involve the use of special effects materials as defined in California Health and Safety Code Section 12532 i.e. articles containing pyrotechnic composition. Thus a small amount of special effects actually involve special effects materials.

-Unlike many other forms of pyrotechnic activity, the creation of motion picture and television special effects relies primarily on materials which do not contain intentionally-added perchlorates, such as black powder and various high explosives.

-In those relatively few instances in which special effects materials containing intentionally-added perchlorates are required, they are used in a manner in which it is unlikely that environmental contamination will result i.e. the perchlorate is used as an oxidizer and decomposed during combustion which occurs when the device functions as intended.

#### Regarding the amount of perchlorate-containing special effects materials used in California

Though we apologize in advance for the paucity of hard data, the following estimates clearly show the minimal nature of perchlorate-containing special effects materials in California in comparison to other, well-documented sources of potential environmental perchlorate contamination.

Given the variable nature of the Industry and the short time-frame for these comments to be submitted, our ability to gather accurate data was as said, limited. Please do not cite these data or use them as the basis for projections or calculations without further verifying them:

-one of the two primary manufacturers of special effects materials for motion picture/television use worldwide estimates that they may on average supply ca. 150 pounds of perchlorate annually in the form of special effects materials and the other estimates considerably less.

-state officials estimate that there may be ca. 200,000 pounds of legal consumer fireworks used annually in California and based on confiscations, a significant amount of illegal consumer fireworks are used in addition.

The chart distributed at the DTSC Perchlorate BMP Workshop on August 19, 2005 indicates that fireworks are <70% perchlorate but assuming that the actual percentage is ca. 40% and that consumer fireworks are ca. 25% composition as per ATF estimates, then this represents the use of more than 20,000 lbs. of perchlorates annually by untrained people.

-According to the bulletin "Safety Flares Threaten Water Quality with Perchlorate" by Miguel Á. Silva and the Santa Clara Valley Water District, 7/29/03 (attached), more than 40 metric tons of flares were used/burned in 2002 alone in Santa Clara County.

The chart distributed at the DTSC Perchlorate BMP Workshop on August 19, 2005 indicates that flares/fusees are <15% perchlorate but assuming that the actual percentage is ca. 7% then this represents the use of more than 6,000 lbs. of perchlorates that year.

If one assumes these estimates to be reasonably sufficient for purposes of this comparison, then more perchlorate-containing pyrotechnic composition was used in a single year by consumers in California and by Santa Clara County flare users than the U.S. motion picture/television industry would likely use world-wide in over a century.

Further, we believe that it would be fair to say that both the consumer use of fireworks and the use of flares as emergency signaling devices on roadways is more likely to

result in perchlorate contamination of the environment due to non-environmentally sound disposal of duds by consumers and the inevitable crushing, etc. of flares by automobile traffic.

Regarding how and to what degree these rules will affect us:

Against this background, we hope you will agree that the motion picture/television industry is unlikely to contribute significantly to any environmental perchlorate contamination when compared to other common and widespread uses of perchlorate-containing pyrotechnics which are likely to continue for the foreseeable future, let alone those caused by non-pyrotechnics.

We understand that the law mandates best management practices for all perchlorate users regardless of quantity and as good citizens and conscientious pyrotechnic operators we are as said prepared to do our part to even further minimize the very small risk of environmental contamination that our use represents.

We are however concerned that one approach may be applied to all industrial users of perchlorates which would likely result in burdensome and largely inapplicable regulatory requirements being applied to our industry simply because we are an industry.

The law clearly appears to assume a conventional business situation where an industrial activity takes place continuously at the same geographic location for a long duration of time, which is unlikely to be the case in a creative industry such as motion picture and television production in which filming at temporary locations, etc. is common.

Further, it is important to realize that the entertainment industry in California in general and the special effects industry in specific is already heavily regulated. In the global market, producers today have a very wide variety of places to shoot their productions, the majority of which are outside California.

Should a regulatory scheme be put into place which is not sensitive to the unique nature of motion picture and television production, it is likely that it will further

serve to drive production away from California, taking jobs, prestige and tax revenue with it.

In our view, it is essential therefore that regulation be:

-fair and equitable.

-in proportion to the actual risk of environmental contamination resulting from an activity rather than the public or popular perception thereof.

-applicable and suited to each material and use category, rather than a general, broad attempt to pound every material and use into the same inflexible framework.

-practical and geared toward measures likely to result in significant, demonstrable reduction in perchlorate contamination to the environment rather than ease of enforcement or institutional convenience.

Regarding materials that are adequately regulated:

As was expressed in discussion at the Workshop, it seems clear that pyrotechnic RCRA hazardous wastes that may contain perchlorates are almost certainly going to be treated in a manner which would decompose the perchlorates. There is a very complete regulatory scheme already in place.

Regarding materials with a low perchlorate concentration:

As was also expressed in discussion at the Workshop, it seems clear that despite being in excess of what might be considered an environmentally acceptable level (such as the Public Health Goal, etc.), certain wastes such as lettuce from sandwiches, etc. will have to be disposed of in conventional landfills for the sake of practicality.

Further, it was also articulated that, though data is certainly not complete, initial indications are that effluent from landfills is not necessarily contaminated despite relatively large amounts of perchlorate-containing consumer waste being disposed of in them.

Based on the amount of consumer fireworks used in California, the likelihood of duds and their being disposed of in household waste by consumers, it is foreseeable that thousands of pounds of unburned perchlorate salts are being disposed of in landfills currently, as well as hundreds of thousands of pounds of spent fireworks which may contain a low perchlorate concentration as residue, etc.

We have seen no definitive data to indicate that spent special effects materials contain any residual perchlorate when used as intended. Should there be cases where such residual content is plausible (e.g. spent consumer fireworks which were used for special effects purposes) it seems that disposing of them in the same manner is likely to be both a reasonable and effective management practice.

Regarding materials containing small quantities of perchlorate:

As stated previously, motion picture/television use of materials containing perchlorates is likely to be in very small quantities analogous to those which are used by consumers. In these cases, it seems reasonable that the best management practices be similar or identical to those required of consumers.

Regarding packaging:

It was expressed in discussion at the Workshop that DOT/UN performance packaging pursuant to 49CFR 178.601 which is intended to ensure that packages containing hazardous materials can withstand normal conditions of transportation would be sufficient to meet any foreseeable requirements with respect to best management practices. We are in agreement with this and would like to see that extended to any inner packagings which are in and of themselves water resistant.

Regarding labeling

It was discussed at the Workshop that there is a need to communicate the presence of a potential environmental hazard requiring best management practices to the possessor/user of a material containing perchlorate and that labeling was a means of doing so.

We are in agreement with this concept, provided that other reasonable means of communicating this hazard such as including warnings as part of or an addendum to a Material Safety Data Sheet are also acceptable alternatives in cases where it is impractical or unnecessary to label individual items or containers.

Further, such labeling should only apply to items with intentionally added perchlorate or items whose level of unintentionally added perchlorate and/or intended use is such that best management practices are applicable. We think that there was general agreement that labeling waste lettuce, etc. was not likely to be fruitful. We also suggest that clear, effective guidelines and a system be put in place to discourage suppliers from providing incomplete, misleading or useless information about perchlorate content to end users. Clearly, simply having for example a "This item may contain perchlorates" label on everything from vegetables to fireworks is not helpful in determining which best management practices should be employed on a practical level.

We would also suggest an accommodation be made for alternate means of protection in exceptional cases such as where a perchlorate-based device was created for a one-time use by the end user on site for testing, research and development, etc. and stored for a limited time.

#### Regarding containment

We suggested at the Workshop that the magazine storage currently required in part by both state regulations in Title 19 California Code of Regulations, Article 8. §989 and §989.1 and federal regulations in 27 CFR PART 555, Subpart K be considered sufficient containment under best management practices in such cases where containment was considered necessary.

Comments were made at that time to the effect that magazine construction could vary widely. This is true to the extent that the regulations allow such variation but in the case of motion picture/television use, the types of magazine are almost always going to be constructed in accordance with Sec. 555.208 or 555.209, both of which require substantial construction. As such, we suggest that these and any equal

or better construction be considered sufficient in such cases.

Regarding recordkeeping

As is widely known, the federal regulations in 27 CFR Part 555 require that inventory be kept on many special effects materials which are explosives. There is also a requirement for record retention of shipping papers under 49 CFR.

However, given the number of operators and the large number of individual devices, keeping records on a device-by-device basis would be burdensome for both the Industry and for DTSC.

We suggest that it is the aggregate amount of perchlorate which is meaningful and that records kept by manufacturers and importers of such devices would be a more reasonable means of keeping records of perchlorate use.

Regarding reporting and notification:

Similarly, both state and federal regulations require reporting and notification with respect to the storage, transportation and use of special effects materials.

We suggest that these requirements, which include a requirement to report magazine location changes as per 27 CFR 555.63 and the requirement as per Health and Safety Code 12640 for a detailed permit from the local authority having jurisdiction, suffice to make the use of perchlorate containing special effects material traceable should the need arise.

That being the case, however, it is extremely unlikely that the need to trace special effects material in investigating perchlorate contamination of the environment should arise and if spills or contamination were to be detected at a shooting location, it is highly likely that they occurred from activity other than the filming, especially given that for example, there are several former ordnance manufacturing, decommissioned military, etc. facilities which have been operating as location filming sites or "movie ranches" after discontinuing their original use.

Lastly, we agree with the opinion expressed at the Workshop that there is a compelling security interest that the exact location of explosives and energetic materials, including special effects materials, not be made available to the general public.

Regarding disposal/discharge:

As stated above, there seems to be general agreement that any special effects material which is a RCRA waste is already sufficiently regulated.

It is also very likely that waste resulting from special effects material use is unlikely to contain significant levels of perchlorate residue and that any waste resulting from such use is likely to be analogous to consumer waste.

Against this background and in the interest of fair and equitable regulation, we suggest that motion picture/television activities which are analogous to consumer use be regulated in a similar manner.

Regarding education and training:

While we maintain that the motion picture/television industry's use of perchlorate-based materials is very unlikely to result in environmental contamination, a relatively modest training and education effort would further minimize the very small risk of environmental contamination that our use represents.

Unlike in other pyrotechnic activities, there are a number of alternatives to perchlorate use which may be applicable in certain cases, provided that the pyrotechnic operator is aware of them and sufficiently educated to take advantage of them.

ASEPO's purpose in part is to improve the methods of special effects and pyrotechnic operators and to share information regarding safety, to the degree that our resources allow us to do so. We suggest that we partner with DTSC, the State Fire Marshal's Office and other interested parties in sharing such information with our members with a view toward further, voluntary reduction in the already very small

amount of perchlorate based special effects material in use today.

Regarding the way forward:

On behalf of our organization, we again thank DTSC for this opportunity to comment on this issue. As one might expect, this letter does not represent the entirety of our comments and views on the issue of perchlorate and its best management practices, merely those which the constraints of time and our limited resources allowed us to put in writing at this time.

We would like to continue to work with CAL EPA and encourage DTSC to contact us should they desire any further clarification or discussion of our position on these issues and other aspects of the regulation of perchlorates.

Sincerely

//Original signed by//

Tassilo Baur  
Chair, ASEPO Compliance Committee

Attachment

>>> "K. Dueker" <[kdueker@powerflare.com](mailto:kdueker@powerflare.com)> 7/20/2005 10:59:45 AM >>>  
Bill:

This is to follow up on my prior e-mail. Please forward this information as you see fit.

The PowerFlare Safety Light is built here in California and is currently in use by law enforcement, fire, and other first responders, as well as road construction and other users.

Product details and all brochures are downloadable/viewable (pdf) on [www.powerflare.com](http://www.powerflare.com). I have enclosed data sheets on the new PF-200 model (not yet on the Web).

I suggest your contacts call Fred Schmidt of the California Air Resources Board at (916) 327-1522 and get an update on his research. Also, Claremont (CA) Police Dept. Sgt. Mike Ciszek (909) 399-5411 has information from the So. Cal. Air Quality Management District on air pollution from flares. I have enclosed an article on an EMS medic who became ill after she was exposed to flare fumes. Be advised that many agencies are now having their personnel submit Hazardous Material Exposure Forms after using traffic flares, for this reason. (Consider workers' comp and union issues, too, for civilian contractors.)

As I mentioned in my prior e-mail, the Santa Clara Valley Water District ([www.valleywater.org](http://www.valleywater.org)) has some interesting research on perchlorate contamination. My contact there is Thomas Mohr: [tmohr@valleywater.org](mailto:tmohr@valleywater.org)

Aside from the pollution/exposure issues, the personnel safety issues also favor the use of PowerFlare:

1. injuries from burning flares: the reported numbers may be small, but worth looking into; a single incapacitating injury (such as to the eye) is not unheard of in other agencies. Stories of accidental fires from flares are also very common.
2. deaths and injuries from being struck by vehicles: personnel are less inclined to light flares (hassle factor) for a quick detail and thereby put themselves at risk. Also: PowerFlares require less time in traffic to deploy and maintain a flare pattern. Because PowerFlare is easy to use (and doesn't smoke), personnel will be more inclined to use them. Example: Our officers are wearing PowerFlare units on their belts while out directing traffic or at DUI checkpoints to increase visibility. Similarly, personnel can clip PowerFlare safety lights to their belts/vests to improve visibility/safety.

3. fleet safety & compliance: Ford has advised against storing loose fusee flares in the trunk of vehicles. Some police agencies have also had patrol cars burn to the ground from accidental ignition of flares. See also the enclosed crash report that mentions flares burning after impact. Also: Any CNG (natural gas) vehicles are forbidden by Federal law from carrying incendiary flares per 49 CFR §§ 392.25 & 393.95(g).

I hope this information was relevant. I will appreciate any leads you can offer.

All the best,

- Ken

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Kenneth S. Dueker | PowerFlare Corporation  
President & CEO | [www.powerflare.com](http://www.powerflare.com) 73 de KB6BPM  
Tel. 650-208-2580 | P.O. Box 7615, Menlo Park, CA 94026-7615 U.S.A.  
E-Mail: [kdueker@powerflare.com](mailto:kdueker@powerflare.com) or [kdueker@post.harvard.edu](mailto:kdueker@post.harvard.edu)

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