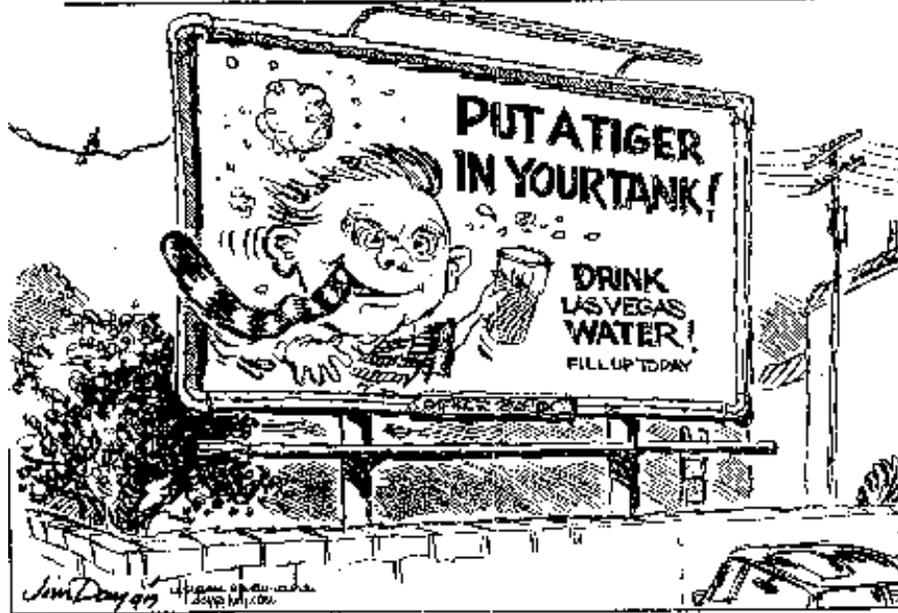
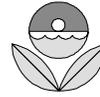


SOUTHERN NEVADA WATER AUTHORITY PUTS A POSITIVE SPIN ON REPORTS THAT A ROCKET FUEL CHEMICAL WAS DETECTED IN LAKE MEAD AND LOCAL WELLS.



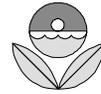
PERCHLORATE



Kevin Mayer - U.S. EPA, Region 9

What is Perchlorate - Chemistry & Uses
Brief History of Environmental Concern
Occurrence in the U.S. and Southwest
Colorado River
State Action Levels

Perchlorate CHEMISTRY



Highly Oxidized Chlorine, ClO_4^-

Dissociated Salt, Anion, in Water

Highly Soluble, Mobile, Stable

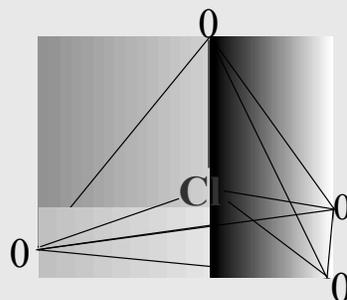
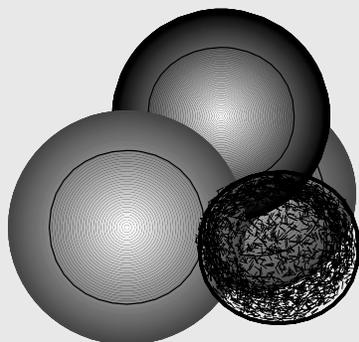
Difficult to Detect, Difficult to Treat

Standard Ion Chromatography Method

- Detection > 400 ppb

- CA method to 4 ppb by March 1997

PERCHLORATE



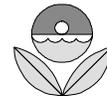
USES of PERCHLORATE

90% used as Solid Rocket Fuel Oxidizer

Explosives

Fireworks and Pyrotechnics

Reported in Nitrate Fertilizer from Chile





6

PERCHLORATE HISTORY Before 1997

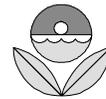
1980s - Aware of Perchlorate in CA and NV

1985-86 - San Gabriel Valley Superfund Site

1990s - Rancho Cordova (Aerojet) ppm

1992 and 1995 - Provisional Reference Dose

1997 - Analytical Breakthrough to 4 ppb



Agency for Toxic Substances and Disease Registry - ATSDR (January 21, 1986):

"...Given the proprietary nature of the laboratory method for quantification and the poor quality assurance results noted, the **data do not prove that perchlorate ion has actually been found.** If the presence of perchlorate ion is confirmed, the **scientific database on this ion is insufficient to generate either an acute or longer-term health advisory for drinking water "**

"... The minimal acute toxicity data available suggest that one or two ppm perchlorate ion would not represent an immediately acute and substantial threat to the public health. The ATSDR does not consider this level to be "safe" in the absence of experimental data.."

PERCHLORATE SHIPMENTS

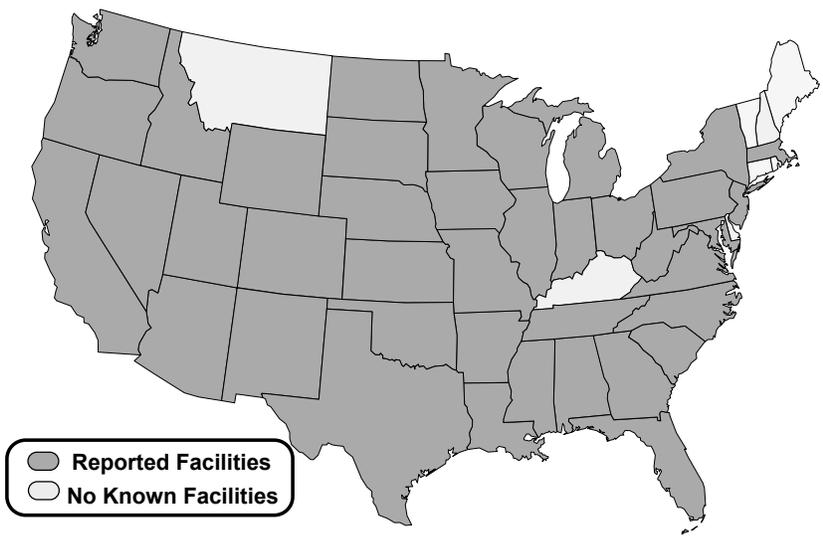
Primarily Manufacturer's Information

Over 220 facilities

40+ States

Most Information in Last 20 Years





States with Perchlorate Manufacturers or Users

PERCHLORATE in the ENVIRONMENT

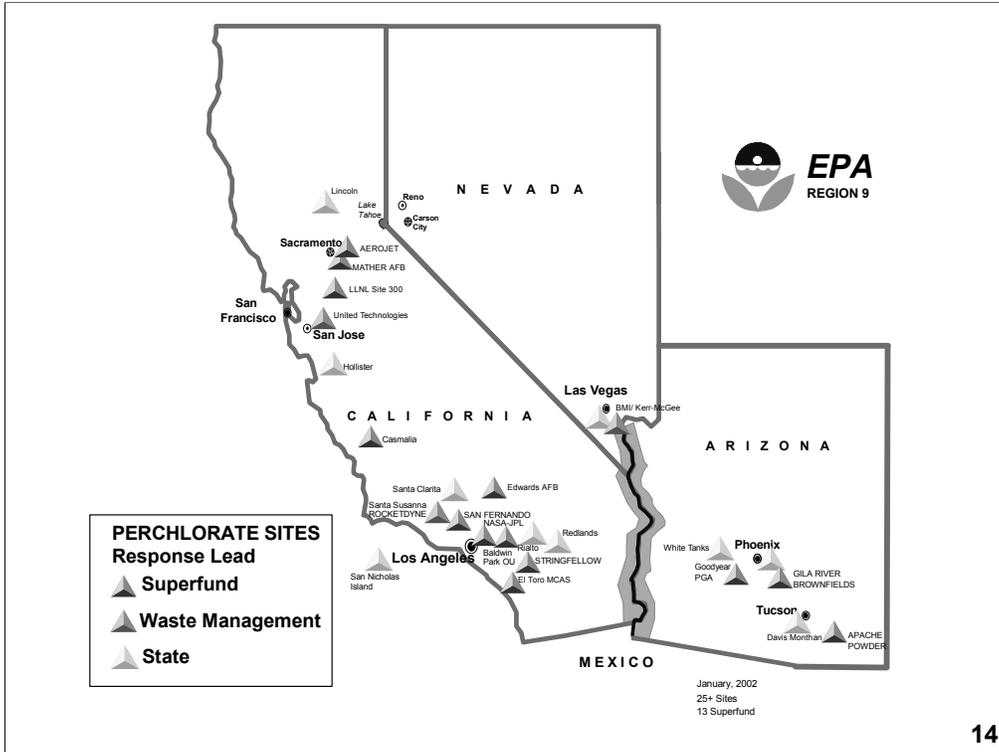


RELEASES REPORTED IN 21 STATES

Alabama, Arizona, Arkansas, Colorado, Iowa, *Indiana*, Kansas, Maryland, Missouri, Massachusetts, Nebraska, Nevada, New Mexico, New York, Oregon, *Pennsylvania*, Texas, Utah, Washington, West Virginia

CALIFORNIA

**Over 4000 Water Supply Wells Tested
Detected in 255 sources, 49 Wells over 18 ppb**



COLORADO RIVER and LAKE MEAD

Southern California Aqueduct

Lake Havasu (Colorado River)

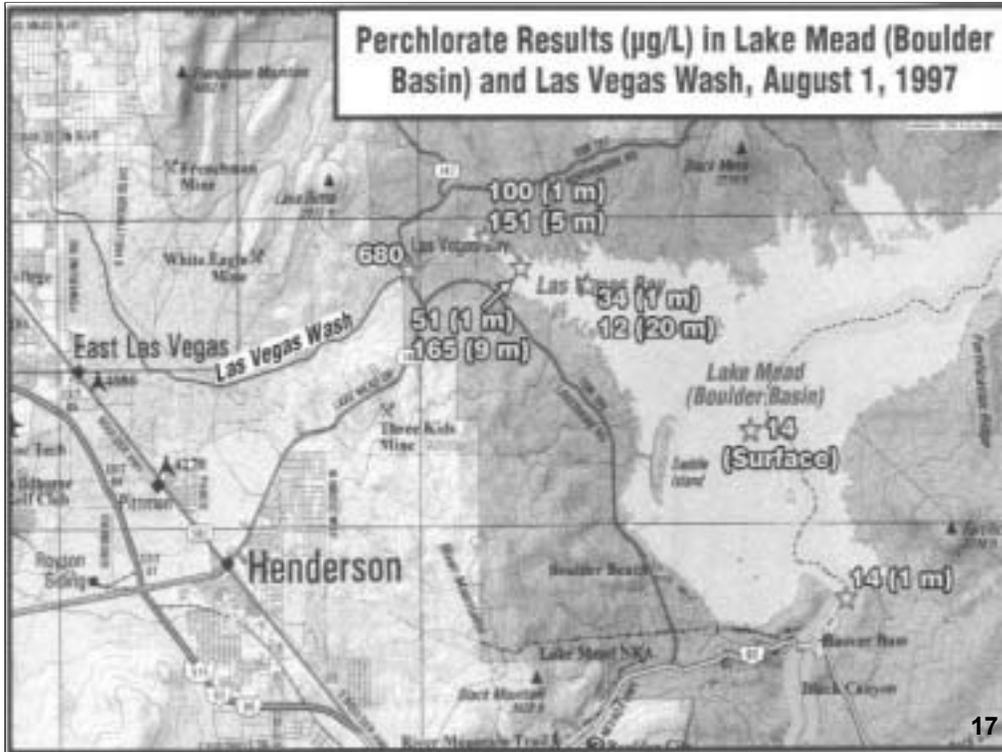
Lake Mead

Non-Detect Upstream of Lake Mead

CAP, SNWA, MWD, Tribes...

15+ million people





Colorado River PERCHLORATE

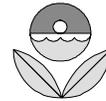
**Over 870 pounds per DAY into Lake Mead
Transported through 3+ miles of groundwater**

Since June 2000, less than 500 pounds/day

**Hoover Dam, still up to 1000 pounds/day to
Lower Colorado River, 5-9 ppb**

Residence time in Lake/River - Years

**Drinking Water Source for 15+ Million
Irrigation Supply**





BMI and Las Vegas Wash, Henderson NV



“Advisories” from States



California - 4 ppb 2002 Action Level, Lowered from 18 ppb

Draft Public Health Goal – 6 ppb

New York 5 ppb and 18 ppb

2-Tiered Action Levels, Planning and Action

Texas 4 ppb Action Level and Residential Cleanup Level

Lowered from 22 ppb in 2001

Arizona 14 ppb 1998 Health Based Guidance Level

Based on Child Exposure..will review after EPA final RfD

**Massachusetts 1 ppb Precautionary Recommendation to
a Local Water District for children and at-risk subpopulations**

New Mexico 1 ppb Recent Drinking Water Screening Level

Nevada 18 ppb Public Notice Standard

20

Other Levels



Superfund Decisions in CA – 4 ppb

Superfund – Federal Facility in MA – 1.5 ppb

**Chemehuevi Tribe (on Colorado River)
establishing 5 ppb DW Standard in 2002**

**EPA Recommends Provisional Reference Dose
4-18 ppb range for adult exposure until new RfD
(Noonan Memo, 1999)**

