Perchlorate BMP Regulations
Perchlorate

- Is an anion formed primarily as an ammonium, potassium, or sodium salt
- Is an extremely strong oxidizer, yet is stable in the environment at typical contamination concentrations
- Is harmful at concentrations close to detection limits
- Is extremely soluble and mobile in the environment
The Problem

- 34 perchlorate contamination sites are currently overseen by SWRCB/DTSC impacting 563 drinking water wells

- Perchlorate has been detected in a variety of food items including milk and vegetables

- At dose levels in the low ppb, perchlorate may interfere with human thyroid function

- Infants and prenatals are especially susceptible
Public Supply Wells with at Least One Perchlorate Action Level Exceedance (>=4 PPB)

395 Total Wells

Active or Standby Status = 318 Wells (of approx. 5,000 wells sampled and reported, a third of the State total)
Abandoned, Destroyed, or Inactive Status = 77 Wells

Source: DHS Database, October 2002
January, 2003
EPA
REGION 9
PERCHLORATE RELEASES
Drinking Water Contamination
Monitoring Wells Only
Colorado River Contamination
January, 2003
27 Sites
11 Superfund
Sources

- Rocket/munitions manufacture
- Rocket/munitions maintenance
- Munitions firing range
- Fireworks/flare manufacture
- Disposal/discharge of wastes
- Industrial processes
- Chilean Nitrate fertilizers
- Naturally occurring
- Unknown sources
The Perchlorate Contamination Prevention Act, AB 826 (2003)

- Defines perchlorate materials as all perchlorate containing substances

- Requires DTSC to adopt regulation specifying best management practices for managing perchlorate materials, by December 31, 2005

- Additional reporting and notification requirements

- Adds “persons managing perchlorate materials” to the Unified Program [HSC 25404(c)(1)(A)(ii)]
New Authority

AB 826 obligates DTSC to regulate:

- perchlorate containing materials
- perchlorate containing hazardous materials
- perchlorate containing wastes
- perchlorate containing hazardous wastes
## Examples of Perchlorate Materials

<table>
<thead>
<tr>
<th>Hazardous Materials</th>
<th>Manufacturing feed stocks</th>
<th>Laboratory reagents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manufactured products</td>
<td>Explosives/blasting agents</td>
</tr>
<tr>
<td></td>
<td>Fireworks</td>
<td>Solid rocket motors</td>
</tr>
<tr>
<td></td>
<td>Safety flares</td>
<td>Initiators &amp; gas generators</td>
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<td></td>
<td>Other pyrotechnics</td>
<td>Batteries</td>
</tr>
<tr>
<td></td>
<td>Sanitizers/bleaching agents</td>
<td>Fertilizers/herbicides</td>
</tr>
<tr>
<td>Non-Hazardous Materials</td>
<td>Swimming pools</td>
<td>Evaporite minerals</td>
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<tr>
<td></td>
<td>Consumer products</td>
<td></td>
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<tr>
<td>Exempt Materials</td>
<td>Materials containing &lt; 6 ppb perchlorate</td>
<td>Contaminated media under regulatory oversight</td>
</tr>
<tr>
<td></td>
<td>Food</td>
<td>Water supplies including Colorado River</td>
</tr>
<tr>
<td></td>
<td>Crops</td>
<td>Irrigation water</td>
</tr>
</tbody>
</table>
# Examples of Perchlorate Waste

<table>
<thead>
<tr>
<th>Hazardous Waste</th>
<th>Baghouse wastes</th>
<th>Confiscated fireworks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweepings</td>
<td>Spent flares/spent fireworks</td>
<td>Wastewater</td>
</tr>
<tr>
<td>Retrograde/off-spec</td>
<td>Ion exchange media</td>
<td>Residuals/containers</td>
</tr>
<tr>
<td><strong>Non-Hazardous Waste</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spent flares/spent fireworks</td>
<td>Waste containing &lt; 6 ppb perchlorate</td>
<td>Combustion residuals</td>
</tr>
<tr>
<td>Ion exchange media</td>
<td>Food waste</td>
<td>Contaminated media under regulatory oversight</td>
</tr>
<tr>
<td><strong>Exempt Waste</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste containing &lt; 6 ppb perchlorate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food waste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crop waste</td>
<td></td>
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</tr>
</tbody>
</table>
Current Regulation

- Perchlorate materials are typically regulated as a hazardous material in accordance with 49CFR if they meet the definition of a HM.

- There are no promulgated standards for perchlorate.

- Because of their fire hazard, most ER protocols suggest dousing with water. Chemical suppliers recommend rinsing with water and disposing to the sanitary sewer.
BMPs Requirements

- Labeling
- Packaging
- Containment
- One-time Notification
- Special Requirements
- Spill Response
- Disposal/Discharge Requirements
- Pollution Prevention
Applicability

§ 67384.2

- All perchlorate materials except:
  - When managed as hazardous waste
  - Media under regulatory oversight
  - Perchlorate material < 6 ppb perchlorate
  - Food, crops, irrigation water
  - Combustion residuals
Definitions
§ 67384.3

- Needed to clarify and to
  - Redefine terms to exclude HW (spill, storage, end user)
  - Include new definition of business and add public agencies (HSC 25501.4)
  - Include pyrotechnic terms (combustion residuals, net explosive weight, dangerous fireworks, stars)
Labeling Requirements
§ 67384.4

- “Perchlorate Material - Special handling may apply”

- [website](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)

- Includes some exemptions and alternatives
Packaging Requirements

§ 67384.5

- Modeled after current hazardous materials or hazardous waste requirements.
  - Durable, and
  - Water-resistant

- Products constructed to meet packaging requirements do not need containment
Containment Requirements

§ 67384.6

- Products that are not packaged in accordance with packaging requirement need to be contained in a weather-resistant structures
  - Adequately water-resistant to prevent seepage
  - Do not have drains that release to the environment and
  - Adequate strength to support the loads
One-Time Notification
§ 67384.7

- Due to DTSC by September 1, 2007
- Name and contact information
- List of Perchlorate Material
- Has Business Plan been updated?
- Management Checklist
  (none, less or greater than 500 pounds)
Special BMPs
§ 67384.8

- Road flares should be
  - Allowed to burn completely,
  - Be limited in number & duration
  - Personnel should receive training
- Marine safety flares
- Fireworks
  - Within 24 hours, the pyrotechnics operator shall collect stars and un-ignited pyrotechnic material found during the required inspection.
Spill Response
§ 67384.9

- For spills of non-hazardous perchlorate materials to the environment, a handler of perchlorate materials:
  - Stop and contain a spill of perchlorate material
  - Determine whether the resulting spill is hazardous waste
  - Collect any material resulting from the spill
  - Prevent or minimize releases to storm drains
Solid non-hazardous perchlorate disposed of in either a hazardous waste landfill; or a composite-lined portion of a non-hazardous waste landfill

Non-hazardous liquid perchlorate-containing wastewater, the discharger notify the overseeing regulatory agency and include perchlorate in the monitoring program

The POTWs receiving wastewater from a business that have identified perchlorate-containing discharges need to notify the appropriate RWQCB of perchlorate waste and include perchlorate in the monitoring and reporting plan.
Pollution Prevention
§ 67384.11

- On or before January 1, 2008 and every 5 years, a business that uses fertilizers, road safety flares, explosives, or blasting agents, in an amount greater than 500 pounds in any month
  - Review the use of these products to determine if an alternative is available; and
  - Review and implement pollution prevention measures to prevent releases of perchlorate.
Pollution Prevention
§ 67384.11

- On or before January 1, 2008, a business that uses 4,000 lbs. of fireworks or 8,000 lbs. of solid rocket motors in any year needs to submit to DTSC
  - Perchlorate analytical results of existing storm water monitoring
  - Existing environmental monitoring of perchlorate in the soil and/or water.
## BMPs Requirements

<table>
<thead>
<tr>
<th>Category</th>
<th>Labeling</th>
<th>Packaging</th>
<th>Containment</th>
<th>One-time Notification</th>
<th>Special Practices</th>
<th>Spill Response</th>
<th>Discharge and Disposal</th>
<th>Pollution Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>No</td>
<td>Min</td>
<td>Min</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Farmers</td>
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<td>No</td>
<td>Min</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Min</td>
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<tr>
<td>Retailers</td>
<td>Yes</td>
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<td>Min</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Laboratories</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Department of Defense</td>
<td>Min</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>Special Event Organizers/Amusement Parks</td>
<td>Yes</td>
<td>Min</td>
<td>Min</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
<tr>
<td>Law Enforcement Fire Departments, Other Agencies</td>
<td>Yes</td>
<td>Min</td>
<td>Min</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>General Industry</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
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Perchlorate Questions?