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ESTABLISHING COMMUNITY TRUST AT RADIOACTIVELY CONTAMINATED SITES

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Abstract

Establishing community trust is an essential element in the successful remediation of a radioactively contaminated site. The U. S. Environmental Protection Agency (EPA), Region 2 has been involved in the clean up of numerous radioactively contaminated Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation Recovery Act (RCRA), and Formerly Utilized Site Remedial Action Program (FUSRAP) sites in New Jersey and New York. Each site presented a unique challenge which centered around establishing and, often, re-establishing the trust of the surrounding community.

Thanks to the United States government's history regarding the use of radioactive materials, people question whether governmental regulators could possibly have the public's best interests in mind when it comes to addressing radioactively contaminated sites. It has been our experience that EPA can use its position as guardian of the environment to help establish public confidence in remedial actions. The EPA can even use its position to lend credibility to remedial activities in situations where it is not directly responsible for the clean-up.

Some ways that we have found to instill community confidence are: establishing radio-analytical cross-check programs using EPA's National Air and Radiation Environmental Laboratory to provide analytical quality assurance; and establishing an environmental radiation monitoring program for the contaminated site and surrounding community.

Cross-checks

Brookhaven National Laboratory (BNL) is a Department of Energy (DOE) research facility and Superfund site, located on Long Island, New York. BNL is a host laboratory for academic institutions to perform research in solid state and high-energy nuclear physics, nuclear medicine, biomedical and environmental sciences, and selected energy technologies. Facilities supporting this research include nuclear reactors, particle accelerators and a host of others involved in biomedical, chemical, and materials research. A new unit, the Relativistic Heavy Ion Collider, will be operational by the end of 1999. These facilities are all possible sources of radiation exposure to the environment.

BNL became a Superfund site when it was included on the CERCLA National Priority List in 1989. This results from over 50 years of research and waste management activities taking place at the laboratory. The contamination itself ranges from volatile organic compounds to radioisotopes impacting area surface water, groundwater, soil, river sediment, and local fauna. When it became widely known in 1997 that tritium from an onsite research reactor, was contaminating the groundwater at the laboratory, the surrounding community became incensed. The undercurrent of community suspicion that existed was based both on BNL's history of environmental releases and the seemingly innate suspicion that the public has

concerning radiation. News reports chronicling the steps taken by BNL to characterize and contain the contamination source became commonplace in local and even national newspapers.

The atmosphere of community distrust for BNL was such that a congressional level of inquiry was directed towards the lab. In 1998, the Secretary of Energy decided to terminate the 50 year old relationship between Associated Universities (who managed the lab) and DOE. This decision was based, in part, on the laboratory's loss of the public's trust [1]. During this period, community interest in BNL was so intense that an individual's political stand on Brookhaven and the environment became a platform for those seeking election or re-election to public office.

The idea of radioactive water outraged the community and spurred a number of environmental interest groups into actively campaigning to have the laboratory shut down. This situation generated a great deal of negative publicity for the lab even though none of the tritium contaminated water had migrated offsite. Also, it should be noted that all of the surrounding community was either connected to a municipal water supply or had been slated to be connected in the near future. So, there was little likelihood that any of the tritiated water would be ingested by members of the public.

Though there was no immediate health risk posed by the tritium contamination, there was a perceived threat to the environment and public health. In the light of these circumstances, BNL launched an aggressive program of environmental sampling and characterization to assess the impact and extent of the contamination. The public was kept apprized of findings in the form of press releases and public meetings as soon as sample results had been validated. Despite BNL's efforts, any information and/or assessment provided by the laboratory was seen as less than credible by the public.

EPA offered to participate in characterizing the tritium contamination by having EPA's National Air and Radiation Environmental Laboratory (NAREL) analyze ground water samples. In this way, EPA could provide the public with assurance that an outside regulator was looking over Brookhaven and the Department of Energy's shoulders during the process. Likewise the cadre of DOE scientists assessing the extent of the contamination could utilize EPA's confirmatory data to support their findings from a quality assurance perspective and bolster their credibility in the community.

In the case of BNL, EPA was not content to analyze just a percentage of the water samples, but opted instead to analyzed splits of all water samples taken during the plume characterization phase. EPA was mindful of the limitation of its own laboratory, however, and planned a phased approach for the analysis of the several thousand samples generated. In order to address the acute public interest and support the water analyses performed by BNL, EPA chose to rapidly analyze the initial phase of tritium samples. With good correlation between the analytical results presented by BNL and those obtained by NAREL, BNL was able to prove to the community that their data and analyses were reliable. Having provided this assurance, it was possible for EPA to scale back the tritium analysis. EPA would continue to perform a full 100% of the analysis, but the timing of the results would not be as critical, so NAREL's resources could be more liberally dedicated to other EPA projects.

Brookhaven's tritium plume is currently being addressed as a part of OU III of many ongoing onsite Superfund remedial actions.

Environmental Monitoring Programs

Environmental restoration projects generate a flurry of activity that is highly visible in the surrounding neighborhood. Although access to a work area is typically tightly controlled, site workers are often visible in and around the vicinity wearing respirators and protective clothing. Also, the sights and sounds of heavy machinery are a dead giveaway that something is afoot as excavation activities takes place inside. These site activities tend to first arouse public interest as to what is going on inside. The initial curiosity quickly becomes concern when it becomes known that radioactive materials and contamination are being handled within.

It is understandable how the sight of workers in respirators and protective apparel can cause people near an active clean-up to wonder about personal safety. In situations such as this, there are questions from the public that can be easily anticipated. The questions invariably revolve around impacts to themselves, their children and the environment. Air sampling/monitoring is a good way to provide answers for these questions and help instill confidence in the community.

EPA has a long history of providing environmental monitoring data through its Environmental Radiation Ambient Monitoring System (ERAMS). ERAMS was originally designed as a means to track radioactive fallout trends in the United States from domestic and international above ground atomic bomb testing. More recently, it was used to track fallout from the Chernobyl reactor accident. For EPA to install a limited number of air/radiation monitors focusing on radiation trends around a site is an extension of services that are already provided by NAREL in support of the ERAMS network.

EPA is currently developing a pilot Community Based Environmental Radiation Monitoring (CBERM) program to provide a means by which the public surrounding a radiation clean-up can access accurate environmental monitoring data. The public needs unbiased, accurate, and understandable information on which to base opinions and decisions when it comes to radiation and the environment. C-BERM involves partnering with the community and allowing their concerns to shape the environmental monitoring program. If the public has input on where to sample and what to sample, their level of confidence in site activities will increase.

Our vision involves providing real-time measurements and an environmental sampling program. Another component of our vision is that all environmental data collected be accessible via the Internet through the use of an EPA website. This information will help to demystify radiation and provide a greater degree of comfort in the community.

Conclusions

In EPA, Region 2, we feel that cross check programs and active monitoring are of great use in building community confidence at radioactively contaminated sites. These measures can also be used to build public confidence outside of the realm of contaminated sites, however. Research institutions that perform experiments in nuclear and high-energy physics have come under increasing pressure from the community because of their use and production of radioactive materials. To this end, EPA confirmatory cross-checks and CBERM can be used to address community concerns about environmental radiation impacts regardless of the source.

References

[1] UNITED STATES GENERAL ACCOUNTING OFFICE, Department of Energy Information on the Tritium Leak and Contractor Dismissal at the Brookhaven National Laboratory, GAO/RCED-98-26 (1998).