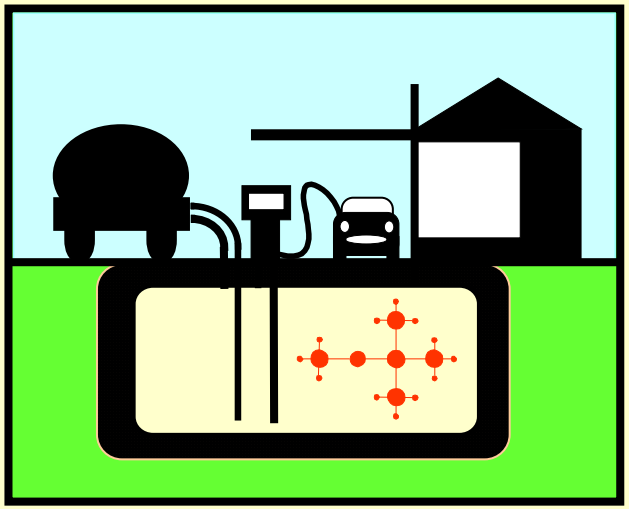
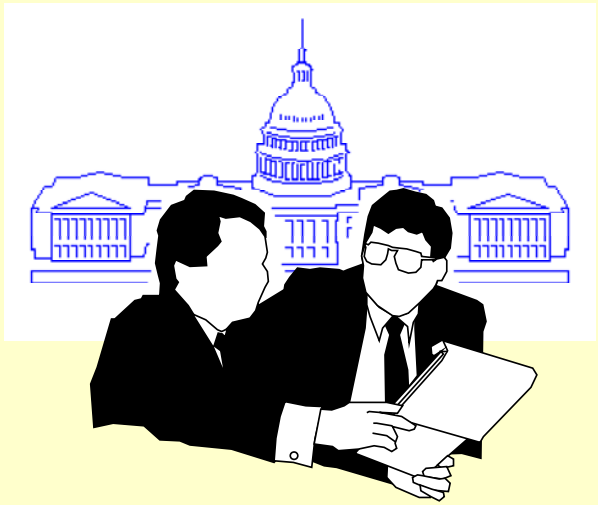
MTBE & Other Ether De Minimus Levels in CaRFG3 Regulations

California Air Resources Board

Regulatory and Non-Regulatory Fuels Activities for 2002

March 5, 2002





WHITE ENVIRONMENTAL ASSOCIATES
428 EAST STONE CANYON WAY
BREA, CALIFORNIA 92821-2648
714-529-0652
FAX 741-529-3679
weajsw@aol.com

Low De Minimus Levels of Ether in CaRFG3

Primarily Due to Political Pressures

- Initial Groundwater Problems … but No Iceberg!
- LUSTs are Declining
- Public Supply Well Detections Declining & at Low Levels
- 6 PSWs Closed Statewide Due to MCL Exceedances
- MTBE CAN be Cleaned Up … not as Recalcitrant as Once Thought

Don't believe me … it is in the statistics!

CA Leaking UST Statistics

CA LUSTs	1998	1999	2000
Open LUST Cases	16,127	15,783	15,167
Closed LUST Cases	18,033	20,113	21,660
Total LUST Cases	34,160	35,896	36,827
New LUST Cases	-	1,736	931
Closed LUST Cases	-	-2,080	-1,547
Net LUST Cases	-	-344	-616

CA LUST Fund Statistics

Fiscal Year	97 - 98	98 - 99	99 - 00	00 – 01
Claims Received	743	1229	1193	945

Source: SWRCB

CA Public Water Systems

MTBE Monitoring Data *[Cumulative]*

	05/12/97	06/18/98	05/25/99	07/03/00	07/20/01
Systems Sampled/Total	8%	14%	23%	35%	48%
System Detects	15	25	40	32	44
Sources Sampled/Total	17%	27%	46%	61%	73%
Source Detects	24	46	72	55	72
GW Source Sampled/Total	-	-	46%	61%	73%
GW Source Detects	**13**	**26**	**43**	**34**	**46**
% Sampled Detects	**-**	**-**	**0.85%**	**0.51%**	**0.58%**

Source: CA DHS

Detections have Declined and are at Very Low Levels of Detection

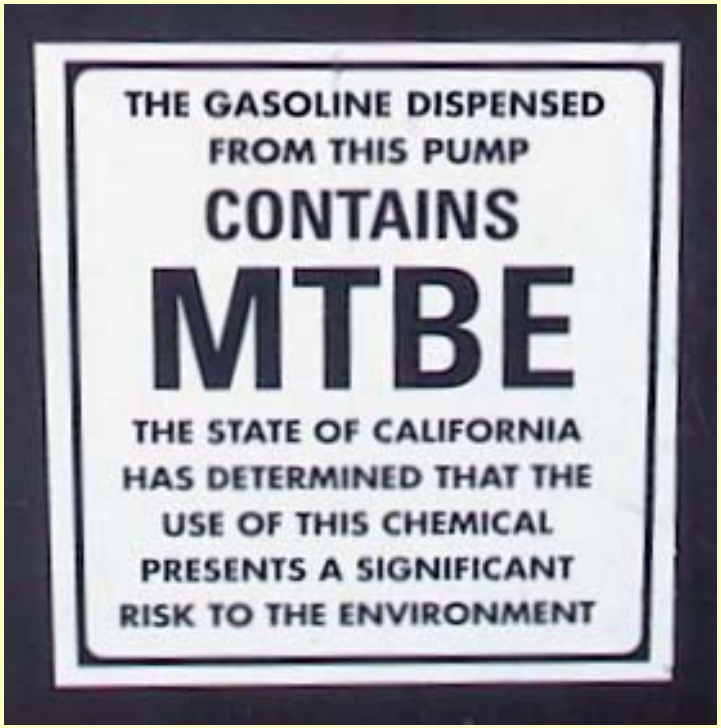
A peer reviewed analysis of the California detections of MTBE in drinking water data published last year by Exponent (in Soil Sediment & Groundwater) concluded that …

… Average MTBE levels in California drinking water have declined steadily from 1995 to 1999.

CA UST Studies & Reviews

- SWRCB Leak Detection Study - January 1998
- CA Bureau of State Audits - December 1998
- UC MTBE Study - November 1998
- CA UST Advisory Panel - January 1999
- Non-Upgraded UST Workgroup - January 2001
- CA UST Program Enforcement Panel - August 2001

All Pointing to UST Program Enforcement Problems!



MTBE in Gasoline has NOT been a Significant Risk to the Environment

… it was the Lack of Enforcement/Compliance with Pre-Upgrade UST Regulations

BOTTOMLINE …

Lacking Effective UST Enforcement

- Unreported UST System Alarms & Failed Tests
- Leak Detection Ignorance & Tampering
- Delayed Clean Up Response

With Compliant UST Systems … Fewer LUST Incidents

Early Discovery & Response

… Less Costly and More Rapid Clean Up

Problems ➔

Solutions

CA SB 989

Sher - Hayden

Chapter 812, 10/10/99

A Few CA SB 989 Provisions …

- Increased agency tank site inspections from once every 3 years to once a year.
- Enhanced protection of vulnerable drinking water sources from single-walled tank systems.
- Phased-in installation of under-dispenser containment at all sites.
- Increased training requirements to include tank owners & operators.
- Required periodic testing of secondary containment systems, leak detection & alarms.
- Increased civil penalties for tampering with or disabling leak detection systems.

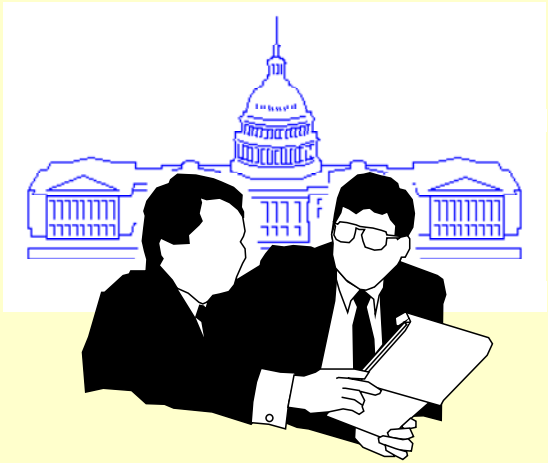
Where are the Environmental Circumstances Predicted by the UC MTBE Study?

Why haven't these Predictions been Reevaluated with Regard to Current Real World Data?

The Message is Clear …

- CEC commissioned “Stillwater Report” documents the current and future gasoline & gasoline component supply problems for CA.
- Due to CA refining capacity and severe differences in gasoline specifications.
- Why add an unnecessary restriction?

MTBE & Other Ether De Minimus Levels in CaRFG3 Regulations

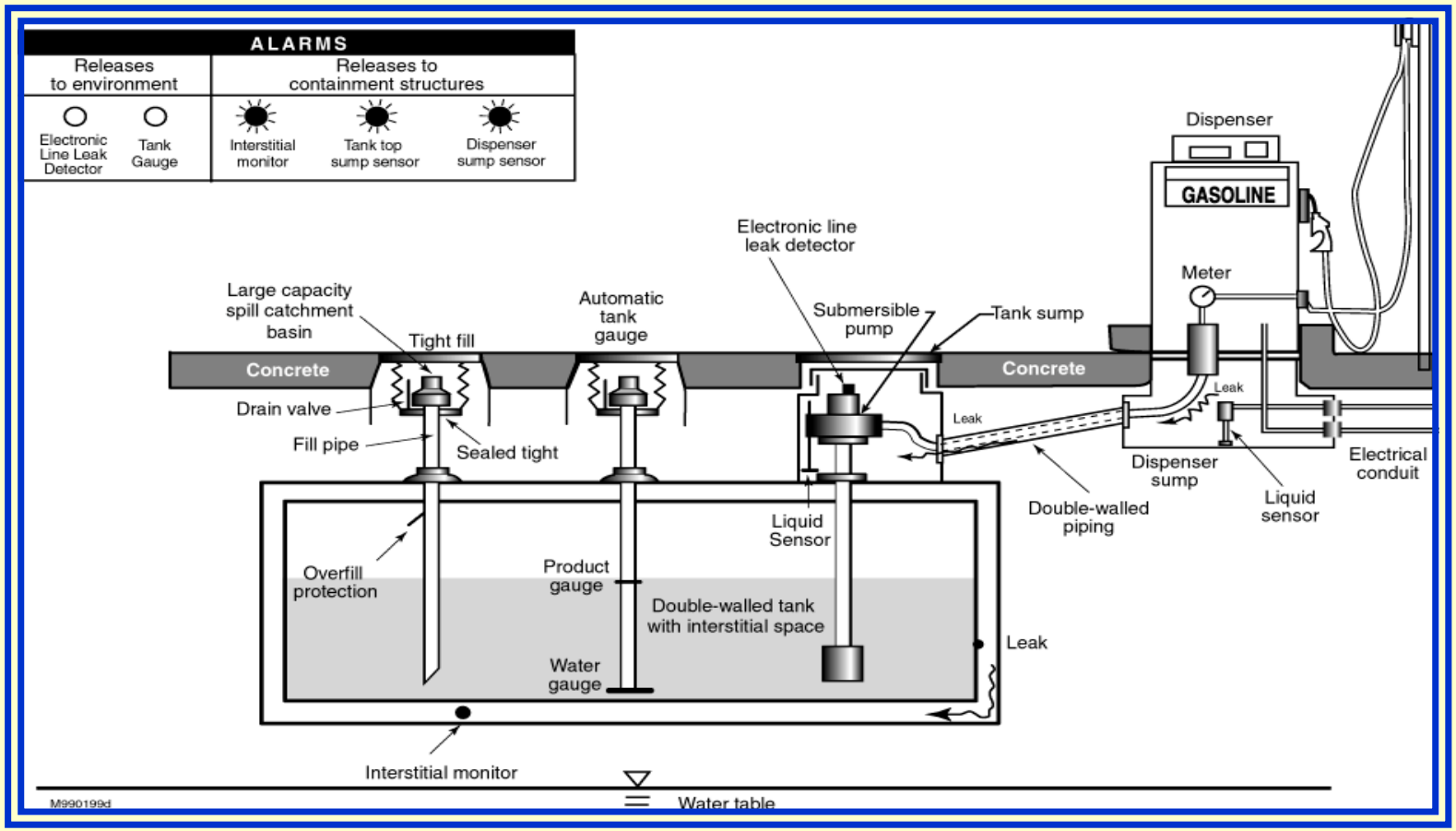


WHITE ENVIRONMENTAL ASSOCIATES
ENVIRONMENTAL GOVERNMENT RELATIONS
428 EAST STONE CANYON WAY
BREA, CALIFORNIA 92821-2648
714-529-0652
FAX 741-529-3679
weajsw@aol.com

CA Hybrid Tank Systems

- Single-Walled Tanks & Piping [pre-84]
- Double-Walled Tanks & SW Piping
- Double-Walled Tanks & DW Piping
- Double-Walled Tanks & DW Piping with Under Dispenser Containment

Double-Walled Tank System



Graphic by ENSR

Local Implementing Agencies (LIAs)

The SWRCB has no enforcement authority

+100 Local UST Enforcement Agencies in CA

LIA Agencies Include …

- City & County Fire Departments
- City & County Boards of Health
- City & County Environmental Departments

LIAs Report to Local Governing Bodies …

- City Councils
- County Boards of Supervisors

Detections of MTBE ≥ 3 µg/L	
County	**GW**
Alameda	-
Calaveras	-
El Dorado	**4**
Kern	5
Lake	-
Los Angeles	**12**
Mendocino	1
Mono	-
Orange	3
Riverside	2
Sacramento	2
San Benito	1
San Bernardino	2
San Diego	2
San Francisco	2
San Mateo	2
Shasta	1
Sonoma	1
Tulare	1
Ventura	-
Yuba	2
Total	**43/52**

Source: CA DHS – 12/04/01

Questionably Adequate UST Program Enforcement

The focus should be on better enforcement through improved training, greater authority and increased resources.

The SWRCB must have oversight authority to enforce where needed.

USEPA State UST Approval Program

- The USEPA has been specifically critical of the CA UST Program decentralized approach.
- The USEPA has never approved the CA UST Program.
- **The USEPA retains enforcement authority over the CA UST Program.**

Are New & Upgraded UST Systems Leaking?

Today, Information is Primarily Anecdotal

- Equipment Faults?
- Improper Installation?
- Inappropriate/Illegal UST System Operation?
- Lacking Maintenance?
- Equipment Tampering?

No Real World Data to Substantiate

CA Groundwater Quality

- Out of 16,000 PSW, 4227 are ADI
  Abandoned, Destroyed or Inactive
- Benzene MCL Exceedance (+) = 14 wells
- MTBE MCL + = 6 wells
- Natural Constituents MCL + = 1162 wells
- Pesticide MCL + = 196 wells
- Solvent MCL + = 329 wells
- Nitrates MCL + = 313 wells

CA Groundwater Quality

Detection Limits for purposes of Reporting (DLR)

Solvent DLR Exceedance = 770 ADI wells

Solvent DLR Exceedance = 2,987 PSW wells

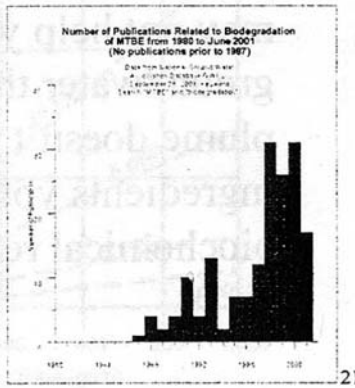
Nitrates > 10 ppm = 5,549 PSW wells

James G. Giannopoulos, SWRCB
Sacramento, CA

MTBE Natural Attenuation

MTBE biodegradation by native degraders has been demonstrated in the lab and field under various redox conditions

- Aerobic
- Iron-reducing
- Methanogenic



This is a young field: The body of MTBE biodegradation literature is growing very rapidly

21

Murray D. Einarson
Palo Alto, CA

Research Findings

MTBE Natural Attenuation

- Field evidence for degradation under aerobic and strongly reducing, anaerobic conditions.
- Laboratory data suggests degradation under a variety of anaerobic conditions.
- More detailed geochemical evaluation may be required.
- Highest published attenuation rates similar to benzene. Many sites may have slower rates.
- Stable isotope approach shows promise as an indicator of in-situ activity.

24

Tim Buscheck, Chevron ER&T
Richmond, CA