

RISK COMMUNICATION IN DOSE RECONSTRUCTION

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ABSTRACT

For more than 40 years, the federal government produced plutonium for its nuclear weapons program at the Hanford Site in southeast Washington state. At times during this period, large amounts of radioactive materials were released to the environment. Thousands of people may have been exposed to these radioactive materials.

Many people in the region feared that Hanford releases caused a variety of health problems in nearby communities and in areas downwind of Hanford. By the mid 1980s, public pressure forced the U.S. Department of Energy (USDOE) to release thousands of pages of historic documents. These documents included four decades of data on Hanford operations, including confirmation of airborne releases of large amounts of radioactive iodine-131 in the early years.

The information in these documents led the government to fund the Hanford Environmental Dose Reconstruction Project in 1987. This project will determine how much radioactive material was released, how that material may have reached and exposed people, and most importantly, what radiation dose people may have received.

The Project will be finished about 1995. Battelle researchers at Pacific Northwest Laboratories in Richland, Washington do the day-to-day work. The Project is directed by an independent Technical Steering Panel (TSP).

INTRODUCTION

What are the responsibilities to involve the public in a government-funded study prompted by deep public anxieties and concern? For the scientists on the TSP, there could be only one answer: complete accountability and unrestricted public involvement.

To the TSP, public trust and support is an absolute necessity to the success of the project. If the work is not credible, the project cannot address public concerns about exposures from Hanford.

Mistrust of USDOE resulted in public doubt of the TSP's independence from the USDOE funded study. The public also lacked confidence in the independence of the Battelle scientists doing the work, since Battelle is a major contractor for USDOE.

The first critical steps to gain limited public confidence in the TSP's independence were:

- USDOE agreed to and stood by a "hands off" approach to the project.
- The TSP took a strong role to direct Battelle's work.
- The TSP worked with the Secretaries of Energy and Health and Human Services to arrange a funding transfer from USDOE to the Centers for Disease Control.

We believe that steps less aggressive than these would have resulted in a complete loss of public trust and credibility.

TSP members strongly believe that the best way to build credibility is: 1) to keep nothing secret, 2) to involve the public in all aspects of the Project, and 3) to explain the work in the clearest possible way.

This philosophy was uppermost in the minds of TSP members and staff in July 1990 as they prepared to announce

the preliminary results of the first phase of the multi-year study. Battelle calculated preliminary thyroid radiation doses from 1944-47 Hanford air releases of iodine-131. This "Phase 1" report also included dose estimates from other radioactive materials released to the Columbia River between 1964 and 1966. The announcement of these preliminary dose estimates drew worldwide attention.

The TSP, staff, and Battelle devoted months of planning and preparation to the Phase 1 announcement. One factor that could not be ignored during this planning phase was that public doubts about the TSP's independence had to be overcome. Although the TSP made significant progress toward credibility, many people withheld judgment until they saw the preliminary dose estimates. The Phase 1 announcement would be the first real opportunity for the TSP to prove its credibility. It was essential that the TSP release the preliminary findings in a way that could be understood and believed.

Written Materials

Battelle staff prepared the lengthy technical reports to explain the preliminary findings. The TSP recognized that most people would not read a long, complex technical report. Battelle also drafted a 20 page summary booklet. It has the preliminary results, basic information on the study, an explanation of exposure pathways, and a map showing the downwind exposure areas. The booklet also has a simple guide which allows people to make rough estimates of the radiation dose they may have received. (See Figs. 1a and 1b.)

The TSP gave the full preliminary technical report to anyone who asked for it. But the TSP recognized that many more people would rely on the small booklet to understand the preliminary results.

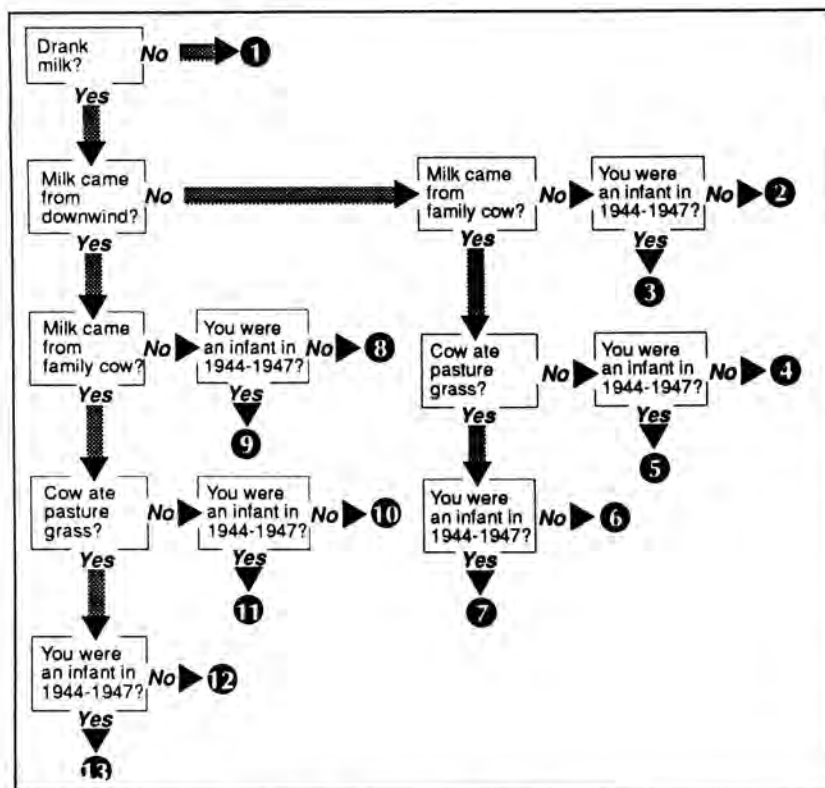
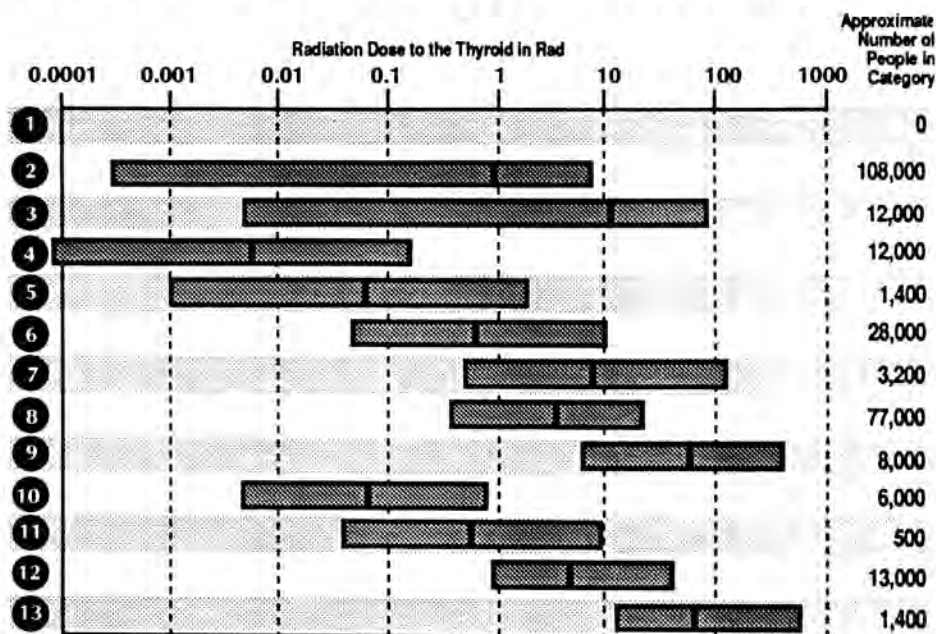


Fig. 1a. Guide for 1944-1947 residents. Part 1: Finding your category.



Vertical lines in the bars are the medians. The median is the dividing point showing where half the people in that category received a larger dose than the median dose and half the people received a smaller dose.

Each bar in the chart covers 90% of the people in that category. Estimated radiation doses for people in both the lowest and the highest 5% of each category are not included because the numbers are much less accurate.

Fig. 1b. Guide for 1944-1947 residents. Part 2: Finding your range of possible radiation doses.

The TSP's policy allows public access to all TSP material. Every report and document we receive from Battelle is available for public review. (A handful of TSP members have top security clearances and are able to review classified documents. These documents are exempt from this policy. The TSP has insisted, however, that classified documents used in the study be declassified and made available to the public).

Battelle had the preliminary data available several weeks before the dose estimate announcement in July 1990. A draft of the 20 page booklet was ready for review and editing in May. Because it would be an important public information tool, and the TSP had adopted easy reading standards, the TSP's Communications staff needed to review and edit Battelle's initial draft. Yet if we took possession of this booklet for editing, our own policy and commitments required us to make the rough draft available to the public.

To complicate matters, we agreed to release the dose estimates to the public and media at the same time. The public, the media, the agricultural community, and some downwinders wanted first access to the preliminary results. The TSP decided that the equitable solution was to announce publicly that all parties would receive the preliminary information at the same time. The TSP agreed then and believes now that was a good decision.

So, several TSP members and staff edited the draft booklet, without knowledge of the actual preliminary dose estimates. Those numbers were inserted later by Battelle.

In editing this booklet, we found it very useful to have a test audience -- about a dozen people -- review it. Reviewers' comments were extremely useful -- especially in making the technical information clear to a lay reader. With these and other recommendations, we instructed Battelle to rewrite the booklet. We made more changes over the next weeks.

Oral Presentation

It was important to get the TSP scientists ready to go before the media. Many of the scientists didn't immediately appreciate how a news conference would differ from a classroom lecture. Some assumed their academic credentials assured their credibility. Some were not fully convinced that people had yet to see any distinction between the U.S. Department of Energy and the TSP.

The TSP hired a media consultant to prepare the six TSP members to explain preliminary dose estimates to the news media and the public. Those six worked many hours to prepare clear and simple presentations and to focus on the major points.

The Last Minute Crisis

By the afternoon of July 11, TSP Chair John Till and his presenters were confident that they were well prepared for the news conference. But hours before the conference, USDOE announced that the preliminary results of our study were forthcoming and suggested these would indicate some members of the public received high doses from Hanford operations. A number was quoted "as high as 3,000 rad."

That remark, out of context and lacking clarification, set off a media furor. By early evening, the TSP was flooded with media calls looking for confirmation. Some reporters wanted to know about the "accident" and "casualties."

The TSP considered releasing the information earlier than the scheduled July 12 conference. But after discussion,

the TSP members agreed not to comment on the USDOE statements. The Panel had promised the media and the public that they would be the first to receive this information. To comment on the USDOE statements would violate that promise. The TSP decided to proceed with the following day's announcement as planned.

This decision turned out to be correct and a valuable lesson. Most media would not have been present on the 11th and the information would likely not have been disseminated clearly and thoroughly.

The Announcement

The July 12 event was a combination news conference, briefing, and public meeting. Several hundred people and dozens of television and newspaper reporters crowded into a Richland, Washington hotel ballroom. USDOE's disclosure the previous day sparked a surge of media interest.

At the news conference, Chairman Till faced the cameras and the audience alone at first. Dr. Till quickly reviewed the history of the project. He explained that copies of the report would be handed out later, but he didn't want people distracted by trying to read through the report while he and his colleagues talked. Dr. Till then announced the preliminary dose results.

In recognition of media deadlines, Dr. Till asked the public to hold their questions until after a half-hour of media questions.

Several hundred copies of the full report and the booklet were distributed. Dr. Till and five Panel members reviewed the report for the public and media. The other 12 members of the Panel were on hand to help answer questions. The public had ample time to ask questions. A review of the report and a question period was repeated that evening -- again to a crowd of several hundred.

The credibility of the doses calculated by Battelle and the TSP were not questioned then or later in widespread news coverage. The dose exposures were consistent with earlier preliminary calculations made by the state of Washington.

From the beginning of the project, the mission of the TSP included only the determination of radiation dose...not health impacts from the dose.

After the release of the preliminary Phase 1 report, the public and media focused on the health impacts from past Hanford releases. The public and the media insisted that the TSP answer health impact questions and the TSP steadfastly declined. Health impacts would have to be studied separately.

The media clamored for the TSP to put the doses in perspective. The TSP agreed on only one example: a comparison of the internal thyroid dose from a medical test to internal thyroid doses from past Hanford releases. Some media found other experts willing to compare thyroid doses to chest x-rays and background exposures. But these comparisons only confused and disturbed some people who complained that one can choose or decline a chest x-ray while Hanford "downwinders" had no choice about radiation exposures.

The media continued to find varied scientific views about the impact of Hanford releases. These different expert views were seen by the public as confusing or attempts to mislead. The TSP worked to communicate that varied opinions are routine in science.

The TSP's decision to release the findings to all parties at once was respected. The equity of the decision made it more palatable to those who wanted advance notice.

In September, two months after the Richland news conference, the TSP followed up with ten public meetings in Oregon and Washington. This gave the public more opportunities to ask questions about the preliminary dose estimates. Combined attendance at these meetings was more than 600 persons.

LESSONS LEARNED/RECOMMENDATIONS

The TSP is learning valuable risk communication lessons. Risk communication in the real world can be difficult and frustrating. The advantage or disadvantage is that you know almost immediately if you've made good or bad choices. The most significant TSP lessons learned are the basis for these recommendations:

- Conduct your business in an open, public forum, especially when the public has a stake in it. The more the public is involved, the more it sees and the greater the opportunities you have to prove that the work is fair and credible.
- The commitment to clear, credible public information and open public involvement process must happen early-on, must be highly visible, must come from the leader and must be repeated often.
- When you make a commitment to the public, follow through on that commitment. We refused to comment on USDOE's statements before our July 12 news conference. That strained our relations with some news media. We believe to have done otherwise would have hurt our credibility with the public and other members of the media.
- Have clear lines of authority and follow them. The key is that the TSP directs the Project and thereby sets Project policy. USDOE committed to distance itself from the study and lived up to that promise. Battelle management agreed with and supported the TSP openness policy.
- Preparation time for a major release of technical information is vital. We spent several months planning for the Phase 1 announcement. Using a test audience to gauge the degree of understanding for technical information is crucial.
- Do anything you can -- personal briefings, tours -- to give the media a running start if the topic is complex and technical.
- Answer every question and make sure the questioner is satisfied that you did.
- Agree on any technical facts and examples that will be used.
- Consult your adversaries. This is an unnatural act for most of us. But our critics often are happy to tell us that we're doing a less than adequate job -- and how they'd do it better. Sometimes they're right.
- If you make a mistake, don't be afraid to admit it. Early in the dose reconstruction project, members of the public were not allowed to attend technical meetings. Given the TSP commitment to an open public process, that was a mistake. The TSP admitted the mistake and made all meetings and documents available to the public -- a policy which carried through the Phase 1 announcement and continues today.
- Choose your best spokespersons -- even if it means bypassing the most technically qualified person. If that person is not an effective communicator, he can do you more harm than good.
- Scientists may need help crafting easily understood answers to technical questions for the public and media.
- The public is confused when two eminent scientists disagree. It's important to communicate that different scientific opinions are expected in science and are part of the scientific search for truth.
- You cannot prepare for every contingency and shouldn't try. Be prepared for the predictable. A good plan is one that can accommodate something unexpected and still help you reach your goals. A plan that won't bend under pressure will surely break.

Communicating the preliminary results of the Hanford Environmental Dose Reconstruction Project was a valuable experience in risk communication. We hope others will find our experience and these recommendations helpful.