

GOVERNMENT OF THE DISTRICT OF COLUMBIA
MAYOR'S HEALTH POLICY COUNCIL
Spring Valley Scientific Advisory Panel

Anthony A. Williams
Mayor



Bailus Walker, Jr., Ph.D., MPH
Chairman

May 22, 2001

Major Michael Peloquin
U.S. Army Corps of Engineers, Baltimore District
Post Office Box 1715
Baltimore, MD 21203-1715

Dear Major Peloquin:

As you are aware the Mayor appointed a Spring Valley Scientific Advisory Panel (Mayor's Order 2001 - 32, dated March 1, 2001). A report of the Panel's first meeting held on April 25, 2001, and a listing of the membership are enclosed for your information.

Please feel free to contact me at 202-727-9239, should you wish to discuss the report, or if you have any related questions.

Respectfully,

A handwritten signature in cursive script that reads "Bailus Walker, Jr.".

Bailus Walker, Jr., PhD, MPH
Chairman, Mayor's Spring Valley Scientific Advisory Panel

Enclosures:

- Report of the Spring Valley Scientific Advisory Panel
- Spring Valley Scientific Advisory Panel Members

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**REPORT OF THE
DISTRICT OF COLUMBIA
MAYOR'S SPRING VALLEY
SCIENTIFIC ADVISORY PANEL**



**DISTRICT OF COLUMBIA
MAYOR'S SPRING VALLEY SCIENTIFIC
ADVISORY PANEL**

Bailus Walker, Jr., PhD., MPH
Professor of Environmental & Occupational Medicine
Howard University College of Medicine
Chairman of the Committee on Toxicology
National Academy of Sciences
Chairman

Deitra H. Lee, JD, MPA
District of Columbia Mayor's
Spring Valley Scientific Advisory Panel
Executive Director

Kenneth P. Cantor, PhD., MPH
Epidemiologist and Senior Researcher
Division of Cancer Epidemiology and Genetics
National Cancer Institute

Sidney Green, Jr., PhD.
Graduate Associate Professor of Pharmacology
and Toxicology
College of Medicine
Howard University

***Tee Lamont Guidotti, MD, MPH**
Chair of the Department of Environmental
and Occupational Health
Professor of Occupational Medicine, Epidemiology
and Pulmonary Medicine
School of Public Health and Health Services
George Washington University

Stephen Havas, MD, MPH, MS
Professor of Epidemiology and Preventive Medicine
School of Medicine
University of Maryland

Paul Kostecki, PhD
Research Associate Professor of
Environmental Health and Sciences
Environmental Health and Sciences Department
University of Massachusetts at Amherst

Jeffrey Kraskin, OD
Optometrist and Spring Valley
Community Representative

Rebecca T. Parkin, PhD., MPH
Associate Research Professor of Environmental
and Occupational Health
School of Public Health and Health Services
George Washington University

Jackie Prince Roberts, MES, MPPM
Program Manager for the Environmental
Alliances Program
Environmental Defense

* Panel member did not attend meeting on April 25, 2001

**REPORT OF THE
DISTRICT OF COLUMBIA MAYOR'S SPRING VALLEY
SCIENTIFIC ADVISORY PANEL**

INTRODUCTION

Under the provisions of Mayor's Order 2001-32 (March 1, 2001), the District of Columbia Mayor's Spring Valley Scientific Advisory Panel (the Panel) held its first advisory meeting on April 25, 2001. The meeting's agenda is attached along with a summary of the presentations to the Panel. The full text of the all presentations, including visual aids (slides, PowerPoint visuals) are available at the Office of the Panel's Executive Director located at 51 N Street, NE, 3rd Floor, Washington, DC 20001. Following the presentations and discussion among the presenters and Panel members, the Panel met in Executive Session (Panel members only). The Panel's conclusions and recommendations follow.

RECOMMENDATION ONE

A Plan

The District of Columbia's Department of Health should develop a comprehensive plan, the objective of which is to address concerns about the exposure to and the health effects of contaminants in the Spring Valley Community. This plan should delineate the roles and responsibilities of the multiple agencies involved in the project. For instance, the U.S. Army Corps of Engineers is pursuing work to determine potential exposure (soil sampling).

An appropriate reference frame for the plan is illustrated in the figure presented by Dr. Susan Metcalf of the Agency for Toxic Substances and Disease Registry (see attached). That figure is the "standard model" for relating environmental contamination with clinical disease. It is also found in numerous environmental medicine/health and/or toxicology textbooks and other related references.

Using that model, the District of Columbia's Department of Health along with its federal agency partners should determine how much, and what types of data are available or can be obtained for each entity or block in the model.

The Panel recognizes that it may not be practical to obtain all the data necessary to give precise answers to specific questions, which may be raised by the community members or other interested parties. For instance, assessing chemical mixtures. In reality, numerous chemicals are often present in environmental media such as soil or food resulting in concomitant exposure of humans either concurrently or sequentially to multiple chemicals. It is highly unlikely to be sufficient data for a precise or near-precise assessment of chemical mixture. There will be numerous other areas for which data are not available, and cannot be readily obtained. Indeed there is no "magic" in the scientific process, and science cannot give simple answers to complicated questions as quickly as may be

desirable. The Panel is of the view that the agencies should clearly define in a coherent fashion, the minimum data set needed to draw reasonably sound conclusions about the environmental health conditions in Spring Valley, recognizing uncertainties often inherent in the scientific process.

RECOMMENDATION TWO

Soil Sampling Analysis

The Panel recommends that the U.S. Army Corps of Engineers clearly articulate its strategy with respect to other contaminants – which contaminants may be present, and how these chemicals are being investigated. If it is established that the strategy is not comprehensive, the U.S. Army Corps of Engineers should develop another strategy based on further recommendation from the Panel.

The Panel is in general agreement with the soil sampling/testing plan proposed by the U.S. Army Corps of Engineers. Data obtained from this analytical process will provide information on “potential exposure” rather than “actual exposure” to the contaminants in the Spring Valley Community.

The Panel emphasizes that environmental measurements of air, water, soil or food represent potential exposures. Individuals residing in Spring Valley are likely to have significantly different actual exposures, depending on a number of factors such as occupation, proximity to the source of contamination, indoor pollution sources, and activity pattern (e.g., time spent indoors versus out). Therefore, although the potential for exposure may be the relatively similar, not all potentially exposed persons will experience the same actual exposure throughout in Spring Valley community. It is becoming increasingly apparent that a person’s activity pattern is an important determinant of environmental exposure to most pollutants/contaminants.

RECOMMENDATION THREE

Chemical Characterization

The Panel recommends that the U.S. Army Corps of Engineers identify the chemical form or speciation of arsenic and other metals found in the soil analysis. Chemical form or speciation of the metal can be an important factor, not only for pulmonary and gastrointestinal absorption, but also in terms of distribution throughout the body and toxic effects.

Arsenic is particularly difficult to characterize as a single element because its chemistry is so complex, and there are many different arsenic compounds. It may be trivalent or pentavalent and is widely distributed in nature.

Airborne arsenic is largely trivalent, but deposition in airways and absorption from the lungs is dependent on the particle size and the chemical form. It has been known for some years

that trivalent compounds of arsenic are the principal toxic forms.

RECOMMENDATION FOUR

Biomonitoring

The Panel recommends that the District of Columbia's Department of Health utilize the results of the U.S. Army Corps of Engineers proposed soil sampling as an indicator of places (neighborhoods within the Spring Valley Area) where additional biomonitoring should be implemented.

The Panel is fully aware that biomonitoring (hair analyses) has been conducted on a sample of the population at risk. But, the Panel believes that a "complete dataset" should include additional potentially at risk persons, specifically families or individuals residing in close proximity to the so-called "hot spots."

In biomonitoring it should be recognized that arsenic in hair may reflect past exposure, but intrinsic or systematically absorbed arsenic in hair should be distinguished from arsenic that is deposited from external sources, which may be difficult.

This recommendation for additional biomonitoring is not to suggest that every person in close proximity to a "hot spot" be monitored; rather a scientifically appropriate sample of the potentially exposed group should be selected for biomonitoring.

RECOMMENDATION FIVE

Cancer Registry Data

The Panel recommends that the District of Columbia's Department of Health select a different community or census tract for the purpose of comparing cancer incidence and mortality in the Spring Valley Community. The proximity (adjacent census tract) of the "case" to the "control" in the present Cancer Registry analyses makes it difficult to know whether the factor(s) determining the development of cancer is exposure to the soil contaminants being studied or another characteristic associated with living in the Spring Valley area or in the adjacent census tract. This is not to suggest that choosing the "right" control population would imply that the cancer differences are based only on exposure to arsenic.

In other words, it is not unreasonable to hypothesize that persons residing in the census tract that is adjacent to the Spring Valley area may have similar exposure to contaminants being studied. Therefore, the District of Columbia's Department of Health should select another "control" population to ensure that the difference in potential exposure will likely constitute the critical difference and the absence or presence of cancer (in this analyses), and is not likely to be attributable to differences in other factors (e.g., socioeconomic, etc.). The District should make sure to select a control population that is roughly matched with the case population (Spring Valley community) in age, race, and socioeconomic status.

RECOMMENDATION SIX

Risk Communication

The Panel recommends that the District of Columbia's Department of Health, in collaboration with other agencies (e.g., Environmental Protection Agency, U.S. Corps of Engineers) develop a well thought out approach to risk communication – the interpretation and translation of all environmental and health related data collected relevant to the Spring Valley Community. Special attention should be paid to what Spring Valley residents want to know about the detected and measured contaminants and their health effects. Communication is a two-way street. Unless the government agencies know what the Spring Valley residents want and need to know, time and energy may be wasted.

The Panel believes it important that the involved governmental agencies enhance community members understanding of the fundamental principles of toxicology, and environmental risk including concepts of exposure, dose and bioavailability – the ability of a contaminant that enters the body to be liberated from its environmental matrix (e.g., soil, water, tissue) and to enter circulation. Bioavailability varies not only with the chemical itself but also with the matrix (soil, water, and food). For example, the likelihood that a plant will take up a contaminant from the soil is also a function of bioavailability.

CONCLUSION

The Panel concludes that further steps (e.g., data collection, analysis) are necessary to provide sufficient information for a more complete understanding of environmental and health conditions in the Spring Valley community. The additional activities needed are reflected in the recommendations of the Panel.

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**REPORT OF THE
DISTRICT OF COLUMBIA
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Attachments**



**DISTRICT OF COLUMBIA
MAYOR'S SPRING VALLEY SCIENTIFIC ADVISORY PANEL**

825 North Capitol Street, NE, Washington, DC

Conference Room 4131

Wednesday, April 25, 2001

10:00 a.m. – 2:00 p.m.

*** AGENDA ***

I. Welcome and Call to Order

Bailus Walker, Jr., PhD, MPH, Chairman, Spring Valley Scientific Advisory Panel

II. Presentations

Moderator: *Bailus Walker, Jr., PhD, MPH, Chairman, Spring Valley Scientific Advisory Panel*

History of the Spring Valley Site & USACE's Soil Sampling Strategy

Major Brian Plaisted, Deputy District Engineer for Spring Valley

U.S. Army Corps of Engineers, Baltimore

Agency for Toxic Substances and Disease Registry's Exposure Investigation

Susan Metcalf, MD, MSPH, Chief, Exposure Investigation Section

Agency for Toxic Substances and Disease Registry

American University's Exposure Investigation

Paul Chrostowski, PhD, QEP, FRSH, Principal

CPF Associates, Inc.

Summary of the Health Effects

Lynette Stokes, PhD, MPH, Chief, Bureau of Hazardous Material and Toxic Substances

Department of Health

Descriptive Epidemiological Study of Cancers Associated with Arsenic

Vincent Kofie, PhD, Director of Surveillance and Epidemiology

Department of Health

IV. Executive Session/Panel Member Discussion

V. Adjournment



**DISTRICT OF COLUMBIA
MAYOR'S SPRING VALLEY SCIENTIFIC
ADVISORY PANEL MEETING**

APRIL 25, 2001

PRESENTATION SUMMARIES

History of the Spring Valley Site & USACE's Soil Sampling Strategy

Major Brian Plaisted of the Baltimore District, US Army Corps of Engineers (USACE) will present an overview of the USACE involvement with the Spring Valley site, from an historical and recent perspective. The US Army Corps of Engineers will also present the soil sampling strategy developed to measure the arsenic level within the Spring Valley community.

Agency for Toxic Substances and Disease Registry's Exposure Investigation

Dr. Susan Metcalf of the Agency for Toxic Substances and Disease Registry (ATSDR) will discuss the results from their exposure investigation of the children at Child Development Center in Spring Valley.

American University's Exposure Investigation

Dr. Paul Chrostowski of CPF Associates, a private consulting firm engaged by the American University, will cover the environmental monitoring conducted by the US Army Corps of Engineers and American University; the biological monitoring at American University; and the environmental health intervention at American University.

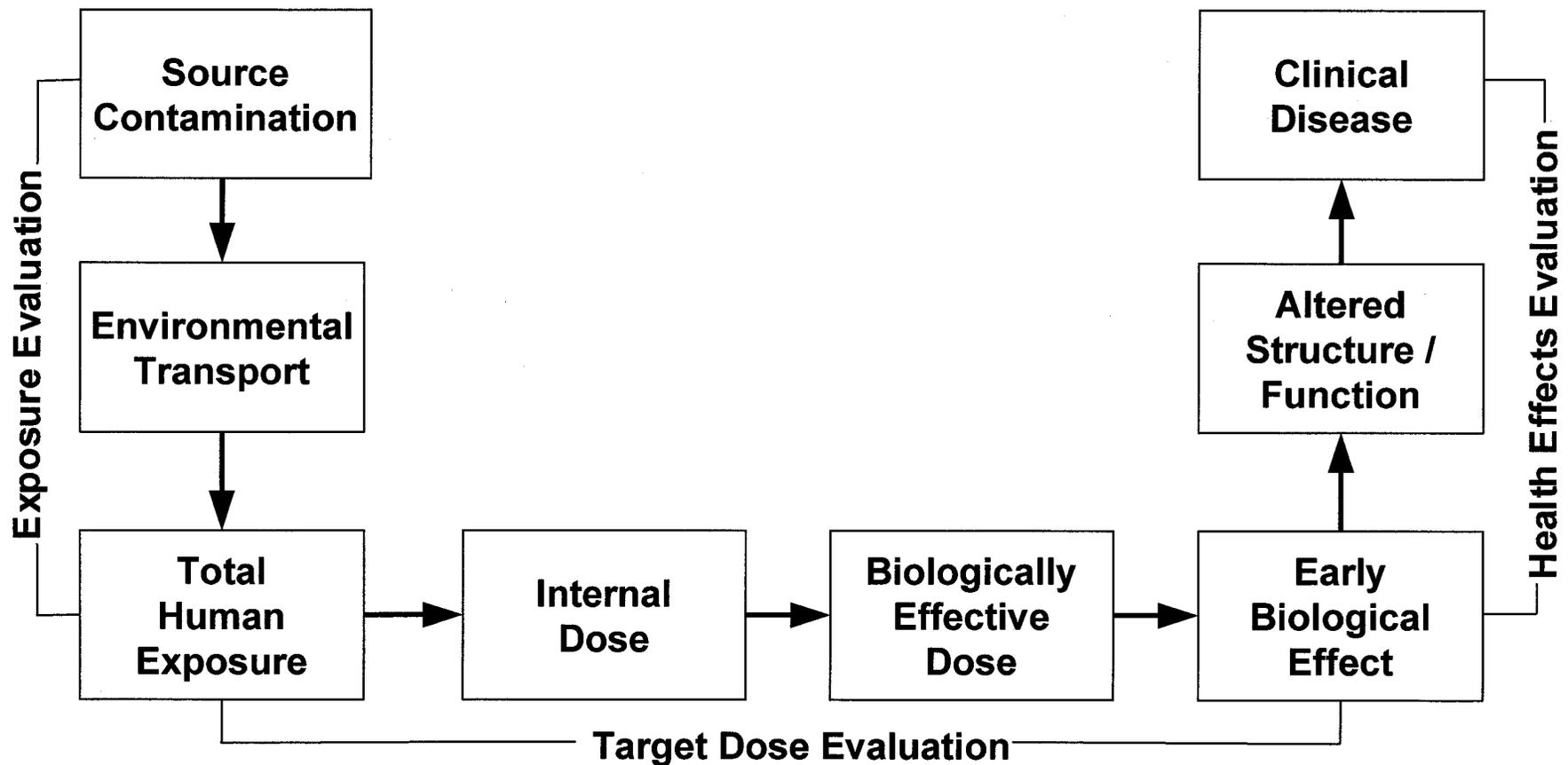
Summary of the Health Effects

Dr. Lynette Stokes of the DC Department of Health will present a review of the human health effects, including epidemiological studies where measurable levels of inorganic arsenic in environmental media have been reported.

Descriptive Epidemiological Study of Cancers Associated with Arsenic

Dr. Vincent Kofie of the DC Department of Health (Cancer Registry) will present data related to a descriptive epidemiological study of cancers associated with arsenic. Dr. Kofie will explain data comparing the cancer incidence in the Spring Valley census tract with a census tract adjacent to the targeted community.

Continuum for Relating Environmental Contamination with Clinical Disease



ATSDR