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Michelle Lohmann—Challenge the status quo

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Abstract

This essay is part of a series of essays that are based on interviews conducted for this special issue with people who practice risk communication related to human or natural hazards as part of their professions.

Site-Specific Advisory Boards (SSAB) were set up by the U.S. Department of Energy (DOE) in the early 1990s in response to concerns about public trust and an associated concern that Department of Energy (DOE) had developed a reputation of secrecy rather than transparency. Communication is the central *raison d'être* for the SSABs. Michelle Lohmann's career and avocations have involved education and risk communication, and so she is highly qualified to be an SSAB member. As a manager and recruiter of graduate programs at the DOE's Oak Ridge Reservation (Tennessee), as a human resources director in her day job, and as a committed member of the greater east Tennessee community, she has considerable experience as a communicator, from both the sharing and listening sides.

Specifically, as Vice-Chair, and now Chair of the SSAB at Oak Ridge, she is in a unique position of communicating environmental risks and concerns both to managers and scientists at Oak Ridge Reservation (ORR), and to a range of publics that are interested and affected by the activities of ORR. The SSAB itself is guided by a mission and by-laws. The mission of the SSAB is to provide informed advice and recommendations concerning ORR site issues to the DOE-Environmental Management (DOE-EM) management, and to provide unbiased evaluations about DOE's cleanup by seeking input through collaborative dialogue with communities around ORR, regulators, and other stakeholders (see: energy.gov/orem/oak-ridge-site-specific-advisory-board). The tensions among these different governmental and public groups with respect to providing environmental risk information and discussing and communicating human health risks was the main focus of our interview. As context,

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among DOE sites, Oak Ridge has the broadest mission portfolio. First, it has had a mission in developing and testing nuclear weapon technology and continues to be the site where high level weapons grade uranium is stored. Second, the National Lab at Oak Ridge has multiple important missions to perform for DOE science missions. Third, central to our interview, the site has a complex set of on-site hazards to manage.

U.S. DOE sites have large and complicated environmental remediation tasks. While the specific issues may differ among sites, the communication challenges are likely to have commonalities. Ms. Lohmann laid out these five particular environmental risk issues at ORR: legacy environmental impacts on groundwater, mercury contamination in aquatic systems, cleanup of the K-25 facility (see below for discussion of K-25), waste disposal, and future land use and transfer.

All of these problems require planning, logistical organization, and implementation, and each and every phase requires risk communication. In our discussions with Ms. Lohmann, she emphasized that a multifaceted strategy is necessary for effective risk communication about the environmental hazards and risk at ORR. This strategy involves recognizing the major challenges of the site, identifying the constituents, determining ways to reach the diverse publics, involving both DOE and the communities in a trusting relationship, and employing many different forms of communication to reach the diverse communities, interests, fears, risks, and solutions. We focused on these elements in our discussion. Her approach and philosophy in communicating with DOE and the various publics was clear:

You have to keep asking questions, sometimes over and over, until you get answers. This often involves challenging the status quo, and questioning DOE's mission and approaches to risk reduction. You need to always show up and be out there for the public (in-person, virtually, and on social media). Both require persistence.

1 | IDENTIFYING THE CONSTITUENCIES

By their mission, the SSABs are directed to receive and provide information both to DOE-EM and to their communities, governmental regulators, and other stakeholders. Identifying DOE-EM entities and regulators is straight-forward because communication channels are built and maintained for these purposes, but identifying and reaching the full diversity of community members and other stakeholders is complicated, especially at a site like Oak Ridge, which has a complex physical environment and diverse population. Ms. Lohmann describes the communities surrounding ORR:

Many of the people living in Oak Ridge (the city) and surrounding counties are highly educated, many work or have worked for ORR, and they understand the mission. Some others in other nearby communities without experience or understanding of DOE or ORR may not understand the mission. Our SSAB needs to communicate to the full range of site neighbors. The SSAB is an advocate for all our local communities, and we actively try to reach them all. But we also need to help stakeholders think about the cleanup mission of ORR and how DOE cleanup can move forward.

Ms. Lohmann identified stakeholder groups besides those located geographically in communities. For example, a very engaged member of the Sierra Club who once worked for ORR has taken a very active role in attending SSAB meetings and regularly addressing environmental issues—communicating to the Board is not difficult for her. But others, such as local fishermen may not be as actively involved. Reaching the broad diversity of stakeholders (particularly environmental justice communities) has been much more difficult during the COVID pandemic.

It's a balance between the two-way communication of the SSAB with ORR, and the two-way communication with the public. While the Sierra Club member represents the club and their environmental concerns, a local farmer is understandably worried about potential risks from ORR contaminated groundwater. We have to transmit their concerns to DOE, and get answers, and we have to be sure the stakeholder concerns are addressed or explained. We also, however, have to balance the needs of the community with the mission (of the SSAB).

The SSAB is clearly interested in using the open and regular communication channels between DOE and communities to ensure accountability. Board members both represent the communities but they also understand the mission of DOE-EM, and the problems they face.

2 | REACHING THE CONSTITUENCIES

According to Ms. Lohmann, the SSAB has two main methods of communicating about environmental risks: listening to attendees at their open Board meetings, and responding to the local communities when they ask questions or raise concerns. Board members with particular expertise on a topic of concern are available to go to the local communities to provide information and address questions. For example, Lenoir City (TN) is located south of the Oak Ridge site and has a population of about 8600.

“A gentleman from Lenoir City asked a question about whether the large rain events would adversely affect their communities, and whether ORR had adequate water treatment capacity. A Board member who works for a public utility, lives in that community, and has expertise in water treatment went to the community. Because of his knowledge, and living in the community, he had credibility and could adequately address the question.”

In essence, the communicator was local and had sufficient knowledge about the DOE water treatment system to be able to explain that DOE could handle the overflow from an extreme rainfall event. Credibility contributed to successfully addressing the issue.

“Perception before this meeting was not reality, but it had to be addressed with credible information from a trusted Board member. He listened, and then addressed some of the fears. Generally, people trust the Board. They trust the Board sufficiently that most issues are brought directly to the Board during regular meetings.”

3 | BOARD AND LOCAL INVOLVEMENT LEADS TO OPENNESS AND TRUST

The SSAB actively solicits the public to join the Board, both at public meetings and on their website. By openly soliciting input and membership, both to the Board, and to their one standing committee (Stewardship Committee¹), they seek to engender trust.

“The challenges faced by ORR, and its surrounding communities are not secret, they have existed for a long time. But even knowing the environmental risks, it is still difficult for Board members to get up to speed with the complexities of the issues. It took me over a year to feel I understood the risks, remediation plans, and communication challenges. It’s a lot to ask of volunteers, and not everyone is able to devote this time (because of job or other commitments).”

Ms. Lohmann explained that the COVID pandemic has complicated the SSAB’s efforts to communicate with local communities. Some communities have good internet access and knowledge of the web, but some do not. Even before the pandemic, it was difficult to get Board representation from some communities.

COVID ... has placed a challenge on our meetings, and they are still virtual. We are worried that this virtual pattern may result in fewer people coming to meetings after the pandemic is over. Still in the past there was a good working relationship between the communities and the Board. People showed up and asked questions or presented concerns. They trust the Board members.

Ms. Lohmann recognizes that some communities have been difficult to engage and the lack of Board ability to visit people is a serious obstacle. ORR’s communications is markedly complicated by the region’s hill and valley terrain that separates people and their neighbors (See *New York Times* bestselling book by Kiernan, 2013). For example, located in the valley directly east of the K-25 site is Scarboro, a town designated by the military as a place where Black residents who worked at the site would live as required by Tennessee law in the 1940s. Though this community has a vested interest in DOE activities and impacts, it, like some other communities, is sometimes difficult to engage absent a crisis of some kind.

4 | COMMUNICATION AND SOCIAL MEDIA

Social media is becoming one of the most important sources of information and misinformation and is even more influential now that people often cannot meet in person (because of COVID). In her day job, Ms. Lohmann leads a social media team for her company and is well aware of the technology’s advantages and disadvantages. Providing the right information about the environmental risks on social media is largely handled by DOE with a staff dedicated to not only developing science-based information but tracking their use and success. The value of social media lies in its broad reach and increasing familiarity.

¹This committee drafts recommendations about DOE’s planning and implementation concerning environmental restoration projects on the Oak Ridge Reservation and the treatment, storage, disposal, and transportation of wastes. In addition, the committee serves as a forum for discussion about topics relevant to the long-term stewardship of the Oak Ridge Reservation and acts as a liaison between the Department of Energy’s EM program and the community (<https://www.energy.gov/orem/oak-ridge-site-specific-advisory-board/oak-ridge-site-specific-advisory-board-committees>).

The downside is the ease with which false information can be posted, shared, distributed, and multiplied, and the difficulty of correcting, much less blocking misinformation.

Social media is becoming more important as our communication tool and will continue to be. It's both a blessing and a curse. We need to keep up with social media to know when there is false information and correct it as soon as possible. It's hard to counter misinformation if it is out there too long. We especially need to 'listen' on social media, as we listen at Board meetings. We also put all our meeting on YouTube.

5 | ENVIRONMENTAL ISSUES, COMMUNICATION, AND ACTION

The SSAB operates with a set of rules, a work plan, and specific agenda topics for each meeting. DOE-EM personnel or contractors are invited to their meetings to address topics of concern. Ms. Lohmann noted that there is a lot of listening on all sides to the initial presentations, and then they all listen again as questions are asked. The DOE-EM personnel update the committee and provide information in response to Board or community questions. These meetings are critical because Ms. Lohmann and her colleagues will push hard to get clear explanations and commitments. These feed into the Board's main method of influencing decisions and action, which is its recommendations to DOE-EM each year. They concentrate on moving forward with groundwater issues, mercury contamination, waste capacity, and influencing the budget.

We can have our greatest impact through our recommendations, which are based on input from community members, DOE-EM and contractor information, and the need to move things forward. For example, we recommended that (Environmental Management) have more funding to continue more extensive monitoring of mercury in streams. The ORNL aquatic laboratories have made great strides in developing monitoring tools that will provide both DOE and the community with needed information.

Mercury is one of the SSAB's greatest concerns, as it is to many of their community members. All forms of mercury are toxic to all organisms. Large quantities of mercury were used at Oak Ridge for many years, and large quantities entered the environment on site and off site. Large quantities remain in and under facilities and in pipes and drains, and DOE has made major efforts to interdict offsite transport (Peterson et al., 2011). Mercury is a risk to both human and ecological receptors (ATSDR, 2013). Consumption of recreationally caught fish is a main pathway of concern (USFDA, 2004; WHO, 2004). Mercury contamination in fish continues to exceed the Environmental Protection Agency's (EPA) freshwater criteria of 0.3 $\mu\text{g/g}$ in Upper East Fork Poplar Creek, as the creek runs by the city of Oak Ridge (Peterson et al., 2011).

Ms. Lohmann said that continued funding for the mercury treatment facility is always a high priority recommendation of the SSAB. They push it continually. It is personal for her, other Board members and for community members as well.

I'll admit that when I was looking for where I wanted to have my house, I looked at the watershed patterns. I wanted to make sure there was no watershed mercury

exposure. So, from a Board perspective, we all fully support and recommend that there is funding for the Mercury Treatment Facility (DOE, 2020), and if there are any plus-ups and other excess funds, they go to the facility so that it can soon be up and running. It is expected to reduce mercury going into East Fork Poplar Creek by 84% (DOE, 2020).

Another critical communication issue is dealing with the transition to re-industrialization of the East Tennessee Technology Park (ETTP), the site where enormous facilities (K-25) were constructed in 1944 for the enrichment of uranium from uranium hexafluoride, and the capture of the fissile isotope, U-235. The K-25 plant, located on the southwestern end of the Oak Ridge reservation, used the gaseous diffusion method to separate uranium-235 from uranium-238. When completed, it was the largest building in the world and consumed enormous amounts of electric power. This was a key component of the Manhattan Project and provided enriched uranium for the bomb used at Hiroshima.

By the mid-1980s, the demand for enriched uranium had decreased, and the gaseous diffusion operation was shut down in 1987. The mission at ETTP shifted to environmental restoration, with an aim at reducing the federal footprint, through private sector re-industrialization. The five plants were demolished by 2017 leaving a legacy of contaminated surface soil, subsurface, and ground water (DOE, 2005). The land use plan has designated parts of ETTP as industrial or industrial restricted (latter does not allow future users to dig below 10 feet where they might encounter hazardous substances) (DOE, 2007).

“It’s a communication challenge as we think about reusing that space. It’s likely a concern for companies considering a lease for the land knowing they will have to deal with DOE forever, and I am sure they have questions about current and/or future risks to their workers. It is important that DOE communicates more about the environmental risks, if there are any, on that space and how it is going to manage them.”

The Board has several avenues to reach DOE-EM management, including in-person meetings throughout the year with the ORR Site Manager and others, written reports, and Board recommendations. Michelle Lohmann sees it as a partnership. The Board develops its work plans in conjunction with DOE personnel and contractors, taking into account the needs and concerns of stakeholders. Likewise, the SSAB is investing in many forms of communication to their public, including social media to communicate with as many stakeholders as possible.

At the end of our discussion Ms. Lohmann summarized:

Being on the Board is a lot of work, with a steep learning curve, but it is intellectually challenging. There are many different kinds of risk communication challenges, particularly when you are the go-between for the community and DOE. But if you care about your community and the environment, it really doesn’t feel like work.

6 | LESSONS LEARNED AND FINAL COMMUNICATION ADVICE

- Always challenge the status quo—if you do not, you will not support the community.
- Keep asking the questions until you get an answer that satisfies the Board and community concerns.
- Always show up—to the Board meetings, public meetings, and one-on-one meetings.
- Put an emphasis on social media, and on being ahead of the curve with information.
- Try to engage people representing all the stakeholder groups in terms of their locations and their demographics.

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Biography

Michelle Lohmann volunteers her time in support of the Oak Ridge Reservation (ORR) and the surrounding counties by representing her community on the Oak Ridge Site Specific Advisory Council (ORSSAB). Lohmann has served as a board member since 2017 and has been elected by her peers to serve as Vice Chair and most recently Chair of the Board. Lohmann previously served as the Program Manager for the University Recruiting and Graduate Programs for Oak Ridge National Laboratory in collaboration with the University of Tennessee in Knoxville. Her main professional activity today focuses on human resources and communication. Her other interests include several not-for-profit organizations, including United Way of Greater Knoxville, Mobile Meals, and the American Heart Association. She currently serves as HR Director—Talent Brand and Programs for UScellular, the country's fourth largest wireless carrier. Lohmann has 20+ years of experience in the Human Resources field and is currently a student at Harvard University Extension where she is pursuing a degree in Psychology.

REFERENCES

- Agency for Toxic Substances and Disease Registry (ATSDR). (2013). Addendum to the toxicological profile for mercury (alkyl and dialkyl compounds). Agency for Toxic Substances and Disease Registry, US Public Health Service.
- Department of Energy (DOE)(DOE/OR/01-2161&D2). (2005). Record of decision for soil, buried waste, and subsurface structure actions in zone 2, East Tennessee Technology Park, Oak Ridge, Tennessee, 2005, U.S. Department of Energy, Office of Environmental Management, Oak Ridge, TN.
- Department of Energy (DOE)(DOE/OR/01-2279&D3). (2007). Final site-wide remedial investigation and feasibility study for East Tennessee Technology Park, Oak Ridge, Tennessee. APPENDIX E. Site-wide Baseline Human Health Risk Assessment (BHHRA) for Residual Contamination at Mitchell Branch and in Groundwater at the East Tennessee Technology Park.

- Department of Energy (DOE). (2020). Mercury treatment facility at Y-12 National Security Complex. OREM <https://www.energy.gov/sites/default/files/2020/03/F73/mercury-treatment-facility.pdf>
- Kiernan D (2013). The girls of atomic city: The untold story of the women who helped win World War II. Simon & Schuster.
- Peterson MJ, Efroymsen RA, & Adams SM (2011). Long-term biological monitoring of an impaired stream: Synthesis and environmental management implications. *Environmental Management*, 47, 1125–1140. [PubMed: 21476067]
- U.S. Food and Drug Administration (USFDA). (2004). FDA and EPA announce the revised consumer advisory on methylmercury in fish. <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2004/ucm108267.htm>
- World Health Organization (WHO). (2004). Guidance for identifying populations at risk from mercury exposure. UNEP/WHO