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C O V E R

FAX

S H E E T

Date: 1/14/98

To: Sarah Holmgren

Fax #: 916-924 9102

Subject: PAT-meeting

Pages: 6 including this cover sheet.

COMMENTS:

Sarah,
enclosed please find the facts sheet
for VITRE. - Please distribute
among PAT-members.

Thanks!

Rufe Werner

From ...

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MTBE (methyl tertiary-butyl ether)

- used as fuel oxygenate and octane enhancer; added to gasoline since 1990 in winter (11-14.8%) and since 1996 all year; in 1995, 8 billion kg MTBE were added to fuel, 80% in CA; US production in 1995: 21 billion kg.
- projected air quality benefits: 15% reduction in ozone precursors; 11% reduction in CO; 50% reduction in benzene emission.

MTBE is very soluble in water (50 g/L), it volatilizes slowly, is persistent in groundwater and a possible human carcinogen.

Estimated release into the environment in 1993:

atmosphere: 1,672,597 kg/year

water: 41,873 kg/year

underground: 4,267 kg/year

- no estimates exist on car emissions, nor on atmospheric redeposition in surface water and soil. MTBE has a strong tendency to partition into the water phase. There is little sorption to sediments and little bioaccumulation. MTBE is not easily biodegraded.

Half life:

- air: 3-4 days
- water: hours - days (flowing surface water); days - weeks (standing surface water); months - years (groundwater)
- breakdown products: TBF (toxic, half life: 1000-10,000 yrs.), TBA, acetone, formaldehyde, acetic acid

Major sources of MTBE pollution:

- leaking underground fuel storage tanks
- 2-stroke engines associated with recreational boats and personal watercraft (jetskis)
- potentially: urban runoff and precipitation

USGS monitoring study:

MTBE was the 7th most frequent VOC in municipal storm water. Concentrations were highest in winter time. In Sacramento, MTBE was detected in almost 100% of samples. In a small urban stream, MTBE was the 4th most frequent VOC (up to 3 ug/L). MTBE has been detected in groundwater in 20 out of 41 states monitored, and approx. 25% of wells in urban areas were contaminated (20-30 ug/L, Metrop. Water District).

In 1996, the City of Santa Monica had to close major drinking water wells because of MTBE.

MTBE was detected in Lake Tahoe down to 100 m depth.

MTBE cannot be removed with existing water treatment technology.

- EPA health advisory: 20-200 ug/L, detection limit: 0.2 ug/L
- California state action level: 35 ug/L
- LC50 for fish: on the order of 300-500 mg/L (acute tests)
- LC50 for shrimp (*Mysidopsis bahia*): 37-50 mg/L (acute)

So far, very little toxicity data is available on sublethal effect (e.g. reproduction).
Data on MTBE in Delta water is not available.

Request Form for Addition/Deletion to the CALFED
Water Quality Parameter of Concern List

Please complete form as thoroughly as possible and provide all applicable references and information.

Parameter of Concern: TTBE
Presenter:
Agency/Organization: Sierra Club
Address:
Phone/Fax/E-mail:

State the request to add or delete a parameter of concern: add

GEOGRAPHIC SCOPE

Where within CALFED's geographic scope is the parameter of concern causing a water quality problem? (Please see attached map for a description of the CALFED geographic scope) urban creeks / runoff / drinking water wells

PROBLEM

What problem to beneficial uses has been identified by the scientific community (e.g., resource/regulatory agencies, universities, research programs or other) and associated with this parameter of concern? (Please provide references where possible.)

drinking water supplies

Parameter Characteristics	Yes	No
Demonstrated linkage to CALFED objectives, goals and solution principles? (See attachments)	✓	
Causes a water quality problem within CALFED's geographic scope? (See attached map)	✓	
Ameliorating the water quality problem caused by the parameter will benefit the Bay-Delta?	?	
The water quality problem caused by the parameter is generally recognized by the scientific community (e.g., resource and regulatory agencies, universities, research programs or others)?	✓	
Chronic or acute toxicity in bioassays is attributable to the parameter based on toxicity tests (e.g., toxicity identification evaluations, etc.) ?	✓	
Exceeds federal or state drinking water standards in treated water taken from the Delta?	?	
Causes raw water concentrations that require extremely expensive treatment that may or may not satisfy future drinking water standards?	✓	
Impacts aesthetic qualities of drinking water?	✓	
Endangers local wastewater reclamation and groundwater recharge programs?	✓	
Economic impacts associated with the parameter are incurred by consumers?	?	
Causes characteristics of irrigation water that significantly influence sustainable agricultural production or O & M irrigation facilities and on-farm systems?		✓
Preponderance of data on the parameter shows concentrations exceed established criteria for the applicable medium (e.g., water, sediment, or tissue) ?	✓	
Preponderance of data on the parameter shows the exceedances are of a frequency, duration or magnitude that may likely result in adverse impacts to biota inhabiting or using the Delta aquatic ecosystem ?	?	
Research/special studies show a preponderance of evidence of discernible impacts such as, but not limited to behavior, physiological or reproductive impacts associated with a parameter?	?	

concent
unknown

not
known

not
known

not
known

not
known

SCIENTIFIC EVIDENCE

What data indicate exceedances of established criteria for applicable medium (e.g., water, sediment or tissue)? (Please provide references where possible.)

- see enclosed info -

Are data available indicating water quality exceedances are of a frequency, duration or magnitude that may likely result in adverse impacts to biota inhabiting or using the Delta aquatic ecosystem?

- no -

What research/special studies can you provide to the PAT that identify impacts associated with the parameter?

loaking fuel storage tanks : US EPA, 1988 ; Fed. Register, 40 CFR, Part 280, Vol. 53: 185.

2 stroke engines : Dale et al. 1997, Nat. Meeting Am. Chem. Soc. 199:

• and more publications if necessary.

Are there any other supporting data that may be valuable in assessing this parameter of concern?