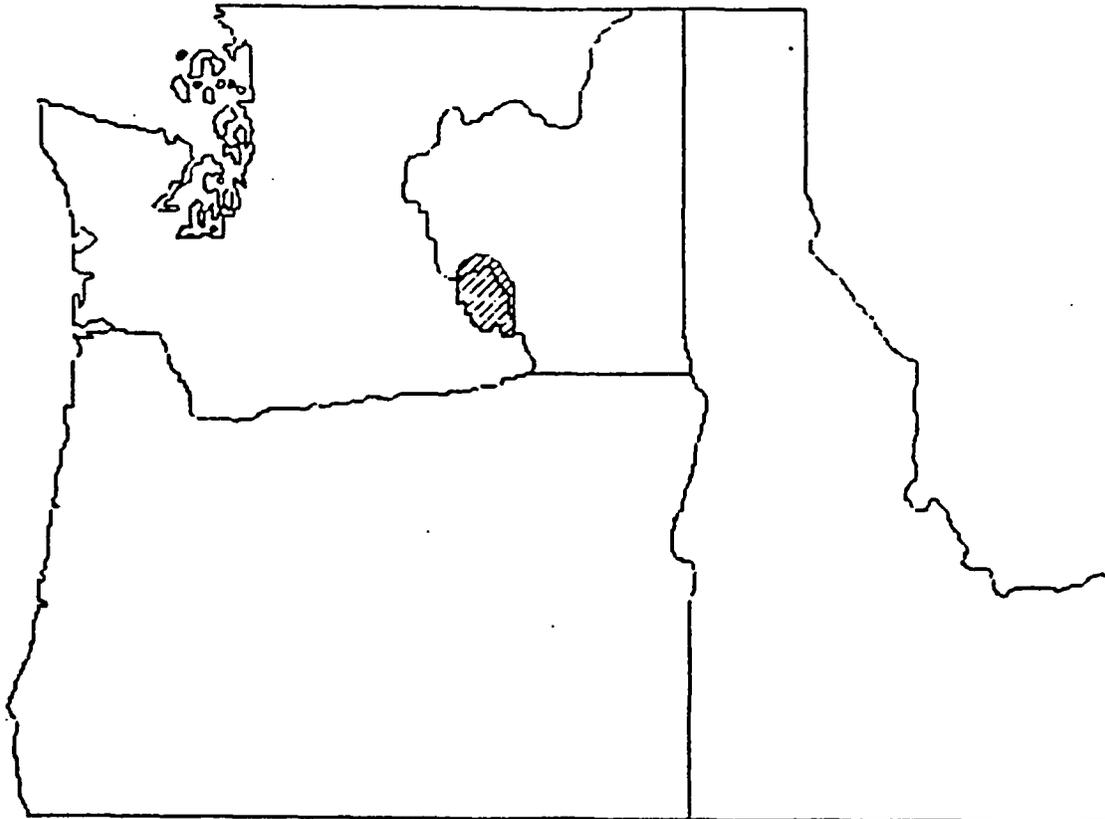


# Hanford Health Effects Panel

Richland, Washington

September 26, 1986

## PRELIMINARY RECOMMENDATIONS



### Sponsored By:

The State of Washington,  
The State of Oregon,  
The Yakima Indian Nation,  
The Confederated Tribes of the  
Umatilla Indian Reservation,  
The Nez Perce Tribe,  
The Indian Health Service

Coordinated by the Washington Department of Social and Health Services,  
Office of Radiation Protection

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## Preliminary Recommendation

### Community Epidemiology

The Hanford Health Effects Panel (HHEP) recommends that additional studies of the possible effects of all past radiological exposures be considered. We recognize that uncertainty exists in the precise radiation dose, populations exposed, and whether or not adverse health effects have occurred as a result of releases from the Hanford facility.

The HHEP further recommends that as the highest priority a system be developed to determine morbidity of thyroid conditions known or suspected to be associated with radiation exposure. We recommend this because of releases reported in the historical documents, the high degree of concern about illnesses suspected to have resulted from these releases, and the potential to gain new scientific knowledge. Then, an appropriate analytic study should be conducted to determine whether or not these conditions are associated with the reported releases.

The involved regional organizations (States and Tribes) should cooperatively select an investigator to develop a study protocol and secure adequate funding.

The HHEP has identified as a high priority the establishment of an integrated prospective health surveillance system which would allow monitoring of health outcomes of concern. The states of Washington, Oregon, Idaho, and the Indian Tribes should first catalog and evaluate the feasibility of utilizing existing data systems such as hospital discharge, tumor registries, health insurance records, laboratory and pathology reports to establish a disease surveillance program before considering the establishment of a new and separate data collection system.

Registries of reproductive outcomes in all three states to include all Native American Tribes would be beneficial for future surveillance but not useful to assess past exposures.

Studies of other diseases/conditions or registry development should be considered as more exposure and health information become available. Some illnesses of concern reported by the public may not be radiation associated but may need to be followed up for other reasons. The HHEP recognizes that other reviews and studies will be proposed and urge that each proposal be required to carefully delineate in a peer/public reviewed protocol the purpose, methods, exposure concerns and statistical power before implementation.

## Preliminary Recommendation

### Hanford Workforce Epidemiologic Studies

1. The current epidemiologic studies of Hanford workers should be expanded to include morbidity and adverse reproductive outcome among workers and their spouses.
2. Initially a mortality study should be undertaken on other personnel who have worked at Hanford, including:
  - a. military personnel assigned to the Hanford Reservation (for example, the personnel exposed to ruthenium in early years),
  - b. construction workers,
  - c. other subcontractor workers if enough of their group can be identified.
3. External radiation doses should be determined as accurately as possible, for all groups studied and an attempt should be made to expand the assessment of internal doses from radionuclides.
4. Hazardous chemical exposures should be determined for each job or department. This should be included in the data base, both retrospectively and prospectively, for epidemiologic studies of possible health effects associated with these exposures.
5. A system should be developed to enter routinely all diagnoses from health insurance claims in the data base so that epidemiologic investigations can be initiated quickly if new health concerns develop within the workforce.
6. Protocols for new studies should include statistical power calculations so that a statement can be made regarding the probability of detecting a true association. For completed studies, confidence intervals should be calculated for risk estimates.
7. The issue of possible statistical control or adjustment for the "healthy worker effect" should be fully investigated.
8. A mechanism should be developed, at least prospectively, to track workers after they leave Hanford so that the occurrence of illnesses of interest can be monitored.
9. The Committee recommends that state health officials and Indian Tribes continue to be kept informed about any DOE health studies that involve their citizens.

We understand that some of these recommendations are already being pursued by the researchers at Hanford. The comments presented above are intended to support these efforts and to encourage an expansion of the existing data base to make possible additional types of studies, especially those involving morbidity, adverse reproductive outcome, and adverse health effects of hazardous chemical exposures.

## Preliminary Recommendation

### Environmental Monitoring

1. The Panel has identified some differences among reports relating to the release of radioactive materials. Other inconsistencies probably also exist. There are also "gaps" in the data. These inconsistencies exist in the data from 1944 to 1956 and require further investigation and clarification.
2. The Panel recommends specifically that for assessment purposes, DOE, in collaboration with the states of Idaho, Washington, Oregon and the Indian Tribes, establish a publicly accessible, historical and ongoing data bank of all available data including those for unusual occurrences, planned and unplanned releases, which may have resulted in environmental contamination and exposure to persons.
3. State and local agencies do not participate in some radiological emergency drills. The Panel recommends that funds be found to permit regional agencies to participate in these drills.
4. The Panel is of the opinion that some areas of Hanford are nuclear and hazardous waste sites. We therefore urge a concerted remedial investigation and feasibility study of the sites together with appropriate federal, state, and local agencies and the Indian Tribes. The Panel recognizes and supports that the DOE/Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response Compensation and Liability Act (CERCLA) process is ongoing.
5. At the present time, the states of Oregon and Washington are conducting off-site radiological environmental surveillance programs in their respective states. (The state of Washington is additionally performing radiological monitoring at selected locations on the Hanford site. It is also in the early stages of implementing a monitoring and enforcement program for radiological effluents to the air). The state of Idaho and the affected Indian Tribes are not presently conducting environmental radiological surveillance programs although such programs are proposed by the Indian Tribes for the near future.

The Panel understands that Oregon and Washington and the three Tribes are planning to coordinate their radiological monitoring programs on a regional basis. The Panel endorses these coordination efforts as a way to provide an independent assessment of the radiological impact of Hanford operations on the off-site environment.

6. Although no data on the subject were presented to the Panel, the Panel understands that some limited soil sampling to an appropriate depth (profile sampling) has been performed on the Hanford site. The Panel would encourage the expansion of this program as a method of obtaining a measurement of the amount of radionuclides deposited on the Hanford site since the beginning of operations. A sufficient number of samples should be collected to obtain statistically valid data. Radionuclides to be evaluated should include (but not be limited to) isotopes of plutonium,

americium, iodine, strontium, and cesium. An adequate number of additional samples should also be collected in the off-site areas at appropriate locations for use as controls and for determination of levels of radionuclide deposition.

These data should be useful in evaluating the amounts of those long-lived radionuclides released during past operations.

The Panel suggests that this sampling and evaluation be performed in coordination with the state of Washington.

7. The Panel is concerned about the advisability of continued soil disposal of chemical and nuclear waste on the Hanford site. Insufficient information was available to allow the Panel to assess the environmental impact of continuation of such disposal practices. Such an assessment should be a priority.
8. Complete individual environmental sample results should be made readily available following publication of the annual report.
9. Independent assessment of the radiological monitoring programs of Washington and Oregon should be implemented to assure their quality, efficiency, and utility in facilitating a coordinated program.

Each existing environmental monitoring program conducted by the states, Indian Tribes, or DOE should have a clear statement of its purpose, goals and objectives so that their effectiveness can be adequately assessed and gaps identified in the integrated monitoring programs.

## Preliminary Recommendation

### Dose Reconstruction

In February 1986, the USDOE released for public inspection 19,000 pages of historical documents describing environmental monitoring results and programs at the Hanford site. Although these documents were available to the Panel during its deliberations, time available to the Panel during its deliberations, time available to the Panel did not permit a sufficiently detailed examination to permit dose assessment of reported releases. Such a detailed dose reconstruction and assessment must, of necessity, require a major effort requiring perhaps a number of person-years and is being separately evaluated by the Historical Documents Review Committee. Recognizing this problem, the state of Washington DSHS staff prepared for presentation to the Panel an overview of the data in the historical documents together with a limited preliminary dose assessment. The Panel, after review of this information, concluded that substantial quantities of radionuclides, particularly Iodine-131, had been released in the time period prior to 1956 and that off-site radiation exposures, particularly to the thyroid were probably high enough to warrant further dose assessment and study of health effects.

1. The Panel recommends that dose estimates be developed for community population groups possibly affected by past releases from the Hanford site. These estimates will be useful in feasibility and epidemiologic studies.
2. The Panel recognizes that important factors affecting doses include geographic area (defined by distance, meteorology, hydrology and food source), age, sex, radionuclides calendar time and exposure pathway (inhalation, diet, drinking water, skin absorption, etc.) The combination of these factors represents a very large number of categories. Therefore, the Panel recommends that doses be calculated first for categories which represent possible higher risks such as children living close to Hanford and exposed to I-131 through consumption of milk.
3. The dose reconstruction will require a thorough catalog of releases, including: isotopes involved, quantity, date, location and medium onto which released (soil, air, river). If possible, prevailing meteorologic conditions during the release should also be noted. The Panel recommends that this catalog be developed.
4. The Panel recognizes that both monitoring results and mathematical modeling may be useful in estimating dose. The Panel recommends that a range of possible exposures be calculated based on alternative assumptions.
5. The Panel recommends that the dose be expressed in standard units which will allow comparison of doses from various radionuclides.

## Preliminary Recommendation

### Policy on Release of DOE Research and Data\*

We recommend that DOE continue to pursue their policy development on the release of DOE sponsored research data. Our suggestions are:

1. The source data should be available no later than three years following the latest report published in the scientific literature of findings by DOE researchers so that the rights of the principal investigator are protected.
2. In the case of studies involving on-going follow-up of cohorts, source data up to the era of follow-up reflected in the report or the publication, should be made available.
3. The data released should have sufficient detail to allow replications of the published analyses.
4. Access to raw data to verify accuracy, consistency and completeness will be made within the limits of the restrictions imposed on DOE by data providers.

\*(Dr. Smith, NIOSH abstaining because of conflict of interest)

Preliminary Recommendation

Response to Public Testimony  
by the Hanford Health Effects Panel

The Panel recommends, having heard the public testimony, that a response from the State Health Department and Indian Health Service be developed that would provide information and services to the public. Information on disease causation, degree of medical certainty, and availability of medical services should be available on request to individuals and representative organizations including the Indian Tribes. In addition, the health departments should maintain a continuing accurate record of inquiries in order to ensure adequate recognition of concerned citizens and to provide some input to surveillance and epidemiology efforts.

The letter from the Department's of Health to the citizens who testified should include the above excerpt or all of the Panel Report. In addition, the name, address, and telephone number of an individual with the State Health Department should be included as a point of entry for inquiries by the public. Thanks should be expressed for their written comments or appearance before the panel, and a copy of letters should be sent to the Tribes and community organizations.

8/21/86

MEMBERS OF THE HANFORD HEALTH EFFECTS REVIEW PANEL

Glyn Caldwell, M.D.  
Panel Chair Assistant Director, Arizona Department of Health Services. He is a cancer epidemiologist who has conducted research on health effects of nuclear weapons testing and was formerly with the Centers for Disease Control.

Robert Alvarez Director of the Radiation and Health Project for the Environmental Policy Institute, Washington, D.C. He has conducted and sponsored studies of the environmental impacts of DOE facilities and has been an advocate for stricter regulation of the nuclear power and weapons industry.

Henry Anderson, M.D. Chief, Section of Environmental and Chronic Disease Epidemiology, State of Wisconsin Division of Health. He is board-certified in occupational medicine and has conducted numerous epidemiologic studies of occupationally-related diseases.

Allen Benson, Ph.D. Instructor of Chemistry, Spokane Falls Community College. He has studied the environmental effects of the Hanford facility and has provided technical consultation to the Hanford Education Action League, (H.E.A.L.).

Steven Blum, Ph.D. Assistant Director, Division of Environmental Epidemiology, New York City Department of Health. He is trained in environmental and occupational epidemiology and has conducted research on the health effects of ionizing radiation at the Oak Ridge Associated Universities.

Donald Hendricks Private health physics consultant to entities such as the State of Washington and the Council of Energy Resource Tribes. He is the former director of the Environmental Protection Agency Office of Radiation Programs, Las Vegas Facility.

Vilma Hunt, B.D.S

An anthropologist and epidemiologist who has studied the effects of occupational hazards upon women. She was Professor of Environmental Health at Pennsylvania State University and Deputy Assistant Administrator for Health Research, Office of Research and Development, Environmental Protection Agency.

Vietchau Nguyen,  
Ph.D.

President of Environment and Water Resource Management, Minneapolis, Minnesota. He is a civil engineer with extensive consulting and research experience in the field of hazardous and nuclear waste management. He serves as a consultant to the Yakima Nation for its Columbia River environmental monitoring project.

Lincoln Polissar,  
Ph.D.

Associate Professor, Department of Biostatistics, University of Washington. He conducts epidemiologic research in the field of environmental epidemiology and is an Associate Member of the Fred Hutchinson Cancer Research Center.

James Smith, Ph.D.

Chief, Physical Agents Effects Branch, Division of Biomedical and Behavioral Science, National Institute for Occupational Safety and Health, Centers for Disease Control. He is a physicist and health physicist with extensive research experience in assessing internal exposure to radionuclides.

David Willis, Ph.D.

Professor of Radiation Biology, Oregon State University. He conducts research and is a consultant in the field of radiation biology and radioecology.

Harold Wyckoff,  
Ph.D.

Radiation physicist and Chairman of the International Commission on Radiation Units and Measurements. He was formerly with the National Bureau of Standards, the Armed Forces Radiobiology Research Institute and the Bureau of Radiological Health.

Bernard Shleien,  
Pharm. D.

Certified health physicist, formerly with the U.S. Food and Drug Administration. He studied extensively the effects of Iodine-131 on the thyroid and radiation dosimetry. The past two years he was head of the Radiation Protection and Isotopes Department, Center for Environmental Research, Tel-Aviv University, Israel.

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DEPARTMENT OF ECOLOGY  
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**ANNOUNCEMENT**

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**JOINT NUCLEAR WASTE BOARD AND ADVISORY COUNCIL MEETING**

**October 16, 1986**

**1:30 p.m.  
EFSEC Hearing Room  
Rowesix, Building 1  
4224 - 6th Ave. S.E.  
Lacey, Washington**

**AGENDA**

- |   |                    |
|---|--------------------|
| 1. Report on Hanford Health Effects Panel | Nancy Kirner       |
| 2. State Tumor Registry                   | David Thomas, M.D. |
| 3. Hanford Concerns Survey                | William Young      |
| 4. Draft Resolution 86-6                  | Terry Husseman     |
| 5. Letter to USDOE                        | Terry Husseman     |

The Nuclear Waste Board and Advisory Council welcome and encourage public participation during the monthly meetings. The Chairman will invite public comment at various points during the meeting. In addition, if there are specific agenda items which you wish to comment upon please sign the sheet on the back table and you will be invited to comment when the Board/Council reaches that agenda item.