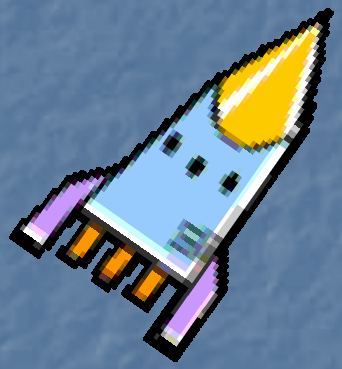
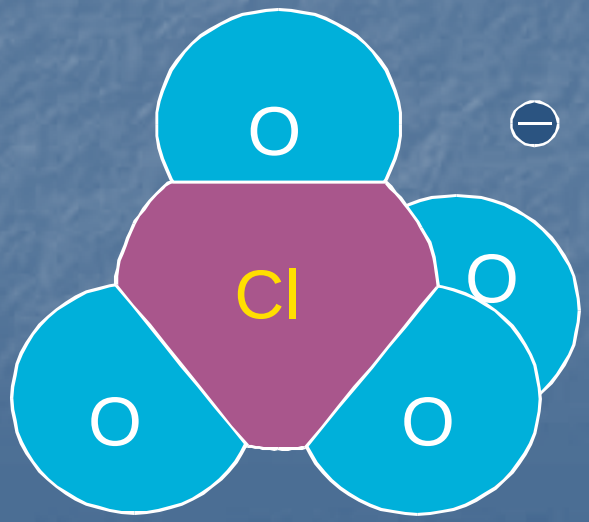
Perchlorate BMP Regulations



Perchlorate

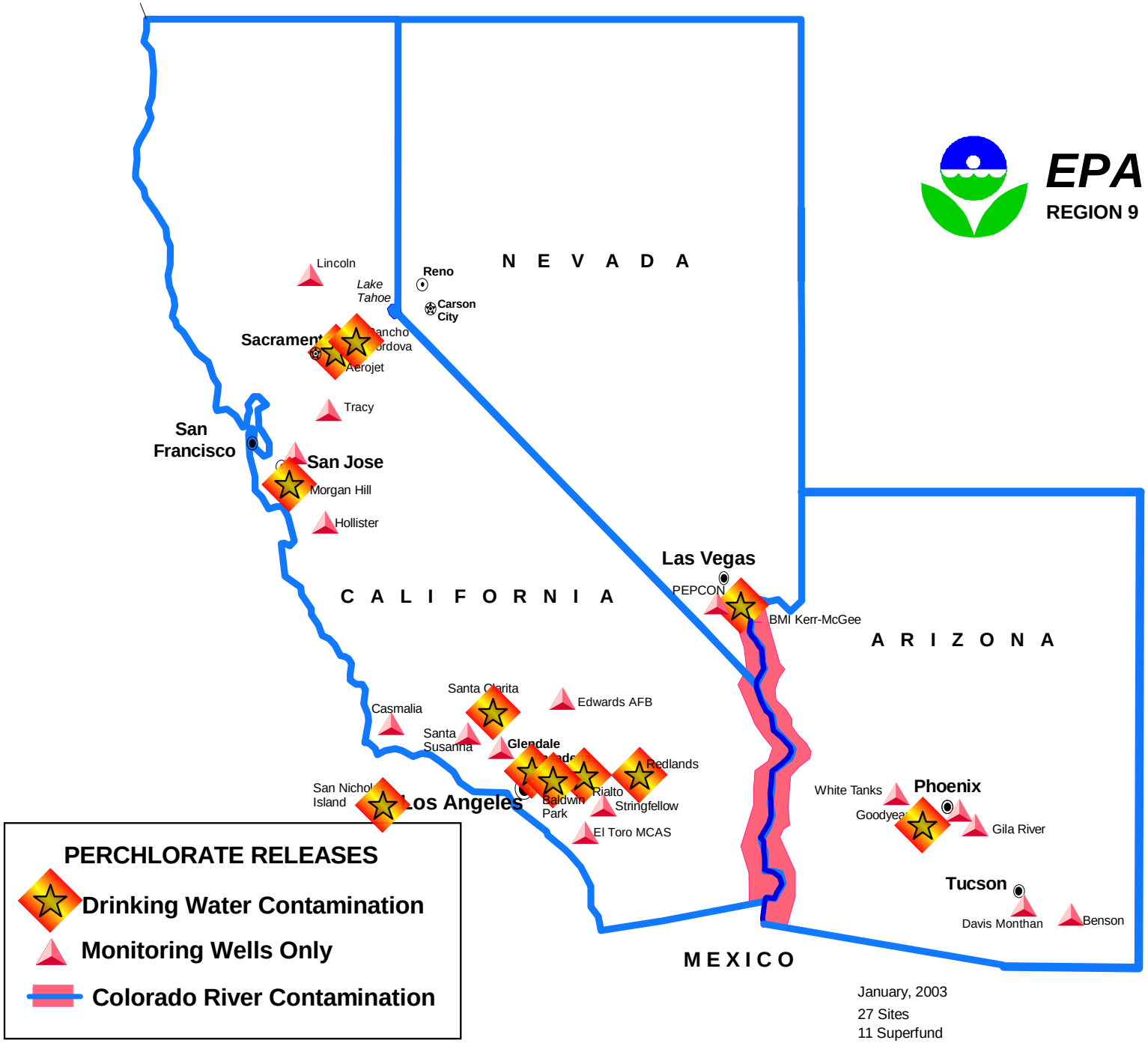
- Is an anion formed primarily as an ammonium, potassium, or sodium salt
- Is an extremely strong oxidizer, yet is stable in the environment at typical contamination concentrations
- Is harmful at concentrations close to detection limits
- Is extremely soluble and mobile in the environment



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 appx. 5,000 wells sampled and reported, a third of the State total)
Abandoned, Destroyed, or Inactive Status = 77 Wells
Source: DHS Database, October 2002
N
W
E
S
0
50 Miles


EPA
REGION 9
N E V A D A
Lincoln
Lake Tahoe
Reno
Carson City
Sacramento
Aerojet
Tracy
San Francisco
San Jose
Morgan Hill
Hollister
C A L I F O R N I A
Las Vegas
PEPCON
BMI Kerr-McGee
A R I Z O N A
Santa Clarita
Edwards AFB
Casmalia
Santa Susanna
Glendale
Redlands
Rialto
Stringfellow
Baldwin Park
Los Angeles
El Toro MCAS
White Tanks
Phoenix
Goodyear
Gila River
Tucson
Davis Monthan
Benson
M E X I C O
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

Hazardous Materials	Manufacturing feed stocks	Laboratory reagents
	Manufactured products	Explosives/blasting agents
	Fireworks	Solid rocket motors
	Safety flares	Initiators & gas generators
	Other pyrotechnics	Batteries
	Sanitizers/bleaching agents	Fertilizers/herbicides
Non-Hazardous Materials	Swimming pools	Evaporite minerals
	Consumer products	
Exempt Materials	Materials containing < 6 ppb perchlorate	Contaminated media under regulatory oversight
	Food	Water supplies including Colorado River
	Crops	Irrigation water

Examples of Perchlorate Waste

Hazardous Waste	Baghouse wastes	Confiscated fireworks
	Sweepings	Spent batteries
	Retrograde/off-spec	
Non-Hazardous Waste	Spent flares/spent fireworks	Wastewater
	Ion exchange media	Residuals/containers
Exempt Waste	Waste containing < 6 ppb perchlorate	Combustion residuals
	Food waste	Contaminated media under regulatory oversight
	Crop waste	

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 suggests 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"
- 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

Disposal/Discharge § 67384.10

- 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 and every 5 years, 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

	Labeling	*Packaging*	*Contain-ment*	*One-time Notification*	*Special Practices*	*Spill Response*	*Discharge and Disposal*	*Pollution Prevention*
Households	No	Min	Min	No	Yes	Yes	No	No
Farmers	No	No	Min	Yes	No	Yes	Min	Yes
Retailers	Yes	Min	Min	Yes	No	Yes	Yes	No
Laboratories	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Department of Defense	Min	Yes	Yes	No	Yes	Yes	Yes	Yes
Special Event Organizers/ Amusement Parks	Yes	Min	Min	Yes	Yes	Yes	Yes	Yes
Law Enforcement Fire Departments, Other Agencies	Yes	Min	Min	Yes	Yes	Yes	Yes	Yes
General Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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Perchlorate Questions?