

PERCEPTIONS OF RISKS ASSOCIATED WITH TRANSPORTING RADIOLOGICAL WASTE: COMMUNITY FOCUS GROUP FINDINGS*

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ABSTRACT

The transportation and storage of radiological wastes are of concern to policy-makers and the lay public. On the one hand, technical experts believe that their scientific knowledge will assure that wastes are handled safely, with minimal risk to people and the environment. On the other hand, policymakers are reluctant to proceed with a shipping and storage program until the lay public has the opportunity to participate in decision-making about the prospective storage site and mode of transportation. Our research examines the attitudes of residents in an area near a present temporary storage location, the Idaho National Engineering Laboratories, who also happen to live near an "officially" preferred transportation corridor, Interstate 15. This article reports the attitudes and perceptions elicited from focus groups in seven southeastern Idaho communities.

INTRODUCTION

Policy decisions about hazardous wastes are paradoxical in that movement to a permanent, safe storage site is perceived as urgently needed by the lay and scientific communities, yet scientists' safety claims about transporting these wastes often have been rejected by environmental groups. The gap between what many scientists claim is objective fact (transporting radiological wastes is safe when shipped in specially designed containers) and what many environmentalists

*This research was supported in part by a grant from the Idaho State Police.

and other members of the public seem to believe intuitively (transporting wastes may produce unexpected and undesirable environmental consequences) has been noted by others studying public assessment of risks [1, 2]. Policymakers, technical experts, and the lay public are perplexed and in disagreement about where and how the existing radiological wastes should be stored.

This article reports community perceptions of the risks which are viewed as being associated with transporting transuranic low-level radiological wastes by truck from their temporary storage location at the U.S. Department of Energy's Idaho National Engineering Laboratories through southeastern Idaho to the Waste Isolation Pilot Plant (WIPP) at Carlsbad, New Mexico. Opportunity for public participation in decision making on hazardous wastes is now commonplace [3]; in the case of the present study, an active citizens' environmental group has engaged in a variety of highly-visible activities such as demonstrating, holding news conferences, and holding public meetings. Since there is no way of knowing the extent to which the views of the vocal environmental group represents the general population, this study proceeded as if it "knew nothing" about how the general public thinks about issues related to transporting radiological waste to a permanent storage.

Our strategy was to uncover the concerns, if any, of a broad spectrum of people who live on or near Interstate 15 from Blackfoot, Idaho south to the Utah border. This is the proposed transportation corridor for the WIPP shipments. It was reasoned that by talking to a cross-section of social classes among the population, including laborers, farmers, city leaders, contractors, truckers, secretaries, teachers, media representatives, scientists and environmentalists, the salient issues could be identified; available information about the concerns of people in other places and at other times was not used. Instead, the issues emerged in discussions held within nine focus groups during July and August, 1993. Three focus groups were formed in Pocatello, and one each in Blackfoot, Fort Hall, Inkom, McCammon, Arimo, and Malad.

Focus group participants from the affected communities were asked to give their views on the projected program. Next, the information so obtained was used to prepare a 148-item questionnaire that was distributed by mail to 5,000 residents in southeastern Idaho during early September, 1993. This article describes information obtained from the nine focus groups. A network of contacts in each community was consulted to identify potential participants, who were contacted by telephone and informed about the topic, date, and location of the focus group interview. Phone calls were followed by letters to those who volunteered to participate. The focus groups in this study were kept small to give participants ample time to talk and respond to the views of others present. Average group size was nine. Forty-three men and forty women took part. Group members were not acquainted with one another beforehand.

Two sociology graduate students, trained as facilitators, directed the groups. Participants were encouraged to use only first names and to identify neither their

occupations nor places of employment. Anonymity was maintained in both the group discussions as well as in the typed transcripts. In one instance a focus group meeting had been listed in the newspaper, and a local television news team attempted to film the group interview. Although this was prohibited, the news team waited for participants to leave and two of the participants appeared on the local evening television news.

DISCUSSION QUESTIONS

Focus group meetings were scheduled to last one-and-a-half to two hours. During the first fifteen to twenty minutes, the facilitator described the Waste Isolation Pilot Plant and the nature of transuranic wastes. Each participant also was provided with photos and hand-outs that described the containers, the trucks, and the federal guidelines for shipping this type of waste.

Each group addressed the following questions:

1. Is transporting transuranic wastes from the Idaho National Engineering Laboratories (INEL) to the Utah border acceptable to you?
2. In your thinking, what justifies moving this material out of Idaho?
3. Do you trust the officials involved with the shipping when they say that they have identified and resolved any dangers associated with the handling and transporting of the materials?
4. Are there some officials who you particularly trust or distrust?
5. How does the risk associated with the transporting of transuranic wastes compare to risks associated with transporting other types of materials such as fertilizer, propane gas, fuel, oil, and insecticides?
6. What is the primary source of your information about the issues related to the storage or disposal of radioactive materials?
7. In your opinion, what risks are acceptable or unacceptable related to the transporting of radioactive materials?
8. What procedures would reassure you that transporting the transuranic wastes is as safe as possible?

Some, but not all of the groups had time to address these questions as well:

9. Would it bother you to ride or drive on the Interstate while shipments are in progress?
10. On the route from the INEL to the Utah border, are there any sections of Interstate 15 that you consider troublesome?

FINDINGS

Participants in the focus groups expressed concern and interest about a wide array of topics relating to the proposed shipments of transuranic wastes.

Comments were transcribed and analyzed. Five major themes emerged: risks and safety, information and knowledge, trust, regulations and process, and waste issues.

RISKS AND SAFETY

The 137 comments in this category addressed the reasons why participants think that the shipments are risky or safe, and factors that could affect the relative risk or safety of the operation. Participants listed several types of risk that they think the proposed shipments could present. Generally speaking, these risks were regarded as acceptable, if worrisome.

The single biggest concern is the risk of a traffic accident. Although participants frequently voiced confidence in the safety protocols of the program, and think that these trucks are less likely to be involved in an accident than other vehicles, they still worry about bad weather conditions and heavy traffic.

Focus group members spoke extensively of the risk of accidents with transuranic wastes shipments as compared to other hazardous materials. Most people agree that transporting the transuranic wastes by truck will probably be safer than trucking other freight because it is regulated more strictly. They perceive that first responders might lack the expertise and training in handling an accident:

. . . I think I would be a little more hesitant, or a little more apprehensive, about allowing a vehicle that contained radioactive waste on the freeways, than I would something containing gasoline. It also ties back to what some others have said here today, of the fact that local law enforcement agencies know how to deal with the fertilizers, they probably know how to deal with the gasoline spills and propane and everything else, but none of them have been trained about how to deal with something that is radioactive—that's another thing that's scaring me about it.

Some are apprehensive that the proposed program is the first part of a long-term operation that will eventually place higher-level radiation on highways:

Probably, there are other things transported that are more hazardous than just what they're saying this waste is, because there's a big difference between the alpha particles and gamma particles; but what kind of a door transporting this type of waste opens for transporting the rest of the waste?

I just want to re-emphasize that all my answers are based on transuranic; there's no risk with this. And the questions that keep coming to mind—are these safeguards being used for transporting the high level packing waste? The two hour checks, the satellite tracking . . . all this. I hope this isn't a smoke screen.

Almost everyone thought that the shipment procedure is safer than the procedures for other types of freight, such as propane, fertilizers, and nuclear weapons, by virtue of the fact that so much planning and design has preceded it. A few said that the precautions taken for the transuranic waste shipments are "overkill," but more said they wish that other materials were as well-regulated.

The risks associated with radiation also concerns many participants. The fact that radiation is invisible, that is, imperceptible to ordinary senses, increases its riskiness for some. More people, however, commented on the possible timing and persistence of effects from radiation exposures. People worry about developing health problems years after the fact, and whether that would be better or worse than dying quickly in an explosion from conventional hazardous wastes. Some also expressed concern that any radiation leak will affect not just residents now, but future generations.

Other concerns are proximity—how close the trucks would come to homes, schools, or work—and possible changes in the shipping program once WIPP runs out of room for wastes. The most pronounced concerns about risks to the environment were expressed at the Fort Hall meeting. The participants, most of whom were Native Americans, expressed worry about the possibility of contaminating soil, water, and air on the reservation, and how this, in turn, might disrupt their culture.

Other people expressed concern not so much about a specific area of risk but over the generic possibility that some contingency might occur which the designers of this program had not anticipated and which could cause a major radiation leak. Still others expressed the counterposed generic sentiment that indeed this is "no big deal" at all: several comments were made to the effect that "everything is risky" and, so, worrying too much about any one risk makes little or no difference. Some of these people were made more suspicious of the shipments by the very fact that the Department of Energy (DOE) has taken so many precautions:

I . . . think that these safeguards are excessive for the type of waste. You can put them in a cardboard box and haul them in a pickup truck with no danger to anyone, which for one, makes me suspicious. How can we be assured that it's just transuranic waste and not something more dangerous to us, and the other questions, is this really just testing the procedure, the transportation program for the time when they are transporting more dangerous radioactive waste?

In spite of these objections most participants believe the shipments are essentially safe. Some think that safety will be ensured because they perceive that it involves minimal low-level radiation. Others think that the regulations are adequate to protect the public, provided that they are followed.

Participants did voice strong concerns over emergency response teams. To feel truly secure about these shipments, they said they wanted to know that all potential first responders, including local law enforcement, fire and medical personnel,

will be adequately trained and equipped to handle any accident, and that these personnel will be notified about the shipments in advance.

INFORMATION AND KNOWLEDGE

There were 135 comments on how much people know about transuranic wastes and related issues, where they acquire their information, and how reliable they think it is.

Participants are very concerned about what they perceived as a lack of knowledge about radiologic wastes and related issues among the general public. Some referred to feeling personally ignorant about the issue to the point where they are unable to form sound opinions. Most rely on local and national newspapers, TV programs, and radio as primary sources of information. However, many said they think this information is unreliable, either because of sensationalism and bias or because reporters themselves are also uninformed:

Up to this forum it [source of information] has been the news media—T.V. and the newspaper, and I don't know if you can trust them any further than what we have said about some of these other agencies. They like to sell papers; they will contradict themselves on the same page.

A few named other sources of information such as DOE literature, technical journals, and personal informants. Sources such as agency spokespeople are viewed as manipulating public relations, but of all sources of information, personal informants are the most trusted. The importance of personal informants applies particularly to non-English speaking Native Americans and all residents of the Fort Hall Reservation. Several members of the Shoshone-Bannock Tribes at Fort Hall advised that there should be a concerted effort to inform all tribal members by holding informational meetings in each of the tribal lodges. They further advised that one representative for each district, or lodge should be instructed in the details and technical aspects of radiological wastes. If knowledgeable representatives were available and accessible to tribal members, they could function as members' personal informants.

Most participants thought that accurate information on nuclear waste is inaccessible to ordinary citizens who may lack the time to do independent research:

I wish that we would all take a look at all the different articles out there—we have a tendency to look at a newspaper article or sit in front of the television set and hear what they say and take that as gospel and move on because our lives are so busy and we have to worry about children and going shopping and getting the dry cleaning and paying the rent . . . and we don't have time to do all that study.

Participants overwhelmingly expressed a desire for a concerted public education effort on nuclear issues. Although a few believe that public knowledge must be tempered by security considerations and that information about shipments should be restricted to a "need to know" basis, most people think that agencies such as the DOE, as public servants, have a responsibility to keep the public informed, and that the public has a right to information that will allow it to render sound decisions. Many participants said they thought that such education would decrease public anxiety about waste shipment and storage. Participants generally explained their own misgivings about the shipments as based on fear of the unknown:

I have a concern, I think that maybe like a lot of other citizens, is kind of a fear of the unknown. Those of us that aren't unclear scientists or physicists, we really don't know the nature of the beast. What can nuclear wastes do?

Several persons said they thought responses to nuclear issues often are based on irrational thinking rather than stemming from scientific knowledge.

There were several suggestions as to who should provide such public education; some people believe the media could be trusted to do it if the information were given verbatim, others envisioned the state Department of Law Enforcement or Department of Transportation distributing some pamphlets; others thought that public meetings where people could see the trucks and the containers would be more appropriate.

TRUST

The questions which asked participants whether or not they believe the DOE's assessment of the risks of these shipments, and which officials they trust to tell them about risk, probably generated more passionate discussion than any other topic. On the whole, participants are very reluctant to trust any government agency on any issue and particularly on nuclear issues.

Trust itself was discussed in two very different senses. Participants spoke both of trusting an agency's truthfulness and motivation, and of trusting its skill or experience. In the first sense, the Department of Energy possessed the least credibility of any named organization. Participants repeatedly referred to what they saw as the Department's "bad track record" at other nuclear sites. On the other hand, participants expressed far more confidence in the ability of engineers and other workers within the DOE and INEL to handle the wastes safely. State agencies were seen as at least somewhat more trustworthy than the DOE.

Special interest groups, particularly environmental groups active in the controversy over the shipments, also received low marks from people in the focus groups. They generally think that these groups are likely to twist information to suit a political agenda and so are untrustworthy.

Law enforcement was given a high level of trust. People seem to think that since the mandate of these agencies is to ensure public safety, they can be counted upon to be honest. A few people expressed doubts about the technical expertise and training of law enforcement personnel to deal with wastes, a consideration related to the issue of training first responders. Scientists and technical experts also are seen as trustworthy by most of these groups, on both counts, by most group members:

I would trust good science, I would have no problem at all with our local law enforcement opinions, I would be very trustful of their attitudes. I would be very distrustful of special interest groups because most of their attitudes are political and emotional and not necessarily good sense and science, and I would have no problem with regulatory agencies, particularly the Department of Transportation. . . .

A few people said that they would not trust anyone to make decisions about radiological waste shipment issues. Most people, however, expressed the need to trust someone, eventually, on these issues, since most members of the public are not well-versed in nuclear science. Even so, participants want some guarantee that officials will be accountable for their statements and actions regarding these shipments.

Most participants objected to what they saw as a history of secrecy at the DOE. They believe it cloaks nuclear issues in a mystique that makes them more rather than less alarming and also makes it hard to prepare should a real accident occur. A few people, however, advocated secrecy on the grounds of terrorist risk or because it prevents panic.

REGULATIONS AND PROCESS

These ninety-six comments deal specifically with the transuranic wastes shipment procedures as presented to the focus group participants in their information packet, and with procedures that participants would like to see become part of the shipping process.

Most said they thought that the safety specifications and regulations governing the shipments are adequate or more than adequate. As noted in the first section, however, people have concerns over whether these regulations will be followed strictly.

Participants also voiced concerns over the qualifications of drivers and the scheduling of shipments. They want poor weather and road conditions taken into account before trucks are allowed to travel.

Focus group members made several suggestions for specific changes in the program. A number of people want some type of police escort for the shipments to protect the trucks from other drivers, to limit the speed of the trucks themselves,

and to make sure that response will be swift in the event of an accident. The need for some sort of notification procedure for communities was also cited.

Some do not agree that the shipment procedures are adequate, and some wish that alternative modes or routes for shipping the wastes by truck, or even to shipping it at all, could be explored. Several advocated shipping transuranic wastes by rail:

. . . an acceptable risk to me would be to load train loads of it and set it on a railroad track. I think that's even more safe than the highway. Because, number one, you go through the towns at a much reduced speed. You can move a tremendous amount more of it without the risk of every accident. And dealing with this kind of waste I don't see any unacceptable risks in it.

Residents of Fort Hall who participated in focus groups said that they do not want transuranic shipments to transverse the reservation. They support moving the transuranic wastes from the INEL, but they are not in favor of the proposed route which cuts across the reservation. They said they believe that other routes are as efficient and would not jeopardize the homelands of innocent bystanders.

Focus group members spoke of the need for some kind of independent oversight and evaluation body. Because of the DOE's perceived history of bad faith with the public, participants were unwilling to simply accept the agency's word that it follows its own rules:

. . . there need to be real safeguards and some real oversight of those transportation programs and simply allowing the Department of Energy to tell me that everything is okay seems to me to be somewhat ludicrous—I suppose because we have seen the Department of Energy tell us a lot of things over the years and it has turned out to be absolutely false.

Waste Issues

There were seventy comments addressing transuranic and nuclear wastes issues per se. Virtually all participants want the wastes to leave Idaho. Some people emphasized the idea that INEL is not a permanent storage facility and that the current temporary storage of transuranic wastes is unsafe for the environment. Quite a few expressed concern over potential contamination of the Snake River Aquifer:

I'd like to see all the waste go from INEL. It's over the aquifer and if any of that got into the aquifer, then our way of life here is gone forever. . . .

Others were more influenced by the argument that the WIPP site is safe or at least safer than the INEL temporary storage facilities. Some participants just want it out of Idaho regardless of the conditions at either INEL or WIPP. In spite of the strong desire to remove the wastes from this state, several participants expressed

concern about New Mexico's readiness to accept the radiological wastes. Many believe that the whole issue of nuclear wastes should have been dealt with before now, or possibly before the United States started to produce it in quantity.

INTERPRETATION AND CONCLUSIONS

The southeast Idaho residents who took part in focus groups are concerned about the risks related to shipping transuranic wastes to New Mexico, but for the most part they think that the risks that they identified are tolerable in order to remove radiological wastes from Idaho. The participants perceived the transportation program as being well-designed to protect the public safety and the integrity of the containers. They trust local law enforcement officials to safeguard public safety but want to be assured that those officials and emergency response teams are adequately prepared to deal efficiently with any type of accident. According to Rayner and Cantor [4], a critical question is whether constituencies believe that the institutions that make decisions (here about moving radiological wastes) are worthy of trust. The participants of our focus groups believe that local institutions are more trustworthy than those at the federal level. They trust the advice of locals over and beyond the recommendations of experts and officials who live and work miles from southeastern Idaho.

Participants said they want to feel knowledgeable about nuclear issues in general and this program in particular, and most emphatically do not want to feel that officials are holding back information from them, as participants perceived has happened in the past. As Pilisuk et al. [3] found in their survey of three California cities, people believe that decisions about technological risk are made on the basis of information that is not available to the lay public. Our participants said they want to have a say in determining how wastes are transported, but believe they do not have access to the necessary information. Therefore, it is necessary for them to believe for the most part that the experts involved in the program possess the expertise to maintain safety. This is not to say that focus group participants believe that transporting the wastes is possible without any threats to lives or the environment. Rather, they appeared to believe that the benefits of removing the wastes are far greater than the costs to the environment if the wastes should remain in their present locations. The findings of concern about effects on the environment of a "do nothing" policy correlates with the environmental concerns reported in past research [5-7]. However, participants doubt that the DOE can be counted upon to honestly inform the public about any risks or problems that may develop.

This article has reported the attitudes and perceptions of residents in southeastern Idaho who participated in focus groups. The purpose of the exercise was to identify their concerns about shipping radiological waste to a waste storage site. The findings of the focus group cannot be generalized beyond the set of participants. Nevertheless, the findings were invaluable in identifying issues of concern

that were subsequently incorporated in an elaborate survey instrument that was distributed to a systematic stratified sample of residents in Fall 1993.

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