

Interoffice Communication

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From W. D. Broddle, Medical, Ponca City

Date December 4, 1986

Subject REVIEW OF AMERICAN PETROLEUM INSTITUTE RESEARCH ACTIVITIES
DISCUSSED AT FALL DEPARTMENTAL MEETING

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The above meeting was held October 27-30 and a slightly different format was utilized. Regulatory and legislative issues were presented in the mornings, then the research committees (Toxicology, Occupational Medicine, Industrial Hygiene, Environmental, etc.) discussed the same issues in the afternoons. Highlights of these interactions were as follows:

1. Exposure to Gasoline Vapors

- To reduce exposure to gasoline vapors, federal regulators seem to be favoring automobile "on-board" devices rather than Stage II vapor recovery at service stations. In either case, the theoretical reduction in cancer risk, at best, is only 48 cases annually. The emission controls would certainly reduce the release of hydrocarbons to the atmosphere.
- EPA will issue a new gasoline volatility ruling by June 1987. A RVP of less than 9 psi is being considered. The theoretical reduction in cancer risk, at best, would only be 55 cases annually.
- API is conducting several epidemiology studies that evaluate the health effects of petroleum hydrocarbons. These studies are to be completed by mid-1989. EPA claims that past studies showed petrochemical workers have elevated incidences of blood and lymphatic cancers.

2. Groundwater and Air Pollution

- Clean-up of hazardous waste sites will soon accelerate due to passage of the five-year, \$8.5 billion, Superfund bill; \$0.5 billion additional funds will deal with leaking underground tanks having petroleum products.
- The API Toxicology Committee will participate in the following activities:
 - Toxicity evaluation of petroleum industry pollutants found in land disposal sites.
 - Toxicity evaluation of air emissions from land farming sites.

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- (3) Toxicity evaluation of pollutants most commonly released by petroleum industry operations.
- c. API plans to prepare a white paper that explains quantitative risk assessment as to its theory, practice, and limitations; industry pollutants, and their health effects (organ damage, cancer, etc.) will be compared to "real-world" health risks (lightning, car and home accidents, etc.)
- d. EPA, as dictated by the Safe Drinking Water Act, is setting recommended maximum concentration levels, RCMLs, for water pollutants. EPA proposes to set a RCML of zero for known human carcinogens; API will try to convince EPA to set some low, quantifiable concentration that does not present a significant health risk.

3. Benzene

- a. API has responded to several state regulations, including the following:
 - (1) Florida recently adopted a 1 ppb groundwater limit. API argued that a 10-100 ppb limit would protect human health. Technology does not exist for cleaning groundwater so that benzene is <1 ppb. Interestingly, nonwater sources account for >99 percent of benzene exposure (workplace, 1 ppm; urban air, food, and cigarettes, 1-3 ppm).
 - (2) California proposes to reduce benzene 50 percent in the air by the year 2000 (present concentration averages 3 ppb). This may necessitate that gasoline contain <1.4 percent benzene and replace the difference with methanol, MTBE, or other oxygenates (3-4 percent). Hydrocarbon emissions at service stations may need to be reduced.
 - (3) New York is proposing a 1 ppb limit for benzene in surface water.
- b. API has given \$0.25 million to the Chemical Industry Institute of Toxicology to define the mechanisms of toxicity for benzene. It is known that benzene induces leukemia in one strain of mice by activating a virus.

4. Health Hazard Review of Refinery Products

Two international organizations, IARC (International Agency for Research on Cancer) and CONCAWE (Europe's counterpart to API) have intensified their activities involving refinery streams. IARC plans to publish a document in 1988 which determines the relative carcinogenic

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properties of crude oil and motor or heating fuels. CONCAWE will initiate, in January, mouse skin painting studies to evaluate systemic and carcinogenic potency of refinery middle distillates (gasoline and diesel fuels).

5. Miscellaneous Issues

- a. API continues to prepare for the EPA Test Rules involving C₉ aromatics (i.e.; ethyl toluene, etc.) and hexane/methylcyclopentane. Each toxicity testing program will cost \$1-3 MM.
- b. Neurotoxicity and reproductive effects are starting to rival cancer as the dominant health concern for Congress, regulators, and industry. The recent attention given solvent-induced neurotoxicity is a good example. Workplace exposures, waste disposal, and product labeling may all become involved.
- c. The API Toxicology Committee budget has changed drastically in recent years.

1984	\$3.3 MM
1985	\$1.6 MM
1986	\$1.6 MM
1987	\$1.5 MM

This concludes my report, but contact me if further clarification or documentation is needed.



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