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COMMUNICATING WITH PUBLIC AND SCIENTIFIC AUDIENCES: ARE THEY REALLY ANY DIFFERENT?

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COMMUNICATING WITH PUBLIC AND SCIENTIFIC AUDIENCES: ARE THEY REALLY ANY DIFFERENT?

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ABSTRACT

Efforts to communicate the results of environmental studies and involve the public in environmental decisions have increased nationwide. Frequently, the assumption is made that communicating with the public is somehow different than communicating with scientific audiences. Our experience shows that this is often not the case. Today's multi-disciplinary environmental issues pose communications problems that are the same in public as they are in scientific forums. Outreach efforts on the U.S. Department of Energy's Hanford Nuclear Site have drawn on a broad spectrum of communications media including technical articles (open literature and symposium publications, annual and topical reports); information brochures; video productions; interactive exhibits; presentations at scientific, technical, civic and other public meetings; and, more recently, proactive interactions with the news media and local, state, and federal agencies. In addition, plans are being made for representatives of local communities to operate offsite sampling stations in Hanford's environmental monitoring network. All major environmental programs, such as the current five-year effort to reconstruct past radiological doses to offsite human populations, are conducted with open public participation. This presentation describes Hanford's public outreach efforts, our successes and failures, and the lessons learned. For example, developing brochures and videos is of little value without also developing and implementing a detailed distribution plan. Follow-up activities are often neglected during initial planning stages but must be considered in outreach efforts.

(1) Office of Hanford Environment, (2) Public Relations.

INTRODUCTION

The U.S. Department of Energy's (DOE) Hanford Site occupies 1450 km^2 (560 mi^2) in southeastern Washington State (Figure 1). Land surrounding the Hanford Site is primarily used for agriculture (1,2). Extensively irrigated areas contain orchards, vineyards, potatoes, alfalfa and various other vegetable crops. Dryland areas contain fields of wheat and other cereals (2,3), and some remains as arid shrub-steppe, dominated by sagebrush. Nuclear, non-nuclear industrial, environmental, and other research activities have been conducted at Hanford for more than 45 years. Construction of the first reactor (B Reactor) began in March, 1943 and actual testing began in September 1944. Data on water quality of the Columbia River was first collected in 1943.

The most environmentally significant activities at Hanford have involved the production of special nuclear materials for national defense, and the chemical processing and waste management associated with the major product, plutonium. Operations at Hanford have always been conducted so as to minimize

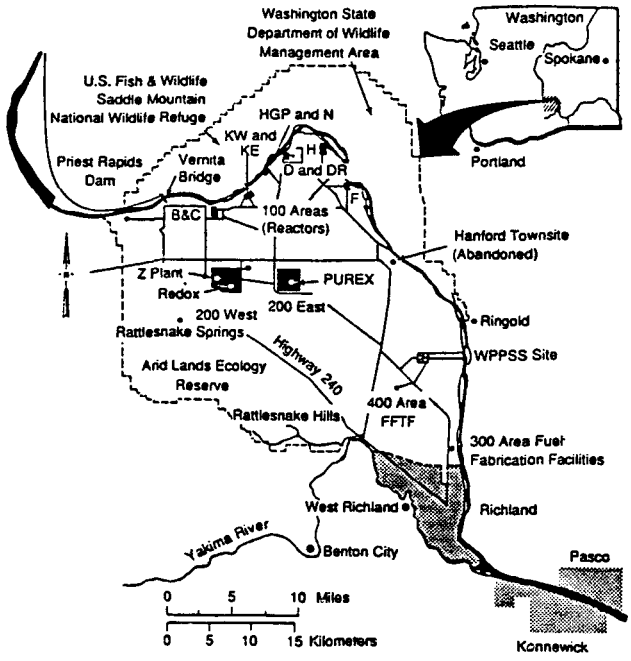

Figure 1. Location of the U.S. Department of Energy's Hanford Site in Southeastern Washington

public exposures to radiation and chemicals. Environmental surveillance and monitoring have been conducted since Hanford's inception to provide assurance of public safety, and to assess potential environmental impacts. Ironically, because the Site has been restricted from public access and free from agricultural uses for over four decades, it has preserved the habitats of, and now serves as a refuge for, a variety of plants and animals. In 1977, the Site was dedicated as a National Environmental Research Park.

Although results of environmental surveillance and monitoring activities and other Hanford studies are normally reported annually (4), the reports are often in a form not easily understood by scientists who are technical specialists, nor by the public. Furthermore, environmental and other scientists and management often stand back and let public relations departments, the media, conservation organizations, and other groups communicate with the public on their behalf. Although this may be appropriate on some occasions, it means that someone else controls the message, and the information that is provided is sometimes erroneous. Professionals in various scientific disciplines must learn to communicate with the public on their own behalf.

Potential communication outlets include television, videotapes, radio, newspapers, popular magazines, brochures and exhibits/displays, in addition to peer-reviewed journals. Communicators need to consider their audience and cast their message within the value system of the receiver. Thus, Hanford environmental monitoring programs have included an aggressive information and outreach initiative in recent years. Objectives of this effort have been to openly and honestly share information, check out public reception and perception of this information, and to obtain feedback. The effort does not include attempting to reason with activists nor to change the minds of those that have already formed firm, but incorrect, opinions. Our goal is to provide understandable information for those who are undecided and who want to make intelligent choices.

Elements in this effort include identifying public concerns, providing counsel to management, developing a mix of print and audio/visual informational materials as well as making presentations to a variety of technical and nontechnical audiences throughout the Northwest. In addition, staff have

provided overview presentations and technical papers at a variety of national and international scientific and technical meetings. Efforts have also been made to inform Hanford employees of environmental programs. All of these efforts are based on the belief that research is not complete until it's published, and that a study conducted has no value until it has been communicated to the public, both lay and technical.

EXAMPLES OF OUTREACH INITIATIVES

In 1987, management, technical, and public relations staff at Hanford undertook a cooperative effort to establish communications with important external audiences. The "downwind" agricultural community was an important target because of recurring media stories containing allegations of crop contamination, deformed animals, and high cancer incidence resulting from radioactive releases from past Hanford operations. Through contacts with agricultural organizations and individual farmers and ranchers, it became clear that the source of most misinformation was a small but vocal group of individuals whose views did not represent most agricultural interests. Although the group's perceptions were incorrect, these perceptions constituted reality to them. Bringing leaders from the agricultural community together for candid discussions on Hanford-related issues helped forge a more cooperative relationship with these individuals. Moreover, understanding was improved among all parties and perceptions changed. The benefits of that relationship continues today.

We actively pursued contact with Washington state agencies and the state legislature in Olympia, the state capitol. This resulted in a series of presentations on environmental monitoring and surveillance at Hanford that was given by management and technical staff, twice a day for two days to state officials and legislative members. The presentations were given in May 1988, in Olympia, and were made jointly with the Office of Radiation Protection, Washington Department of Social and Health Services. Audience response was favorable, and plans were made to repeat this effort for state officials and legislative members in Oregon. We made the first set of presentations in Pendleton in May 1990, with the Washington State Department of Health and the

Oregon State Division of Health as participants. This effort will be repeated in Salem, the state capital of Oregon.

We have made numerous presentations before local and regional civic, social and professional organizations. These groups include Chambers of Commerce, Rotary, Kiwanis Clubs, Exchange Clubs, etc. We have also increased the number of Hanford Site visits and tours for citizens and the media. Nearly 60 such tours and presentations were given in 1989, a substantial increase over previous years. In most cases, technical/scientific staff participate on the tour to answer questions.

As with most public issues, some important positive aspects of Hanford's environmental programs were not well known offsite, even within the state. We took steps to increase public awareness and support in these areas, and achieved several positive media placements concerning Hanford wildlife and cultural resources programs (Figures 2 and 3). Information outreach is an important aspect of these programs. For example, we developed a "Wildlife Quiz" slide presentation for an outreach effort coordinated by Westinghouse Hanford Company, the operations contractor for the Hanford Site. The Wildlife Quiz was subsequently converted to a video and installed in the Hanford Science Center at the Federal Building in Richland, where it is now on permanent display. In addition, both brochures and videos have or will be prepared to highlight Hanford's wildlife and cultural resources.

The Pacific Northwest Laboratory (PNL) is now making final arrangements to establish three community-operated, environmental monitoring stations in towns within 50 miles of the Hanford Site. The program calls for citizens, usually a local High School science teacher and an alternate, to operate the station, collect samples, submit samples to an independent laboratory for analysis, and report findings regularly to PNL. PNL will also analyze the samples. Participants monitor air, Columbia River water, soil and agricultural products for radioactive materials. Each sampling station is situated at a convenient location so local citizens have access to the monitoring equipment and can observe instrument readings. Citizens can also learn about the sampling equipment and talk with individuals involved in Hanford's environmental surveillance program at informational meetings.

Figure 2. Examples of Newspaper Coverage of Hanford's Cultural Resources

Figure 3. Examples of Newspaper Coverage of Hanford's Wildlife Resources

The community-operated, environmental monitoring program is modeled after a similar program established for the Nevada Test Site in 1980. Data from the program will be included in the annual Hanford Site environmental report. Our scientists will work closely with station managers to maintain equipment, and to coordinate sampling and analytical efforts among all aspects of Hanford's overall environmental surveillance program. The participation and involvement of the offsite public in environmental surveillance activities will strengthen ties and enhance understanding of environmental issues associated with Hanford operations.

The public is also being involved in the five-year, Hanford Environmental Dose Reconstruction (HEDR) Project. Objectives of the HEDR Project are to estimate the radiological doses that people living offsite may have received from past environmental releases at Hanford. DOE funds the effort but has no other involvement. PNL scientists conduct the study under the direction of an independent, 18-member Technical Steering Panel (TSP). The TSP represents the scientific community, the concerned states, the Indian tribes, and the public. Members of the public are invited to listen, ask questions, and provide comments on all aspects of the study each time the TSP and PNL meet.

News Placements

Public Relations staff at PNL have been very successful in achieving favorable media placements related to Hanford environmental programs. Positive newspaper, television and radio stories have appeared several times a year since 1986. These serve to offset the usual sensationalized negative information that often appears in newspapers, non-scientific journals, and other media. Of special note are the following media placements that provide positive, factual accounts:

- Articles on Hanford cultural resources in various Northwest papers in 1989 (Figure 2).
- A depiction of Hanford's natural ecology in a half-hour television documentary, Northwest Wild, produced by KING-TV, in Seattle, WA in 1989.
- Articles with photographs describing Hanford wildlife resources (Figure 3).

- Stories on environmental affairs at Hanford have also been aired on Northwest Public Radio during the past 18 months.

Public Information Materials

Brochures

- **Hanford's Environmental Surveillance and Oversight Program:** A 4-page brochure describing the environmental monitoring and surveillance program.

- **Hanford, Radiation and You:** A 4-page, brochure describing sources of radiation in the environment (both natural and man-made), and the annual radiation dose to people living within 50 miles of the site from Hanford operations.

- **Hanford Wildlife:** A 6-page brochure depicting the diversity of wildlife at Hanford and the monitoring and research programs carried out on these populations. The concept of Hanford as a wildlife refuge is presented.

- **Hanford's Cultural Resources:** A 6-page brochure describing the important archaeological sites and artifacts found at Hanford and the measures taken to preserve them.

Videos

- **The Hanford Ecology:** An 18-minute color video depicting the unique ecosystem at Hanford. Flora and fauna are discussed by biologists and researchers from Hanford, state fisheries/wildlife management agencies, and regional universities who describe the unique value of Hanford's undisturbed and protected environment for scientific research.

- **Hanford, Radiation and You Video:** A 20-minute color video in docu-drama format that explains the natural and man-made sources of radiation and measures used to protect people from elevated radiation levels. The film follows a high school student collecting information for a report as she encounters radiation in her home, at her dentist, at a local hospital, and as a product of Hanford operations. The production was produced in cooperation with the Columbia Basin College Drama Department, Pasco, WA.

- Plans are being made for two additional video productions. **Hanford and the Environment** will depict the full scope of environmental surveillance and monitoring activities at Hanford. **Hanford's Cultural Resources** will depict cultural and archaeological resources and plans for their protection.

Exhibit

- **Hanford Environmental Surveillance:** A portable exhibit that displays the Hanford Site and surrounding region out to fifty miles. Through an interactive, computer touch-screen the viewer can learn about environmental monitoring activities at Hanford and in the adjacent region. A lighted map depicts locations where samples are collected. and a computer program displays photos and narrates why monitoring is done and the results. The exhibit resides in the Hanford Science Center when it is not at offsite locations.

Internal Communications

- Management, technical and public relations staff have placed stories on environmental programs in Hanford contractor (company) publications.

Technical Communications

In addition to the required topical and annual reports (4), each PNL scientist working on environmental programs at Hanford is encouraged to communicate the results of his or her findings at scientific/technical meetings and in the open literature. Managers, who can view the interrelationships among separate scientific disciplines and present an holistic view, must do the same. Examples of attempts to summarize Hanford environmental data in scientifically acceptable but understandable form include:

- Open literature publications summarizing more than four decades of radiological monitoring and wildlife data (1-3)
- Annotated/abstracted bibliographies for those interested in learning how to obtain detailed technical reports and open literature publications (5-7).
- Books that summarize and provide detailed technical information concerning various aspects of the Hanford environment (8,9).

PRODUCT DISTRIBUTION

An important ingredient of information outreach involves the distribution and placement of the various products where the public can obtain access. Thus, we initiated an extensive distribution effort to libraries in major population centers throughout the Northwest. This initiative focuses on the major transportation grids and population centers such as I-5 South (Salem, OR

to Olympia, WA), I-5 North (Tacoma to Bellingham, WA) and I-90 East (Wenatchee, WA to Coeur d'Alene, ID) (Figure 4). The library distribution network has proven to be highly effective in reaching a broad spectrum of the public. Most library staff, especially in "out of the way" areas were surprised and grateful to be included in the information flow. These people appreciated and responded to personal contact. The use of library networks should not be overlooked in public outreach efforts.

Figure 4. Transportation Grids and Population Centers Where Public Outreach Materials Have Been Placed in Libraries, Colleges and Universities, and Radio and Television Stations

CONCLUSIONS

The communications initiative for PNL's environmental programs at Hanford shows promise as a public outreach model for other programs. Our initial success derives from the courage to try ideas and approaches that have historically been rejected by most scientists, and from involving scientists who are

willing to explain technical information to the public in nontechnical language. Scientists are being trained in public communications and encouraged to participate in public interactions. Our communications agenda is to keep it simple regardless of whether we are talking to public or scientific audiences. In today's multidisciplinary setting, even technical specialists have trouble communicating across scientific disciplines. We hope that as a result of these outreach efforts, awareness of the public, local and state officials, and offsite scientists, and acceptance of environmental management at Hanford will increase.

ACKNOWLEDGMENTS

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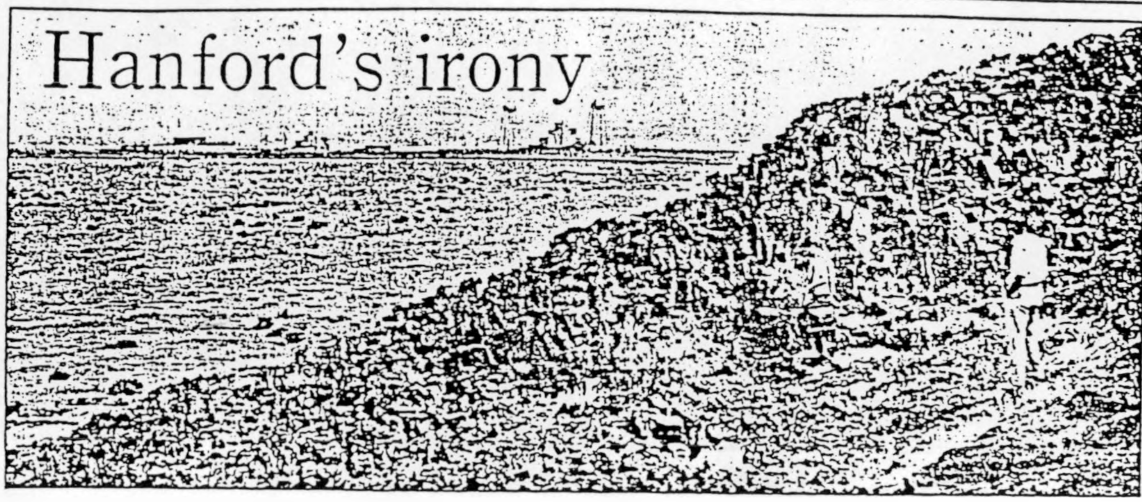
Figure 2

Yakima Herald-Republic a daily part of your life August 19, 1988



Tools of destruction may have preserved history

By CRAIG TROIANELLO
Of the Herald-Republic

The N Reactor looms behind archaeologist James Chatters as he stands in a hunting blind built by ancient Indians, above. At left, Chatters examines an illegal excavation, something the Department of Energy is trying to stamp out at Hanford.

(Staff photos by Craig Troianello)

... took a somewhat uneven approach to ... sites. ... Chatters, working under Battelle ... Laboratories, will complete ... single source plan, the ... how the Department ... deal with the ...

Hanford security saved old Indian village sites

Archaeologist says looters were kept out

...cholas K. Geranios
...ciated Press

...ND — Archaeologist James Chatters ... an ancient stone hunting blind created ... thousands of years ago. ... sat a defunct nuclear reactor. ... ence ensured the survival of the ... archaeological sites on the ...

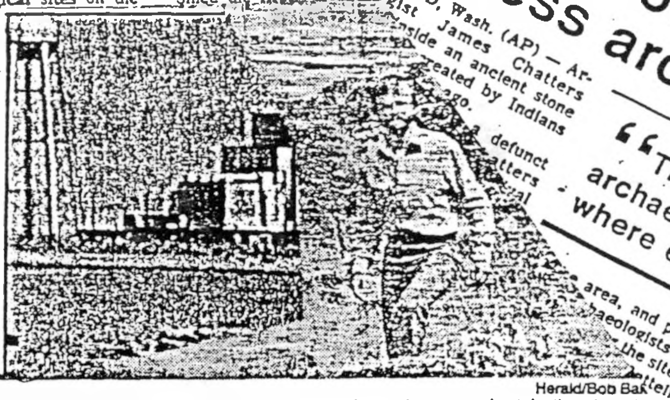
They are among the mo... 10,000 years of human acti... said.

"There are probably ... sites here than anyw... Chatters, who is deve... preserve the sites. ... seem to have been ... Since the first ...

Indian sites, relics intact at Hanford

By NICHOLAS K. GERANIOS
The Associated Press

...LAND, Wash. — Archaeolo... Chatters crouched inside ... hunting blind ... thousands of ...



Herald/Bob Bak...

James C. Chatters, a Battelle-Northwest archaeologist, walks through an ancient Indian hunting ground near B Reactor on the Hanford Reservation.

Fences around Hanford saved priceless archaeological sites

"There are probably more intact archaeological sites here than anywhere else in the U.S."

RICHLAND, Wash. (AP) — Archaeologist James Chatters ... inside an ancient stone ... created by Indians ... ago. ... defunct ... atters ...

... area, and prevented amateur archaeologists and looters ... the sites. ... Battelle's Pacific ... ries, which ... search, ...

and may have been occupied for 2,500 years, Chatters said. The village is one of the two largest in the Northwest, along with the Strawberry Island site at the mouth of the Snake River, he said.

The village is now a series of circular depressions in the ... overgrown with weeds, tool fragments, animal ... other signs of human ... pits dug into ... with wood ... about ...

Hanford working to protect relics

By GALE B. ROBINETTE
Herald staff writer

An ancient Indian hunting ground where deer were killed with arrows and spears sits in the shadow of the *first nuclear reactor built at* Hanford.

Near the Columbia River, somber buildings erected in the nuclear age stand near the remains of a village where Indians fished for salmon 1,000 years ago.

James Chatters, a Battelle-Northwest archaeologist, is helping the Department of Energy preserve these and other artifacts scattered among the sand and sage on the nuclear reservation.

"There's a lot to be learned from the past," Chatters, 39, said Wednesday. "It is the laboratory of the human experiment."

Since Chatters joined Battelle about a year ago, Hanford officials have increased their lookout for people who slip beyond the off-limits signs and dig for Indian relics.

Relics on the reservation are protected by federal law. Scavengers can be fined $5,000 and sentenced to a year in jail. Penalties are stiffer for those caught a second or third time.

The number of people who have been caught digging illegally for artifacts on the nuclear reservation was not immediately available.

Please see RELICS, Page A2 ►

Figure 3

OUTDOORS

THE SPOKESMAN-REVIEW • PAGE C8 • SUNDAY, JUNE 17, 1990 • SPOK

A complex ecosystem flourishe under the protection of the DOE

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Nuclear reservation not a wasteland

By DOUG HUDDLE
for the Herald

BELLINGHAM HERALD
APRIL 1990

STRANGE BEDFELLOWS

By KRISTINE ROSEMARY

n a rocky outcrop near
a 600-foot summit of

HANFORD A REFUGE

enough buffer zone in case any-
thing they were working on hap-
pened to blow up," said William H.
Rickard, a renowned range-plant
ecologist who has done research
work at Hanford for 30 years.
Hanford grasslands, bordered
the last free-flowing stretch of
the United

Hanford grasslands in peril

Hanford: Last remnants of sagebrush grassland in peril FOR WILDLIFE

Story by Kristine Rosemary
Photos by Terry Brown

The Hanf
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Nuclear site a wildlife refuge

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Eagles and pluto-
s deadliest kill-
the Hanford

The Oregonian

Northwest Laboratories.

"A wildlife population that can't survive elsewhere can on the Hanford site."

Among the most unique species is

Other sprawling Department of Energy sites, including the Savannah River Plant in South Carolina and the Idaho National Engineering Laboratory, also support large wildlife populations.

SCIENCE

Even in the shadow of Hanford, wildlife can find refuge by making their

HOM

ON THE RANG

Wildlife coexists with Hanford

Wildlife flourishes in shadow of Hanford reservation

WASHINGTON

Figure 4 (will be redrawn)