

## **PROMOTING PUBLIC UNDERSTANDING OF NUCLEAR WASTE MANAGEMENT**

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### **ABSTRACT**

In countless locations across the nation the mention of anything nuclear spawns fear in the minds of countless millions of our citizens. Political rhetoric, news stories and the lack of knowledge about nuclear energy causes the masses to reject what they do not understand. Generally little, if any, thought may have been given to nearby nuclear weapons facilities when family members and neighbors were gainfully employed at the sites. Once the sites were closed as a result of the termination of the Cold War threat, and there were indications that radioactive materials might be moved, the public expressed concern. It is important that the public have an understanding of how these materials will be handled to insure their safety. It becomes important that both the generator of the waste and the U.S. Department of Energy create an environment that will involve community participation in developing strategies that will promote and support an understanding of how radioactive wastes will be handled.

The objective of this paper is to offer suggestions as to how public confidence in the ability of the generator can be built, of what has been determined to be nuclear waste, to effectively handle the problems related to waste disposal, removal or on-site storage. It is essential that the public fully understand the need for the reduction of the waste stream volume and the problems being faced in reaching this goal. The effort of gaining public understanding and support of this important task cannot be limited to just those within close proximity to the facility presently hosting the materials, but must extend to those along any potential route that might be used to transport the radioactive materials. In addition, the populations near a site that may have been designated to receive such materials need also to be actively involved with planning.

### **INTRODUCTION**

Hardly a day passes without an expression of concern, somewhere in the country, regarding the safe handling and disposal of nuclear waste. Much of the existing waste, by law, must be disposed of either on-site or moved to a safer location. The media jumps on every opportunity to report any nuclear event. About a year ago a small amount of water leaked from a truck carrying "white boxes" of Low Level Radioactive Waste from a site in Ohio to the Nevada Test Site. The discovery was made while the truck was parked in Kingman, Arizona. The water contained non-radionuclides and thus was not a threat to the populations in the area but the media took the opportunity to blow the event out of proportion. Both the U.S. DOE and the generator of the shipment conducted a study of the cause of the leak, stopped shipments and redesigned the containers, again demonstrating their attention and concern for public and environmental safety.

Political leaders have tried to put fear in the minds of populations along potential shipping routes of high level spent fuel assemblies that might be targeted for Yucca Mountain, some one hundred miles northwest of Las Vegas. The people of Boulder, Colorado have protested activities taking place at the Rocky Flats facility a few miles south, an outgrowth of learning that plans were in the wind to move contaminated materials off-site. Unfounded fear of explosions happening while the waste is being transported spurs on such public outcry. Concern is heard about the accident potential of vehicles carrying nuclear material across Hoover Dam, but little consideration is expressed about the hundreds of loads of hazardous materials, other than nuclear waste, that are already crossing this important structure.

Because of the Cold War threat the government entered into massive nuclear weapons buildup at several locations in the early 1950s, the production continued for the most part, into the first part of the 1990s when it was determined that the threat of war no longer existed and the majority of the facilities were shut down. Under government order and direction, the clean-up and restoration of these sites to as-near-original-status as possible, was mandated. Such projects are underway. Because of the variety of activities that took place, the size of each, location and the degree of contamination, the task is different for each.

Unfortunately, public trust in anything 'government' is not at the highest level, thus making the task of gaining public support and understanding more difficult. Currently, much activity is taking place as sites aim at reaching the cleanup goal of 2006. No one approach can be followed because the type of activity that took place and the size of the complex all impact the cleanup process. A site the size of Oak Ridge, with its approximately 60,000 acres, has many concerns not faced by the Fernald complex having 1,060 acres.

The U.S. Department of Energy has established strict guidelines for the shipment of radioactive materials and their disposal. The DOE publication: Accelerating Cleanup – Paths to Closure, released in June, 1998, provides a historical view of the waste situation as well as projected costs and a timeline for these multitude of tasks to be accomplished. In addition, countless important data regarding environmental management activities is included. Some sites have been designated as receivers of different waste forms; an example is the Nevada Test Site which has been designated as a low-level waste management facility. Strict acceptance criteria must be met before the movement of any radioactive materials can be begun.

Because no two sites have exactly the same situation, each must determine which waste can safely be stored on-site and which must be sent elsewhere.

## **WORKING TOWARD A SOLUTION**

At the onset it must be recognized that no one master plan will necessarily fit all sites as they strive to gain public understanding and acceptance of the problems being faced by those involved with the waste management program. Unlike the days of weapons production when everything taking place was cloaked in secrecy and the facilities were often hidden from view with armed guards patrolling the area, the government has recognized the importance of working hand-in-hand with the public in building support and understanding related to the handling of radioactive waste. Such an approach implies broad involvement between groups and agencies with no one group or organization dominating the discussions or planned action.

The entire concept of government playing a non-directive role, though not new, is totally foreign to many citizens. One positive step on the part of the U.S. Department of Energy has been to designate funds to provide for and support of Site Specific Advisory Boards (SSABs), composed of interested and concerned citizens. The purpose of such boards is to evaluate activities related to waste management at the several nuclear facilities, and provide citizen input to the many critical issues related to the restoration of these sites. Diversity of membership is sought in making the composition of such boards project a true picture of the communities they represent. An example of the makeup of an SSAB might well be the Nevada Test Site, which is composed of eighteen dedicated people representing a large metropolitan area and people from rural Nevada, all with a wide variety of backgrounds. Composition of this board, as well as that of other boards, changes, but it includes people from local businesses, former nuclear workers, educators, retired military and real estate folks, to name just a few. Such broad representation fosters lively and thoughtful discussion both at the monthly meeting with public attending and in the many technical committee meetings charting the direction of study and proposed action plans. Even though conditions at the sites across the country are different from one another, courses of action by SSABs are seen as having an impact on the total waste management program.

The Low-Level Waste Seminar, hosted last August by the NTS CAB, and held at the University of Nevada Las Vegas, brought representatives from the boards across the country for the purpose of exploring common problems, developing solutions and identifying critical concerns regarding low-level waste issues. Follow-up activities are still underway as position papers are being developed and shared across the DOE complex. It is this kind of dedication that causes board membership nationwide to work toward common goals and solutions for the effective management of nuclear materials.

Some communities have promoted the idea of a community nuclear complex partnership even though an SSAB may exist. Such other interested groups work to arrive at agreements that may be different than those of an SSAB but also reflect community concerns. Regardless of the approach of one or more groups, there needs to be review as new techniques and methods become available. Changing conditions, new regulations and even the political climate will impact thought.

Though some groups may have formed there are, in many communities, people living and working in proximity to the nuclear facility having interest and concerns regarding the management of existing radioactive materials still at the site who have not become associated with any of the existing groups. How then can these citizens be brought into the mainstream of nuclear understanding. Many of the suggestions that follow may, in some instances, have been tried or are already in operation. Those that follow are suggested as additional approaches to enhancing public involvement and understanding.

## **LAUNCHING THE PROCESS**

### Role of the Management Team

- Determine what needs to be accomplished
- Set goals and objectives in measurable terms
- Design a course of action based on goals
- List community leadership involvement

Once initial planning has been completed, representatives from the community should be provided the opportunity to study the initial course of action and make suggestions that they feel would best meet the needs of the organizations within the community they represent. It is vital that all segments of the community become involved if the plan is to be successful. At this point in the basic planning, an advisory committee should be formed that would assist in guiding the many activities that will follow. They might set up a squad-type organization where the chair of each of the activity groups would be able to go for assistance, report progress and serve on the continual planning team.

Every possible type of exposure should be given to the plan. Round table discussion should be held, talks at clubs and civic organizations should be given, explaining the purpose of the program. Key to the success of any community effort is good and accurate media support and coverage. Once residents feel that they are important, there are many types of activities in which they may become involved.

### Activities that Might Be Considered for Implementation

- Establishment of reading rooms
- Setting into motion a speakers' bureau
- Preparing displays for malls
- Setting up web pages
- Development of newsletters and fact sheets
- Sponsoring public workshops
- Promoting neighborhood coffees
- Telephone hot lines
- Conducting assemblies in schools and civic centers
- Sponsoring film presentations
- Enriching public libraries

All of these activities would naturally focus on nuclear issues for the purpose of helping to improve public awareness and understanding of important concerns facing the community. Accomplishing such activities would require input from all segments of the community but could be built around everyday citizens with an interest in becoming involved.

Many activities will require specialists in particular fields to deal with the more technical issues of radiation, transportation, safety, health and government. Within almost every community are

people who could well serve such roles. Identifying some of the issues that might well be brought to the front follow:

#### Sources of Other Important Input

Scientists, engineers and educators:

- High school science classes hold open houses for the public with students and teachers doing demonstrations and answering questions about nuclear issues
- Give classes, conduct workshops or have lectures on such topics as radiation, types of nuclear waste and how waste is treated
- Conduct tours of local businesses that contribute to the nuclear environment
- Explain the importance of evaluating materials for potential recycling

Transportation specialists:

- Review the regulations governing the transportation of radioactive materials
- Show films of the different types of shipping containers
- Have panel discussion about problems related to moving nuclear materials

Health, safety and emergency personnel:

- Explain effects of radiation exposure
- Conduct demonstrations of evacuation drills
- Provide first aid classes
- Demonstrate first aid practices in case of nuclear accident

Nuclear facility specialists:

- Conduct public tours of the nuclear facility
- Explain the cleanup process taking place
- Discuss on-site vs. off-site storage
- Provide data on the vast volume that is being handled

Community leaders:

Provide an environment that will allow all of the above-listed activities as well as others that may result from community interest to function smoothly. Making places available for meetings to be held, contacting mall managers for approval to place posters or information booths and working closely with the local media to promote the total effort.

As many activities begin taking shape within the community, it may become evident that modifications might become necessary to insure and provide for the greatest impact. To be successful, the program must be flexible to best meet the expectations of both the citizens of the area and those providing the informational activities. Sight of the purpose of this effort must not be lost.

Without question, the assistance of everyone playing some role in the process is the key to success. Much of the activity will depend upon recognizing that it is being done on a two way street, the U.S. Department of Energy and the community working together in reaching solutions is essential if anything meaningful is to be realized. The U.S. DOE has in operation the PIP – Public Involvement Plan, designed to assist the public in gaining information about various nuclear sites. The DOE Waste Management effort in Nevada includes site tours, presentations, displays at shopping malls, public meetings and fact sheets as well as opportunities for public comment.

## **EFFECTIVE APPROACHES OF THE NTS CAB**

Recognizing the importance of reaching out to those communities having concerns regarding possible groundwater contamination or other problems resulting from the hundreds of nuclear tests that took place on the Nevada Test Site (approximately 65 miles Northwest of Las Vegas), the CAB has held some of its monthly meetings in communities as far as a two-hour or more bus ride from Las Vegas. Such meetings are well publicized in those communities with the agenda and with emphasis as to the importance of their input to CAB study. Specialist are available to present reports and answer residents' questions. Such meetings have in the past begun with a supper, hosted by local groups, which does much to break the ice, and get people talking. Because the formal presentations are targeted, the questions from the locals focus on those issues which gives meaning to the effort. During the break, there is ample time for everyone to circulate, meeting the presenters, CAB members and locals alike. Many questions pop up that might not have come to the front earlier, but on a one-to-one basis, receive answers.

Usually at the next Administrative Committee meeting, which follows the total board meeting by one week, issues are discussed regarding the benefit to the CAB gained from the meeting in the rural area. New approaches are often suggested that members feel would make the next meeting out of the city effective. Frequently, the communities that hosted the out of town meetings will request a return visit with topics they would like to learn more about. The feeling of the CAB members is positive about such meetings and they welcome the opportunity to visit other areas potentially impacted by the programs of years gone by at the NTS.

Site visitations by CAB members are proving to be very helpful in developing an understanding of the problems faced by other facilities in the complex. Members are encouraged to schedule visits to attend both the local SSAB meeting as well as having a tour of the site. Upon return, members are encouraged to submit a report of their visit so that everyone will gain from the visits. Interestingly enough, no two reports of the same site reflect the same observations. One individual may stress the importance of large tanks and not observe a burial ground for waste; someone else won't even observe the tanks. Regardless, such reports bring an awareness of existing problems faced by the different facilities.

It is the opinion of the membership that such travel is vitally important for the NTS CAB membership in search of an understanding of the waste management problems at other sites that may have a direct affect on the activities taking place at the waste management facility miles from Las Vegas. Another issue is the shipping of waste through the Las Vegas Valley. Learning of the potential volumes through such visitations prepares the members to better address public

concerns. The belief held is that the results gained from CAB travel well justifies the time and expense involved. Other activities that expand the individual CAB members knowledge of nuclear waste issues is the attendance at such meetings as the one at which we are participating there in Tucson.

The SSAB Chairs meeting, held twice per year, provides another opportunity to share ideas, gain new contacts and build friendships that greatly assist SSABs across the nation. Other activities in which the CAB participates are workshops sponsored by other SSABs. The Fernald SSAB is working hard on an SSAB Transportation Workshop, scheduled for May of this year. Such an effort on their part, hosting such a program, is one more vehicle for spreading the word and sharing ideas that will improve the entire WM effort.

### The Road Ahead

Even with a well-orchestrated program, there could be issues that may have been overlooked or that were brought to mind by a presentation without an opportunity to follow it through. It must be recognized that regardless of how well the informational program was designed or presented, there will be some who will not accept the fact that changes must take place at the closed nuclear facility. The critical need to either store some materials on site or remove some that can not be safely contained where presently located is often met with resistance. A small number of area citizens may stage protests as an excuse to gain attention in the media. Such activities have taken place at many sites and can be expected in the future regardless of any effort to explain the problems being faced by those involved with the management of nuclear waste. There seems to be no one solution to such negative thinking but allowing such groups or individuals to peacefully vent their frustrations calms the waters of discontent temporarily. Much can be gained by indicating an interest in the concerns of those frustrated by any nuclear activity. To totally ignore those who have sincere concerns would tend to even make the situation worse.

Almost anything done daily has the potential for risk but is seen differently by each individual. One person may view an activity as having a great risk while another will view the same activity as having little or no risk. Some citizens living near a nuclear facility may believe the risk of leaving radioactive on site is far less than moving it along a road past their homes, others will think just the opposite. It is important that a risk assessment be made regarding the many factors in the management of the materials in question. Honest answers to some of these concerns will do much to calm those expressing outward objection. Risks may in fact be real or they may be perceived, regardless of which, such concerns must be met with facts.

### **IN CONCLUSION**

Public understanding of the handling of radioactive materials classified as waste is essential to the smooth transition from a one-time fast-paced industrial complex, where many in the community were gainfully employed, to a site targeted for restoration to as near as natural to the setting it was once was years before. In many cases, few of the present residents were even born when the facility was first constructed and became operational. Few of those employed were even aware of the problems that were being created for future generations. Unfortunately, little concern was shown for the by-products resulting from nuclear weapons production. Because of

either a lack of knowledge or concern regarding the true nature of the waste, few safeguards were implemented during the earlier years of production.

Because of government directions, regulations, budget and the nature of each individual site across the nation, everyone has their own perception of what they believe should be done to manage the waste contained in buildings, or stored on-site in unsafe containers or even the buildings themselves. One of the chief issues in some cases is the matter of what to do with the tons of accumulated radioactive materials. The very nature of the waste has a direct impact on how it is to be disposed. Using Oak Ridge and Fernald as examples, each site has large volumes of low-level radioactive waste which can safely be managed at the Nevada Test Site. Before being shipped, the materials must be identified and given classifications to determine which are suitable for specific receivers. Strict adherence to both U.S. DOE and U.S. Department of Transportation rules must be met before anything can leave the generating facility.

Unlike the days when secrecy was the watchword, the time has come to be open with the public about the countless problems being faced by the nuclear complex that must be met head-on. Through a massive public education effort, with total input from the community and the nuclear facility team, confidence will be generated, ideas will spring forth, and cooperation will result. Every effort must be made to be honest about the disposition of the materials presently existing at the site as well as the impact such changes might have on the local environment. Once there is understanding of the waste management process, acceptance will be more easily attained. Building a close working relationship between the U.S. Department of Energy, the management of the nuclear complex and the public should be the ultimate goal of developing an understanding so vital to the success of the waste management program and the safety of the public and the environment.