PLAINTIFF'S EXHIBIT

CAP-1248

A/C Pipe
Producers Association
Executive Committee
International Affairs Committee

Fils

Internal Correspondence

TO J. F. Welch

FROM J. F. Welch, Vice President

DATE July 9, 1982

SUBJECT U.S. Environmental Protection Agency (EPA) - Research Outlook 1982

ACTION REQUIRED: Review for information

Enclosed are excerpts from the EPA publication "Research Outlook 1982" which covers general research trends for the Agency. The section on drinking water research in enclosed in its entirety. Your attention is directed to page 105 and the statement that health research for asbestos will be completed by September 1982. This timetable is for the Office of Research and Development not the policy making Office of Drinking Water. The time-frame would be consistent with the National Academy of Sciences schedule for reassessment of the health effects evidence on asbestos in drinking water.

If you have any questions, please do not hesitate to call.

JFW/ajb

Enclosure

cc: A. Kahn, Esq.
W. E. Smith, M.D.
Brian Commins, Ph.D.

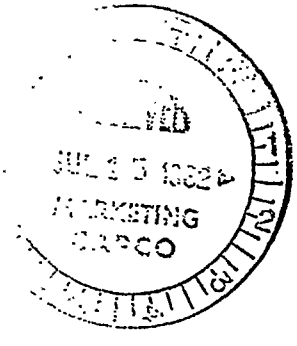
copies to:

Executive Committee

L. Ambler
J. Cran
L. Taylor

International Affairs Committee

E. van der Rest
R. Dorner
L. Giannitrapani
N. Officer
P. Hart
A. Saoulis
R. Jalan
V. Pattabhi
H. Hudson
C. Barton
S. Al-Tarkait
M. Delcourt
J. Cuvelier
B. Giboin
G. Zaviezo
J. Rodrigues
Dimatit
J. Schmaus



H01EI20704
Chrono

DRINKING WATER

INTRODUCTION

EPA's drinking water research program is designed to support the states and the EPA program office in their implemention of the Safe Drinking Water Act. This research provides support in the areas of contaminant identification and health effects, analytical procedures for monitoring and quality assurance, control technology and costs and protection of underground sources of drinking water. With 49 of the 57 states and territories currently delegated primary enforcement authority for public water systems, this support is increasingly oriented towards local needs. Several groups including the non-governmental National Drinking Water Advisory Committee (NDWAC), the EPA's Science Advisory Board, and the National Academy of Sciences (NAS) have helped to identify the research necessary to answer the following questions: How can analytical measurements be assured to be precise, accurate and thereby create valid data? What unique problems are associated with the delivery of high quality drinking water in small systems? What research should be done and what assistance should be given to the Office of Drinking Water (ODW) relating to drinking water additives? What are the costs of health degradation due to water contamination incidents? How can underground sources of drinking water be adequately protected at minimum cost?

LEGISLATED RESPONSIBILITIES

The drinking water research strategy is guided by P.L. 93-523 and its amendments, which together are referred to as the Safe Drinking Water Act (SDWA). From this and other legislation, EPA is responsible for preserving the quality of drinking water throughout the water cycle and developing programs to set National Drinking Water Regulations. The SDWA requires the Office of Drinking Water to provide National Primary Drinking Water Regulations (NPDWR) in relation to drinking water contamination and human health and to provide National Secondary Drinking Water Regulations concerning human welfare. A memorandum of understanding with the Food and Drug Administration defines EPA's responsibilities in regard to drinking water additives. The ODW provides advice and assistance to states and communities when they encounter extreme or emergency pollution problems for which there are no current guidelines or regulations. The ODW provides health advisories for constituents present in drinking water.

Section 1442 of the SDWA specifically authorizes EPA to conduct research studies concerning the occurrence and health effects of contaminants in drinking water, analytical procedures for monitoring contaminants, treatment technologies, protection of underground drinking water sources and exploratory research. Health research data helps ODW to evaluate the relative hazards posed by various contaminants and thus carry out the requirements of SDWA Section 1412.

The ODW has set priorities for work areas based on interpretation of the SDWA and its target dates. Shortcomings in existing information and problems referred from the regions, the NDWAC, and the NAS are determining factors as well. The role of the research staff is also important in priority-setting because of the staff's knowledge of time and cost estimates and its experience in designing and conducting research projects.

During 1982, ODW plans to issue several documents related to development of Revised National Primary Drinking Water Regulations. This includes two Advanced Notices of Proposed Rule Making (ANPRM) -- one for organic chemical contaminants of groundwater and one a comprehensive discussion of organic, inorganic, microbial and radionuclide contaminants. In addition, a decision will be made on revised fluoride regulations.

In 1983, ODW plans to continue the development of revised National Primary Drinking Water Regulations which will include publication of Recommended Maximum Contaminant Levels (RMCLs) for organics, inorganics, radionuclides and microbial contaminants, proposed MCLs for volatile organics and fluorides (if appropriate) and a final rule (MCL) for fluoride.

In 1984 and 1985, ODW plans a comprehensive review of all contaminants related to disinfection processes, including trihalomethanes and other by-products, and the disinfectants themselves. ODW's priorities become the basis for the Research Committee's Strategy. Research planned for 1984 and 1985 will in part depend upon the reauthorization of the SDWA and any changes that occur during its reauthorization.

RESEARCH STRATEGY

EPA's basic research strategy is to create a balanced program including short- and long-range health studies, improvements to analytical methods, a quality assurance program and treatment techniques. Many projects consider both ground and surface water problems. In addition, some groundwater protection research has been directed towards understanding and predicting underground movement of injected contaminants.

One area where there is a large need for data is in the measurement of long-range potentially harmful effects of trace organics and the treatment of waters containing them. Another priority area is research into the relationship of inorganic drinking water contaminants (including metals, non-metals, asbestos, radionuclides and corrosion-related issues) to human health. Microbiological contaminant exposure assessment, measurement, effects and control must remain the highest public health priority because outbreaks of waterborne diseases still occur in the United States. Distribution and containment systems in general need more study in order to understand and control corrosion and other situations where indirect additives can be leached into drinking water. Other research efforts seek cost-effective treatment units to remove most of these contaminants from small water supplies that are out of compliance.

Many of the ORD laboratory studies are planned to support ODW in implementing or reducing regulations. In 1982 and 1983, research will emphasize direct support for the regulatory decision processes on volatile organics, microbiological contaminants, radionuclides, inorganic chemicals, and other organic contaminants. A discussion of specific research areas follows.

Exposure and Effects of Contaminants

Advances in methods make it possible to identify and measure contaminants in water which could not be addressed before. Some water treatment technologies and materials presently in use have been found to introduce contaminants into water, or to create in the water reaction products whose existence was not known at the time these treatment methods were developed. Exposure studies provide a basis for surveys or monitoring of the frequency and concentration of contaminants in various types of water supplies and for estimating the amount of a contaminant being absorbed from drinking water by consumers. Exposure studies and pharmacokinetics (absorption, distribution, excretion and metabolism) provide a partial basis for determination of relative source contribution and dose assessment. When adverse effects are known to be associated with a contaminant's occurrence, exposure data may help to focus priorities for control strategies. Health research further determines whether organic, inorganic, radionuclide, microbiological and combined pollutants cause health problems and, if so, how the problem changes with concentration or water treatment method.

Analytical Procedures

A national quality assurance program is mandated to support the SDWA and the National Interim Primary Drinking Water Regulations. This effort includes provision of precise and reliable measurement systems for official use. It includes methods research and methods standardization to provide monitoring procedures for chemicals, radio-chemicals and microbes. Quality control procedures and guidelines are provided for use in documenting data quality and systems performance. The program provides criteria and procedures for on-site evaluation and certification of laboratories, an evaluation of alternate test procedures, and an overview of Agency-wide mandatory quality assurance activities. Some specific functions of the program are: 1) to produce and distribute quality control and performance evaluation samples for chemical and microbiological analysis for water supply laboratory certification programs; 2) to develop and distribute radioactivity standards and reference materials for radiochemistry analysis; 3) to conduct methods validation studies for chemistry, radiochemistry and microbiology; 4) to conduct laboratory evaluations and intercomparison studies; 5) to modify well-sampling equipment; and 6) to conduct feasibility studies for a national program to locate abandoned wells and investigate the feasibility of mapping underground fluid movement from injection wells.

Treatment Technologies

Research is primarily concerned with treatment technologies which will control three types of contaminants: organic chemicals (including disinfection by-products), inorganic chemicals (including particles), and microbiological.

In the organic chemical category, studies are being conducted to increase knowledge of organic chemical behavior in aqueous systems and to assess treatment technologies to determine their feasibility in meeting drinking water standards. Other research covers the removal of organics by aeration and adsorption, control of disinfection by-products, and the role of natural humic substances. Emphasis is on the evaluation of control technology specifically adapted to small systems.

In the inorganic chemical category, there are a number of contaminants of health concern including nitrate, metals and radionuclides. The effects of corrosion in distribution systems on drinking water quality are of major concern. Technology development research focuses on evaluation and field testing of removal techniques for radionuclides and other inorganics including uranium, radium, arsenic, barium, selenium, fluoride, and nitrate, with emphasis on small systems applications.

Research on corrosion control includes methods for protection of asbestos-cement pipe from deterioration, prevention of corrosion of lead pipes by methods other than pH adjustments, control of corrosion in galvanized pipe, and determination of leachates from plastic pipes and various coatings and linings. A corrosion control manual will be produced describing treatment methods and their cost and benefits.

In the microbiological category, technology research addresses the occurrence, identification and control of waterborne pathogens including Giardia cysts, Legionella pneumophila, and viruses. Studies are included to determine causes of bacteriologic water quality deterioration in treatment processes and in distribution systems. The use of disinfection procedures other than chlorination to reduce organics in drinking water has raised questions regarding the adequacy of microbial control. This problem is being addressed. Research emphasis is on the evaluation of various water treatment processes to remove or inactivate pathogens in small water systems.

Engineering economics is an integral part of the technology research and development. Studies address the development of cost/performance data for water treatment unit processes and costs of treatment technologies for removing specific contaminants. Included is the analysis of the cost-effectiveness of alternatives such as package plants, circuit riders, and regionalization as compliance methods for drinking water contamination in small systems. In addition, efforts are underway to develop improved cost/benefit estimating methods.

Protection of Underground Sources

Research addresses the following four areas: (1) improved methods for detecting contaminants in the subsurface and interpreting the results; (2) methods for predicting the behavior of pollutants in aquifers based on subsurface (site-specific) characteristics and on characteristics of the pollutants; (3) data for regulatory and management decisions on control of specific sources of underground water pollution; and (4) evaluation of water sources for in situ aquifer reclamation methods. In addition, several products are being generated to support the Resource Conservation and Recovery Act (RCRA). These products are models and field evaluations to predict pollutant plumes in underground water sources.

The subsurface environment continues to be expensive to access and the results of sampling difficult to interpret in terms of predicting the transport and transformation of contaminants. In 1982 indicators of underground water contamination will be selected and evaluated. The behavior of 20 organic chemicals in a few subsurface environments has already been determined. However, with numerous

chemicals of concern and many soil types, the subject has barely been touched. The findings do indicate that we will ultimately be able to determine a few characteristics of concern both for chemical contaminants and soil type which will allow the prediction of the impact of whole classes of chemicals in various subsurface water environments. Also of importance is research into the behavior of microbiological contaminants, especially viruses.

A number of sources of underground water pollution are being studied. Manuals are in preparation on safe injection of treated wastewater and determination of appropriate septic tank density. The latter is being prepared in cooperation with the small wastewater flows research program.

Since the pollution of underground water seriously threatens public drinking water supplies, the underground water sources research program will begin investigating the economic and technological feasibility of cleaning up polluted aquifers in situ. This is generally a very expensive process, but there may be locations where this will either be more cost-effective than treatment, or development of alternate drinking water supplies will be the only feasible option. In 1982 the efficacy of practices tried in the past will be determined.

Exploratory Research

Potential exploratory research subject areas include: adsorption reactions, process improvement, new microbiological quality measurement methods for microbes in water distribution systems, microbial reduction in different treatment trains, modes of viral inactivation, bromide reaction during ozonation, organic compound combustion during granular activated carbon regeneration, industrial recycle/reuse potential, occurrence and health effects of microbial contaminants, and remedial measures for underground water supplies contaminated by agricultural pollutants.

MAJOR MILESTONES

A sample of major milestones in the drinking water research program is listed below.

- State-of-knowledge report on mobility of organic chemicals in different soil regimes - 8/1982
- Report on efficiency of unit processes used in treating drinking water for control of viruses and bacteria - 6/1982
- Description of available methods for determining mechanical integrity of injection wells in terms of accuracy, cost, and effectiveness - 9/1982

- Complete health research for lead, sodium, barium and asbestos - 9/1982

- Determine effects of treatment processes on microorganisms - 8/1983

- Reports on control of organic contaminants from ground and surface sources, control of inorganic contaminants, control of corrosion of distribution systems and removal of particulate contaminants - 9/1983

- Modify well-sampling equipment and report on locating abandoned wells and mapping underground fluids movements - 9/1983

- Report on detection of groundwater pollution by using indicator parameters based on transport and fate - 9/1983

- Report on past groundwater reclamation practices - 9/1983

- Determine the health hazard of Legionella - 10/1984

- Determine effects of chemical contaminants of water including: selenium, selected pesticides, and uranium - 6/1985

A/C Pipe
Producers Association

Internal Correspondence

TO: Board of Directors

FROM: J. C. Jackson, President — J. C. Jackson/ajb

DATE: September 30, 1981

SUBJECT: Meeting Agenda

ACTION REQUIRED: **Review for information and follow on discussion at 10/15/81 BOD meeting.**

Enclosed in the order in which they appear on the meeting agenda are the following supportive documents:

I.A.	Atlas-Turner correspondence.
V.B.	9/25/81 Strategic Operational Plan (SOP) update.—not included
V.C.1	Ad Hoc Committee recommendations.
V.C.2	Proposed amendment.
VI.A	Field Problems & Litigation status report.
VI.B	1982 Meeting Schedule*
VII.A	Proposed resolution.

*Included in 9/25/81 SOP update.

Material relevant to the following agenda topics was forwarded previously:

II.	4/16/81 Meeting Minutes
III.	10/15/81 Meeting Agenda

Documentation, if any, pertinent to the remaining agenda topics will be distributed at the meeting.

The preliminary program for AACPP's Washington Workshop VI is being forwarded by separate transmittal.

JCJ/ajb

Enclosures

cc: A. Kahn, Esq.
N. Rahn, Esq.

copies to: Board of Directors

I. Adams
L. Ambler
J. Cran
J. Grinda
P. Martinez
L. Taylor

AA/12
Chrono