Low Dose, Risk, Decisions, & Risk Communication

Community Surveys

Low Dose Radiation

Fernald, Ohio and Rocky Flats, Colorado

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A REPORT

prepared for the

U.S. Department of Energy

Low Dose Radiation Research Program

Abstract

This report is intended to present a basic description of the data from the two community surveys and to document the text of the questions; the methods used for the survey data collection; and a brief overview of the results. Completed surveys were conducted at local communities near the Rocky Flats, Colorado and the Fernald, Ohio sites; no survey was conducted for the Brookhaven, New York site.

Fernald. The Fernald sample was randomly selected from 98% of all potential residential telephones in the townships of Ross, Morgan, and Crosby. The only telephone exchanges not used for the Fernald study had 4%, or fewer, of the holders of the telephone numbers actually living in either of the three target townships. Surveying started on July 24, 2001 and finished on August 30, 2001. A total of 399 completed interviews were obtained resulting in a CASRO¹ response rate of 41.8%. The average length of an interview was 16.5 minutes.

Rocky Flats. The sample was randomly selected from all potential residential telephones in Arvada and from 99% of the potential telephones in Westminster. Surveying started on August 10, 2001 and finished on September 25, 2001. A total of 401 completed interviews were obtained with a CASRO response rate of 32.5%. The average length of an interview was 15.7 minutes.

Overall, respondents hold favorable views of science. They indicate an interest in developments in science and technology, feel that the world is better off because of science, and that science makes our lives healthier, easier, and more comfortable. However, respondents are divided on whether science should decide what is safe or not safe for themselves and their families. The majority of the respondents think that standards for exposure to radiation should be based on what science knows about health effects of radiation and on what is possible with today's technology. Although few respondents had visited the sites, most had heard or read something about Fernald or Rocky Flats in the media. Impressions of the sites tend to be negative. Most respondents feel that overall their community would be better off without the site. However, when asked about the economic future of their community after cleanup and closure of the site, only 31–43% thought that it will be better, 47–56% thought their local economy will be about the same.

¹ The CASRO response rate equals completed interviews divided by (completed interviews + partial interviews) + (all other known forms of contact) + an estimate of the numbers for which nothing is known.

1. Introduction

Research consistently shows that expert evaluations of the risks from low-dose radiation exposure are considerably different from those of the lay public. This is important because lay risk evaluations determine attitudes, preferences, and behaviors related to how nuclear facilities should be managed. The conclusions about the potential hazards, the sources of evidence, interpretation of information, the values applied to outcome and policy options, and confidence in organizational management are displayed within the context of local communities. The result has been considerable opposition to expert-recommended actions to manage radiation exposures. Risk communication has been put forward as a means for bridging the gaps between expert and lay perspectives and thereby gaining support for public radiation-control programs and policies. Natural background radiation, including radon, raises only limited public concern and there is widespread public approval for the use of radiation isotopes in basic research and in medicine. Some industrial uses have been accepted only grudgingly as absolutely necessary (nuclear weapons) or as a *fait accompli* (existing nuclear power and radioactive waste sites). The primary disputes between experts and the public are with the industrialized sources of radiation.

This report is intended to present a basic description of the data from the two community surveys and to document the text of the questions; the methods used for the survey data collection; and a brief overview of the results. More detailed analyses will appear in final reports of the community studies and in future manuscripts resulting from this research project.

Scientific evidence exercises only a limited influence over public opinion even when the debate about specific cases is put into scientific and risk terms. The nature of science itself is often misunderstood and the inherent conditions of uncertainty and the inevitable development of new questions about the nature of radiation that results from science experiments prohibit the kinds of clear, unambiguous, and final answers that will settle questions about the potential risks to human health and the environment for lay people who have strong moral, ethical, or cultural values at stake. Thus, a difficult situation results. Society invests enormous time, resources, and effort into producing scientific and technical solutions to manage radiation risks only to have the best available advice rejected by individuals, groups, and communities at all social levels.

Table 1. ***Approaches to Communicating Risk***

Approach	Reference	Strategy
1. Communication Process Approach	(See Chapter 2)	Message source sent through available channel to intended audience (with feedback if necessary).
2. National Research Council Approach	NRC 1989; NRC 1996	An interactive exchange of information and opinion between experts and lay people.
3. Mental Models Approach	Gueter, G., and A.L. Stevens, 1983; Morgan, et al., 2002	Compares mental model for audience with expert models for evaluating risks
4. Crisis Communication Approach	(See Chapter 5)	Provides immediate action messages and directions
5. Convergence Communication Approach	Rogers and Kincaid, 1981	Long term “cycling” of information between groups to slowly converge onto common ground
6. Three-Challenge Approach	Rowan, 1991	Addresses the challenges of knowledge, process, and communication skills
7. Social Constructionist Approach	Waddell, 1995	Considers the flow of information as modified by understanding, values, beliefs, and emotions.
8. Hazard Plus Outrage Approach	Sandman, 1989	Based on premise that risk communication often must address the condition of hazard + outrage

Note. From *Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks* (PAGE NUMBER NEEDED), by R. Lundgren and A. McMackin, 1998, Columbus OH and Richland, WA: Battelle Press.

Community Surveys

Communication and education long have been considered the means for closing the differences between the experts and the public. The basic problem is how to provide the public with scientific evidence, confidence in the analysis, trust in the policies and programs, and willingness to support specific projects. To address the risk communication issues² — over the past half century a series of different conceptual approaches to risk communication have developed. Lundgren and McMakin (1998, chap. 2) summarized eight approaches. As shown in Table 1, these approaches have become more complex as they have accumulated evidence of psychological, social, cultural, economic, and political factors. An overriding additional complication is added with the power and variety of communication means that are exercised in contemporary life.

As the Lundgren and McMakin book shows, the tendency for risk communication is to develop in response to a series of social studies of public risk responses. Beginning with some rather simple, linear and mechanistic descriptions during the 1960s and early 1970s, risk communication moved on to incorporate work from social psychology and decision-making and somewhat later included sociological, cultural, and anthropological research.

² The potential for science-based education constitutes an additional area of research that is addressed in other studies undertaken by this research project.

Figure 1. A model of impact for unfortunate events. Adapted from Kasperson, "Social Amplification of Risk."

Roger Kasperson and his colleagues initiated an important direction of social analysis with the formulation of the Social Amplification of Risk as a conceptual framework to describe public responses to risk information (Kasperson et al., 1988; Kasperson & Kasperson, 1996).³ Figure 1 outlines this framework and shows a series of social-cultural conditions that influence the range of public behavioral outcomes. One of the key outcomes is the development of technological stigma for certain types of hazards and hazardous conditions. Stigmatization serves as a socially developed “sign” or “prompt” to guide the public’s risk evaluations. It also functions as a feedback loop within the social amplification of risk framework to inform decision-makers about public acceptability (Gregory, Flynn, & Slovic, 1995; Flynn, forthcoming; Satterfield, Slovic, Gregory, Flynn, & Mertz, 2001). Another important line of research considers the performance of organizations designated as risk managers, a matter that was included in the first wave of studies done on the social amplification of risk (Burns, 1993; see also U.S. Secretary of Energy Advisory Board, 1993).

The response to radiation risks is most obvious at the community level as repeatedly demonstrated with recent attempts to site nuclear waste facilities. When federal agencies have attempted to locate and develop high-level waste sites the responses at the community and state levels have taken a variety of political and social responses, inevitably in opposition to these proposals (Dunlap, Kraft, & Rosa, 1993; Slovic et al., 1991; Flynn, 1992). The futile effort over two decades to locate low-level waste sites, undertaken by more than 20 states and multi-state (compact) programs shows how difficult it is to overcome public resistance at the community level (U.S. General Accounting Office, 1999; Weingart, 2001). In varying degrees these public responses apply to nuclear power and weapons production sites. Concerns extend to transportation routes used for moving wastes and to atmospheric fallout that took place several decades ago (*City of Santa Fe v. Komis*, 1992; U.S. Department of Health and Human Services, 2001).

³ The Social Amplification of Risk has been the subject of about 100 articles and one forthcoming book (Pidgeon, Kasperson, & Slovic, forthcoming).

Figure 2. Social geography of risk communication.

Community Surveys

The early models of risk communication lacked the ability to construct science-based messages that addressed public concerns and moderated public attitudes toward radiation exposure and its management. This limitation affected decisions in two directions. It did not provide the public with the information used to make decisions on their behalf and it did not provide decision-makers with appropriate understanding of the public concerns. The result was a long series of contentious differences between radiation managers and the public expressed at the local, state and national levels. The early communication failures prompted the more recent models, which recognizes that earlier simple models did not adequately inform either managers or the public. It was necessary to move on toward more inclusive approaches, ones that took account of the full range of human social interactions that bear on the subject. The survey research reported here is part of a larger study of communities and the many roles of risk communication. It attends to the ways that communities learn about specific sources of potential radiation exposure and how they respond. It looks at the social construction of information, attitudes, and opinions that frame the evaluation of new scientific information. Certainly at this point, few people will be surprised to discover that science does not have the impact upon public opinion and behaviors that experts hope for. The goal of these surveys and case studies is to describe some key conditions in selected communities as a part of developing a better understanding of community-level opportunities and constraints to risk communication. Can science have an effective voice in the social world of radiation policies and programs? If so, how can that voice be heard and what outcomes could be expected under specific conditions?

Social Geography of Risk Communication. In order to address the issues involved with risk communication in the existing societal structures with their many overlapping and contending elements, we developed a conceptual framework entitled the Social Geography of Risk Communication. It builds on the past quarter century of work on risk issues and their social consequences. It is oriented to spatial conditions to identify communities, jurisdictions, and spheres of influence. The basic approach is shown in Figure 2. As a guide to research, it is used to identify the major arenas for social action. It is within these arenas, as they display local issues and the many connections with other levels of society, that important responses to risk issues are formed and actions take place. Risk communication must be capable of understanding the community context in order to comprehend the primary social effects on public perceptions and

Community Surveys

behaviors. To do this, it also must understand the broader societal forces that bear on community issues.

Community Site Selection. Nuclear facilities with the potential for low-dose radiation exposure are located in more than a hundred communities across the country. The case study researchers have considerable experience with the community issues from earlier case studies, going back to the 1970s, and from siting issues related to nuclear power, the DOE weapons complex, and various levels of radioactive waste siting. Team meetings reviewed the potential communities from these categories and selected 14 sites and communities for preliminary visits.⁴ From these 14 sites, three were selected. The lead researchers were Dr. Thomas Webler for Brookhaven New York, Dr. Seth Tuler for Fernald, Ohio, and Dr. Theresa Satterfield for Rocky Flats, Colorado. The area of influence for each of these three facilities is quite large. The next step was to define a study community within that large geographic area.

Our approach to this task was to identify a “study” community, one that was concise enough to support in-depth, field-level research with access to both inside-the-community responses and the networks that connect it with other groups, jurisdictions, and communities. This core community has geographical and political boundaries. It has a significant role in project, program, or policy decision-making in response to potential low dose radiation exposure. It serves as a viable unit of social analysis for study on the subject of risk communication.

A number of conditions in the community are examined. These include the role of established communication media, ad hoc communication sources, and groups that provide ancillary and perhaps more personal messages (organizations like churches, lodges, unions, environmental groups, neighborhood groups, local governments, schools, PTAs, etc.). The research looks at sources of differential effects: How individuals and groups responded to specific media, personal, and in-group messages. The key informant work focused on community groups that played a notable role in responding to the sources of radiation risk. The additional survey results, outlined in this descriptive report, are important to understand the community studies by providing a context for the field work and the key informant interviews as

⁴ More than 50 sites were researched through the literature and 14 sites were visited in the community selection process including: Lawrence Livermore NL, CA, Lawrence Berkeley NL, CA, Rancho Seco, CA, Rocky Flats, CO, West Valley, NY, Plymouth, MA, Fernald, OH, Millgram, VT, Brookhaven, NY, Allegany County, NY, ++++]

Community Surveys

well as providing a statistically valid set of perspectives on the conditions underlying risk communications.

Completed surveys were conducted at local communities near the Rocky Flats, Colorado and the Fernald, Ohio sites; no survey was conducted for the Brookhaven, New York site.

1.1 A Brief History of the Two Survey Community Sites

DOE's Rocky Flats facility is located in Jefferson County approximately 16 miles northwest of Denver. It began operations in 1953 to produce "plutonium pits," the triggers for nuclear weapons and operated as a production facility until 1989. In 1992, Rocky Flats was closed as a weapons plant and designated as the Rocky Flats Environmental Technology Site as part of the DOE program to manage and clean up former nuclear weapons facilities. During its 35 year history there were a number of risk events brought to public attention including a major fire in the 1950s, protests by anti-nuclear activists during the 1970s, and reports of off-site contamination at various times. The most startling event was a raid by the FBI on June 6, 1989 with a warrant charging violations of environmental laws. This resulted in charges against the contract operator of the facility, Rockwell International, the investigations of a Federal Grand Jury, and in 1992 the guilty plea by Rockwell, who paid a fine of \$18.5 million. The cleanup efforts and a class action suit asking for health and property damages from earlier operations contributed to stories about the facility over the past decade with various levels of news media attention. The issues at Rocky Flats involve the acceptable levels of clean up, especially of plutonium contamination, and the future uses of the production portions of the site and its buffer zone.

The Fernald facility, located in a rural, residential area 18 miles northwest of Cincinnati, Ohio, began production in 1952 to produce uranium metal products for the nation's nuclear weapons programs. Production was officially ended in 1991, 40 years after construction began, and the site was renamed the Fernald Environmental Management Project. Since that time it has focused on site clean-up and restoration. Many events and news media stories about Fernald have kept the facility in front of the public since the mid-1980s. These have dealt with on and off-site contamination. One notable event was the settlement of a class action lawsuit by Fernald neighbors in 1989 for \$78 million for property damages and initiation of a medical monitoring program. The remediation of the site, which is ongoing, has been carried out with publicly

accountable regulation and considerable public attention so the issues of various degrees of radiation risk have been widely discussed. There has been considerable discussion about waste management alternatives and the future uses of the site.

2. The Community Surveys

2.1 Survey Content

The surveys were designed to assess the public's awareness of and concern with issues related to radioactive waste and the potential for exposure to low-level radiation. The survey included questions about:

- Science and technology, particularly radiation;
- The adequacy of standards for radiation exposure and how standards should be set;
- Perceptions of risk to public health from different types of radiation;
- Familiarity with the sites and past events; general impressions of the site;
- Sources of information;
- Perceptions of the community in general and the influence of the site on the community;
- Evaluations of specific proposals for future use of the site; and
- Levels of environmental concern.

The surveys collected basic social-demographic data about the respondents (i.e., gender, age, educational background, income, ethnicity, and political affiliation).

2.2 Survey Development and Administration

Most of the questions were the same for both the survey instruments with only some variation for items that asked about site-specific issues. In those cases, the questions were parallel. The instruments were based upon question sets asked in the more than 100 surveys developed by Decision Research personnel over the past two decades with many specific questions drafted with direct input from field-work researchers who were conducting studies in the subject communities. A copy of the survey instrument is attached as an appendix to this report. All telephone interviews were conducted by Northwest Survey & Data Services. Prior to the start of telephone data collection internal pre-testing and extensive pre-test interviews were

Community Surveys

completed with respondents from the target communities. Interviewer training was on July 23, 2001, preceding the first survey, for Fernald.

Fernald. The Fernald sample was randomly selected from 98% of all potential residential telephones in the townships of Ross, Morgan, and Crosby. The only telephone exchanges not used for the Fernald study had 4%, or fewer, of the holders of the telephone numbers actually living in either of the three target townships. Surveying started on July 24, 2001 and finished on August 30, 2001. A total of 399 completed interviews were obtained resulting in a CASRO⁵ response rate of 41.8%. The average length of an interview was 16.5 minutes.

Rocky Flats. The sample was randomly selected from all potential residential telephones in Arvada and from 99% of the potential telephones in Westminster. The only telephone exchanges not used for Westminster had 2%, or fewer, of the actual Westminster residents. Additionally, because the two communities are not completely contiguous and because the telephone exchanges in this urban area cover more communities than just Arvada and Westminster, potential respondents were asked to identify which of the two communities they lived in and if they did not live in either community they were coded as ineligible and were not interviewed. Surveying started on August 10, 2001 and finished on September 25, 2001. A total of 401 completed interviews were obtained with a CASRO response rate of 32.5%. The average length of an interview was 15.7 minutes.

For both surveys, the confidence interval or sampling error is plus or minus 4.9% for a 50-50 proportional split, at the 95% confidence level.

⁵ The CASRO response rate equals completed interviews divided by (completed interviews + partial interviews) + (all other known forms of contact) + an estimate of the numbers for which nothing is known.

**Table 2. *Demographic Characteristics of Samples:
Comparison of Fernald and Rocky Flats***

	Fernald	Rocky Flats
Gender		
Male	38.1	42.6
Female	61.9	56.9
No Answer	0	0.5
Race		
White	94.0	82.3
Black or African American	1.8	0.8
Asian	0.3	2.7
Native Hawaiian or other Pacific Islander	0.5	0.0
American Indian or Alaskan Native	0.5	0.8
Hispanic or Latino	0.3	9.0
Other	1.8	3.5
Don't Know/No Answer	1.0	1.0
Education		
Less than HS Graduate	9.3	2.2
HS Graduate	38.6	23.2
Some college	30.1	37.9
College Graduate	22.1	36.4
Don't Know/No Answer	0.0	0.3
Income		
Less than \$25,000	14.0	9.5
\$25,000 to \$50,000	32.6	32.4
\$50,000 to \$75,000	25.6	24.4
\$75,000 or more	15.5	27.4
Don't Know/No Answer	12.3	6.2
Mean Age	45.0	46.0

Note. Cell entries are percentages.

2.3 Participants

Fernald. The Fernald sample consisted of 399 respondents ranging in age from 18 to 87 with a mean age of 45. Sixty-two percent were female. Respondents were predominately white (94%); slightly over half (52%) had received at least some college or more. Forty-one percent had annual household income of \$50,000 or more. About 38% indicated they were affiliated with Republican Party and 25% reported they were Democrats. Sixteen percent reported that either they or a family member now worked at the Fernald site or had in the past.

Rocky Flats. The Rocky Flats sample was comprised of 401 respondents ranging in age from 18 to 88 with a mean age of 46; 57% were female. Approximately 82% of respondents were white and 74% of the sample had received some college education or more. Fifty-two percent of the respondents had annual household incomes of \$50,000 or more. About 27% reported being affiliated with the Republican Party and 30% Democratic. Only 11% of the respondents reported that either they or a family member worked at Rocky Flats now or in the past. Fifty-four percent of the sample resided in the Westminster area. The average length of time respondents had lived in the Denver area was 21.6 years. Arvada residents were more likely to have lived in the area longer; 61.4% had lived in the area 16 years or more compared to 49.3% of Westminster residents.

Table 2 displays the demographic characteristics for both samples.

Table 3. **Attitudes About Science and Radiation:
Comparison of Fernald and Rocky Flats**

		Not interested	Slightly	Somewhat	Very interested	Don't know/ No answer
<hr/>						
RAD003. How interested are you in new developments in science and technology?						
	<i>Fernald</i>	12.0	20.8	44.1	22.8	0.3
	<i>Rocky Flats</i>	11.2	10.2	38.4	39.7	0.5
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			Better	Worse	Other	Don't know/ No answer
<hr/>						
RAD004. All things considered, would you say that the world is better off or worse off because of science?						
	<i>Fernald</i>	77.7	11.8	9.3	0.3	
	<i>Rocky Flats</i>	77.8	7.2	13.2	0.5	
		Strongly agree	Agree	Disagree	Strongly disagree	Don't know/ No answer
<hr/>						
RAD005. Science is making our lives healthier, easier and more comfortable						
	<i>Fernald</i>	21.8	66.4	9.8	1.0	1.0
	<i>Rocky Flats</i>	21.0	72.6	5.2	0.5	0.8
<hr/>						
RAD006. Most scientists want to work on things that will make life better for the average person.						
	<i>Fernald</i>	13.8	67.4	14.8	1.0	3.0
	<i>Rocky Flats</i>	15.2	65.8	16.2	1.0	1.8
<hr/>						
RAD007. Science can decide what is safe or not safe for you and your family.						
	<i>Fernald</i>	7.5	47.9	33.3	8.0	3.3
	<i>Rocky Flats</i>	6.5	42.9	41.4	5.7	3.5
<hr/>						
RAD008. Most radioactivity is human-made.						
	<i>Fernald</i>	10.0	46.4	25.1	2.0	16.5
	<i>Rocky Flats</i>	9.0	43.4	32.2	3.7	11.7
<hr/>						
RAD009. Radiation from the natural environment is less harmful than human-made.						
	<i>Fernald</i>	6.3	43.1	32.6	3.5	14.5
	<i>Rocky Flats</i>	7.5	39.2	31.9	3.7	17.7
<hr/>						
RAD010. Science can decide whether radiation exposure is safe or unsafe for you and your family.						
	<i>Fernald</i>	10.5	61.9	21.8	4.3	1.5
	<i>Rocky Flats</i>	8.0	61.6	25.7	3.0	1.8

Note. Cell entries are percentages.

3. Results

3.1 Attitudes about Science and Radiation

The first section of the survey elicited attitudes and opinions about science and radiation in general. Table 3 contains the questions and responses for these items. The first question asked respondents how interested they were in new developments in science and technology. Most respondents in both samples indicated at least some interest in such new developments with only 11-12% of either sample reporting they were not interested. Rocky Flats respondents reported greater interest with over three-quarters (78.1%) being somewhat or very interested in science and technology compared to 66.9% of the Fernald respondents. The Rocky Flats sample showed 39.7% as “very interested” compared to 22.8% for Fernald. This may be a reflection of the higher educational background of the Rocky Flats sample.

Over three-quarters of the respondents (78%) believed that when all things are considered, the world is better off because of science. Only 7.2% to 11.8% (in Rocky Flats and Fernald, respectively) thought the world was worse off. The majority of respondents in both samples agreed that “science is making our lives healthier, easier and more comfortable. Rocky Flats respondents were somewhat more likely to agree with this statement (93.5%) compared to Fernald (88.2%). Most respondents (81%) in both samples agreed that “most scientists want to work on things that will make life better for the average person.”

Respondents were divided on whether “science can decide what is safe or not safe for you and your family” with Rocky Flats respondents at 49.4% and Fernald at 55.4% agreement. However, when asked if “science can decide whether *radiation exposure* is safe or unsafe for you or your family” agreement increased with 69.6% for Rocky Flats respondents and 72.4% for Fernald. See Table 3.

Table 4. **Attitudes about Radiation Safety Standards:
Comparison of Fernald and Rocky Flats**

		Too high	About right	Too low	Don't know/ No answer
<hr/>					
RAD011. Do you think the safety standards for radiation exposure are generally too high, too low, or about right?					
	<i>Fernald</i>	11.3	45.9	32.6	10.3
	<i>Rocky Flats</i>	6.2	45.4	36.9	11.5
		How much radiation people receive from nature	What science knows about health effects of radiation	Both (if volunteered)	Don't know/ No answer
<hr/>					
RAD012. If you were in charge of setting the standards for exposure to radiation, would you base the standards on how much radiation people receive from nature or what science knows about the health effects of radiation?					
	<i>Fernald</i>	14.3	74.2	6.3	5.3
	<i>Rocky Flats</i>	14.2	68.8	12.7	4.2
		What is possible with today's technology	What can be achieved without excessive costs	Both (if volunteered)	Don't know/ No answer
<hr/>					
RAD013. Would you set the standards for environmental cleanup of radiation sites based on what is possible with today's technology, or what can be achieved without excessive or unreasonable costs?					
	<i>Fernald</i>	68.2	22.3	4.3	5.3
	<i>Rocky Flats</i>	74.3	17.0	5.7	3.0
<hr/>					

Note. Cell entries are percentages.

A little over half of the respondents thought most radioactivity is human-made; 56.4% of the Fernald sample and 52.4% in Rocky Flats agreed with this statement. A relatively high proportion of respondents answered “don’t know” to this question, 11.7% in Rocky Flats and 16.5% in Fernald. Respondents were divided on whether “radiation from the natural environment is less harmful than human-made.” Almost half (49.4% in Fernald and 46.6% in Rocky Flats) agreed that natural radiation is less harmful, but 14.5% (Fernald) to 17.7% (Rocky Flats) indicated that they didn’t know.

3.2 Attitudes about Radiation Safety Standards

The next set of survey items elicited respondents’ attitudes about radiation safety standards. See Table 4. About 45-46% of the respondents thought that the safety standards for radiation exposure are generally “about right,” 33-37% thought the standards were too low. Ten to twelve percent said they didn’t know. Few respondents thought the safety standards were too high, 6.2% in Rocky Flats and 11.35 in Fernald.

Another question asked if standards for exposure to radiation should be based on how much radiation people receive from nature or on what science knows about the health effects of radiation. The majority of the respondents (68.9% for Rocky Flats and 74.2% for Fernald) said standards should be based on what science knows about health effects of radiation.

When asked about how standards for environmental cleanup of radiation should be established, most respondents (68.2% to 74.3%) thought standards should be based on what is possible with today’s technology. Only 17.0 to 22.3% thought standards should be based on what could be achieved without excessive costs.

Table 5. ***Different Approaches for Determining Level of Cleanup at Site: Comparison of Fernald and Rocky Flats***

The U.S. Department of Energy is currently doing environmental cleanup at the [Fernald/Rocky Flats] site. We would like your opinion about different approaches for determining the level of cleanup. I'm going to read you four different approaches and I'd like you to tell me which standard is the most important one for the cleanup to meet.

	Current regulatory standards	A standard agreed to by local residents	A standard set by science	A standard set by costs	Don't know/No answer
Most important approach					
<i>Fernald</i>	15.3	41.1	36.6	4.5	2.5
<i>Rocky Flats</i>	16.2	32.7	46.9	2.2	2.0
Second most important approach					
<i>Fernald</i>	28.3	30.3	32.1	9.0	0.3
<i>Rocky Flats</i>	29.5	29.5	31.6	8.4	1.0
Third most important approach					
<i>Fernald</i>	44.3	19.9	21.1	14.2	0.5
<i>Rocky Flats</i>	41.4	24.2	16.2	17.5	0.8

Note. Cell entries are percentages.

Community Surveys

Next, respondents were asked to rank four different approaches for determining the level of environmental cleanup at their site. The four approaches were: current regulatory standards, a standard agreed to by local residents, a standard set by science, or a standard set by costs. Table 5 displays the results. The majority of respondents in both samples indicated that either a standard agreed to by local residents or a standard set by science were the most important approaches to determining cleanup levels. For Fernald respondents, 41.1% reported that a standard agreed to by local residents was the most important approach followed by 36.6% saying a standard set by science was the most important. In Rocky Flats, 46.9% thought a standard set by science was the most important approach for determining the level of cleanup; 32.7% reported that a standard agreed to by local residents was the most important approach. A standard set by costs received very little support with less than five percent in either sample selecting that option. Only 15-16% said that current regulatory standards were the most important way to determine cleanup level.

Figure 3. Risks to you and people in your community: Comparison of Fernald and Rocky Flats. Source: Fernald and Rocky Flats Radiation Surveys (2001). Sorted by Fernald risk score.

3.3 Perception of Risk

In one segment of the survey, respondents were asked to indicate the degree of risk to public health in their community associated with 16 sources of radiation. Figure 3 shows the 16 items and the mean risk responses by sample; Table 6 displays the percentage distributions for each item. The five items perceived as posing the highest risk for the public were: nuclear waste, fallout from nuclear weapons testing, radiation from nuclear weapons manufacturing, nuclear power plants, and sun tanning. Over seventy percent of both samples rated these five sources as moderate or high risk. Radioactive waste from uranium mines, radiation from medical waste, and radioactive materials used in research were also considered as moderate or high risk by over sixty percent of the respondents. The sources seen as least risky were microwave ovens, food irradiation, cell phones, and natural background radiation.

Respondents seem less sure of the risk associated with natural sources of radiation. Natural background radiation, cosmic radiation, and radon received over 10% “don’t know” responses from both samples. In addition, Rocky Flats respondents gave over 10% “don’t know” responses to radioactive waste from uranium mines and food irradiation.

Perceptions of risk were similar in both sites. As previous research has found (Flynn, et al., 1994) women had higher risk perceptions than men. This held true in both samples. In Fernald, women provided higher risk assessments for 14 of the 16 items. They were significantly higher on seven of the items. Men had significantly higher risk perceptions for only one item, medical x-rays. In Rocky Flats, women had higher risk perceptions on all items and were significantly higher on 14 of the items. The only items for which they were not significantly higher were medical x-rays and cell phones.

3.4 Familiarity with Site and Events

The next segment of the interviews asked questions about familiarity with the site and impressions with specific events that had occurred there in the past. Over 80% of the respondents in both samples were at least slightly familiar with the site and over half (50.9% in Fernald and 55.6% in Rocky Flats) reported they were somewhat or very familiar with the site (see Table 7). Most respondents indicated that they had heard or read about the site in the media. This was particular true in Rocky Flats with 91% reporting that they had heard or read something

Table 6. *Risks to you and people in your community: Distributions by Sample*

Item		High risk	Moderate risk	Slight risk	Almost no risk	Don't know/No answer
31. Nuclear waste	<i>Fernald</i>	61.7	21.3	8.8	5.0	3.3
	<i>Rocky Flats</i>	61.1	18.2	13.2	4.7	2.7
33. Fallout from nuclear weapons testing	<i>Fernald</i>	56.1	19.6	13.0	7.8	3.5
	<i>Rocky Flats</i>	53.4	22.0	12.5	7.5	4.7
32. Radiation from nuclear weapons manufacturing	<i>Fernald</i>	49.9	23.3	14.0	7.8	5.0
	<i>Rocky Flats</i>	48.4	24.9	15.2	6.5	5.0
30. Nuclear power plants	<i>Fernald</i>	47.4	24.6	16.3	9.0	2.8
	<i>Rocky Flats</i>	46.6	23.7	16.5	9.2	4.0
26. Suntanning	<i>Fernald</i>	46.6	33.3	15.3	3.8	1.0
	<i>Rocky Flats</i>	50.9	34.2	9.5	3.5	2.0
34. Radioactive waste from uranium mines	<i>Fernald</i>	41.6	25.1	14.5	9.8	9.0
	<i>Rocky Flats</i>	39.4	29.2	14.0	5.0	12.5
29. Radiation from medical waste	<i>Fernald</i>	38.4	28.1	21.8	7.0	4.8
	<i>Rocky Flats</i>	37.2	26.2	20.5	9.2	7.0
28. Radioactive materials used in research	<i>Fernald</i>	34.8	28.8	23.6	7.0	5.8
	<i>Rocky Flats</i>	34.9	28.9	21.5	9.2	5.5
24. Radon	<i>Fernald</i>	17.5	29.3	28.8	11.8	12.5
	<i>Rocky Flats</i>	16.5	33.7	23.9	11.5	14.5
35. Electromagnetic fields	<i>Fernald</i>	16.8	36.3	32.3	9.0	5.5
	<i>Rocky Flats</i>	15.7	37.7	27.7	13.0	6.0
27. Medical X-rays	<i>Fernald</i>	12.8	36.8	37.1	11.5	1.8
	<i>Rocky Flats</i>	12.2	38.7	33.4	13.2	2.5
25. Cosmic rays	<i>Fernald</i>	11.5	25.8	30.3	18.3	14.0
	<i>Rocky Flats</i>	11.5	25.4	28.7	18.5	16.0
23. Natural background radiation	<i>Fernald</i>	9.5	24.6	35.3	16.0	14.5
	<i>Rocky Flats</i>	5.5	24.9	30.7	18.5	20.5
37. Cell phones	<i>Fernald</i>	7.5	23.1	43.9	20.6	5.0
	<i>Rocky Flats</i>	7.7	24.7	36.9	23.4	7.2
38. Food irradiation	<i>Fernald</i>	6.3	24.1	37.6	23.1	9.0
	<i>Rocky Flats</i>	11.7	19.0	29.2	27.9	12.2
36. Microwave ovens	<i>Fernald</i>	3.3	23.6	44.4	27.8	1.0
	<i>Rocky Flats</i>	3.5	21.7	44.4	27.7	2.7

Source: Fernald and Rocky Flats Surveys (2001).

Table 7. **Familiarity with Site: Comparison of Fernald and Rocky Flats**

	Not familiar	Slightly familiar	Somewhat familiar	Very familiar	Don't know/No answer
39. How familiar are you with [Fernald/Rocky Flats]?					
<i>Fernald</i>	17.5	31.6	34.1	16.8	0.0
<i>Rocky Flats</i>	15.2	28.9	38.7	17.0	0.3
			Yes	No	Don't know/ No answer
40. Have you ever heard or read anything about [Fernald/Rocky Flats] in the media?					
<i>Fernald</i>			82.0	18.1	0.0
<i>Rocky Flats</i>			91.0	8.5	0.5
41. Have you ever visited the [Fernald/Rocky Flats] site?					
<i>Fernald</i>			20.8	79.2	0.0
<i>Rocky Flats</i>			20.0	79.8	0.3
	Very negative	Negative	Neutral (if volunteered)	Very positive	Don't know/No answer
42. When you think about the [Fernald/Rocky Flats] site, is your personal impression generally....					
<i>Fernald</i>	14.5	47.1	13.8	18.1	3.5
<i>Rocky Flats</i>	11.0	44.4	16.7	24.7	1.8
43. When you think about how people in your community view the site, is it generally...					
<i>Fernald</i>	19.6	52.1	7.0	9.5	1.8
<i>Rocky Flats</i>	13.2	57.1	7.7	12.2	0.8

Note. Cell entries are percentages.

Table 8. **Recall of Specific Events at Fernald**

Now I am going to describe some events that have occurred at the Fernald site, and I would like you to tell me if you recall them.

	Not at all	Vague recollection	Clear memory	Don't know/No answer	N
In 1989 a class action lawsuit by Fernald neighbors was settled for \$78 million, including a medical monitoring program.	22.6	39.1	38.4	0.0	399
In 1991 DOE officially ended production and the site was renamed the Fernald Environmental Management Project, or FEMP.	37.6	36.3	26.1	0.0	399
In 1997 the first waste materials were placed into an on-site disposal "cell." Contaminated soil and debris from the site that are below specific acceptance criteria are being placed into the disposal cell.	35.8	38.6	25.3	0.3	399

	TV/Radio	Newspapers	Word of mouth	Other	Don't know/No answer	N
How did you learn about event?						
1989 class action lawsuit	13.9	22.0	23.0	41.1	0.0	309
1991 ending of production and renaming site	22.9	33.3	14.9	28.9	0.0	249
1997 placement of waste into on-site disposal "cell"	23.5	30.2	14.1	30.6	1.6	255

	Very negative	Negative	Neutral (if volunteered)	Positive	Very positive	Don't know/No answer	N
How did this event affect your impression of the Fernald site?							
1989 class action lawsuit	23.3	48.5	14.2	10.7	2.3	1.0	309
1991 ending of production and renaming site	12.1	34.9	17.3	32.1	2.4	1.2	249
1997 placement of waste into on-site disposal "cell"	14.1	41.2	14.1	25.9	3.5	1.2	255

Note. Cell entries are percentages.

Community Surveys

compared to 82% in Fernald ($p < .0001$). Only 20-21% of the respondents in either sample had visited the sites.

Respondents were then asked for their personal impression of the site. Impressions of both sites tended to be negative with 61.7% of Rocky Flats respondents reporting negative or very negative impressions compared to 55.4% in Fernald. Only 22% (Rocky Flats) and (26%) Fernald of the respondents had positive or very positive impressions of the sites. Respondents were even more likely to think that other people in their community held negative views of the sites with 72% (Rocky Flats) and 70% (Fernald) saying they thought other people had negative or very negative impressions.

Next, respondents were asked about three events that had taken place at their site since 1989 and whether they recalled the event. Those that recalled the event were asked how they learned about it, and how the event affected their impression of the site. Tables 7 and 8 display the events and responses for Fernald and Rocky Flats, respectively.

Fernald. The three events for Fernald were:

- In 1989, a class action lawsuit by Fernald neighbors was settled for \$78 million, including a medical monitoring program.
- In 1991, DOE officially ended production and the site was renamed the Fernald Environmental Management Project, or FEMP.
- In 1997, the first waste materials were placed into an on-site disposal “cell.” Contaminated soil and debris from the site that are below specific acceptance criteria are being placed into the disposal cell.

The 1989 class action lawsuit was remembered by a majority of the respondents. Three-quarters (77.5%) had at least a vague recollection of this event with 38.4% having a clear memory. For the other two events, 62 percent remembered the event occurring in 1991 and 64 percent the event of 1997, with about one-quarter of these recollections being “a clear memory.” Forty-six percent of the Fernald respondents had some recollection of all three events. Only 12.8% had no recall of any of the events.

Table 9. **Recall of Specific Events at Rocky Flats**

Now I am going to describe some events that have occurred at the Rocky Flats, and I would like you to tell me if you recall them.

	Not at all	Vague recollection	Clear memory	Don't know/No answer	N
44. In 1989 the FBI raided the Rocky Flats plant to investigate alleged violations of environmental law.	41.2	44.4	14.21	0.3	401
47. In 1992, nuclear weapons production came to an end at Rocky Flats.	19.0	35.4	45.1	0.5	401
50. In 2000, there was a controversy over a proposal to use controlled burning to manage vegetation in the buffer zone that surrounds the Rocky Flats plant.	50.6	22.7	26.2	0.5	401

How did you learn about event?	TV/Radio	Newspapers	Word of mouth	Other	Don't know/No answer
1989 FBI raid (N = 235)	28.5	28.9	11.5	30.2	0.9
1992 ending of production (N = 323)	29.7	19.8	16.7	32.8	0.9
2000 controlled burning proposal (N = 196)	34.7	27.6	5.6	32.1	0.0

How did this event affect your impression of the Rocky Flats?	Very negative	Negative	Neutral (if volunteered)	Positive	Very positive	Don't know/No answer
1989 FBI raid (N = 235)	13.6	56.2	25.5	2.1	1.3	1.3
1992 ending of production (N = 323)	4.6	17.7	22.0	48.9	6.5	0.3
2000 controlled burning proposal (N = 196)	15.8	42.4	28.6	11.2	2.0	0.0

Note. Cell entries are percentages.

Community Surveys

Respondents learned about the events through multiple communication channels — TV and/or the radio, newspapers and word of mouth, as exemplified by the spread of responses and the answers categorized as “Other” (see Table 8).

In rating the three events, the 1989 class action lawsuit elicited the most negative response with 71.8% reporting that this event had a negative or very negative affect on their impression of the Fernald site. Over half (55.3%) said the 1997 placement of waste into an on-site disposal cell had a negative or very negative affect. Almost half (47%) said the 1991 end of production and renaming of the site to FEMP had a negative or very negative affect on them. One-third (34.5%) thought the end of production had a positive affect; 17.3% thought the event had neither a positive or negative effect on their impression of the site. Neutral responses were offered by 14% of the sample for the other two events.

Rocky Flats: The three events at Rocky Flats were:

- The 1989 FBI raid at the Rocky Flats plant to investigate alleged violations of environmental law.
- The announcement in 1992 that nuclear weapons production was ended at Rocky Flats.
- The controversy in 2000 over a proposal to use controlled burning to manage vegetation in the buffer zone that surrounds the Rocky Flats plant.

Most respondents (80.5%) remembered when the nuclear weapons production came to an end in 1992 with 45.1% reporting a clear memory of the event. (See Table 9). Nearly sixty percent (58.6%) of the Rocky Flats respondents recalled the 1989 FBI raid of the plant. The 2000 controversy over the proposal to use controlled burning was remembered by almost half of the respondents (48.9%). Almost one-third (31.2%) had some memory of all three events. Only 10.5% could not remember any of the events.

Respondents learned about the events from a variety of sources including TV and radio, newspapers or a combination of these sources. Few respondents reported hearing about the events by “word of mouth” only with 5.6% hearing about controlled burning by that means to 16.7% for the 1992 ending of production.

Table 10. **Community Descriptions: Comparison of Fernald and Rocky Flats**

Now I'd like to ask you some questions about your community in general. I'm going to read you a number of different ways to describe communities, and I would like you to tell me how well each one describes your community.

		Very poor	Poor	Good	Very good	Don't know/No answer
53. Bedroom community						
	<i>Fernald</i>	2.5	13.5	47.1	36.3	0.5
	<i>Rocky Flats</i>	2.7	9.7	45.9	40.4	1.3
54. Industrial community						
	<i>Fernald</i>	19.3	52.1	24.1	4.3	0.3
	<i>Rocky Flats</i>	26.9	57.6	11.7	2.0	1.8
55. Recreational community						
	<i>Fernald</i>	8.3	37.3	43.6	9.3	1.5
	<i>Rocky Flats</i>	3.7	17.7	57.4	21.0	0.3
56. Agricultural community						
	<i>Fernald</i>	7.5	30.8	39.9	20.8	1.0
	<i>Rocky Flats</i>	10.0	62.3	22.2	4.2	1.3
57. Retirement community						
	<i>Fernald</i>	10.8	44.4	34.3	9.5	1.0
	<i>Rocky Flats</i>	6.2	42.6	40.9	7.5	2.7
58. Working class community						
	<i>Fernald</i>	3.0	7.3	49.9	39.1	0.8
	<i>Rocky Flats</i>	1.3	6.2	57.4	34.7	0.5

Note. Cell entries are percentages.

The 1989 FBI raid produced the largest proportion of negative affect on those recalling the event with 69.8% reporting that the raid had negative or very negative affect on their impression of Rocky Flats. The 2000 controlled burning controversy left 58.2% of those who remember it with a negative or very negative impression. On the other hand, 22.3% of those who recalled the 1992 ending of production said it had a negative affect on them while over half viewed this as a positive event (55.4%). Some respondents indicated the event had neither a positive or negative affect on them. Such neutral responses ranged from 22.0% for the 1992 production end to 28.6% for the 2000 controversy over controlled burning.

3.5 Attitudes about the Community

The next section of the interview asked for respondent views about their community. Six different ways to describe communities were read and respondents were asked to rate how well each description applied to their community. They were asked if it was a very poor, poor, good or very good description of their community. See Table 10 for the results.

Respondents in both communities overwhelmingly thought of their community as “working class” with 92.1% of the Rocky Flats and 89.0% of the Fernald respondents reporting it was a good or very good description of their community. Most respondents also thought of their community as a bedroom community with 83.4% (Fernald) to 86.3% (in Rocky Flats) saying this was a good or very good description. Rocky Flats respondents also thought of their community as recreational with over three-quarters (78.4%) reporting this was a good or very good description of their community. Fernald respondents were less likely to rate community as recreational with 52.9% reporting this was a good or very good description ($p < .0001$). Fernald respondents were much more likely than Rocky Flats respondents to think of their community as agricultural with 60.7% of the Fernald reporting agricultural as a good or very good description compared to only 26.4% of the Rocky Flats respondents ($p < .0001$).

Rocky Flats was considered a retirement community by 48.4% of the respondents compared to 43.8% of the Fernald respondents. Neither community was thought of as industrial. Although the Fernald sample was more likely to consider their community industrial with 28.4% reported this as a good or very good description compared to only 13.7% of the Rocky Flats sample ($p < .0001$).

Table 11. **Attitudes about Community: Comparison of Fernald and Rocky Flats**

	Improving rapidly	Improving slowly	Stable	Declining slowly	Declining rapidly	Don't know/No answer
59. Do you see the economy of your community as improving...						
<i>Fernald</i>	19.1	24.8	25.8	19.1	10.3	1.0
<i>Rocky Flats</i>	17.0	19.2	42.6	17.0	3.2	1.0
		Not at all concerned	Slightly concerned	Concerned	Very concerned	Don't know/No answer
60. Thinking about the community as a whole, how would you characterize it in terms of its concern about environmental problems?						
<i>Fernald</i>		6.3	30.1	43.6	17.3	2.8
<i>Rocky Flats</i>		4.7	23.7	46.6	21.2	3.7
	Much better	A little better	The same	A little worse	Much worse	Don't know/No answer
61. After cleanup and closure of the site, will the economic future of your community be....						
<i>Fernald</i>	15.0	25.6	47.4	5.0	1.3	3.8
<i>Rocky Flats</i>	11.2	20.0	55.9	7.7	0.8	4.5
	Strongly favor	Favor	(Volunteered) neutral	Oppose	Strongly oppose	Don't know/No answer
62. In general, do you strongly favor, favor, oppose or strongly oppose new development in your community?						
<i>Fernald</i>	24.1	52.4	3.8	16.3	2.8	0.8
<i>Rocky Flats</i>	8.7	41.9	8.0	30.7	9.5	1.3

Note. Cell entries are percentages.

Community Surveys

When asked about the economy of their community, responses were mixed. In Fernald, 43.9% thought the economy was improving, 29.4% thought it was declining, and one-quarter thought the economy was stable. In Rocky Flats, respondents were less likely to see their economy as improving (36.2%) and more likely say it was stable (42.6%). One-fifth thought the economy was declining (see Table 11).

When asked about the economic future of their community after cleanup and closure of the site, approximately half (47.4% in Fernald and 55.9% in Rocky Flats) thought the economy would be the same after cleanup and closure of the site. Fernald respondents were somewhat more optimistic with 42.6% indicating that the economy would be better compared to 31.2% in Rocky Flats. Fernald respondents were more likely to be pro-development than Rocky Flats with 76.4% favoring development compared to only 50.6% of the Rocky Flats sample.

Another question asked respondents how they would characterize the community in terms of its overall concern about environmental problems. Most believed their community to be concerned about environmental problems with 67.8% of the Rocky Flats sample and 60.9% of Fernald reporting the community to be concerned or very concerned about environmental problems.

Table 12. **Site's Influence on the Community:
Comparison of Fernald and Rocky Flats**

Now I'd like to ask you some questions about [Fernald/Rocky Flats] and your community.

	Not influenced	Slightly influenced	Somewhat influenced	Strongly influenced	Don't know/No answer
63. In general, how much do you think [Fernald/Rocky Flats] influences how you and your neighbors view your community?					
<i>Fernald</i>	41.6	30.8	15.5	8.3	3.8
<i>Rocky Flats</i>	45.6	29.2	16.7	6.5	2.0
64. When you think about people from outside your community, how strongly is their impression of your community influenced by [Fernald/Rocky Flats]?					
<i>Fernald</i>	29.1	26.6	22.8	15.3	6.3
<i>Rocky Flats</i>	32.4	28.2	20.7	10.0	8.7
	With	Without	(Volunteered) About the Same		Don't know/No answer
65. Overall, do you feel that your community is better off with, or better off without [Fernald/Rocky Flats]?					
<i>Fernald</i>	13.5	73.2	9.5		3.8
<i>Rocky Flats</i>	12.0	68.8	15.5		3.7

Note. Cell entries are percentages.

Community Surveys

The next set of questions addressed the site's influence on the community. The first question asked was: "In general, how much do you think [Fernald/Rocky Flats] influences how you and your neighbors view your community." While over half of both samples thought the site had at least a slight influence, neither set of respondents thought the site strongly influenced their personal or neighbors' view of the community (see Table 12). Respondents were more likely to think the site did not influence their own or their neighbors view of the community with 41.6% of Fernald and 45.6% of the Rocky Flats samples giving this response.

Respondents were more likely to think people outside the community were influenced by the site. In Fernald, 64.7% thought people outside the community were at least slightly influenced by the site; this percentage was 58.9% in Rocky Flats. Overall, respondents thought their community was better off *without* the site; 73.2% of Fernald and 68.8% of Rocky Flats respondents reported this opinion.

3.6 Proposals for Future Use of Site

In each community, a number of different proposals have been suggested for redeveloping and future use of the sites. Three proposals that had been widely discussed in each community for future use of the sites were selected for this survey. Respondents in each sample were presented with each proposal and asked if this use would be very positive, positive, neutral, negative, or very negative for their community.

Table 13. **Attitudes about Proposals for Future Use of Site:
Comparison of Fernald and Rocky Flats**

	Very positive	Positive	Neutral	Negative	Very negative	Don't know/No answer
<i>Fernald</i>						
66. A museum about the Cold War and Fernald's role in the production of nuclear weapons	10.0	41.6	26.8	16.0	3.5	2.0
67. A place for the reburial of remains of Native Americans.	4.5	23.3	29.8	22.1	16.8	3.5
68. A park, with nature walks and bike trails in areas restored with native vegetation.	17.6	36.3	14.8	17.3	12.5	1.5
<i>Rocky Flats</i>						
66. Clean site up so it can become a National Wildlife Refuge that would be fenced but with public access	34.4	41.2	12.7	6.2	4.2	1.3
67. Residential housing (after appropriate cleanup)	1.3	15.0	19.0	33.2	26.7	5.0
68. Clean site up so, in addition to becoming a fenced nature preserve, appropriate areas along the outside edge of the site will be open to industrial and highway development	4.0	30.9	22.4	26.4	15.2	1.0

Note. Cell entries are percentages.

Community Surveys

Fernald. The three proposals for future use of the Fernald site were:

- A museum about the Cold War and Fernald's role in the production of nuclear weapons;
- A place for the reburial or remains of Native Americans; and
- A park, with nature walks and bike trails in areas restored with native vegetation.

None of these proposals gained an overwhelming positive response. The museum and park proposals were viewed as most positive. A park with nature walks was considered a positive or very positive use of the site by 53.9% of the respondents; 29.8% thought this was a negative use of the Fernald site, and 14.8% were neutral. The museum proposal was viewed as positive or very positive by 51.6% of the Fernald sample. One-quarter of the sample (26.8%) held neutral feeling on this proposal; and 19.5% considered it a negative or very negative use of the site. A place for the reburial of Native American remains elicited the least positive response for future use of this land. Only 27.8% gave this proposal a positive or very positive rating; 38.9% considered it a negative use of this site and 29.8% were neutral (see Table 13).

Rocky Flats. The three proposals for the future of the Rocky Flats site were:

- A National Wildlife Refuge that would be fenced but with public access;
- Residential housing; and
- In addition to establishing the fenced nature preserve, appropriate areas along the outside edge of the site will be open to industrial and highway development.

The proposal calling for a National Wildlife Refuge received the most positive response by far. Three-quarters of the sample (75.6%) considered this a positive or very positive use of the site with one-third (34.4%) reporting it was a very positive use. The proposal to open the areas along the outside edge of the site to industrial and highway development (in addition to the fenced nature preserve) was viewed positively by only 34.9% of the sample; 41.6% viewed this as a negative or very negative use of the site. The proposal to reuse the site for residential housing was considered a negative or very negative use of the site by 59.9% of the respondents. Only 16.3 of the respondents thought residential housing was a positive use of this site; 19.0% were neutral.

Table 14. **Level of Concern about Site: Comparison of Fernald and Rocky Flats**

	Much more concerned about radiation	Somewhat more concerned about radiation	About the same	Somewhat more concerned about other contaminants	Much more concerned about other contaminants	Don't know/No answer	
69. How concerned are you about radiation at [Fernald/Rocky Flats] compared to other environmental concerns in your community.							
<i>Fernald</i>	15.5	20.8	30.3	19.1	13.5	0.8	
<i>Rocky Flats</i>	14.2	20.5	37.4	16.7	10.2	1.0	
			No effect	Slight effect	Moderate effect	Large effect	Don't know/No answer
70. If a small amount of radiation was present at [Fernald/Rocky Flats], how much do you think this would affect the future of your community?							
<i>Fernald</i>	13.0	36.8	29.6	17.3	3.3		
<i>Rocky Flats</i>	13.2	35.2	30.4	18.5	2.7		
			Yes	No	Don't know/No answer		
71. In the normal course of conversations you might have at home, does [Fernald/Rocky Flats] ever come up?							
<i>Fernald</i>	34.8	65.2	0.0				
<i>Rocky Flats</i>	39.9	59.6	0.5				
	Very concerned	Slightly concerned	Not at all concerned	Don't know/No answer			
72. How concerned are you and your family about [Fernald/Rocky Flats]?							
<i>Fernald</i>	36.0	52.5	10.8	0.7			
<i>Rocky Flats</i>	28.1	56.9	15.0	0.0			
			Yes	No	Don't know/No answer		
73. Is it likely a discussion of [Fernald/Rocky Flats] would come up at any other social or community group you might be part of?							
<i>Fernald</i>	44.6	55.1	0.3				
<i>Rocky Flats</i>	49.6	49.9	0.5				

Note. Cell entries are percentages.

3.7 Level of Concern About the Site

Respondents were asked a series of questions about the level of environmental concern about the site. First, they were asked how concerned they were about radiation at Fernald or Rocky Flats compared to other environmental concerns (such as water or air pollution) in their respective community. They were asked if they were more concerned about radiation, or more concerned about other contaminants or about the same. Responses were divided. In Fernald, 36.3% were somewhat or much more concerned about radiation and 32.6% were somewhat or much more concerned about other contaminants. Thirty percent reported their level of concern was about the same for both. Responses were similar in Rocky Flats. About one-third (34.7%) expressed more concern about radiation than other types of environmental issues and 26.9% reported more concern for other contaminants. Thirty-seven percent expressed the same level of concern for both. See Table 14.

Another question asked respondents, if a small amount of radiation was present at the site, how much do you think this would affect the future of your community? Most of the respondents in both samples thought it would have some effect. Only 13% thought it would have no effect. Almost half (46.9% in Fernald and 48.9% in Rocky Flats) reported that it would have a moderate or large effect on the future of their community.

When asked about normal home conversations, 40% of the Rocky Flats sample said that the topic of Rocky Flats came up and 34.8% of the Fernald sample said Fernald came up. Discussions of Fernald and Rocky Flats are more likely at other social and community gatherings outside the home. Nearly half the Rocky Flats sample (49.6%) said the topic comes up outside the home; the percentage was 44.6% for the Fernald sample.

When asked how concerned the respondent and their family were about the site, most people (85-88%) said they were slightly or very concerned. See Table 14. Thirty-six percent of the Fernald and 28.1% of the Rocky Flats sample said they were *very* concerned about the site. Only 10.8% of Fernald and 15.0% of Rocky Flats sample said they were not at all concerned.

Table 15. *Distribution of Open-Ended Responses by Category: Comparison of Fernald and Rocky Flats*

Category	Fernald		Rocky Flats	
	f	%	f	%
2. Health/Safety concerns	24	23.5	11	11.1
6. General negative comments regarding site/mistrust of site	10	9.8	8	8.1
1. Concerns about hidden information	10	9.8	3	3.0
3. Legal concerns	4	3.9	0	0.0
4. Clean-up: Negative feelings	2	2.0	4	4.0
12. Negative feelings regarding wildlife refuge			11	11.1
11. Negative feelings regarding residential housing			9	9.1
5. Clean-up: Positive feelings	5	4.9	7	7.1
7. General positive comments toward site	2	2.0	2	2.0
8. Appreciative of survey being done	8	7.8	6	6.1
9. Relative/friend works or worked at site	4	3.9	0	0.0
10. Other miscellaneous comments	33	32.4	38	38.4
Total number of comments^a	102	100.0	99	100.0

^aFernald: 90 respondents made comments. Eleven respondents had more than one comment. Rocky Flats: 91 respondents made comments. Eight respondents had more than one comment.

3.8 Open-Ended Responses

At the close of the interview, respondents were given the opportunity to make comments, which were recorded, and content analyzed, resulting in 10 categories for Fernald and 12 categories for Rocky Flats, and content analyzed. Table 15 displays the results. Twenty-three percent of the respondents in each sample made comments. Nearly half of the comments were negative in nature (49.0% in Fernald and 46.4% in Rocky Flats). Negative comments included health and safety concerns, mistrust of what has happened at the site, concern that information about problems is hidden from the public, legal concerns, and so on. About one-quarter of the comments by Fernald respondents mentioned health and safety concerns about the site; 11.1% of the Rocky Flats comments fell in this category. Eight to ten percent of the comments (in Rocky Flats and Fernald, respectively) were general negative comments regarding the site and mistrust of the site. Comments included:

- “it [Fernald] has been a thorn in our side forever”
- “I will be glad when they do get rid of it”
- “I still feel distrust that whoever is in charge is dishonest and the public is not being told everything”
- “Fernald has laid a major scar on the area; people from outside who have moved in are very negative about it. Hope that the best is being done for the environment.”

Few comments were positive in nature, only 6.9% in Fernald and 9.1% in Rocky Flats. Examples of some of the positive comments were:

- I’m glad they’re cleaning it [Fernald] up and I hope they do a quality job of cleaning it up because if you are going to make it a park, it’s important for it to be clean.”
- I’m overall pleased with the way the cleanup has been as long as they don’t leave any radium at the site [Fernald].”
- “We needed the bombs, so I’m glad we had them made. Somebody had to do it. I am strongly in favor of atomic weapons.” [Rocky Flats respondent]

As shown in Table 15, about one-third of the comments (32.5 in Fernald and 38.4% in Rocky Flats) were miscellaneous in nature — neither positive nor negative.

4. Summary

Overall, respondents hold favorable views of science. They indicate an interest in developments in science and technology, feel that the world is better off because of science, and that science makes our lives healthier, easier, and more comfortable. However, respondents are divided on whether science should decide what is safe or not safe for themselves and their families. They were more confident on the specific issue of whether science can determine if *radiation exposure* is safe or unsafe for them and their families. When it comes to questions about radiation (whether most radioactivity is human-made or if radiation from natural environment is less harmful than human-made), responses are more divided and 12 to 18 percent said they did not know the answer.

The majority of the respondents think that standards for exposure to radiation should be based on what science knows about health effects of radiation and on what is possible with today's technology. Few people (6-11%) think safety standards for radiation are too high, most think they are about right (45-46%) or too low (33 -37%).

Although few respondents had visited the sites, most had heard or read something about Fernald or Rocky Flats in the media. Impressions of the sites tend to be negative. Few respondents report positive impressions of the site. Respondents were even more likely to believe other people in their community held negative views of the site than the survey results show for this sample.

In Fernald, a strong majority of the respondents (62-78%) remember the three events listed. The 1989 class action suit, in particular, is recalled by 77.5% of the respondents (77.5%). The class action suit had a negative affect on their impression of the Fernald site.

In Rocky Flats, the end of nuclear weapons production in 1992 is remembered by a majority of the respondents. This event tends to have a positive affect on respondents unlike the other two events that were considered more negative by the respondents who remembered them.

Responses are mixed on proposals for future use of the site. Developing Rocky Flats as a National Wildlife Refuge is the one proposal that was clearly viewed as positive by respondents with three-quarters indicating this is a positive or very positive future use of the site.

Community Surveys

Most respondents feel that overall their community would be better off without the site. However, when asked about the economic future of their community after cleanup and closure of the site, only 31 to 43 percent thought that it will be better, 47 to 56 percent thought their local economy will be about the same.

Even a small amount of radiation left at the site is felt to have some effect of the future of their community. Most respondents indicated they and their families have some concern about the site.

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Acknowledgement

This research was supported by funding from the U. S. Department of Energy, Low Dose Radiation Research Program, Office of Biological and Environmental Research, Office of Science, under Cooperative Agreement Number DE-FC07-99ER63879 with Decision Science Research Institute. Any opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect the views of the U. S. Department of Energy.

Low Dose, Risk, Decisions, & Risk Communication

Community Surveys

Appendix A

Survey Instrument: Fernald, Ohio

RAD1IN1

Hello, this is _____. I am calling on behalf of Decision Research, a non-profit research institute. I would like ask any adult (18 years or older) in your household some questions about your community and radiation. The results are designed to help shape public policies on radiation. I want to assure you that I am not selling anything and that this survey is completely anonymous and voluntary. It will take about 15 minutes. Do you have any questions before we begin?

PRESS 1

RAD1003

First I would like to ask some questions about science. How interested are you in new developments in science and technology, not interested, slightly interested, somewhat interested, or very interested?"

- 1 NOT INTERESTED
- 2 SLIGHTLY
- 3 SOMEWHAT
- 4 VERY INTERESTED

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1004

All things considered, would you say that the world is better off or worse off because of science?

- 1 BETTER
- 2 WORSE
- 3 (IF VOLUNTEERED - NEUTRAL)
- 4 (IF VOLUNTEERED - NEITHER)
- 5 (IF VOLUNTEERED - BOTH)

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1005

Now I will read a few statements. For each one, please tell me if you strongly agree, agree, disagree, or strongly disagree. "Science is making our lives healthier, easier and more comfortable."

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1006

"Most scientists want to work on things that will make life better for the average person." Do you strongly agree, agree, disagree, or strongly disagree with that statement?

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1007

"Science can decide what is safe or not safe for you and your family." (Do you strongly agree, agree, disagree, or strongly disagree with that statement?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1008

"Most radioactivity is human-made." (Do you strongly agree, agree, disagree, or strongly disagree with that statement?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1009

"Radiation from the natural environment is less harmful than human-made radiation." (Do you strongly agree, agree, disagree, or strongly disagree with that statement?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1010

(How strongly do you agree or disagree with this statement) "Science can decide whether radiation exposure is safe or unsafe for you and your family." (Do you strongly agree, agree, disagree, or strongly disagree?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1011

Now I would like to ask about your opinions on radiation. Do you think the safety standards for radiation exposure are generally too high, too low, or about right?

- 1 TOO HIGH
- 2 ABOUT RIGHT
- 3 TOO LOW

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1012

If you were in charge of setting the standards for exposure to radiation, would you base the standard on how much radiation people receive from nature or what science knows about the health effects of radiation?

- 1 HOW MUCH RADIATION PEOPLE RECEIVE FROM NATURE
- 2 WHAT SCIENCE KNOWS ABOUT THE HEALTH EFFECTS OF RADIATION
- 3 (IF VOLUNTEERED: BOTH)

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1013

Would you set the standards for environmental cleanup of radiation sites based on what is possible with today's technology, or what can be achieved without excessive or unreasonable costs

- 1 WHAT IS POSSIBLE WITH TODAY'S TECHNOLOGY
- 2 WHAT CAN BE ACHIEVED WITHOUT EXCESSIVE COSTS
- 3 (IF VOLUNTEERED: BOTH)
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1014

The US Department of Energy is currently doing environmental cleanup at the Fernald site. We would like your opinion about different approaches for determining the level of cleanup. I'm going to read you four different approaches and I'd like you to tell me which standard is the most important one for the cleanup to meet.

PROBE FROM LIST

- 1 CURRENT REGULATORY STANDARDS
- 2 A STANDARD AGREED TO BY LOCAL RESIDENTS
- 3 A STANDARD SET BY SCIENCE
- 4 A STANDARD DETERMINED BY COSTS
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1015

What is the second most important?

(PROGRAMMED TO SHOW REMAINING CHOICES)

- 1 CURRENT REGULATORY STANDARDS
- 2 A STANDARD AGREED TO BY LOCAL RESIDENTS
- 3 A STANDARD SET BY SCIENCE
- 4 A STANDARD DETERMINED BY COSTS
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1016

What is the third most important approach?

(PROGRAMMED TO SHOW REMAINING CHOICES)

- 1 CURRENT REGULATORY STANDARDS
- 2 A STANDARD AGREED TO BY LOCAL RESIDENTS
- 3 A STANDARD SET BY SCIENCE
- 4 A STANDARD DETERMINED BY COSTS
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1018

Your top three ranked choices were CHOICE 1, CHOICE 2, and CHOICE 3. Now I would like you to rate each of the approaches in terms of how important it is. Imagine you have 100 dollars to divide between the three approaches. Out of 100 dollars, how much would you give to SHOW FIRST RANKED ITEM HERE?

ENTER EXACT NUMBER

- 997 REFUSED
- 998 DON'T KNOW
- 999 NO ANSWER

RAD1019

You have (100 - RAD018 ANS) dollars remaining. How much would you give to SHOW SECOND RANKED ITEM HERE?

ENTER EXACT NUMBER

- 9 97 REFUSED
- 998 DON'T KNOW
- 999 NO ANSWER

RAD1020

You have (100 - (RAD1018 ANS + RAD1019 ANS)) dollars remaining for the third ranked item. Are you satisfied with that?

- 1 YES (SKIPTO RAD1023)
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1022

Since you are not satisfied with your ratings I will ask you to rate each item again

PRESS 1 --->SKIP BACK TO RAD1018

RAD1023

Now I am going to ask your opinion about risks to public health in your community For each item please tell me if you think there is almost no health risk, a slight health risk, a moderate health risk, or a high health risk to you and people in your community. How much of a health risk is natural background radiation? (Almost no risk, slight risk, moderate risk, or high risk?)

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

9 NO ANSWER

RAD1024

What about radon? Is radon almost no risk to public health, a slight risk, moderate risk, or high risk?

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1025

What about cosmic rays? (How much health risk do they pose for the public?)

NOTE: COSMIC RAYS ARE NATURAL RADIATION FROM OUTER SPACE

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1026

(What about) sun tanning? (How much risk does sun tanning pose to the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1027

(What about) medical x-rays? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1028

(What about) radioactive materials used in research? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1029

(What about) radiation from medical waste? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1030

(What about) nuclear power plants? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1031

(What about) nuclear waste? (How much health risk does it pose for the public?)

PROBE FROM LIST

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1032

(What about) radiation from nuclear weapons manufacturing? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1033

(What about) fallout from nuclear weapons testing? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1034

(What about) radioactive waste from uranium mines? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1035

(What about) electromagnetic fields such as energy fields from power lines?
(How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1036

(What about) microwave ovens? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1037

(What about) cell phones? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1038

(What about) food irradiation? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 8 DON'T KNOW
- 9 NO ANSWER

RAD1039

Now I'd like to talk with you about the Fernald site. How familiar are you with Fernald?

PROBE FROM LIST

- 1 NOT FAMILIAR
- 2 SLIGHTLY FAMILIAR
- 3 SOMEWHAT FAMILIAR
- 4 VERY FAMILIAR

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1040

Have you ever heard or read anything about Fernald in the media?

- 1 YES
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1041

Have you ever visited the Fernald site?

- 1 YES
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1042

When you think about the Fernald site, is your personal impression generally very negative, negative, positive, or very positive?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1043

When you think about how people in your community view the site, is it generally very negative, negative, positive, or very positive?

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1044

Now I am going to describe some events that have occurred at the Fernald site, and I would like you to tell me if you recall them. First, in 1989 a class action lawsuit by Fernald neighbors was settled for \$78 million, including a medical monitoring program. How well do you recall this event?

PROBE FROM LIST

- 1 NOT AT ALL _(SKIPTO RAD1047
- 2 VAGUE RECOLLECTION
- 3 CLEAR MEMORY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1045

How did you learn about this?

PROBE FROM LIST

CHOOSE ALL THAT APPLY

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

- 1 TELEVISION / RADIO
- 2 NEWSPAPERS
- 3 WORD OF MOUTH
- 4 OTHER SPECIFY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1045OTH

SPECIFY

RAD1046

How did this event affect your impression of the Fernald site? Did the event have a very negative, negative, positive, or very positive effect?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1047

Next, in 1991 the Department of Energy (or DOE) officially ended production and the site was renamed the Fernald Environmental Management Project, or FEMP. How well do you recall this event?

PROBE FROM LIST

- 1 NOT AT ALL (SKIPTO RAD1050
- 2 VAGUE RECOLLECTION
- 3 CLEAR MEMORY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1048

How did you learn about this?

PROBE FROM LIST

CHOOSE ALL THAT APPLY

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

- 1 TELEVISION / RADIO
- 2 NEWSPAPERS
- 3 WORD OF MOUTH
- 4 OTHER SPECIFY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1048OTH

SPECIFY

RAD1049

How did this event affect your impression of the Fernald site? Did the event have a very negative, negative, positive, or very positive effect?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1050

Finally, in 1997 the first waste materials were placed into an on-site disposal "cell." Contaminated soil and debris from the site that are below specific acceptance criteria are being placed into the disposal cell. How well do you recall this event?

PROBE FROM LIST

- 1 NOT AT ALL (SKIPTO RAD1053
- 2 VAGUE RECOLLECTION
- 3 CLEAR MEMORY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1051

How did you learn about this?

PROBE FROM LIST

CHOOSE ALL THAT APPLY

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

- 1 TELEVISION / RADIO
- 2 NEWSPAPERS
- 3 WORD OF MOUTH
- 4 OTHER SPECIFY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1051OTH

SPECIFY

RAD1052

How did this event affect your impression of the Fernald site? Did it have a very negative, negative, positive, or very positive effect?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1053

Now I'd like to ask you some questions about your community in general. I'm going to read you a number of different ways to describe communities, and I would like you to tell me how well each one describes your community. First, a bedroom community. Is this a very poor, poor, good or very good description of your community?

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

NOTE: A BEDROOM COMMUNITY IS A COMMUNITY THAT IS PRIMARILY RESIDENTIAL

PROBE: How well does this describe your community?

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1054

Second, an industrial community. Is this a very poor, poor, good or very good description of your community?

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1055

Third, a recreational community. (Is this a very poor, poor, good or very good description of your community?)

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1056

An agricultural community. (Is this a very poor, poor, good or very good description of your community?)

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1057

A retirement community (how well does this describe your community?).

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

PROBE AS NEEDED FROM LIST

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1058

A working class community (how well does this describe your community?)

PROBE FROM LIST

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1059

We are now more than half way through the survey and I want to thank you for your cooperation. Next, do you see the economy of your community as improving rapidly, improving slowly, stable, declining slowly or declining rapidly?

- 1 IMPROVING RAPIDLY
- 2 IMPROVING SLOWLY
- 3 STABLE
- 4 DECLINING SLOWLY
- 5 DECLINING RAPIDLY
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1060

Thinking about the community as a whole, how would you characterize it in terms of its concern about environmental problems? Is your community not at all concerned, slightly concerned, concerned, or very concerned (about the environment)?

- 1 NOT AT ALL CONCERNED
- 2 SLIGHTLY CONCERNED
- 3 CONCERNED
- 4 VERY CONCERNED
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1061

After cleanup and closure of the Fernald site, will the economic future of your community be much better, a little better, the same, a little worse, or much worse?

- 1 MUCH BETTER
- 2 A LITTLE BETTER
- 3 THE SAME
- 4 A LITTLE WORSE
- 5 MUCH WORSE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1062

In general, do you strongly favor, favor, oppose or strongly oppose new development in your community?

- 1 STRONGLY FAVOR
- 2 FAVOR
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 OPPOSE
- 5 STRONGLY OPPOSE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1063

Now I'd like to ask you some questions about the Fernald site and your community. In general, how much do you think Fernald influences how you and your neighbors view your community? Is your opinion of your community not influenced, slightly influenced, somewhat influenced, or strongly influenced by the Fernald site?

- 1 NOT INFLUENCED
- 2 SLIGHTLY INFLUENCED
- 3 SOMEWHAT INFLUENCED
- 4 STRONGLY INFLUENCED

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1064

When you think about people from outside your community, how strongly is their impression of your community influenced by the Fernald site? Is it not influenced, slightly influenced, somewhat influenced, or strongly influenced?

- 1 NOT INFLUENCED
- 2 SLIGHTLY INFLUENCED
- 3 SOMEWHAT INFLUENCED
- 4 STRONGLY INFLUENCED

- 7 REFUSED

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 8 DON'T KNOW
- 9 NO ANSWER

RAD1065

Overall, do you feel that your community is better off with, or better off without the Fernald site?

- 1 WITH
- 2 WITHOUT
- 3 (IF VOLUNTEERED) ABOUT THE SAME
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1066

A proposal for the future use of the Fernald site is to house a museum about the Cold War and Fernald's role in the production of nuclear weapons. Would this use be very positive, positive, neutral, negative or very negative for your community?

- 1 VERY POSITIVE
- 2 POSITIVE
- 3 NEUTRAL
- 4 NEGATIVE
- 5 VERY NEGATIVE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1067

Another proposal for the future use of the Fernald site is a place for the reburial of remains of Native Americans. Would this use be very positive, positive, neutral, negative or very negative for your community?

- 1 VERY POSITIVE
- 2 POSITIVE
- 3 NEUTRAL
- 4 NEGATIVE
- 5 VERY NEGATIVE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1068

Another proposal for the future use of the Fernald site is a park, with nature walks and bike trails in areas restored with native vegetation. Would this use be very positive, positive, neutral, negative or very negative for your community?

- 1 VERY POSITIVE
- 2 POSITIVE
- 3 NEUTRAL
- 4 NEGATIVE

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

- 5 VERY NEGATIVE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1069

How concerned are you about radiation at the Fernald site compared to other environmental concerns in your community, (such as water or air pollution)?

PROBE: Which are you more concerned about, water and air pollution from other contaminants, or radiation from the site?

PROBE FROM LIST

- 1 MUCH MORE CONCERNED ABOUT RADIATION
- 2 SOMEWHAT MORE CONCERNED ABOUT RADIATION
- 3 ABOUT THE SAME
- 4 SOMEWHAT MORE CONCERNED ABOUT OTHER CONTAMINANTS
- 5 MUCH MORE CONCERNED ABOUT OTHER CONTAMINANTS
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1070

If a small amount of radiation was present at the Fernald site, how much do you think this would affect the future of your community? Would it have no effect, a slight effect, a moderate effect, or a large effect (on the future of your community)?

- 1 NO EFFECT
- 2 SLIGHT EFFECT
- 3 MODERATE EFFECT
- 4 LARGE EFFECT
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1071

Next, we would like to know something about how important the Fernald site is to you and other people in your community. In the normal course of conversations you might have at home, does Fernald ever come up?

PROBE: Do you ever discuss the site at home?

- 1 YES
- 2 NO (SKIPTO RAD1073)
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1072

How concerned are you and your family about the Fernald site? Are you very concerned, slightly concerned, or not concerned at all?

- 1 VERY CONCERNED
- 2 SLIGHTLY CONCERNED
- 3 NOT AT ALL CONCERNED

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1073

Is it likely a discussion of Fernald would come up at any other social or community groups you might be part of?

- 1 YES
- 2 NO (SKIPTO RAD1AGE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1074

Where would that be? (What are the other social or community groups you are a part of where Fernald might come up in conversation?)

OPEN ENDED

RAD1AGE

Thank you. We are almost done. Now I would like to ask you some questions about yourself. In what year were your born?

ENTER EXACT NUMBER

- 9996 BEFORE 1890
- 9997 REFUSED
- 9998 DON'T KNOW
- 9999 NO ANSWER

RAD1SEX

Are you male or female (sorry I have to ask everyone)?

- 1 MALE
- 2 FEMALE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1ETH

What is your race or ethnic identity?

NOTE: R MAY CHOOSE AS MANY AS APPLY IF VOLUNTEERED

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

PROBE FROM LIST

- 1 WHITE
- 2 BLACK OR AFRICAN AMERICAN
- 3 ASIAN
- 4 NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER
- 5 AMERICAN INDIAN OR ALASKAN NATIVE
- 6 HISPANIC OR LATINO
- 7 OTHER (PLEASE SPECIFY) _____
- 97 REFUSED
- 98 DON'T KNOW
- 99 NO ANSWER

RAD1ETHOTH

(PLEASE SPECIFY)

RAD1EDU

What is the highest level of education you have completed?

- 1 Doctorate (PhD, EdD) or Professional (MD, JD, DDS)
- 2 Masters (MA, MS, MBA, Med)
- 3 Bachelors (BA, BS, AB)
- 4 Associates (AA, AS)
- 5 Some college, no degree
- 6 High School Diploma or GED
- 7 9th - 12th Grade, no diploma (SKIPTO RAD175b)
- 8 5th - 8th Grade (SKIPTO INCOME1)
- 9 4th Grade or less (SKIPTO INCOME1)
- 97 REFUSED
- 98 DON'T KNOW
- 99 NO ANSWER

RAD175a

Have you ever taken a science course at the college level?

- 1 YES
- 2 NO
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD175b

Have you ever taken a science course at the high school level?

- 1 YES
- 2 NO
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

INCOME1

Is your total annual household income, from all sources, before taxes, over or under \$35,000?

PROBE: Include money from jobs (wages, salary, tips, bonuses),

interest, dividends, child support, alimony, welfare, social security, disability and retirement payments, net income from a business, farm or rent, or any other money income received by members of your family. Do not include lump-sum payments, such as money from an inheritance or sale of a home.

- 1 OVER \$35,000 ---> SKIPTO INCOME4
- 2 UNDER \$35,000
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME2

Is it over or under \$25,000?

PROBE: Is your total annual household income, from all sources, before taxes, over or under \$25,000?

- 1 OVER \$25,000 -->SKIPTO RAD1076
- 2 UNDER \$25,000
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME3

Is it over or under \$15,000?

- 1 OVER \$15,000 ---> SKIPTO RAD1076
- 2 UNDER \$15,000 ---> SKIPTO RAD1076
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME4

Is it over or under \$50,000?

- 1 OVER \$50,000
- 2 UNDER \$50,000---> SKIPTO RAD1076
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME5

Is it over or under \$75,000

- 1 OVER \$75,000
- 2 UNDER \$75,000
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix A: Survey Instrument, Fernald, Ohio

RAD1076

What political party are you affiliated with?

PROBE FROM LIST

- 1 REPUBLICAN
- 2 DEMOCRAT
- 3 LIBERTARIAN
- 4 OTHER SPECIFY: _____
- 5 (IF VOLUNTEERED) NOT A REGISTERED VOTER

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1076OTH

SPECIFY

RAD1077

Do you or any of your family or household members work at the Fernald site, now or in the past?

- 1 YES
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1COM

Thank you. That is the end of the survey. Do you have any comments you would like to add?

OPEN ENDED

RAD1END

On behalf of Decision Research I would like to thank you for your participation. Good bye.

ENTER YOUR COMMENTS RELEVANT TO THE SURVEY

RAD1IID

ONE MORE DONE!!

ENTER YOUR INTERVIEWER ID - ALL 3 DIGITS

THANKS!!

Low Dose, Risk, Decisions, & Risk Communication

Community Surveys

Appendix B

Survey Instrument: Rocky Flats, Colorado

RAD1IN1

Hello, this is _____. I am calling on behalf of Decision Research, a non-profit research institute. I would like ask any adult (18 years or older) in your household some questions about your community and radiation. The results are designed to help shape public policies on radiation and the future of Rocky Flats. I want to assure you that I am not selling anything and that this survey is completely anonymous and voluntary. It will take about 15 minutes. Do you have any questions before we begin?

PRESS 1

RAD1001

First I would like to ask whether you live in Westminster or Arvada?

- 1 Westminster
- 2 Arvada
- 3 Neither --> SKIPTO NOQAL

RAD1002

How many years have you lived in the Westminster/Arvada or the greater Denver area?

ENTER EXACT NUMBER

96 96 OR MORE YEARS

- 97 REFUSED
- 98 DON'T KNOW
- 99 NO ANSWER

RAD1003

Now I would like to ask some questions about science. How interested are you in new developments in science and technology, not interested, slightly interested, somewhat interested, or very interested?"

- 1 NOT INTERESTED
- 2 SLIGHTLY
- 3 SOMEWHAT
- 4 VERY INTERESTED
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1004

All things considered, would you say that the world is better off or worse off because of science?

- 1 BETTER
- 2 WORSE
- 3 (IF VOLUNTEERED - NEUTRAL)
- 4 (IF VOLUNTEERED - NEITHER)
- 5 (IF VOLUNTEERED - BOTH)

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1005

Now I will read a few statements. For each one, please tell me if you strongly agree, agree, disagree, or strongly disagree. "Science is making our lives healthier, easier and more comfortable."

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1006

"Most scientists want to work on things that will make life better for the average person." Do you strongly agree, agree, disagree, or strongly disagree with that statement?

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1007

"Science can decide what is safe or not safe for you and your family." (Do you strongly agree, agree, disagree, or strongly disagree with that statement?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1008

"Most radioactivity is human-made." (Do you strongly agree, agree, disagree, or strongly disagree with that statement?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1009

"Radiation from the natural environment is less harmful than human-made radiation." (Do you strongly agree, agree, disagree, or strongly disagree with that statement?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1010

(How strongly do you agree or disagree with this statement) "Science can decide whether radiation exposure is safe or unsafe for you and your family." (Do you strongly agree, agree, disagree, or strongly disagree?)

- 1 STRONGLY AGREE
- 2 AGREE
- 3 DISAGREE
- 4 STRONGLY DISAGREE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1011

Now I would like to ask about your opinions on radiation. Do you think the safety standards for radiation exposure are generally too high, too low, or about right?

- 1 TOO HIGH
- 2 ABOUT RIGHT
- 3 TOO LOW

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1012

If you were in charge of setting the standards for exposure to radiation, would you base the standard on how much radiation people receive from nature or what science knows about the health effects of radiation?

- 1 HOW MUCH RADIATION PEOPLE RECEIVE FROM NATURE
- 2 WHAT SCIENCE KNOWS ABOUT THE HEALTH EFFECTS OF RADIATION
- 3 (IF VOLUNTEERED: BOTH)

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1013

Would you set the standards for environmental cleanup of radiation sites based on what is possible with today's technology, or what can be achieved without excessive or unreasonable costs

- 1 WHAT IS POSSIBLE WITH TODAY'S TECHNOLOGY
- 2 WHAT CAN BE ACHIEVED WITHOUT EXCESSIVE COSTS
- 3 (IF VOLUNTEERED: BOTH)

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1014

The US Department of Energy is currently doing environmental cleanup at Rocky Flats. We would like your opinion about different approaches for determining the level of cleanup. I'm going to read you four different approaches and I'd like you to tell me which standard is the most important one for the cleanup to meet.

PROBE FROM LIST

- 1 CURRENT REGULATORY STANDARDS
- 2 A STANDARD AGREED TO BY LOCAL RESIDENTS
- 3 A STANDARD SET BY SCIENCE
- 4 A STANDARD DETERMINED BY COSTS

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1015

What is the second most important?

(PROGRAMMED TO SHOW REMAINING CHOICES)

- 1 CURRENT REGULATORY STANDARDS
- 2 A STANDARD AGREED TO BY LOCAL RESIDENTS
- 3 A STANDARD SET BY SCIENCE
- 4 A STANDARD DETERMINED BY COSTS

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1016

What is the third most important approach?

(PROGRAMMED TO SHOW REMAINING CHOICES)

- 1 CURRENT REGULATORY STANDARDS
- 2 A STANDARD AGREED TO BY LOCAL RESIDENTS
- 3 A STANDARD SET BY SCIENCE
- 4 A STANDARD DETERMINED BY COSTS

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1018

Your top three ranked choices were CHOICE 1, CHOICE 2, and CHOICE 3. Now I would like you to rate each of the approaches in terms of how important it is. Imagine you have 100 dollars to divide between the three approaches. Out of 100 dollars, how much would you give to SHOW FIRST RANKED ITEM HERE?

ENTER EXACT NUMBER

- 997 REFUSED
- 998 DON'T KNOW
- 999 NO ANSWER

RAD1019

You have (100 - RAD018 ANS) dollars remaining. How much would you give to SHOW SECOND RANKED ITEM HERE?

ENTER EXACT NUMBER

- 9 97 REFUSED
- 998 DON'T KNOW
- 999 NO ANSWER

RAD1020

You have (100 - (RAD1018 ANS + RAD1019 ANS)) dollars remaining for the third ranked item. Are you satisfied with that?

- 1 YES (SKIPTO RAD1023)
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1022

Since you are not satisfied with your ratings I will ask you to rate each item again

PRESS 1 --->SKIP BACK TO RAD1018

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1023

Now I am going to ask your opinion about risks to public health in your community. For each item please tell me if you think there is almost no health risk, a slight health risk, a moderate health risk, or a high health risk to you and people in your community. How much of a health risk is natural background radiation? (Almost no risk, slight risk, moderate risk, or high risk?)

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1024

What about radon? Is radon almost no risk to public health, a slight risk, moderate risk, or high risk?

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1025

What about cosmic rays? (How much health risk do they pose for the public?)

NOTE: COSMIC RAYS ARE NATURAL RADIATION FROM OUTER SPACE

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1026

(What about) sun tanning? (How much risk does sun tanning pose to the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1027

(What about) medical x-rays? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1028

(What about) radioactive materials used in research? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1029

(What about) radiation from medical waste? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1030

(What about) nuclear power plants? (How much health risk do they pose for the public?)

PROBE FROM LIST

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1031

(What about) nuclear waste? (How much health risk does it pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1032

(What about) radiation from nuclear weapons manufacturing? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1033

(What about) fallout from nuclear weapons testing? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1034

(What about) radioactive waste from uranium mines? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1035

(What about) electromagnetic fields such as energy fields from power lines? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1036

(What about) microwave ovens? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1037

(What about) cell phones? (How much health risk do they pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 8 DON'T KNOW
- 9 NO ANSWER

RAD1038

(What about) food irradiation? (How much health risk does that pose for the public?)

PROBE FROM LIST

- 1 ALMOST NO HEALTH RISK
- 2 SLIGHT HEALTH RISK
- 3 MODERATE HEALTH RISK
- 4 HIGH HEALTH RISK

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1039

Now I'd like to talk with you about Rocky Flats. How familiar are you with Rocky Flats?

PROBE FROM LIST

- 1 NOT FAMILIAR
- 2 SLIGHTLY FAMILIAR
- 3 SOMEWHAT FAMILIAR
- 4 VERY FAMILIAR

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1040

Have you ever heard or read anything about Rocky Flats in the media?

- 1 YES
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1041

Have you ever visited the Rocky Flats site?

- 1 YES
- 2 NO

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1042

When you think about Rocky Flats, is your personal impression generally very negative, negative, positive, or very positive?

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1043

When you think about how people in your community view the site, is it generally very negative, negative, positive, or very positive?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1044

Now I am going to describe some events that have occurred at Rocky Flats, and I would like you to tell me if you recall them. First, in 1989 the FBI raided the Rocky Flats plant to investigate alleged violations of environmental law. How well do you recall this event?

PROBE FROM LIST

- 1 NOT AT ALL _(SKIPTO RAD1047
- 2 VAGUE RECOLLECTION
- 3 CLEAR MEMORY
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1045

How did you learn about this?

PROBE FROM LIST

CHOOSE ALL THAT APPLY

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

- 1 TELEVISION / RADIO
- 2 NEWSPAPERS
- 3 WORD OF MOUTH
- 4 OTHER SPECIFY
- 7 REFUSED
- 8 DON'T KNOW

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

9 NO ANSWER

RAD1045OTH

SPECIFY

RAD1046

How did this event affect your impression of Rocky Flats? Did the event have a very negative, negative, positive, or very positive effect?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1047

Next, in 1992, nuclear weapons production came to an end at Rocky Flats. How well do you recall this event?

PROBE FROM LIST

- 1 NOT AT ALL (SKIPTO RAD1053
- 2 VAGUE RECOLLECTION
- 3 CLEAR MEMORY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1048

How did you learn about this?

PROBE FROM LIST

CHOOSE ALL THAT APPLY

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

- 1 TELEVISION / RADIO
- 2 NEWSPAPERS
- 3 WORD OF MOUTH
- 4 OTHER SPECIFY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1048OTH

SPECIFY

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1049

How did this event affect your impression of Rocky Flats? Did the event have a very negative, negative, positive, or very positive effect?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 POSITIVE
- 5 VERY POSITIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1050

Finally, in 2000, there was a controversy over a proposal to use controlled burning to manage vegetation in the buffer zone that surrounds the Rocky Flats plant. How well do you recall this event?

PROBE FROM LIST

- 1 NOT AT ALL (SKIPTO RAD1050)
- 2 VAGUE RECOLLECTION
- 3 CLEAR MEMORY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1051

How did you learn about this?

PROBE FROM LIST

CHOOSE ALL THAT APPLY

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

- 1 TELEVISION / RADIO
- 2 NEWSPAPERS
- 3 WORD OF MOUTH
- 4 OTHER SPECIFY

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1051OTH

SPECIFY

RAD1052

How did this event affect your impression of Rocky Flats? Did it have a very negative, negative, positive, or very positive effect?

- 1 VERY NEGATIVE
- 2 NEGATIVE
- 3 (IF VOLUNTEERED) NEUTRAL

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 4 POSITIVE
- 5 VERY POSITIVE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1053

Now I'd like to ask you some questions about your community in general. I'm going to read you a number of different ways to describe communities, and I would like you to tell me how well each one describes your community. First, a bedroom community. Is this a very poor, poor, good or very good description of your community?

NOTE: A BEDROOM COMMUNITY IS A COMMUNITY THAT IS PRIMARILY RESIDENTIAL

PROBE: How well does this describe your community?

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1054

Second, an industrial community. Is this a very poor, poor, good or very good description of your community?

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1055

Third, a recreational community. (Is this a very poor, poor, good or very good description of your community?)

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1056

An agricultural community. (Is this a very poor, poor, good or very good description of your community?)

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1057

A retirement community (how well does this describe your community?).

PROBE AS NEEDED FROM LIST

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1058

A working class community (how well does this describe your community?)

PROBE FROM LIST

- 1 VERY POOR
- 2 POOR
- 3 GOOD
- 4 VERY GOOD
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1059

We are now more than half way through the survey and I want to thank you for your cooperation. Next, do you see the economy of your community as improving rapidly, improving slowly, stable, declining slowly or declining rapidly?

- 1 IMPROVING RAPIDLY
- 2 IMPROVING SLOWLY
- 3 STABLE
- 4 DECLINING SLOWLY
- 5 DECLINING RAPIDLY
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1060

Thinking about the community as a whole, how would you characterize it in terms of its concern about environmental problems? Is your community not at

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

all concerned, slightly concerned, concerned, or very concerned (about the environment)?

- 1 NOT AT ALL CONCERNED
- 2 SLIGHTLY CONCERNED
- 3 CONCERNED
- 4 VERY CONCERNED
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1061

After cleanup and closure of Rocky Flats, will the economic future of your community be much better, a little better, the same, a little worse, or much worse?

- 1 MUCH BETTER
- 2 A LITTLE BETTER
- 3 THE SAME
- 4 A LITTLE WORSE
- 5 MUCH WORSE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1062

In general, do you strongly favor, favor, oppose or strongly oppose new development in your community?

- 1 STRONGLY FAVOR
- 2 FAVOR
- 3 (IF VOLUNTEERED) NEUTRAL
- 4 OPPOSE
- 5 STRONGLY OPPOSE
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1063

Now I'd like to ask you some questions about Rocky Flats and your community. In general, how much do you think Rocky Flats influences how you and your neighbors view your community? Is your opinion of your community not influenced, slightly influenced, somewhat influenced, or strongly influenced by Rocky Flats?

- 1 NOT INFLUENCED
- 2 SLIGHTLY INFLUENCED
- 3 SOMEWHAT INFLUENCED
- 4 STRONGLY INFLUENCED
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1064

When you think about people from outside your community, how strongly is their impression of your community influenced by Rocky Flats ? Is it not influenced, slightly influenced, somewhat influenced, or strongly influenced?

- 1 NOT INFLUENCED
- 2 SLIGHTLY INFLUENCED
- 3 SOMEWHAT INFLUENCED
- 4 STRONGLY INFLUENCED

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1065

Overall, do you feel that your community is better off with, or better off without Rocky Flats?

- 1 WITH
- 2 WITHOUT
- 3 (IF VOLUNTEERED) ABOUT THE SAME

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1066

A proposal for the future use of the Rocky Flats site is to clean it up so that the site can become a National Wildlife Refuge that would be fenced but with public access. Would this use be very positive, positive, neutral, negative, or very negative for your community?

- 1 VERY POSITIVE
- 2 POSITIVE
- 3 NEUTRAL
- 4 NEGATIVE
- 5 VERY NEGATIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1067

With an appropriate cleanup, one long-term outcome for Rocky Flats might include residential housing. Would this use be very positive, positive, neutral, negative, or very negative for your community?

- 1 VERY POSITIVE
- 2 POSITIVE
- 3 NEUTRAL
- 4 NEGATIVE
- 5 VERY NEGATIVE

- 7 REFUSED
- 8 DON'T KNOW

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

9 NO ANSWER

RAD1068

Another proposal for the future use of the Rocky Flats site is to clean it up so, in addition to becoming a fenced nature preserve, appropriate areas along the outside edge of the site will be open to industrial and highway development. Would this use be very positive, positive, neutral, negative, or very negative for your community?

- 1 VERY POSITIVE
- 2 POSITIVE
- 3 NEUTRAL
- 4 NEGATIVE
- 5 VERY NEGATIVE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1069

How concerned are you about radiation at Rocky Flats compared to other environmental concerns in your community, (such as water or air pollution)?

PROBE: Which are you more concerned about, water and air pollution from other contaminants, or radiation from the site?

PROBE FROM LIST

- 1 MUCH MORE CONCERNED ABOUT RADIATION
- 2 SOMEWHAT MORE CONCERNED ABOUT RADIATION
- 3 ABOUT THE SAME
- 4 SOMEWHAT MORE CONCERNED ABOUT OTHER CONTAMINANTS
- 5 MUCH MORE CONCERNED ABOUT OTHER CONTAMINANTS

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1070

If a small amount of radiation was present at Rocky Flats, how much do you think this would affect the future of your community? Would it have no effect, a slight effect, a moderate effect, or a large effect (on the future of your community)?

- 1 NO EFFECT
- 2 SLIGHT EFFECT
- 3 MODERATE EFFECT
- 4 LARGE EFFECT

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1071

Next, we would like to know something about how important Rocky Flats is to you and other people in your community. In the normal course of conversations you might have at home, does Rocky Flats ever come up?

PROBE: Do you ever discuss the site at home?

- 1 YES
- 2 NO (SKIPTO RAD1073)
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1072

How concerned are you and your family about Rocky Flats? Are you very concerned, slightly concerned, or not concerned at all?

- 1 VERY CONCERNED
- 2 SLIGHTLY CONCERNED
- 3 NOT AT ALL CONCERNED
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1073

Is it likely a discussion of Rocky Flats would come up at any other social or community groups you might be part of?

- 1 YES
- 2 NO (SKIPTO RAD1AGE)
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1074

Where would that be? (What are the other social or community groups you are a part of where Rocky Flats might come up in conversation?)

OPEN ENDED

RAD1AGE

Thank you. We are almost done. Now I would like to ask you some questions about yourself. In what year were you born?

ENTER EXACT NUMBER

- 9996 BEFORE 1890
- 9997 REFUSED
- 9998 DON'T KNOW
- 9999 NO ANSWER

RAD1SEX

Are you male or female (sorry I have to ask everyone)?

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 1 MALE
- 2 FEMALE

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1ETH

What is your race or ethnic identity?

NOTE: R MAY CHOOSE AS MANY AS APPLY IF VOLUNTEERED

IF MORE THAN ONE, SELECT 4, ENTER EACH SELECTION, SEPARATED BY COMMA

PROBE FROM LIST

- 1 WHITE
- 2 BLACK OR AFRICAN AMERICAN
- 3 ASIAN
- 4 NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER
- 5 AMERICAN INDIAN OR ALASKAN NATIVE
- 6 HISPANIC OR LATINO
- 7 OTHER (PLEASE SPECIFY) _____

- 97 REFUSED
- 98 DON'T KNOW
- 99 NO ANSWER

RAD1ETHOTH

(PLEASE SPECIFY)

RAD1EDU

What is the highest level of education you have completed?

- 1 Doctorate (PhD, EdD) or Professional (MD, JD, DDS)
- 2 Masters (MA, MS, MBA, Med)
- 3 Bachelors (BA, BS, AB)
- 4 Associates (AA, AS)
- 5 Some college, no degree
- 6 High School Diploma or GED
- 7 9th - 12th Grade, no diploma (SKIPTO RAD175b)
- 8 5th - 8th Grade (SKIPTO INCOME1)
- 9 4th Grade or less (SKIPTO INCOME1)

- 97 REFUSED
- 98 DON'T KNOW
- 99 NO ANSWER

RAD175a

Have you ever taken a science course at the college level?

- 1 YES
- 2 NO

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD175b

Have you ever taken a science course at the high school level?

- 1 YES
- 2 NO
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME1

Is your total annual household income, from all sources, before taxes, over or under \$35,000?

PROBE: Include money from jobs (wages, salary, tips, bonuses),

interest, dividends, child support, alimony, welfare, social security, disability and retirement payments, net income from a business, farm or rent, or any other money income received by members of your family. Do not include lump-sum payments, such as money from an inheritance or sale of a home.

- 1 OVER \$35,000 ---> SKIPTO INCOME4
- 2 UNDER \$35,000
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME2

Is it over or under \$25,000?

PROBE: Is your total annual household income, from all sources, before taxes, over or under \$25,000?

- 1 OVER \$25,000 -->SKIPTO RAD1076
- 2 UNDER \$25,000
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME3

Is it over or under \$15,000?

- 1 OVER \$15,000 ---> SKIPTO RAD1076
- 2 UNDER \$15,000 ---> SKIPTO RAD1076
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME4

Is it over or under \$50,000?

- 1 OVER \$50,000

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

- 2 UNDER \$50,000---> SKIPTO RAD1076
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

INCOME5

Is it over or under \$75,000

- 1 OVER \$75,000
- 2 UNDER \$75,000
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1076

What political party are you affiliated with?

PROBE FROM LIST

- 1 REPUBLICAN
- 2 DEMOCRAT
- 3 LIBERTARIAN
- 4 OTHER SPECIFY: _____
- 5 (IF VOLUNTEERED) NOT A REGISTERED VOTER
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1076OTH

SPECIFY

RAD1077

Do you or any of your family or household members work at Rocky Flats, now or in the past?

- 1 YES
- 2 NO
- 7 REFUSED
- 8 DON'T KNOW
- 9 NO ANSWER

RAD1COM

Thank you. That is the end of the survey. Do you have any comments you would like to add?

OPEN ENDED

RAD1END

On behalf of Decision Research I would like to thank you for your participation. Good bye.

ENTER YOUR COMMENTS RELEVANT TO THE SURVEY

Community Surveys Appendix B: Survey Instrument, Rocky Flats, Colorado

RAD1IID

ONE MORE DONE!!

ENTER YOUR INTERVIEWER ID - ALL 3 DIGITS

THANKS!!

NOQUAL

I am sorry to have bothered you. We are only interviewing people in Westminster or Arvada at this time. Thank you and have a good (day/evening).

PRESS 1