ANL/EAIS/TM--93

DE93 012873

ANL/EAIS/TM-93

Technical Evaluation of Available State of Nevada Survey Instruments

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February 1993

Work sponsored by United States Department of Energy,
Office of Civilian Radioactive Waste Management

CONTENTS

ACKNOWLEDGMENT

Argonne National Laboratory would like to thank the U.S. Department of Energy, Office of Civilian Radioactive Waste Management, Office of External Relations, for the support it provided to complete the research. The contract with the National Opinion Research Center at the University of Chicago was managed by Dr. Leslie Nieves and Dr. Ross Hemphill, who work in the Economics and Law Section of Argonne's Environmental Assessment and Information Sciences Division.

TECHNICAL EVALUATION OF AVAILABLE STATE OF NEVADA SURVEY INSTRUMENTS

ABSTRACT

Argonne National Laboratory (ANL) is reviewing the survey research studies completed by Mountain West Research (1987-1989) for the state of Nevada's Nuclear Waste Project Office. In this research, 14 survey instruments were used to seek data on whether perceptions of risk could be associated with the possible siting of a high-level radioactive waste repository in Nevada and could be a dominant source of potential, significant, adverse economic impacts. This report presents results from phase 1 of the review, in which ANL contracted with the National Opinion Research Center (NORC) at the University of Chicago to evaluate the technical merits of the nine survey instruments that ANL had been able to acquire. The scope of NORC's work was limited to rating the questions and stating their strengths and weaknesses. NORC concluded that the surveys could provide valuable data about risk perceptions and potential behavioral responses. NORC identified a few minor problems with a number of questions and the calculated response rates but claimed these problems would probably not have any major biasing effect. The NORC evaluation would have been more complete if the terms used in the questionnaires had been defined, all survey instruments had been acquired, and all data had been made available to the public.

1 INTRODUCTION

Argonne National Laboratory (ANL) is conducting a multiphase review of the survey research studies that were completed between 1987 and 1989 by Mountain West Research for the state of Nevada's Nuclear Waste Project Office (NWPO). The NWPO, with funding from the U.S. Department of Energy (DOE), sponsored a number of surveys — which focused on respondents' imagery, preferences, and stated intents — designed to predict the probable behavioral response of the public and the potential consequences related to risk perceptions that could result from locating a permanent waste repository at Yucca Mountain, Nevada. These studies attempted to evaluate how a high-level radioactive waste repository would affect the behavior of current and future Nevada residents, visitors (i.e., tourists and convention planners and attendees), and in-state and out-of-state corporate decision makers. The purpose of the NWPO research was to determine if:

- The public would associate strong negative images with Nevada if the repository were to be located at the Yucca Mountain site,

- The perception-induced reaction would be strong and would lead to behavioral changes among the population, and
- The changed behavior would affect the local economy.

A series of NWPO reports, a myriad of conference papers, and numerous journal publications have partially documented this research.[1]

Argonne is conducting a three-phase review process to investigate the scientific rigor and authenticity of the conclusions from the NWPO research methods and findings. In phase 1, ANL contracted with the National Opinion Research Center (NORC) at the University of Chicago to evaluate the technical merits of those survey instruments that ANL had been able to acquire. NORC's scope of work was very narrowly defined. The results of the NORC evaluation are summarized in the main text of this overview report. A copy of the complete NORC report (Bradburn et al. 1992) is provided in the appendix.

In phase 2, ANL will review the findings from available surveys and any inferences made by NORC about the survey process. This review is to concentrate on reports and publications written by the various state of Nevada researchers involved in studies for the NWPO.

With respect to phase 3, ANL has already contracted with an independent university survey research center to collect additional data on public perceptions of the repository. The activities in phase 3 will attempt to see if the NWPO findings can be replicated and to examine aspects of perception excluded by the state of Nevada and recently by the University of Nevada in their research. This examination will help DOE better understand public attitudes and concerns by placing them in proper context, taking into account each respondent's political philosophy and general world view. Phase 3 is underway and is expected to be completed in 1993.

This report is an overview of NORC's phase 1 technical evaluation of the nine available survey instruments. Section 2 describes the scope of the NORC contract, the two specified tasks, and the criteria used to evaluate the questionnaires. Section 3 summarizes the results of the NORC evaluation, and Section 4 describes the limitations of the evaluation undertaken. Areas of the NWPO and University of Nevada survey research that need further examination are described in Section 5.

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[1] The efforts of the Nevada research team are only partially documented because all of the survey instruments used in their studies have not been made available to the public, and the data collected from the surveys are not available for review or verification.

2 SCOPE OF THE NORC EVALUATION

The researchers working for NWPO designed 14 survey instruments (i.e., questionnaires); some required written responses, others (i.e., interviews) required oral responses. These surveys were used to collect data to help NWPO predict any possible consequences from siting a high-level radioactive waste repository at Yucca Mountain, Nevada. Argonne was able to acquire only nine of the instruments. It contracted with NORC to perform a technical evaluation of these nine instruments. NORC examined the survey instruments only with respect to their technical merit. The NORC team evaluated the questionnaires in terms of the following criteria:

- Neutrality in framing questions,
- Respondent recognition of realistic constraints in framing choices,
- Respondent recognition of value conflicts in framing choices,
- Balance of items,
- Context effects that resulted from the order in which items were presented,
- Length and format,
- Techniques for administering the survey, and
- Adequacy of the samples.

The ANL contract with NORC specified two tasks. The NORC evaluation team was to (1) rate the questions according to specific issues and (2) document the strengths and weaknesses of the survey questionnaires as derived from the ratings. The tasks were set up to limit the team to evaluating just the technical merits of the survey instruments. To eliminate potential bias on the part of the evaluators with respect to the analysis and application of the survey results, final NWPO reports and publications were not made available to the NORC evaluation team, and the ANL staff did not discuss the program's history or the contentious points of view with team members. Although additional information describing the expected use of the results would have clarified the adequacy and performance of the particular survey questions, this information was not provided because "the general spirit of the contract under which this work was performed was to ensure that [NORC] remain blind to these other survey products" (Bradburn et al. 1992, p. 1).[2]

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[2] Throughout this report, when page numbers of the NORC report are cited, they refer to the original numbers printed at the *bottom* of the NORC report that appears in the appendix. The numbers at the top of the page are there only to maintain consecutive page numbering for documentation purposes.

Argonne provided only the following materials to the evaluation team: the nine questionnaires and incomplete descriptions of the sample populations and data collection design. The NORC team members were not provided with the survey introductory statements or definitions used by survey personnel. They were not given any output or publications stemming from the NWPO research efforts that showed how the NWPO researchers chose to use the data from the framed questions. Because the data (answers) that resulted from the survey process have not been made available to the public or researchers, the NORC evaluation team could not review the survey questions in terms of their adequacy as revealed by answers or in terms of their potential for being misinterpreted by respondents. They also could not review the response interpretations in terms of the conclusions drawn by the researchers. The NORC evaluation team thus complied with the narrow scope of its contract: to conduct a technical evaluation of the questionnaires on their own merits.

3 RESULTS OF THE NORC EVALUATION

The conclusions of the NORC evaluation team can be found on pages 26-28 of the report provided in the appendix. The nine survey questionnaires reviewed by NORC sought to address three different issues identified by the state of Nevada:

- Potential effects of a possible repository on the Las Vegas economy;
- Potential reactions of the citizens of the local area, Las Vegas urban area, and state of Nevada; and
- Potential reactions of the national population.

Each of these issues required that a different population sample be surveyed for its reactions and views. According to NORC, the NWPO addressed the questions to the appropriate populations. The questions in the nine questionnaires overlapped considerably: wording was either the same or slightly changed to adapt it for the particular sample being interviewed. Many surveys appeared to have been done in pairs, each focusing on a different population. Two cross-walk tables of the questionnaires were provided to show both the robustness and range of the questions across the measurement method. Four types of questions or measures were used in the surveys: image analysis, vignettes, contingent valuation, and comparative direct behavioral responses.

NORC found most of the surveys to be state-of-the-art instruments: "The surveys exhibit some considerable creativity in approaching a difficult measurement problem" (p. 26). The surveys of corporate decision makers, convention planners, and convention attendees were "fairly-straight forward surveys and apparently are adapted from surveys used to study convention planning and corporate location decisions in other contexts" (p. 26). However, NORC identified a few "minor" problems with the survey of convention planners, but it indicated the problems would probably not have a major biasing effect. The NORC team also identified a potential problem with the response rate. NORC stated that if it were properly calculated, the response rate for the survey of convention planners would be much lower than reported. The possibility that generalizing the results from this relatively small sample to the entire population could be inappropriate, combined with the fact that planners who had considered but already ruled out Las Vegas were not surveyed, raises questions about the interpretation and comparison of survey results. NORC also labeled the survey of convention attendees a "standard questionnaire used to measure convention goers' attitudes without as much attention being paid to the adaptation as the topic warranted" (p. 27).

NORC stated that the 1989 Nevada State Survey was the "weakest of the questionnaires with a number of question wording and question or response category order problems" (p. 27). NORC stated that the 1987 surveys were stronger, with fewer wording problems; however they had a low completion rate. The fact that the sample was relatively small raised the issue of whether results could be generalized for the entire population. Because the overlap in questions between the state surveys and the companion national

survey was limited, the 1987 survey could not be properly used as a baseline against which to measure changes in opinion.

NORC found that the 1988 Nevada Urban Risk Study, a face-to-face interview, had some problematic questions whose responses need to be interpreted critically. However, the survey was generally "appropriate to the subject matter" (p. 27). NORC called the 1988 National Study of Nuclear Waste Issues (which measured general public attitudes toward Las Vegas) "an imaginative attempt to simulate a before-after experiment with new knowledge intervening" (p. 28).

Although NORC criticized (at various levels) all of the instruments, none of the surveys appeared to have fatal flaws (i.e., errors of omission or blatant bias that would disqualify research findings). The evaluation team felt that the surveys would provide valuable data about risk perceptions and potential behavioral responses.

4 LIMITATIONS OF THE NORC EVALUATION

To ensure against bias, the reviewers were not informed of the context of the Nevada survey research projects nor of the uses made of the studies. This blind review process, however, handicapped the evaluation team. The members were unaware of both the context within which the surveys were conducted and the theoretical framework (including important rival hypotheses) that the surveys did or did not address.

The NORC evaluation should be viewed as very narrow in scope — it dealt with only the technical merit of the questionnaires. It addressed only *some* of the important evaluative criteria for assessing the adequacy of the research program carried out to date. The following facts support this statement:

- *Evaluators did not have definitions of the terms used in the surveys.* In a survey, a prestatement or context information is usually provided to the person being interviewed. Survey personnel also receive training so that they can provide definitions that allow respondents to answer questions such as, "What is a repository?" or "What is high-level waste?" Because the definitions and prestatements that were used were not made available to ANL personnel, NORC personnel did not have this information when evaluating specific questions. As a result, words or wording could have been misinterpreted by the NORC evaluation team.

- *Evaluators had only a partial set of surveys.* Argonne has been able to acquire only nine of the 14 surveys used by state of Nevada researchers to collect data. Because NORC did not have access to all 14 surveys, its evaluation is incomplete. NORC personnel were unable to cross-reference surveys and did not have all of the relevant process and contextual information.

- *Survey data were not made available to the public.* The data collected from the surveys were not made available for public examination; thus, rival hypotheses cannot be tested.

The NORC evaluation demonstrates that the Nevada research team committed no major errors in designing the nine survey instruments reviewed so far. In addition, evidence shows that the surveys were not designed to intentionally mislead the respondents.

5 THE NEXT STEP — FURTHER EXAMINATION OF NEVADA SURVEY RESEARCH

To continue with a full evaluation of the Nevada survey research, ANL personnel must be able to examine all the research instruments used and all the findings reported in the NWPO documents, conference papers, and journal articles. A full evaluation also requires a complete analysis of the entire survey research process, including a technical evaluation of the survey instruments, a review of the survey data collection process, a statistical reexamination of the data from which inferences have been drawn, and a critique of the research findings documented in various publications. A comprehensive evaluation of the survey conclusions reached by state researchers and testing of alternative hypotheses cannot take place until all of the data are made available to the public and until the way in which they were collected is fully understood.

Argonne personnel have some of the instruments used to elicit the survey responses and copies of the findings that have been published in various forums. Therefore, other researchers could compare the available instruments with the respective published findings to determine whether the former could have reasonably led to the latter. This procedure could be used to initially assess the quality of the Nevada research; thus, the inability to have total access to all the relevant data would be bypassed. Phase 2 of the review process will incorporate activities to assess the quality of the research as well as to seek empirical behavior situations for baselining.

In phase 3, ANL will conduct parallel (not competing) broad surveys to collect data on public perceptions. Close attention will be given to specific political and philosophical characteristics of the respondents. This process will allow ANL staff members to analyze targeted survey data in a broader contextual format, which will provide them with some insights into the process by which perceptions are formed and expressed. This information will be useful to DOE in determining further policy actions.

6 REFERENCE

Bradburn, N.M., et al., 1992, *Nevada Surveys Evaluation*, prepared by National Opinion Research Center, University of Chicago, Chicago, Ill., for Argonne National Laboratory, Argonne, Ill., April 14.

APPENDIX:

NEVADA SURVEYS EVALUATION

NORC Project #4566

Nevada Surveys Evaluation

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April 14, 1992

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Argonne National Laboratory
Contract No. 20072401

TABLE OF CONTENTS

NEVADA SURVEY EVALUATION

Report Overview

The nine surveys reviewed in this report all are concerned with risk perceptions and possible behavioral responses to the high-level radioactive waste storage repository proposed for construction at Yucca Mountain in Nevada. Two of the surveys involve samples of individuals concerned with conventions that have met or might meet in Las Vegas; one of convention attenders, the other of convention planners. One survey involves a sample of corporate decision makers who might locate their business in Nevada. Of the remaining six surveys of individuals in the population, three involve national samples and three Nevada samples, either state-wide or in selected counties. The questionnaires used in these studies cover much the same ground, share many of the same or similar questions, and approach the measurement problem from a number of different points of view.

The questionnaires will be evaluated with regard to such criteria as: neutrality in framing of questions, presence or absence of recognition of realistic constraints and value conflicts in framing choices, item balance, possible context effects due to the order of item presentation, length and format, and survey administration techniques. The overall apparent purpose of the survey and the adequacy of the samples will also be addressed.

The data, results and final reports were not available to us to further inform evaluation of the surveys and individual questions within these surveys. The general spirit of the contract under which this work was performed was to ensure that we remained blind to these other survey products. In many instances additional information would have provided clarification regarding the adequacy and performance of particular question items.

The statement of work for this contract provides for two tasks: 1) the rating of questions along eight general issues, and 2) narrative documentation of the overall strengths and weaknesses of the Nevada survey questionnaires informed by the ratings performed under Task 1.

This report is organized into two sections. First we present the Task 2 narrative evaluation. Appendix A and Appendix B at the conclusion of the narrative presents cross-walks of questions for each of the six household surveys and questions for the three decision-maker surveys, respectively. Second, we present the methods and tabular results of the Task 1 evaluation.

NEVADA SURVEY EVALUATION
TASK 2 -- NARRATIVE REPORT

The Task 2 report is organized into three sections. First we discuss the general problem trying to be addressed by these surveys and its challenge to questionnaire designers. Second, we discuss in detail each of the nine questionnaires. Third, we give some general conclusions about the questionnaires as a group. The analysis of these questionnaires is limited to the materials we were given for these tasks, which included: the questionnaires, limited descriptions of the sample and limited descriptions of the data collection design.

1. The General Problem

Before discussing each of the questionnaires separately, it is important to point out that the survey task attempted here poses one of the most difficult measurement problems for the survey method, namely how to measure probable responses to an event about which people know very little, which will not occur for some time, but which has potentially very important consequences for the population. In essence, the survey task is to measure public opinion about what, for most people, is an issue of low salience, but high importance. It is an issue about which respondents are likely to report opinions even in the absence of much knowledge. Designing good questionnaires for such issues is a real challenge to the researcher.

While we shall detail some criticisms of particular questions below, taken as a whole the questionnaires exhibit considerable creativity and awareness of the difficulty of the measurement problem. There are four types of questions that are used in many of the surveys that approach the risk perception and behavioral response measurement from an unusual point of view. These are image analysis, vignettes, contingent valuation, and comparative direct behavioral responses.

Image analysis. These questions adapt word association, a technique long used by psychologists to get at the affective value people associate with particular concepts or images. Respondents are asked to free associate to a concept such as "underground nuclear waste repository." After eliciting a number of associations, respondents are then asked to go back over their associations and rate the affective value of each one on a five-point scale from positive to negative. The resulting score, summing over the values given to each association, becomes the total rating for the concept (or construct) that formed the basis for the associations.

Such an approach has considerable face validity and derives plausibility from a long tradition of psychological research which views mental processes as a chain of associations among concepts, their linguistic representations, and their affective value. It would strengthen the case for construct validity of the measure if the data showed that the expected hypothetical relationships between the measures and independent variables existed. The analytic reports using this measure should provide such evidence for the construct validity of the measures.

Vignettes. Another type of item in several of the questionnaires involves the presentation of vignettes in which there is systematic variation in the value of different variables. Examples include the degree of exposure to radiation if accidents occur, the degree of media exposure about an accident, and possible responses such as the amount of damages that might be paid. This form of item is particularly well suited for the presentation of hypothetical events because one can vary the components of the scenario and present different combinations of variables to different samples of respondents. With large enough samples it can lead to fairly precise estimates of the contributions of each of the component variables to changes in opinion.

Contingent valuation. This approach is one that has recently been developed by economists to measure the value of public goods. (Those for which there is no market.) It is a controversial technique. Many researchers doubt that individuals can make the difficult hypothetical judgments about payments that they are called upon to make. But a growing body of literature suggests that it is a useful technique at least for scaling the relative value of public goods such as clean air or noxious events such as oil spills or, perhaps, nuclear waste repositories. The techniques has been used in legal cases to assess public perception of the amount of damages that should be assessed in cases of environmental damage. It is a technique that has been developed particularly to try to measure the effects of hypothetical events such as are the subject of these surveys.

Comparative direct behavioral responses. These are questions which attempt to scale different events or objects on some metric other than a monetary one. In a sense they are non-monetary analogues of contingent valuation, asking respondents to rate objects such as a nuclear power station or a landfill for chemical wastes, or an underground nuclear waste repository on a dimension such as how far one is willing to live from such facilities. These techniques are very valuable in this type of research because respondents are better able to scale their possible behavioral responses relative to some anchor point (e.g., a garbage dump) than they are to give an absolute value to a single type of facility, like the underground nuclear waste repository.

None of these types of measures by themselves will give unequivocal measures of probable behavioral responses to hypothetical events. However, taken together, they can show whether opinion is very robust, that is, whether there is a consistency in responses across different types of measures or whether the distributions of response the researcher gets are highly dependent on the type of question asked. Given that the researcher is trying to measure future reactions to events that can only be imagined on the basis of some limited prior knowledge or from information given within the questionnaire itself, using different indirect measures is the best approach. These questionnaires exhibit this use of varied approaches and enable the analyst to look for consistencies of response across the varied items. Insofar as the data show such consistencies, the results are more believable.

Overall the questionnaires meet acceptable standards in the field and, as pointed out above, do show some creative solutions to the problem of measuring hypothetical behavioral responses. There are strengths and weaknesses in each of the individual survey instruments, but none shows *blatant* bias. Each of the questionnaires is discussed in detail below.

2. Evaluation of Questionnaires

The nine questionnaires have considerable overlap in questions with either the same exact wording or slightly changed wording to adapt it for the particular sample being interviewed. To aid the reader of this report, there are two cross-walks of the questionnaires. Appendix A (pp. 29 - 42) presents a cross-walk of questions from each of the six household surveys and Appendix B (pp. 43 - 45) presents a cross-walk for questions from the three decision-maker surveys.

Comments on individual questions or block of questions are often evaluative in line with the criteria mentioned at the beginning of the report. When questions were acceptable from a technical standpoint, the comments are simply descriptive of the content or purpose of the question.

For each survey, the reader will be referred to the pages of the relevant Task 1 item evaluation which appear in tabular form at the conclusion of this narrative report. You may note that the item-by-item analysis in Task 1 generally identifies more problems than described in the narrative report. This difference has at least two explanations: threshold and redundancy. The threshold for defining critical errors is higher in the narrative portion of this report than in the Task 1 tabular report due to the differences between the mission of the two tasks. Task 1 was designed to identify all errors, whereas, Task 2 was designed to present only the most egregious errors. The narrative section may also appear to identify fewer errors by attempting to avoid a high degree of redundancy. For example, if question order was evaluated as producing a context effect, the first item following would be documented as experiencing such an effect, however; subsequent items would not necessarily be so designated.

Convention Planning Survey--Attachment I

This questionnaire was used in a survey of convention planners about their views of Las Vegas as a convention site, with specific reference to how their views might change in the light of several possible scenarios regarding the placement of a nuclear waste storage repository (NWSR) less than 100 miles from Las Vegas.

The sample was drawn from a list of upcoming meetings and conventions supplied by the Las Vegas Convention and Visitors Authority. All respondents had a meeting planned for Las Vegas sometime after September 1, 1986.

The sample consisted of 407 names. Of these, fifty-six were unlocatable, twenty-eight were not reached after four attempts, and an additional fifty were unavailable during the study period. Of the 241 eligible and available planners, forty-nine refused to take part and another thirty-two, who initially agreed, did not complete the questionnaires. While the study report gives 66 percent as the completion rate (a final sample size of 153), this seriously misreports the completion rate. The completion rate properly calculated should be 37.6 percent, if one assumes that the unlocatables or persons never reached were all eligible. The rate would be

somewhat higher if some portion of the non-contacted have turned out to be ineligible. Screening and participation solicitation were done by telephone. The questionnaire was sent by mail to be filled out, but the actual responses were given over the telephone from the self-administered questionnaire. (See Task 1, pp. 50 - 51)

Screener

Q. A-E. The first three questions are screening questions to select a respondent who was responsible for site selection for conventions or meetings and had at least three years of experience. The last two questions screen out those who have no plans for future conventions in Las Vegas. The screening questions are adequate for this purpose. However, it is not clear why the study was restricted only to those who had plans for future conventions in Las Vegas. It would be reasonable to try to get at least some data from those who have not thought about Las Vegas as a site, or had thought of it but rejected it. Perhaps there are already images of beliefs about Las Vegas that would not be affected by the presence of a NWSR, but would be interpreted as being so affected if the data were restricted only to those who are already favorably disposed towards Las Vegas.

Q. F-I. These questions find out about the respondent's job and experience and make an appointment to do a telephone interview with the respondent after he has filled out the questionnaire, which is mailed. This is an unusual, but innovative way of getting a high completion rate from a difficult self-administered questionnaire. It is a good method to use in this type of survey because it not only increases the response rate, but also gives the interviewers a chance to check to see that the respondents are understanding the questions.

Questionnaire

Q. 2. There are overlapping response categories (e.g., two to three years; three to five years). How does one answer if one started planning three years in advance?

Q. 3. This question is ambiguous. Usually negotiations for meetings go on over a long period of time. Do they want the date a contract was signed, the date a decision was made by the organization, or other information?

Q. 19. The list of selection criteria properly includes several negative factors as well as positive factors so that one has some comparative data for negative factors other than nuclear waste storage. However, political considerations are omitted so that things like ERA approval or the absence of Martin Luther King's birthday as a holiday are not asked about. The addition of an "other" category would help.

Q. 21. The use of scenarios with differing degrees of danger and media attention, on the one hand, and differing degrees of economic benefits on the other, is a good technique to use here to try to measure concern for the possible risks arising from NWSR. The scenarios seem plausible and should have sufficient variation to make meaningful comparisons.

A major question is how the scenarios were distributed across respondents. There are nine scenarios, including the base case. With 153 respondents, each scenario would be rated by only seventeen respondents, assuming that each respondent only got one scenario, as should be the case. It would take a pretty large effect in order to be detected with such a small number of respondents. If each respondent were asked to respond to all scenarios, there is a danger of serious order effects and non-independence of judgments. It is not clear that having respondents respond to all scenarios would be a good way to get at differing levels of concern or differing reactions to levels of economic inducements.

The scenarios have seven levels of seriousness of events; two levels of media attention; three levels of prices for hotels; and two levels each for the price of meals, gifts of gambling chips, show tickets, and price of coffee breaks. It is not clear how the particular nine combinations of events, media attention, and prices/inducements were arrived at. Since few are varied independently, it would not be possible to assess the independent contribution of different levels of negative events, media attention and of differing inducements on plans to hold a convention in Las Vegas.

Nevada State Survey, September, 1989--Attachment II

This questionnaire was used in a telephone survey of Nevada residents on environmental issues in which opinion about a NWSR was asked about in comparison with other environmental issues. The sample was a random-digit dial sample generated by Survey Sampling, Incorporated. This firm is a common source of telephone samples because they have the capacity to target the telephone sample numbers to fairly small geographic areas. The sample size for the statewide sample was 677, of which 500 completed interviews were obtained for a reported response rate of 73.8 percent. Oversamples of Nye County (278), Lincoln County (120), and Esmeralda County (131) were also added. The response rates reported for these counties were 73.5 percent, 84.0 percent and 77.0 percent respectively.

There is no information about how the response rates were calculated so it unclear whether the percentages are based on the total number of telephone numbers successfully screened or whether they also include the numbers that were not contacted. There was individual respondent selection within the household using the most recent birthday method. This is an approximate method for randomly selecting a respondent within a household, often used in order to save money. Questionnaires were edited for missing data and respondents were called back to retrieve missing data. Five percent of each interviewer's work was verified by call backs to verify that the interview was conducted with the person described. Information about the number of telephone numbers in the household does not appear to have been obtained so that proper weighting of selection probabilities cannot be done. (See Task 1, pp. 52 - 55)

Section I

Q. 1-2. The response categories switch from "very dissatisfied" to "very positive." This is an odd choice and runs the danger of confounding "positive-negative" dimensions with "satisfied-dissatisfied" dimensions. One would need some good evidence to show that such a practice does not distort the data. The response categories are ordered from bad to good. This is good practice in this situation where the skew in the response distribution is apt to be toward the "good" end.

Q. 3-4. Q. 3 asks about most important environmental issue for Nevada and then Q. 4 follows immediately with a switch to a question about sources of pollution in the United States. The shift in geographical focus should occur earlier in the wording of Q. 4 to highlight the shift in focus.

Q. 4-10, 11-18. These are list questions that put a strain on respondents in telephone administration. Because the lists are long and respondents do not know what is coming, there is a considerable likelihood of order effects. The order of the list should randomized across respondents.

Section II

This section uses a word association technique to elicit imagery about stimulus words. There is a practice question for respondents to see if they understand the way the question works. After the end of the image

elicitation, respondents are then asked to rate each image from "very negative" to "very positive." There is no practice for this rating task.

Q. 21. This question asks about Yucca Mountain specifically without any preparation or attempt to find out if the respondent knows where Yucca Mountain is or anything about the issue. Again, order of the questions may be important. It is possible that this question will be affected by its placement directly following the rather lengthy question eliciting images about NWSRs.

Q. 22-31. The stem of this question says that it is about how the respondent feels about various government agencies. It then goes on to ask about how much trust they have in them to do right with regard to a particular decision (i.e., nuclear waste repositories). This is an unexpected question given the introduction. Again, the list may be affected by the order of presentation.

Q. 32-37. This question is the only time that the repository is described as a "radioactive" waste repository rather than as a "nuclear" waste repository. The change is terminology is unfortunate because it makes comparison with other questions more problematic.

Q. 38-39. These question are in the same series as Q. 32-37 with the same instructions, but they are not about a waste repository. Rather they are about weapons testing.

Q. 40-45. These agree/disagree questions are balanced for the direction of agreeing and disagreeing. This is good practice to counter a bias toward just agreeing or disagreeing with an item without regard to its content. It might be better, however, if there were not strict alteration of the direction of the question because the pattern may become apparent to the respondents.

Q. 46-53. These questions about pro- and anti-repository statements might be slightly slanted toward pro-repository statements. Five statements are positive, two are negative, and one is indeterminate (though leaning toward negative).

Q. 54. This question involves picking the "fairest" way to deal with high-level nuclear wastes from a list read over the telephone. There are real possibilities of order effects in this type of question with the last item getting some preference. Because the last item is "one national site" the results might be biased in favor of that solution.

Q. 55-56. These questions are adequate.

Q. 57. This question refers to the "federal government nuclear facilities?" What will respondents understand by that term? Facilities in Nevada or anywhere? Will they include nuclear power plants, most of which are not federal government facilities?

Q. 58. This is a bad question. It asks for one rating of seriousness for "these problems" without knowing how many problems the respondent is thinking about (or what they are). If respondents are thinking of more than one problem, some might be serious, others not. What are they supposed to do? average? Take the most (least) serious? There is also no filter for those who said "don't know or unsure." Are they to be asked to rate the seriousness of their unsure answers?

Q. 59. This question seems biased. The wording suggests that the federal government does not do a good job now in contracting and operating nuclear facilities.

Q. 60. This is a very long complicated question that respondents would have difficulty in comprehending over the telephone. The response alternatives are long and the last alternative (which is anti-repository) would have an advantage because of a recency effect.

Q. 61. The topic switches from NWSR to nuclear power plants and from Nevada to the United States without any transition.

The remainder of the questionnaire consists of demographic questions.

National States Survey Questionnaire--Attachment IIA

This questionnaire appears to be a part of a series of studies conducted more or less at the same time as the previous Nevada State Study. It was used in a national telephone survey. The sample size was 1,073, with a reported 76.9 percent completion rate for a final sample of 825 respondents. The sample was split into two parts with images of cities being obtained in one part and images of states in the other part. The sample size for the city images was 416 with a reported response rate of 80 percent and a sample size of 409 for the state images with a response rate of 74 percent.

As in the previous study, there is no information about how the response rates were calculated. It unclear whether the percentages are based on the total number of telephone numbers successfully screened or whether they also include the numbers that were not contacted. Information about the number of telephone numbers in the household does not appear to have been obtained so that proper weighting of selection probabilities cannot be done. Individuals were selected within households using the most recent birthday method, a method frequently used by commercial firms to save money and which approximates a proper probability sample.

The survey was described to respondents as a survey about what people think about certain states and some of the problems that make them more or less desirable for vacation or a places to live. The questionnaire is very similar to the questionnaire used in the survey of Nevada residents (Attachment II). The initial questions are image type questions using four western states for half of the sample and four western cities for the other half. Images are first obtained, then respondents are asked to rate the images on a positive/negative scale. (See Task 1, pp. 56 - 59)

Q. 33-112. These questions ask respondents for the degree of association in their minds between the individual states/cities and ten positive and negative attributes (four negative and six positive). The negative attributes are distributed throughout the list.

Q. 113-128. These questions get further information about ratings of and experience with the four states/cities.

Q. 129-134. These apply the image elicitation technique to the concept of an underground nuclear waste repository.

Q. 135-148. These are the sources of pollution questions used in other surveys (e.g., Attachment II, Q.4-10). There is a possibility of order effects here if the order is not randomized across respondents.

Q. 149-185. These are the questions about distances respondents are willing to live from various noxious facilities (see comments on Q. 11-18, Attachment II, about order effects).

Q. 186-201. These ask about the benefits and problems that occur if a NWSR is built. The same question was used in the Nevada State Survey (see

comments on Attachment II, Q. 32-39). The last two items, however, shift without warning from reference to nuclear waste facilities to reference about nuclear facilities in general. It is not good to shift focus like this without calling attention to the shift in reference.

Q. 202-208. This is a battery of questions about nuclear waste facilities and activities used in the Nevada State Survey (see comments on Attachment II, Q. 40-45).

Q. 209. This is the summary question about overall judgment of benefits and harms, this time with the categories properly aligned.

Q. 210-211. These are the fairness questions from the Nevada State Survey (see comments on Attachment II, Q. 54).

Q. 212-213. These ask about the most fair and least fair way for dealing with nuclear wastes. The last response category, "Only one site to take the waste from the whole country," seems a bit pejorative compared with the neutrality of the other choices.

Q. 214. This question is prejudicially worded since it implies that the federal government has not done a good job is running nuclear facilities.

Q. 215-217. These are the same questions as used in the Nevada State Survey (see comments, Attachment II, Q. 57-58). Q. 215 refers to the "federal government nuclear facilities." What will respondents understand by that term? Facilities in Nevada or anywhere? Will they include nuclear power plants, most of which are not federal government facilities?

Q. 217. This is a bad question. It asks for one rating of seriousness for "these problems" without knowing how many problems the respondent is thinking of (or what they are). If respondents are thinking of more than one problem, some might be serious, others not. What are they supposed to do? Average? Take the most (least) serious? There is also no filter for those who said "don't know or unsure." Are they to be asked to rate the seriousness of their unsure answers?

Q. 220-222. These constitute a political activism scale which would be useful in analysis of the data.

Image Study of Corporate Executive Decision Makers--Attachment III

This is a study of corporate executives who are responsible for site selection for expanding existing businesses or opening new ones. The sample was drawn from the 1988 edition of *Who's Who in Corporate Real Estate*. Five hundred and sixty-nine (569) executives were contacted. The study was done by telephone with a completion rate of 70 percent. The reports do not say how many names were drawn in order to end up with 569 contacts. The response rate appears to be calculated only on the number contacted and thus may be an inflated number.

The major part of the survey uses a word (or phrase) association task for four cities. These cities are Las Vegas and three other western cities which might compete with Las Vegas as a business development site. The purpose of this type of question is to get at images of objects (e.g., cities, concepts, facilities, etc.) in an unstructured way. After eliciting images, respondents are asked to rate the images on a positive/negative dimension. The data are then combined to get an overall rating of the object on the positive/negative dimension.

The cities are then ranked overall (Q.30-33) in order of the desirability as a site for a new or expanding business and respondents asked for their reasons for their first and last choices. The next series of questions (Q. 34-38; 39-43; 44-48) asks respondents to rank five factors that influence decisions on site selection. Rankings are made separately for site decisions for a production facility, a distribution facility, and an administrative office. It is good to break the rankings of decision criteria into applicability for different types of facilities since the rankings might not be the same for each type. One might question whether all respondents would be equally knowledgeable about each of the different types of facilities, although there is a "don't know" response category to use if respondents wish. (See Task 1, p. 60)

Q. 49-60. These are straight-forward questions about respondents' experiences with each of four cities.

Q. 61-70. These are an adaptation of questions used in other surveys in this series. They ask about how far respondents would be willing to live from some specified types of noxious sites. In this form, the questions are about how much influence the existence of a possibly noxious state or object (e.g., a chemical manufacturing plant) would have on location decisions. These question suffer somewhat from a vagueness about the distance from a potential business location to the noxious object as compared with the other form of the question which asks respondents to set the distance they would find acceptable. Most of the questions are phrased in terms of a noxious object "in the vicinity" or "nearby" the location where they might put their new or expanding business. Others are more specific (e.g., "adjacent to a highway") or where events like earthquakes happen with stated frequency. It is not clear how the differing degree of specificity across the various questions might affect responses. This could only be determined empirically.

The remainder of the questions obtain identifying information that enables the analyst to look at the data by such categories as type of industry and experience of the respondent.

Nevada Urban Risk Study--Attachment IV

This is a study of residents of the Las Vegas area. The metropolitan area was defined to include the cities of Henderson, Las Vegas, North Las Vegas, and the contiguous urban areas of Clark County. The initial sample size was about 1,013, with a completion rate of 74.5 percent for a final sample size of 755. The interviews were done by telephone and in person. An RDD sample was used to select households based on the proportionate distribution of residential household within the sixty-two telephone prefixes serving the geographically defined area. Seven hundred fifty-five (755) numbers were computer-generated that were determined to be households. If a number was not contacted after ten attempts it was classified as a non-working number.

A short telephone interview was conducted with an adult informant in each household that was screened into the sample. A modified Kish selection procedure was used to identify the appropriate random adult respondent and face-to-face interview conducted with that individual. The reported response rate was 74.5 percent, but it is not clear whether this is based on the completion rate for the individual respondents, or whether it is based on the number of households screened. There is no indication whether the data are weighted for household size. (See Task 1, pp. 61 - 66)

Questionnaire

Q. 4. This question asks respondents to rank a series of "problems" that "your community" will face in the next fifteen years. The issues are quite general (e.g."social," "economic") and it is not clear how respondents will interpret them. In particular the category "natural hazards" could mean many things. The reference to "your community" is also vague. Previous questions have referred to the "greater Las Vegas area" and to the specific city (suburb) in which the respondent lives, creating potential for confusion about what community Q. 4 is referring to.

Q. 10. Respondents are given a card with a list of organizations and asked which types of groups or organizations they belong to "in their city." The question format is a "check as many as apply" format instead of asking about membership in each type of group and requiring a "yes/no" answer about each one. The "check as many as apply" format understates the number of groups reported. The question is also phrased in terms of membership "here in CITY NAME." Many of the types of groups are national in character. If respondents take the question literally, they might well severely understate the number of types of groups they belong to. For example, an environmental group such as the Sierra Club is a national organization. If respondents belong to it, would they report it in response to this question? Probably some would and some wouldn't, thus giving an unknown amount of bias. Of course, it is not clear whether the investigator wants this type of group to be reported or not.

Q. 12. The question asks about ownership of property in "southern Nevada." Will the boundaries of this concept be clear? There may be variation in the understanding of the question.

Q. 17. In this question respondents are asked to respond to a long set of opinion questions on a scale from one to seven, or from "very satisfied" to "very dissatisfied." The numeric scale runs in the opposite direction from the "natural" order and make a high value mean high dissatisfaction. Ordinarily one would expect this question to ask for rating from "very dissatisfied" to "very satisfied." Was there some reason why the order was reversed?

Q. 18-26. These are fairly standard questions about confidence or trust in government at different levels (e.g., national, state, local).

Q. 27-34. These are questions designed to find out how politically active respondents have been in the last four years. Four years seems at first reading an odd reference period to ask about, unless the date of the survey was tied to some particular election, in which case "since the last election" might be a better way to phrase the time period.

Q. 35-37. These are questions about trust in scientists and general views about science using a seven-point agree/disagree scale. The items are as balanced between positive and negative views (three positive items, two negative items) as is possible with an odd number of items.

Q. 38-45. These questions ask about personal experiences with a number of hazards, both natural and man-made, and then ask respondents to rate the series in degree of threat to the Las Vegas area. It is good to get the actual experience of the respondent to see how experience affects the rating of seriousness of problems.

Q. 46-52. This is a battery used in several studies in this series asking respondents how far they would be willing to live or work from seven types of potentially noxious facilities. This is an imaginative way to scale the degree of perceived "danger" of different types of noxious facilities and gets data that can put ratings of nuclear waste disposal facilities in a metric that can be used to compare it with other negatively specified facilities. One potential problem in the stem of the questions is lumping "work" and "live" together. Was research done to see if at least the order to rating is same for both types of judgments? By putting the two together, the investigator assumes the order would be the same for both. If people are more willing to work near some types of facilities, but not to live near them, this might pose an interpretive problem.

Q. 53-54. These are further questions about trust in technicians and engineers.

Q. 55. Another question about trust in government agencies and institutions, specifically about issues of public safety. The stem here refers to trust in "the ability of each one to make decisions to protect public safety." This is a very complex concept. It is not clear that respondents will get all parts of the question. "The ability to decide" may imply believing that they have the knowledge necessary, or it may imply believing that they have the necessary authority to be able to act, or it may

imply believing that they have the will and concern to do something. The ambiguity of this phrase makes it difficult to know what a response to this question means. Also "public safety" may not be interpreted in the same way by all respondents.

Q. 56. The introduction to the question asks about "radiological or nuclear hazards." The question itself asks about radiation or nuclear accidents. Will respondents be familiar with these terms and know the relation of "radiological" to "radiation?"

Q. 59 et seq. Q. 59 filters for knowledge of the Nevada Test Site. Depending on the answers to Q. 59, respondents are asked follow-up questions or skip to a later question. This is the first filter for knowledge of some events in this questionnaire and is reasonable for questions about a specific site like this. It does, however, present an order problem for the next question that everyone answers (Q. 66) because some respondents will come to this question after a serious of questions about the dangers of the Test Site while other will not. Those who have gone through the series of questions about the Test Site may well be more sensitized to issues of safety hazards than those who skip directly to Q. 66. It would have been better to have reversed the order to these questions.

Q. 66. This is an agree/disagree question on a number of opinions related to the safety of transporting hazardous materials. Items are balanced between positive and negative wordings.

Q. 67. This question filters for whether respondents have heard about the Yucca Mountain NWSR site. Those who say "no" skip to a series of questions in which different scenarios are given to all respondents. It is not so clear that filtering out those who have not heard about Yucca Mountain from Q. 68-71 was wise. These skipped questions could be asked as well of those who had not heard about the controversy. Difference in response between those minimally informed and those not aware of the controversy might be interesting.

Q. 79. This question has an order problem. In the question itself respondents are asked whether benefits outweigh harm, or the other way around, or are they equal. In the answer categories the order is reversed, with "harm outweighs benefits" coming first. Even though the respondent may not see the reversal, the interviewer might be more likely to record the answer incorrectly. This question is one where there should be alternate forms with the presentation of the response categories in different orders.

Q. 91. The five items on safety of NWSR are as balanced as possible with an odd number of items, three negatives and two positive.

Q. 94. Respondents apparently are given more information about Yucca Mountain proposals in four scenarios and a map showing the location of Yucca Mountain. The scenarios are not part of the material submitted for review, so we cannot judge their adequacy. Respondents are then asked a series of

questions about their probable behavioral reaction if the repository should be built.

Q. 107. This question asks about the probable effect of the events in the scenario on the respondent's social life. There is no category "no change" which seems like a reasonable response for many people. Respondents are forced to respond either it would be "improved" or "hurt."

Q. 113. The words "affect" and "effect" are used incorrectly.

Q. 114-119. These questions seem repetitious since they are repeats of the earlier "trust" questions, but now regarding the specific scenarios. In such a long questionnaire, apparent repetitions like this will not have a good effect on respondents willingness to cooperate.

Q. 125. Wording of three statements on transporting nuclear wastes and accidents are as nearly balanced as possible, two negatives and one positive.

Q. 130. This question asks about life satisfaction as a whole in the light of the events described in the scenarios. It seems stretching things to ask for a rating on such a global dimension as life satisfaction in this context.

Q. 131. This question has the same order problem as Q. 79.

In the demographic section, data sought about employment in various government and nuclear facilities will provide important information about present behavior.

Baseline Survey for High-Level NWR--Attachment V

This questionnaire was used in a telephone survey of Nevada residents. There is no information about how the sample was drawn. The final sample size was 1,001, a 37.4 percent completion rate. The low completion rate raises serious questions about the generalizability of the results. If it is intended to be a baseline survey against which changes in opinion are to be measured, it is particularly regrettable that more wasn't done either to increase the response rate or do some sub-sampling to measure the extent of the bias. Selection of the respondent within the household was done by imposing a quota on males. Apparently the researchers followed the common, but unscientific practice of asking for a male in the household and selecting him if he were at home, but talking to a female respondent otherwise. It is not clear whether household size was measured in order to be able to weight by household size. Information about the number of telephone numbers in the household does not appear to have been obtained so that proper weighting of selection probabilities cannot be done. (See Task 1, pp. 67 - 70)

Questionnaire

Q. 2. This is a version of a question used in other surveys in this series which asks respondents to rate sources of pollution on a ten-point scale for the U.S. as a whole. In this version six sources are rated. Transportation accidents, used in other versions, was omitted. This omission is odd since transportation accidents involving hazardous materials is one of the major worries about the siting of NWSRs.

Q. 3. Respondents are asked to compare "environmental problems" with other problems in their community. This is a vague referent. Why not just rate problems on a ten-point scale or compare with a specific problem or better set of problems.

Q. 4. This question asks for self-description along dimensions that can be used in analysis of attitudes. A good thing to have.

Q. 5. This question filters for awareness of nuclear waste discussions and gets sources and amount of information.

Q. 6-8. These ask for knowledge about NWSR proposals and facts. Good questions to have for a trend study.

Q. 9. This question introduces a good methodological device--the split ballot--in which part of the sample gets one version of the question and another part gets another version. A similar device is used in Q. 10 and Q. 10a. These questions attempt to measure behavioral responses to hypothetical positioning of a NWSR. These are good questions, but unfortunately there is no information about how the split ballot was done.

Q. 11. This item gets at comparative risk perceptions in order to have some comparative scale on which to measure the risk perceived for a Yucca Mountain NWSR site. This makes a good comparison with risk perceived for other nuclear and toxic threats. The ratings are on a ten-point "seriousness"

scale. There is some ambiguity is the concept of "seriousness" because it does not distinguish between degree of harm and likelihood of the event happening. It would be good to develop a form of the question that could measure both parts of this concept.

Q. 12. This question consists of five statements about risks from high level nuclear waste repositories in the United States using a four-point agree/disagree format. There are two positively worded and three negatively worded statements.

Q. 15. This item consists of nine statements about NWSRs in a four-point agree/disagree format. In this case five statements are positive, two are negative, and three neutral or difficult to classify.

Q. 16. This question asks for "importance" ratings (three-point scale) for seven statements about actions that might be taken to make a NWSR more acceptable to residents of the site area. Statement #16g is vague and suggests action that may not be possible even if the government wanted to do it ("protect property values in communities within 100 miles of repository").

Q. 17. This question is a version of contingent valuation in which respondents are asked to place monetary value on keeping a NWSR away from them or measuring how much money they would want to make a NWSR acceptable to them. Amounts of money and who sets safety standards (federal government versus local groups) are systematically varied.

This is an excellent way to try to get at the trade-offs between benefits and costs, but needs to be used with some caution. The questions appear to have been asked of everyone (according to some sampling scheme that distributed the different versions across the entire sample), but since they used actual dollar figures rather than some relative values, there will be an interaction between the value of the actual dollar amounts and the respondents' income and wealth. This interaction makes the analysis of the data somewhat more difficult.

Since the dollar amounts vary systematically (e.g., there is first a value, then twice that value and half that value) it would be useful to try out versions of the questions that ask about something like 10 percent increase in your taxes, 25 percent increase or a 25 percent decrease in taxes or some other variation based on relative rather than absolute dollars.

Q. 19-20. These items introduce specific alternative sites and solicits opinions about those sites relative to Yucca Mountain

Q. 21-22. These are interesting additions to the usual background data. They try to get at individual risk-taking propensities and general values related to using the environment to meet human needs. These questions will also be useful in trend analysis.

National Survey Questionnaire-1987--Attachment VI

This survey was conducted by telephone with a national sample of 1,201 respondents. The reported completion rate is 35.1 percent, a rate that is quite low and raises questions about the generalizability of the results. Selection of the respondent within the household was done by imposing a quota on males. Apparently the researchers followed the common, but unscientific practice of asking for a male in the household and selecting him if he were at home, but talking to a female respondent otherwise. Number of telephone numbers in the household does not appear to have asked about, so there is no information to use in weighting probability of selection of the household.

This survey appears to have been done by computer-assisted telephone interviewing (CATI). Using CATI enabled the researchers to rotate answer categories to eliminate response order bias. This is a good feature for such studies. (See Task 1, pp. 71 - 75)

Questionnaire

The questionnaire uses a number of questions that are common to the other questionnaires used with the general population.

Q. 6-11. These questions use five items rating sources of pollution which are a sub-set of the seven pollution items used on other surveys. In this version, transportation accidents involving hazardous materials and radiation from weapons testing are omitted. The omission of the transportation accidents item is odd given the subject of the survey. Omitting the weapons-testing item is understandable because this is a national sample and weapons testing is more a local Nevada issue.

Q. 12. Respondents are asked to compare "environmental problems" with other problems in their community. This is a vague referent. Why not just rate problems on a ten-point scale or compare with a specific problem or better set of problems?

Q. 13-17. These questions ask for self-description along dimensions that can be used in analysis of attitudes. This is good information to have.

Q. 18-22. These questions ask about awareness of nuclear waste discussions and get sources of information and levels of involvement.

Q. 23-25. These questions ask for knowledge about NWSR proposals and facts. Good questions to have for a trend study.

Q. 26-32. These are similar questions to those used in Nevada Baseline study to get at probable effects of desirability of a site for living, retiring, etc., if it were near a NWSR.

The remainder of this questionnaire is virtually identical to the Nevada Baseline survey (Attachment V) with modifications necessitated by the use of CATI and the fact that it is a national rather than Nevada sample.

Nevada Convention Attenders Survey Questionnaire--Attachment VII

This questionnaire was used in a survey of attenders at conventions in Nevada. A stratified random sample was drawn from the membership of six national associations, each of which had held one of its last four meetings in Las Vegas. Approximately equal numbers of respondents were taken from each association's membership. Potential respondents were screened to select members of the association who have been to previous conventions of this association at least once in the last four years. Screening was done by telephone. Eligible individuals were then mailed a questionnaire with a return envelope. The initial sample size was 719 with a completion are of 83.4 percent for a final sample size of 600. There is no indication whether there was some loss of sample from the screening which would reduce the effective response rate. (See Task 1, pp. 76 - 77)

Questionnaire

Q. A. This is the same imagery-type question used in the Nevada State Survey (Attachment II). This question asks only about Las Vegas.

Q. B. This question asks about decision criteria used by the respondents for deciding whether to go to a convention of this association. This is similar to a question asked in the convention planners survey (Attachment I) but here all of the negative factors are grouped at the bottom. This type of grouping should be avoided. The order of factors is not the same as in the decision maker survey.

Q. C. This question asks about rejection criteria (i.e. reasons for not attending "any meeting or convention"). Note that this is a different reference than in the question about factors affecting decisions to attend since they are specifically about attending the annual meetings of this association. The criteria are mostly the negative side of factors asked about in the previous question.

Q. V-VI. This series of questions compare likelihood of attending the convention if it were held in four other cities, although the stem of the questions suggests that the respondent is going to be asked about five cities. The particular cities are not specified in this version of the questionnaire. Q.VI asks for rating of the four cities (again the stem says five, but the actual questions only list four cities) on the decision criteria asked about in Q. B.

Q. VII. This question asks about the hypothetical effect on the decision to attend a convention if any one of five potentially noxious facilities were located within 100 miles of the convention city. One of the facilities is described as a "low-level radioactive" waste repository and a second as a "high-level nuclear" waste repository. It is unfortunate that the high and low-level comparisons will be confounded with the change in wording from "radioactive" to "nuclear." This confounding will make it difficult to interpret any observed differences or lack of differences.

Summary

This questionnaire has the appearance of being adapted from a standard questionnaire used to measure convention goers' attitudes toward a particular city and their decision criteria for attending. It looks like a rather hurried or low-budget adaptation that does not inspire confidence in the quality of the work.

National Survey of Nuclear Waste Issues--Attachment VIII

This questionnaire was used in a national, excluding Nevada, RDD telephone survey of 1,012 individuals. The initial sample size is unspecified, but a 85 percent completion rate is reported for "eligible respondents." It seems likely that the completion rate is based only the number of households in which screening was actually completed. The report indicates that "standard call-back procedures" were used. If this means four call-backs, then the number of telephone numbers excluded for non-contact will be quite large. If the completion rate were properly based on total working household numbers, the rate is most likely very much less. Information about the number of telephone numbers in the household does not appear to have been obtained so that proper weighting of selection probabilities cannot be done.

Individuals were selected within households using the more recent birthday method, a method frequently used by commercial firms to save money and which approximates a proper probability sample, not quite the "random procedure" indicated in the methodology report. The survey is described to respondents as a survey of travel patterns and environmental issues. It starts off with questions about Las Vegas. (See Task 1, pp. 78 - 80)

Q. 2. This question asks respondents to rate the desirability of Las Vegas on a number of dimensions. This question is used again at the end of the interview.

Q. 3. This question asks for ratings of things that are "harmful both to people and to the environment." There are four things, two nuclear and two non-nuclear, but the two non-nuclear are somewhat problematic. One is vague, ("pollution") and the other involves a rather low level of harm ("trucking of gasoline"). Trucking of toxic chemicals or something of that sort would seem to be better. A more specific source of pollution would also be better.

Q. 4. This question asks "how favorable" respondents are to nuclear power plants. Asking this question is a more balanced way, for example, by giving both favorable and unfavorable options in the question, would be better.

Q. 6. This question defines the concept of high-level nuclear wastes for the respondents. This is a good thing to do so that questions about such a little-known concept can at least have a chance of being understood in the same way.

Q. 7-8. These ask some knowledge questions from other studies in the series. In this version the response categories are rotated. An excellent thing to do to prevent response order bias.

Q.9-11. Q. 9 makes a good transition to the topic of NWSR. Q.10 asks about how respondents might feel about living in the immediate area of a NWSR. Q.11 sensibly asks for their definition of "immediate area."

Q. 12-16. These are questions from other surveys in this series about the distance respondents are willing to "live" or "work" from different noxious facilities. Again there is a potential problem in lumping "work" and "live" in the same question.

Q. 17-20. These are questions about trust is science and government from other surveys in this series.

Q. 21-25. The first of these questions asks about attitudes toward transporting hazardous materials, as a background for a series of questions (Q. 22-25) about travel patterns or willingness to live near highways in which nuclear wastes are transported.

Q. 27-28. These return to rating of Las Vegas as a desirable place in the context of the placement of a NWSR at Yucca Mountain The repetition of Q. 2 gives a nice before-and-after measure of the effect of making nuclear waste issues salient to the respondent.

The use of the before-and-after measure of attitudes toward Las Vegas would have been strengthened if an additional sample were given the Las Vegas question only at the end of the questionnaire. In this design the researchers could have disentangled the effects of having asked the question before from the effects of the introduction of the new material that makes the nuclear waste issues salient.

3. Conclusions

The nine surveys reviewed in this report address three different problems--the potential effects of a NWSR on the economy of Las Vegas, the potential reactions of the citizens of the near-by area, Las Vegas or the state of Nevada, and finally the potential reactions of the national population. Each of these problems requires surveying a different type of population.

For the study of economic effects, attention is concentrated on corporate decision makers who decide where to locate new or expanded businesses, on decision makers who influence where conventions will take place and finally on convention attenders whose reactions may ultimately have the decisive effect on where conventions take place. These latter two types of studies are sensible since convention business is a large part of the Las Vegas economy. The populations studies are appropriate to the questions were asked.

For the other two problems, the choice of sample represented in these studies is appropriate to the problem being studied. Several of the studies appear to have been done in pairs, one version concentrating on the state or local level, the other, parallel, study on a national sample, (e.g., the 1989 Nevada State Study and the 1989 National Study, Attachments II and IIA, and the 1987 Nevada Baseline Survey and the 1987 National Survey, Attachments V and VI).

Overall, the surveys exhibit some considerable creativity in approaching a difficult measurement problem. They use a variety of techniques to estimate the probable effects of building a NWSR at Yucca Mountain. Insofar as the results of these different approaches to measuring these probable effects are similar, the reader can gain some confidence that the conclusions are not highly dependent on the measurement technique, that is they are robust across measurement methods. For measurement of hypothetical phenomena such as they are dealing with here, such robustness is a very important attribute in assessing the validity of the surveys.

The three surveys of special populations--the corporate decision makers, the convention planners, and convention attenders--are fairly-straight forward surveys and apparently are adapted from surveys used to study convention planning and corporate location decisions in other contexts. Overall, the corporate decision-makers questionnaire is pretty well designed, without any major problems that might bias the results.

There are a few problems with the convention planners questionnaire that are detailed in the specific analysis of that questionnaire, but these are of a minor nature and would probably not have a major biasing effect. We do have some concern about the restriction of the sample to planners who actually had conventions planned for Las Vegas. By omitting at least some who may have considered Las Vegas and ruled it out under present conditions, one runs the risk of missing information that might help interpret the results of the data from those who are planning to use Las Vegas under present conditions. While

this is not a fatal design flaw, it does miss some possibly important comparisons. It is possible, of course, that this information is already known from other studies that the Las Vegas Convention Bureau had commissioned in other connections.

The response rate, properly calculated, for the convention planners survey is a lot lower than is reported, raising the question of the generalizability of the sample results. If further information could be obtained about the unlocatables and the non-respondents, the seriousness of the potential bias could be estimated.

The survey of attenders has the appearance of being adapted from a standard questionnaire used to measure convention goers' attitudes without as much attention being paid to the adaptation as the topic warranted. This questionnaire is not as well done as the others in this series.

The 1989 Nevada State Survey (Attachment II) is the weakest of the questionnaires with a number of question wording and question or response category order problems. Insofar as the problems with questions in this survey are not corrected in the companion national survey (Attachment IIA) the weakness carries over into that survey. It is too bad that there is not greater overlap between these surveys and the parallel set done in 1987, (Attachments V and VI) which appear to have been designed to be a baseline survey against which change in opinion could be measured. The 1987 surveys are stronger questionnaires with less wording problems and some good questions for trend analysis.

The major problem with the 1987 surveys is the low completion rates for the surveys raising the question of generalizability to the populations from which the samples were drawn. Some attention to investigation of the characteristics of the non-respondents would have helped the analysts know whether there is a serious bias problem or not. Information about how the response rate was calculated is absent from the reports in the 1989 surveys, but the relatively high (for telephone surveys) rates reported suggest that the rates may not have been calculated correctly. If the rates are in fact lower, the same generalizability problems may occur, in addition to the questionnaire problems detailed in the section above.

The 1988 Nevada Urban Risk Study (Attachment IV) of residents in the Las Vegas metropolitan area is the one face-to-face interview is the series. This method permitted the use of a more extensive questionnaire and allowed a more extensive exploration of some topics. While there are some problematic questions the results of which need to be interpreted critically, the questionnaire in general seems appropriate to the subject matter.

There is some question about the completion rate calculation since the method involved a telephone screening and then a personal follow-up interview. If the sample losses from the screening are not computed into the published completion rate, as seems likely, then the real completion rate is lower to some unknown degree. Whether or not this poses serious problems of

generalizability depends on the characteristics of the non-respondents. There is no information in the methodology reports to answer this question,

The 1988 National Study of Nuclear Waste Issues (Attachment VIII) attempts to measure general public attitudes toward the Las Vegas area as a place to live and visit and then, after making the potential placement of a NWSR in the vicinity salient and getting opinion about it, remeasures the attitude toward Las Vegas. This is an imaginative attempt to simulate a before-after experiment with new knowledge intervening. Such simulated experiments are approximate, but they can potentially be quite revealing. It would have been a richer experiment if some portion of the sample got the Las Vegas attitude question only at the end of the questionnaire so that the analysts could test for the possible contamination of respondents' already having committed themselves to a particular attitude.

We have detailed a number of specific cautions about specific questions in each of the surveys and raised questions about the reporting of completion rates that may be inflated. These cautions need to be kept in mind when interpreting the data using the specific problematic questions and in the confidence with which one can generalize to the populations from which the samples were drawn. But there are valuable data in all of the surveys and much can be learned from them about the probable consequences of building a high-level nuclear waste storage repository at Yucca Mountain.

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

QUESTIONS AND DESCRIPTIONS	Qx II LOC	Qx IIA LOC	Qx IV LOC	Qx V LOC	Qx VI LOC	Qx VIII LOC
ENVIRONMENTAL ATTITUDES						
How serious in U.S.	Q4-10					
Garbage from landfill	Q4	135-136		Q2A	Q7*	
Air pollution	Q5	137-138		Q2B	Q8*	
Radioactive wastes	Q6	139-140		Q2C	Q9*	
Water pollution from chemicals	Q7	141-142		Q2D	Q10*	
Acid rain	Q8	143-144		Q2E	Q11*	
Radiation from weapons testing	Q9	145-146		Q2F		
Accidents when moving dangerous mater	Q10	147-148				
How close would you live to...						
Garbage dump	Q11	149-152	Q46*			Q12*
A 10 story building	Q12	153-156				
Nuclear power plant	Q13	157-160	Q47*			Q13*
Pesticide plant	Q14	161-164	Q48*			
Oil refinery	Q15	165-168	Q49*			Q14*
Coal power plant	Q16	169-172				
Chemical waste landfill	Q17	173-176	Q51*			Q15*
Underground nuclear waste repository	Q18	177-180	Q52*			Q16*
Nuclear weapons test site			Q50*			

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
People have right to change env.				Q22A	Q90B	
No limits to growth for advanced countries				Q22B	Q91	
How harmful to env...						Q3
Pollution						Q3
Nuclear Power						Q3
Trucking of gasoline						Q3
Storing nuclear waste						Q3
Environmental problems important in comm.				Q3	Q12	
Describe self as...						
Outdoors person				Q4A	Q14	
In favor of nuclear power				Q4B	Q15	
Environmentalist				Q4C	Q16	
Too much spending on pollution contro				Q4D	Q17	
Favor more nuclear power plants?	Q61	181				Q4*
ATTITUDES TOWARD GOV'T AND INSTITUTIONS						
Trust in government agencies	Q22-31					
President of U.S.	Q22		Q55A*			
U.S. Congress	Q23		Q55B*			
U.S. EPA	Q24		Q55D*			
U.S. Dept. of Energy	Q25		Q55C*			Q19*
U.S. Nuclear Regulatory Comm.	Q26		Q55F*			
Governor of Nevada	Q27		Q55G*			
Nevada State Legislature	Q28		Q55H*			
Nevada officials and agencies	Q29					
County commissioners	Q30					
Local city or town officials	Q31					
U.S. Dept. of Transportation			Q55E			
NV Commission on Nuclear Waste			Q55I			

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Trust Fed. Gov't to do what is right			Q18,114			Q18*
Gov't pays attention to people like you...			Q19,115			Q20
Federal officials competent			Q20,116*			
Fed. officials waste tax money			Q21,117*			
You can affect what fed. gov't does			Q22,118*			
Trust Carson City gov't to do what's right			Q23,119*			
You can affect Carson City gov't			Q24			
Trust local gov't to do what's right			Q25			
You can affect local gov't			Q26			
Trust gov't to make repository safe						
Federal government				Q14A	Q50B	
State government				Q14B	Q51	
Local government				Q14C	Q52	
Opinions of scientists						
Work for public well-being			Q35A			
Make sensational statements for publi			Q35B			
Tries to increase practical knowledge			Q35C			
Guided by high moral standards			Q35D			
Creates more problems than it solves			Q35E			
Trust scientists?			Q36			Q17
Scientific results beneficial/harmful?			Q37			
KNOWLEDGE & AWARENESS OF ISSUES						
Knowledge of recent legislation	Q55-56					
Aware of law just passed	Q55		Q92**			Q27**
Favor law just passed	Q56					
Heard of probs. with fed. nuclear faciliti	Q57	215				
How serious were problems?	Q58					
Which state is being studied for repositor		184-185				Q27**
Which state is nuclear test site in?		182-183				

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Heard of Nuclear Test Site?			Q59			
Heard that rep. might be built at Yucca Mt			Q67			
Info on nuclear waste in last 3 months,						
Heard anything about nuclear waste?				Q5	Q18	Q5
How often heard anything?				Q5A	Q19	Q6*
Sought info on or discussed waste?				Q58a	Q20	
Attended meeting about?				Q58b	Q21	
Discussed with friends/relatives				Q58c	Q22	
Where do you think most waste now stored?				Q6	Q23	Q7
Storage option being seriously considered				Q7	Q24	Q8
How long is rep. designed to store waste?				Q8	Q25	
RISK BEHAVIOR & PERCEPTIONS						
Community near rep. less desirable place t						
Vacation				Q9A	Q26B	Q28A*
Attend convention				Q9B	Q27	Q28B*
Locate new business				Q9C	Q28	Q28C*
Raise family				Q9D	Q29	Q28D*
Retire						Q28E
Work						Q28F

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very differ from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Community near repository, would you						
Change retirement plans				Q10A	Q30	
Change retirement plans despite cost				Q10B	Q32	
Risks faced from...						
Accidents in the home				Q11A	Q33B	
Accidents on the job				Q11B	Q34	
Nuclear power plants				Q11D	Q35	
Hazardous chemicals from landfills				Q11E	Q36	
Nuclear Weapons Test Site				Q11C		
Transporting wastes to Yucca Mountain			Q81	Q11F		
Rep. at Yucca Mountain			Q80	Q11G	Q37**	
Risks from a waste repository						
Accident at rep. spells certain death				Q12A	Q39	
Accident at rep. could kill many				Q12B	Q40	
Scientists understand risks				Q12C	Q41	
People living nearby could control				Q12D	Q42	
People dread living near rep.				Q12E	Q43	

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Likelihood of massive radiation leak due t						
Accident at rep.				Q13A	Q46	
Wastes leaking into water				Q13B	Q47	
Wastes being transported to rep.				Q13C	Q48	
Terrorist sabotage				Q13D	Q49	
Risk behaviors						
Wear seatbelt				Q21A	Q87B	
Question authorities				Q21B	Q88	
Buy extended warranties				Q21C	Q89	
Travel to avoid nuclear waste transport						Q22
Change travel plans if route X miles from						Q23
Hwys & railroads for shipping nuclear wast						
How close would you live			Q70,127			Q24*
Buy a house near						Q25A
Move away from						Q25B
Commute to work on in area of						Q25C
How close would you live to rep.			Q126			
Immediate area of repository is..(miles)						Q11

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
ATTITUDES TOWARD REPOSITORY & COMPENSATION						
Evaluation of problems	Q40-45					
Accidents will occur moving waste	Q40	202				
Rep. can be made safe	Q41	203*	Q84**,124			Q9**
Earthquake may release waste	Q42	204*				
No contamination of water supply	Q43	205				
Accidents will contaminate workers	Q44	206				
Waste can be made safe from sabotage	Q45	207				
Pro & Anti-repository statements	Q46-53					
Stop feds from locating dump in NV	Q46					
Rep. won't pose any extra risk	Q47					
Rep. built whether NV opposes or not	Q48					
D.O.E. will promptly report probs.	Q49	208*	Q87**			
NV already done its share	Q50					
Feds should be able use public lands	Q51					
D.O.E. objective and scientific	Q52					
Benefits of Rep. outweigh harms	Q53		Q79*			
Most fair storage option	Q54	212*				Q26*
Least fair storage option		213				
Repository beneficial/harmful		209	Q79,131			

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Benefits/problems likely to occur	Q32-39					
New jobs	Q32	186-187*				
Cause fear	Q33	188-189*				
Increase local gov't revenue	Q34	190-191*				
Serious accidents moving waste	Q35	192-193*				
Nevada called "Nuclear Dump"	Q36	194-195*				
Tourists will avoid Nevada	Q37	196-197*				
NTS has caused health problems	Q38	198-199*				
NTS will cause health problems	Q39	200-201*				
Feds will run nuc. facilities better in fu	Q59	214				
NV should make deal with Feds	Q60					
Technicians operate facilities safely			Q53,Q85*			
Technicians actually follow safety procedu			Q54.Q86*			
Transportation of harzardous materials						
Accidents inevitable			Q66A,125A			Q21A*
Shouldn't go through populated area			Q66B,125B			Q21B
Safe to transport			Q66C			
Trans. safety left to experts			Q66D			
Trans. methods safe			Q66E,125C			Q21C
No control over trans. near my comm.			Q66F			

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Statements about repository						
Compensate state where rep. located				Q15A	Q54	
Should have rep. in each region of U.				Q15B	Q55	
Rep. best way to store waste				Q15C	Q56	
Rep. would stimulate local economy				Q15D	Q57	
Rep. pose risk to future generations				Q15E	Q58*	
Benefits to local comm. outweigh risk				Q15F	Q59	
Transporting waste to rep. biggest ri				Q15G	Q60	
NV safest place in US for rep.				Q15H		
NV best place b/c NTS already here				Q15I		
Safety and compensation steps by gov't						
Inspector at rep. at all times				Q16A	Q62	
Advice from local committee				Q16B	Q63	
Local committee could shut rep. down				Q16C	Q64	
Rebates and credits on income tax				Q16D	Q65	
High tech. gov't projects in local co				Q16E	Q66	
Gov't grants for schools, parks, etc.				Q16F	Q67	
Gov't would protect property values				Q16G		

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
Attitudes toward accidents						
Accident at rep. won't harm me			Q91A			Q10A*
Can't protect myself from accident			Q91D			Q10B*
Gov't precautions will work			Q91C			Q10C*
Will cause harm despite precautions			Q91B			
Nothing will help if accident at rep.			Q91E			
Vote no if taxes paid to locate site elsew				Q17-17B*1	Q70-76*	
Vote yes if community given grant				Q18	Q85	
Vote yes if given tax credit/rebate				Q17-17A*3	Q78-81*	
Vote yes if taxes decreased				Q17B*3,4	Q82-84*	
How likely that rep. built at...				Q19		

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
POLITICAL ACTIVISM						
Talked to gov't person about issues?		220	Q27*,120-			
Worked for an election			Q28,120-3			
Worked to pass or defeat some measure			Q29,120-3			
Attended any speeches			Q30,120-2			
Contributed money to political cause?		221	Q31,120-4			
Participated in marches, rallies, etc?		222	Q32,120-5			
Contacted a gov't office with problem/ques			Q33,120-6			
Vote in 1986 NV elections			Q34			
Vote for Yucca Mt. site (Y/N)	Q21		Q122*	Q208*	Q86.2**	
Vote for site (4 sites)				Q20	Q86	

Appendix A1 - Crosswalk to Householder's Questionnaires
NORC Evaluation of Householder's Questionnaires

*=Somewhat different from 1st quex **=Very different from 1st quex

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
ATTITUDES TOWARD STATES						
Choice of 4 states for vacationing		113-116				
Strength of association a State (4) and..		33-52				
Entertainment		33-34				
Good Restaurants		35-36				
Good Weather		37-38				
Crime		39-40				
Outdoor Recreation		41-42				
Pollution		43-44				
Interesting		45-46				
Nuclear		47-48				
Crowded		49-50				
Friendly		51-52				
IMAGES (RATED NEG TO POS)						
Reno (R gives 3 images)	Q19					
Las Vegas (R gives 6 images)						
Nevada (R gives 6 images)		Pg.1				
Colorado (R gives 6 images)		Pg.1				
Arizona (R gives 6 images)		Pg.1				
California (R gives 6 images)		Pg.1				
Nuclear Waste Repository (6 images)	Q19	129-134	Q68-69			

Appendix A2 - Crosswalk of Householders Demographics
NORC Evaluation of Householders Questionnaires

*=Somewhat different from 1st questionnaire
**=Very different from 1st questionnaire

Question and Description	Qx II LOC	Qx IIA LOC	Qx IV LOC	Qx V LOC	Qx VI LOC	Qx VIII LOC
PERSONAL CHARACTERISTICS						
Age	Q74*	226	Q137*	VI.26	Q96	Q33
Marital Status	Q75	227	Q139			Q34
Race	Q78	230	Q154*	VI.28	Q98	Q37
Hispanic?	Q79			VI.29	Q99	Q37
Gender	Q80	247	Q138	VI.30		Q38
Income	Q88	245-246	Q155	VI.36	Q106	Q43
Highest grade completed	Q64	223	Q150*	VI.23	Q92	Q29
Degree or Diploma			Q151			
Trade, technical, or vocational			Q152			
Religious Preference			Q153			
Political Party	Q76	228				Q35
Liberal-Conservative scale	Q77	229		VI.27	Q97	Q36
RESIDENCE & HOUSEHOLD						
County of residence	Q62					
Live in city or town?	Q63					
Years in present community	Q81	231-232		VI.31	Q101	Q39
Years in last community	Q82	238-239				
Years in Nevada	Q83					
Own home or rent?	Q84*	240		VI.33	Q103*	Q40
Type of dwelling			Q158			
Phone number	Y	Y				
Zip Code	Q85	233-237		VI.32	Q102	
No. of people over 18 in household	Q86	241-242			Q104*	Q41
No. of people under 18/12 in household	Q87*	243-244		VI.35/1	Q105/12	Q42

Appendix A2 - Crosswalk of Householders Demographics
NORC Evaluation of Householders Questionnaires

*=Somewhat different from 1st questionnaire
**=Very different from 1st questionnaire

	Qx II	Qx IIA	Qx IV	Qx V	Qx VI	Qx VIII
OCCUPATION						
Employment Status						Q30
Occupation	Q65	224	Q142*	VI.24	Q93	Q31
Supervise Others?			Q145			
Describe work organization	Q66	225	Q144*	VI.25	Q95	Q32
Work for DOE?	Q67					
Work for DOE in past 10 years?	Q68					
Spouse or family member DOE employee?	Q70					
Work for DOE in past 10 years?	Q72					
Your DOE occupation	Q69					
Spouse or family member DOE occupation	Q71					
DOE Occupation in past 10 yrs.	Q73					
Ever worked at a gov't facility (NTS,			Q146			
Family member worked at gov't fac			Q147			
Ever worked with radioactive materials			Q148, 9			

NORC Evaluation of Decisionmakers Questionnaires
Appendix B1 - Crosswalk of Decisionmaker Questionnaires

*=Somewhat different from 1st Quex **=Very different from 1st quex

QUESTIONS AND DESCRIPTIONS	LOC Qx I	LOC Qx III	LOC Qx VII
CONVENTION INFORMATION AND PLANS			
Future meeting in Las Vegas			
How many other cities were considered	Q10		
Restrictions on choice of site			
Number of hotel rooms needed	Q11a		
Size of exhibit space/special fac.	Q11b		
Location of attendees	Q11c		
Entertainment requirements	Q11d		
Price and perks of meeting in Las Vegas.			
Price of hotel rooms	Q15a		
Price of hotel meals	Q15b		
Free gambling chips	Q15c		
Amount of chips	Q15d		
Free show tickets	Q15e		
Price of coffee breaks	Q15f		

NORC Evaluation of Decisionmakers Questionnaires
Appendix B1 - Crosswalk of Decisionmaker Questionnaires

	Qx I	Qx III	Qx VII
Selection/Attendance Criteria			
Service and cleanliness of hotels	Q19A		IV.B6**
Cost of hotels and meals	Q19B		IV.B3**
Environmental hazards	Q19C		IV.B11**
Distance between city and attendees	Q19D		IV.B5**
Number of hotel rooms	Q19E		
Accessibility to transportation	Q19F		
Crime rate	Q19G		IV.B9**
Exhibit space	Q19H		
Cost of transportation	Q19I		IV.B4**
Possibility of natural disasters	Q19J		IV.B10**
Climate	Q19K		IV.B8**
Night life and recreation	Q19L		IV.B7**
Overall image of the city	Q19M		IV.B12**
Topics to be discussed			IV.B1
Meet with peers/prospective employers			IV.B2
Questions on canceled meetings	Q22A-G		
WASTE REPOSITORY & ENVIRONMENT			
Plans influenced by nuclear test site?	Q23		
Heard about repository on news?	Q24		
Harmful facilities affect decision to attend			
Prison (100 mi.)			VII.1
Hazardous waste incinerator (100 mi.)			VII.2
Nuclear power plant (100 mi.)			VII.3
Low-level nuclear waste rep. (100 mi.)			VII.4
High-level nuclear waste rep. (100 mi.)			VII.5

NORC Evaluation of Decisionmakers Questionnaires
Appendix B1 - Crosswalk of Decisionmaker Questionnaires

	Qx I	Qx III	Qx VII
Conditions that influence selection			
Sanitary landfill		61	
Chemical manufacturing plant		62	
Nearby hwy to nuclear testing site		63	
Oil refinery		64	
Nearby hwy to nuclear power plant		65	
Air quality below fed standards		66	
In 100 year flood plain		67	
Nearby hwy to nuclear waste repository		68	
Earthquake in last 5 years		69	
Chemical waste landfill		70	
CITIES, LOCATIONS, IMAGES (RATED NEG-POS)			
Las Vegas (6 images)		12-17	IIA1
Phoenix (6 images)		6-11	IIA1
Denver (6 images)		18-23	IIA1
Albuquerque (6 images)		24-29	IIA1
First/last choice to locate/expand business		30-33	
Site selection for Production Facility		34-38	
Site selection for Distribution facility		39-43	
Site selection for Administrative Office		44-48	

NORC Evaluation of Decisionmakers Questionnaires
Appendix B1 - Crosswalk of Decisionmaker Questionnaires

	Qx I	Qx III	Qx VII
Rate 4 cities on 9 factors			
Cost of hotel room and meals			VI.1
Travel costs			VI.2
Quality of accommodations			VI.3
Availability of recreation			VI.4
Climate			VI.5
Crime rate			VI.6
Natural hazards			VI.7
Pollution & environ. hazards			VI.8
Overall image			VI.9
DEMOGRAPHICS			
Highest grade completed	D1		VIII.1
Age	D2		VIII.2
Gender	D3		VIII.3
Income	D4		VIII.9
Marital Status	D5		VIII.5
Race			VIII.4
Occupation			VIII.8
R's title		90-91	
No. of professional associations			VIII.7
Primary activity of R's business		71-72	
Business expanding or relocating		77	
How long with current company		92	
R's role in decision to relocate		93	
How long involved in making site selections		94	
Zip Code		85-89	VIII.6

NEVADA SURVEYS EVALUATION PROCEDURES
TASK 1 REPORT

The following document outlines the process and procedures used for the development and implementation of the Nevada surveys evaluation. Section II presents the selection of evaluation criteria, operational definitions for each of the criteria and the coding scheme employed. Section III describes the format and content of the coding schedules. Section IV presents the questionnaire and item evaluation procedures used by the independent raters. Section V presents the adjudication procedures used to prepare the final values found in the attached summary evaluation forms.

1. Evaluation Criteria

The Nevada surveys represent three different modes of data collection (mail, telephone and face-to-face) of, at least, two populations: households and decision-makers. Different modes of data collection and different populations of interest require somewhat different approaches to questionnaire design and question construction. The first consideration in the selection of the evaluation criteria was to accommodate the breadth of data collection modes and survey populations. We therefore utilized general rules of questionnaire design and question construction which apply across modes and populations. The second consideration in the selection of evaluation criteria pertained to the rating/coding task. We selected evaluation categories that captured the most significant errors and which facilitate consistency within and between raters in the coding task. The third consideration was the interpretability of the data. Many highly specific criteria with relatively low frequency counts are generally more difficult to interpret than fewer, more general categories with somewhat higher frequencies. For these reasons, several broad criteria were selected rather than many highly specific ones.

Seven general evaluation criteria were selected which represent most questionnaire and question construction errors. An eighth category was provided for raters to document "other deviations" which were not captured by the initial seven. The coding scheme is consistent across all categories in that the larger numerical value means a greater problem or error. In most evaluation categories, only the values of zero (0) and one (1) were used. The evaluation criteria, their operational definitions and coding scheme are as follows:

Evaluation Criteria Categories

A. **Neutral Framing.** Questions are introduced and worded such that respondent is lead to choose one response or one end of a scale over another.

Yes	2
Borderline	1
No	0

B. **Value Conflicts in Framing Answer Choices.** Answer choices reflect the researchers' values and do not permit answers that may better reflect the values of the respondent.

Not Apply	[BLANK]
No	0
Yes	1

C. **Recognition of Realistic Constraints.** The questions are not realistic. They ask for too much information, too many details, require knowledge most respondents will not possess or do not provide sufficient information to base a considered response.

Not Apply	[BLANK]
Yes	1
No	0

D. **Item Balance.** There is a good ratio of positively to negatively worded responses. This applies to the answer categories within a single item or to a series of items comprising a scale.

Not Apply	[BLANK]
Yes	0
No	1

E. **Context Effects.** Prior questions have an influence on the respondent's answers to subsequent questions. The order of question presentation influences the respondent to choose one response or set of responses over other.

Not Apply	[BLANK]
Yes	1
No	0

F. **Format Problems.** The format of the questionnaire and items may confuse or influence the respondent.

Not Apply	
No	0
Yes	1

G. **Subgroup Identification.** The item(s) can be used to identify a subgroup of the sample such as, environmentalists, people who live in Reno, etc.

No	0
Yes	1

H. **Other Deviations.**

No	0
Yes	1

2. Evaluation Form Contents

One subject matter evaluation form and one demographic data evaluation form was prepared for each of the nine survey questionnaires. The left margin of the evaluation form contains a short description of the question text. In preparation for the item analysis, the content of the questionnaires was examined. We determined that there were common themes and items relative to the target populations (households and decision makers). Composite lists of items were prepared one for each of the two types of surveys. These items were partitioned into common themes such as environmental attitudes, attitudes towards government and institutions, knowledge and awareness of the issues, etc. No single questionnaire used all of the items. The first column of the rating form indicates the question number being evaluated. In some instances these question numbers are annotated with a "*" or a "**" which indicate:

* Somewhat different from base question
** Very different from base question

A rating box for each of the eight (columns A - H) evaluation criteria plus a comments box (last column) was provided for rating each item. The questionnaire number (I - VIII) is displayed above the rating categories. The rows of the evaluation form contain a short description of the question text. Only those rows containing a question number or range of question numbers were used for recording ratings.

3. Evaluation Procedures

Each questionnaire was assigned to two raters. The raters proceeded through each questionnaire from beginning to end and recorded the item rating on the appropriately designated row of the questionnaire specific rating form using the coding scheme indicated above. Where necessary, a comment was recorded at the end of the row to clarify the rationale for a given rating. This task usually required the rater to take two passes through the questionnaire. The first pass was to determine which items were designated for rating on the evaluation form. The second pass was to conduct the item rating. The first pass was required for several reasons: familiarization with the questionnaire, and marking the items for evaluation.

4. Adjudication

The survey instruments were independently scored by two raters. Scoring was compared for each questionnaire, item by item. Where scoring was in agreement, the most typical situation, the raters would proceed to the next item. Where differences in scoring were found, the two raters arbitrated the differences by presenting methodological evidence for a particular score or set of scores assigned. The weight of the argument was considered and one score or the other was ascribed. Provision was made for situations where a mutually agreeable score could be derived through the use of a third rater. This provision was not found to be necessary.

Attached are the summary scoring sheets (technical and demographic). The questionnaires are presented in numerical order.

NORC Evaluation of Decision Makers Questionnaires
Questionnaire I

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D= Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

QUESTIONS AND DESCRIPTIONS	LOC Qx I	Quex I A	B	C	D	E	F	G	H
CONVENTION INFORMATION AND PLANS									
How many other cities were considered	Q10	0	0	0	0	0	0	0	0
Restrictions on choice of site									
Number of hotel rooms needed	Q11a	0	0	0	0	0	0	0	0
Size of exhibit space/special fac.	Q11b	0	0	0	0	0	1	0	0
Location of attendees	Q11c	0	0	0	0	0	1	0	0
Entertainment requirements	Q11d	0	0	0	0	0	1	0	1
Price of hotel rooms	Q15a	0	0	0	0	0	0	0	0
Price of hotel meals	Q15b	0	0	0	0	0	0	0	0
Free gambling chips	Q15c	0	0	0	0	0	0	0	0
Amount of chips	Q15d	0	0	0	0	0	0	0	0
Free show tickets	Q15e	0	0	0	0	0	0	0	0
Price of coffee breaks	Q15f	0	0	0	0	0	0	0	0
Selection/Attendance Criteria									
Service and cleanliness of hotels	Q19A	0	0	0	1	0	1	0	0
Cost of hotels and meals	Q19B	0	0	0	1	0	1	0	0
Environmental hazards	Q19C	0	0	0	1	0	1	0	0
Distance between city and attendees	Q19D	0	0	0	1	0	1	1	0
Number of hotel rooms	Q19E	0	0	0	1	0	1	0	0
Accessibility to transportation	Q19F	0	0	0	1	0	1	0	0
Crime rate	Q19G	0	0	0	1	0	1	0	0
Exhibit space	Q19H	0	0	0	1	0	1	0	0
Cost of transportation	Q19I	0	0	0	1	0	1	0	0
Possibility of natural disasters	Q19J	0	0	0	1	0	1	1	0
Climate	Q19K	0	0	0	1	0	1	0	0
Night life and recreation	Q19L	0	0	0	1	0	1	0	0
Overall image of the city	Q19M	0	0	0	1	0	1	0	0
Plans influenced by nuclear test site?	Q23	2	1	0	1	1	1	0	0
Heard about repository on news?	Q24	1	0	0	0	1	1	0	0

NORC Evaluation of Decision Makers Questionnaires
Questionnaire I

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D= Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

QUESTIONS AND DESCRIPTIONS	LOC Qx I	Quex I A	B	C	D	E	F	G	H
DEMOGRAPHICS									
Highest grade completed	D1	0	0	0	0	0	0	1	0
Age	D2	0	0	0	0	0	0	1	0
Gender	D3	0	0	0	0	0	0	1	0
Income	D4	0	0	0	0	0	0	1	0
Marital Status	D5	0	0	0	0	0	0	1	0

NORC Evaluation of Decision Makers Questionnaires
Questionnaire I

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D= Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

QUESTIONS AND DESCRIPTIONS	LOC Qx I	Quex I A	B	C	D	E	F	G	H
CONVENTION INFORMATION AND PLANS									
How many other cities were considered	Q10	0	0	0	0	0	0	0	0
Restrictions on choice of site									
Number of hotel rooms needed	Q11a	0	0	0	0	0	0	0	0
Size of exhibit space/special fac.	Q11b	0	0	0	0	0	1	0	0
Location of attendees	Q11c	0	0	0	0	0	1	0	0
Entertainment requirements	Q11d	0	0	0	0	0	1	0	1
Price of hotel rooms	Q15a	0	0	0	0	0	0	0	0
Price of hotel meals	Q15b	0	0	0	0	0	0	0	0
Free gambling chips	Q15c	0	0	0	0	0	0	0	0
Amount of chips	Q15d	0	0	0	0	0	0	0	0
Free show tickets	Q15e	0	0	0	0	0	0	0	0
Price of coffee breaks	Q15f	0	0	0	0	0	0	0	0
Selection/Attendance Criteria									
Service and cleanliness of hotels	Q19A	0	0	0	1	0	1	0	0
Cost of hotels and meals	Q19B	0	0	0	1	0	1	0	0
Environmental hazards	Q19C	0	0	0	1	0	1	0	0
Distance between city and attendees	Q19D	0	0	0	1	0	1	1	0
Number of hotel rooms	Q19E	0	0	0	1	0	1	0	0
Accessibility to transportation	Q19F	0	0	0	1	0	1	0	0
Crime rate	Q19G	0	0	0	1	0	1	0	0
Exhibit space	Q19H	0	0	0	1	0	1	0	0
Cost of transportation	Q19I	0	0	0	1	0	1	0	0
Possibility of natural disasters	Q19J	0	0	0	1	0	1	1	0
Climate	Q19K	0	0	0	1	0	1	0	0
Night life and recreation	Q19L	0	0	0	1	0	1	0	0
Overall image of the city	Q19M	0	0	0	1	0	1	0	0
Plans influenced by nuclear test site?	Q23	2	1	0	1	1	1	0	0
Heard about repository on news?	Q24	1	0	0	0	1	1	0	0

NORC Evaluation of Householder Questionnaires
Questionnaire II

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations.

QUESTIONS AND DESCRIPTIONS	Quex II Qx II	A	B	C	D	E	F	G	H
Trust in government agencies	Q22-31								
President of U.S.	Q22	1	0	0	0	1	1	0	0
U.S. Congress	Q23	1	0	0	0	1	1	0	0
U.S. EPA	Q24	1	0	0	0	1	1	0	0
U.S. Dept. of Energy	Q25	1	0	0	0	1	1	0	0
U.S. Nuclear Regulatory Comm.	Q26	1	0	0	0	1	1	0	0
Governor of Nevada	Q27	1	0	0	0	1	1	0	0
Nevada State Legislature	Q28	1	0	0	0	1	1	0	0
Nevada officials and agencies	Q29	1	0	0	0	1	1	0	0
County commissioners	Q30	1	0	0	0	1	1	0	0
Local city or town officials	Q31	1	0	0	0	1	1	0	0
Knowledge of recent legislation	Q55-56								
Aware of law just passed	Q55	0	0	0	0	0	0	0	0
Favor law just passed	Q56	0	0	0	1	1	0	0	0
Heard of probs. with fed. nuclear facilities	Q57	1	1	0	0	1	0	0	0
How serious were problems?	Q58	1	1	0	0	1	1	0	0
Evaluation of problems	Q40-45								
Accidents will occur moving waste	Q40	1	1	1	0	1	1	0	1
Rep. can be made safe	Q41	1	1	1	0	1	1	0	1
Earthquake may release waste	Q42	1	1	1	0	1	1	0	1
No contamination of water supply	Q43	0	1	1	0	1	1	0	1
Accidents will contaminate workers	Q44	1	1	1	0	1	1	0	1
Waste can be made safe from sabotage	Q45	1	1	1	0	1	1	0	1

NORC Evaluation of Householder Questionnaires
Questionnaire II

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations.

	Quex II								
Qx II	A	B	C	D	E	F	G	H
Pro & Anti-repository statements	Q46-53								
Stop feds from locating dump in NV	Q46	0	0	0	0	0	0	0	0
Rep. won't pose any extra risk	Q47	0	0	0	0	0	0	0	0
Rep. built whether NV opposes or not	Q48	0	0	0	0	0	0	0	0
D.O.E. will promptly report probs.	Q49	0	0	0	0	0	0	0	0
NV already done its share	Q50	0	0	0	0	0	0	0	0
Feds should be able use public lands	Q51	0	0	0	0	0	0	0	0
D.O.E. objective and scientific	Q52	0	0	0	0	0	0	0	0
Benefits of Rep. outweigh harms	Q53	0	0	0	0	0	0	0	0
Most fair storage option	Q54	1	0	0	0	1	0	0	0
Benefits/problems likely to occur	Q32-39								
New jobs	Q32	0	0	0	0	0	1	0	0
Cause fear	Q33	0	0	0	0	0	1	0	0
Increase local gov't revenue	Q34	1	1	0	0	0	1	0	0
Serious accidents moving waste	Q35	2	1	0	0	0	1	0	0
Nevada called "Nuclear Dump"	Q36	1	1	0	0	0	1	0	0
Tourists will avoid Nevada	Q37	1	1	0	0	0	1	0	0
NTS has caused health problems	Q38	2	0	1	0	1	1	0	0
NTS will cause health problems	Q39	2	0	1	0	1	1	0	0
Feds will run nuclear fac. better in future	Q59	1	1	0	0	1	1	0	0
NV should make deal with Feds	Q60	0	0	0	0	1	0	0	0
Vote for Yucca Mt. site (Y/N)	Q21	1	0	0	0	1	1	0	0
IMAGES (RATED NEG TO POS)									
Reno (R gives 3 images)	Q19-20	2	1	1	0	1	0	0	0
Nuclear Waste Repository (6 images)	Q19	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations.

Question and Description	LOC Qx II	Quex II A	B	C	D	E	F	G	H
PERSONAL CHARACTERISTICS									
Age	Q74*	0	0	0	0	0	0	1	0
Marital Status	Q75	0	0	0	0	0	1	1	0
Race	Q78	0	0	0	0	0	0	1	0
Hispanic?	Q79	0	0	0	0	0	0	1	0
Gender	Q80	0	0	0	0	0	0	1	0
Income	Q88	0	0	0	0	0	0	1	0
Highest grade completed	Q64	0	0	0	0	0	1	1	0
	Q76	0	0	0	0	0	0	0	0
Liberal-Conservative scale	Q77	0	1	0	0	0	0	0	0
RESIDENCE & HOUSEHOLD									
County of residence	Q62	0	0	0	0	0	0	1	0
Live in city or town?	Q63	0	0	0	0	0	0	1	0
Years in present community	Q81	0	0	0	0	0	0	1	0
Years in last community	Q82	0	0	0	0	0	0	1	0
Years in Nevada	Q83	0	0	0	0	0	0	1	0
Own home or rent?	Q84*	0	0	0	0	0	0	1	0
Phone number	Y								
Zip Code	Q85	0	0	0	0	0	0	1	0
No. of people over 18 in household	Q86	0	0	0	0	0	0	1	0
No. of people under 18/12 in household	Q87*	0	0	0	0	0	0	1	0
OCCUPATION									
Occupation	Q65	0	0	1	0	0	1	1	0
Describe work organization	Q66	0	0	0	0	0	0	1	0
Work for DOE?	Q67	0	0	0	0	0	0	1	0
Work for DOE in past 10 years?	Q68	0	0	0	0	0	0	1	0
Spouse or family member DOE employee?	Q70	0	0	0	0	0	0	1	0
Work for DOE in past 10 years?	Q72	0	0	0	0	0	0	1	0
Your DOE occupation	Q69	0	0	0	0	0	0	1	0
Spouse or family member DOE occupation	Q71	0	0	0	0	0	0	1	0
DOE Occupation in past 10 yrs.	Q73	0	0	0	0	0	0	1	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviation.

QUESTIONS AND DESCRIPTIONS	Quex IIA Qx IIA	A	B	C	D	E	F	G	H
ENVIRONMENTAL ATTITUDES									
How serious in U.S.									
Garbage from landfill	135-136	0	0	1	0	1	1	0	1
Air pollution	137-138	0	0	1	0	1	1	0	1
Radioactive wastes	139-140	1	0	1	0	1	1	0	1
Water pollution from chemicals	141-142	1	0	1	0	1	1	0	1
Acid rain	143-144	1	0	1	0	1	1	0	1
Radiation from weapons testing	145-146	0	0	1	0	1	1	0	1
Accidents when moving dangerous mat.	147-148	1	0	1	0	1	1	0	1
How close would you live to...									
Garbage dump	149-152	2	1	1	0	0	1	0	0
A 10 story building	153-156	2	1	1	0	0	1	0	0
Nuclear power plant	157-160	2	1	1	0	0	1	0	0
Pesticide plant	161-164	2	1	1	0	0	1	0	0
Oil refinery	165-168	2	1	1	0	0	1	0	0
Coal power plant	169-172	2	1	1	0	0	1	0	0
Chemical waste landfill	173-176	2	1	1	0	0	1	0	0
Underground nuclear waste repository	177-180	2	1	1	1	1	1	0	0
Favor more nuclear power plants?	181	0	0	0	0	1	0	0	0
KNOWLEDGE & AWARENESS OF ISSUES									
Knowledge of recent legislation									
Heard of probs. with fed. nuclear facilities	215	0	0	0	0	0	0	0	0
How serious were problems?	218-219	0	0	0	0	0	0	0	1
Which state is being studied for repository?	184-185	0	0	0	0	0	1	0	0
Which state is nuclear test site in?	182-183	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviation.

QUESTIONS AND DESCRIPTIONS	Qx IIA	Quex IIA A	B	C	D	E	F	G	H
Evaluation of problems									
Accidents will occur moving waste	202	1	1	1	0	1	1	0	0
Rep. can be made safe	203*	1	1	1	0	1	1	0	0
Earthquake may release waste	204*	1	1	1	0	1	1	0	0
No contamination of water supply	205	0	1	1	0	1	1	0	0
Accidents will contaminate workers	206	1	1	1	0	1	1	0	0
Waste can be made safe from sabotage	207	1	1	1	0	1	1	0	0
Pro & Anti-repository statements									
D.O.E. will promptly report probs.	208*	0	0	0	0	0	0	0	0
Most fair storage option	212*	0	0	1	0	1	1	0	0
Least fair storage option	213	0	0	1	0	1	1	0	0
Repository beneficial/harmful	209	0	0	0	0	1	0	0	0
Benefits/problems likely to occur									
New jobs	*186-187	0	0	1	0	0	1	0	0
Cause fear	*188-189	0	0	1	0	0	1	0	0
Increase local gov't revenue	*190-191	1	1	1	0	0	1	0	0
Serious accidents moving waste	*192-193	2	1	1	0	0	1	0	1
Nevada called "Nuclear Dump"	*194-195	1	1	1	0	0	1	0	0
Tourists will avoid Nevada	*196-197	1	1	1	0	0	1	0	0
NTS has caused health problems	*198-199	2	0	1	0	1	1	0	0
NTS will cause health problems	*200-201	2	0	0	0	1	1	0	0
Feds will run nuclear fac. better in future	214	2	1	0	0	1	1	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviation.

	Quex IIA							
Qx IIA	A	B	C	D	E	F	G	H
POLITICAL ACTIVISM								
Talked to gov't person about issues? 220	0	0	0	0	0	0	0	0
Contributed money to political cause? 221	0	0	0	0	0	0	0	1
Participated in marches, rallies, etc? 222	0	0	0	0	0	0	0	1
ATTITUDES TOWARD STATES								
Choice of 4 states for vacationing 113-116	1	0	0	0	0	1	0	0
Strength of association a State (4) and..								
Entertainment 33-52	0	0	1	1	0	0	0	1
Good Restaurants 33-34	0	0	1	1	0	0	0	1
Good Weather 35-36	0	0	1	1	0	0	0	1
Crime 37-38	0	0	1	1	0	0	0	1
Outdoor Recreation 39-40	0	0	1	1	0	0	0	1
Pollution 41-42	0	0	1	1	0	0	0	1
Interesting 43-44	0	0	1	1	0	0	0	1
Nuclear 45-46	0	0	1	1	0	0	0	1
Crowded 47-48	0	0	1	1	0	0	0	1
Friendly 49-50	0	0	1	1	0	0	0	1
51-52	0	0	1	1	0	0	0	1
IMAGES (RATED NEG TO POS)								
Nevada (R gives 6 images) Pg.1	0	0	0	0	0	0	0	0
Colorado (R gives 6 images) Pg.1	0	0	0	0	0	0	0	0
Arizona (R gives 6 images) Pg.1	0	0	0	0	0	0	0	0
California (R gives 6 images) Pg.1	0	0	0	0	0	0	0	0
Nuclear Waste Repository (6 images) 129-134	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

Question and Description	LOC Qx IIA	Quex IIA A	B	C	D	E	F	G	H
PERSONAL CHARACTERISTICS									
Age	226	0	0	0	0	0	0	1	0
Marital Status	227	0	0	0	0	0	0	1	0
Race	230	0	1	0	0	0	1	1	0
Gender	247	0	0	0	0	0	0	1	0
Income	245-46	0	0	0	1	0	0	1	0
Highest grade completed	223	0	0	0	0	0	0	1	0
Political Party	228	0	0	0	0	0	0	1	0
Liberal-Conservative scale	229	0	0	0	0	0	0	1	1
RESIDENCE & HOUSEHOLD									
Years in present community	231-23	0	0	0	0	0	0	1	0
Years in last community	238-39	0	0	0	0	0	0	1	0
Own home or rent?	240	0	0	0	0	0	0	1	0
Phone number	Y	0	0	0	0	0	0	1	0
Zip Code	233-37	0	0	0	0	0	0	1	0
No. of people over 18 in household	241-42	0	0	0	0	0	0	1	0
No. of people under 18/12 in household	243-44	0	0	0	0	0	0	1	0
OCCUPATION									
Occupation	224	0	0	0	0	0	1	1	0
Describe work organization	225	0	0	0	0	0	0	1	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H= Other Problems

QUESTIONS AND DESCRIPTIONS	LOC Qx III	Quex III A	B	C	D	E	F	G	H
WASTE REPOSITORY & ENVIRONMENT									
Conditions that influence selection									
Sanitary landfill	61	0	0	0	0	1	1	0	1
Chemical manufacturing plant	62	0	0	1	0	1	1	0	1
Nearby hwy to nuclear testing site	63	0	0	1	0	1	1	0	1
Oil refinery	64	0	0	1	0	1	1	0	1
Nearby hwy to nuclear power plant	65	0	0	0	0	1	1	0	1
Air quality below fed standards	66	0	0	0	0	1	1	0	1
In 100 year flood plain	67	0	0	0	0	1	1	0	1
Nearby hwy to nuclear waste repository	68	0	0	1	0	1	1	0	1
Earthquake in last 5 years	69	0	0	0	0	1	1	0	1
Chemical waste landfill	70	0	0	1	0	1	1	0	1
DEMOGRAPHICS									
R's title	90-91	0	0	0	0	0	0	1	0
Primary activity of R's business	71-72	0	0	0	0	0	0	1	0
Business expanding or relocating	77	0	0	0	0	0	0	1	0
How long with current company	92	0	0	0	0	0	0	1	0
R's role in decision to relocate	93	0	0	0		0	1	1	0
How long involved in making site selections	94	0	0	0	0	0	0	1	0
Zip Code	85-89	0	0	0	0	0	0	1	0
CITIES, LOCATIONS, IMAGES (RATED NEG-POS)									
Las Vegas (6 images)	12-17	0	0	0	0	0	0	0	0
Phoenix (6 images)	6-11	0	0	0	0	0	0	0	0
Denver (6 images)	18-23	0	0	0	0	0	0	0	0
Albuquerque (6 images)	24-29	0	0	0	0	0	0	0	0
First/last choice to locate/expand business	30-33	0	0	1	0	1	0	0	0
Site selection for Production Facility	34-38	0	0	1	0	0	0	0	0
Site selection for Distribution facility	39-43	0	0	1	0	0	0	0	0
Site selection for Administrative Office	44-48	0	0	1	0	0	0	0	0

NORC Evaluation of Householders Questionnaire
Questionnaire IV

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

QUESTIONS AND DESCRIPTIONS	Quex IV Qx IV	A	B	C	D	E	F	G	H
ENVIRONMENTAL ATTITUDES									
Garbage dump	Q46*	0	0	1	0	0	0	0	1
Nuclear power plant	Q47*	0	0	1	0	0	0	0	1
Pesticide plant	Q48*	0	0	1	0	0	0	0	1
Oil refinery	Q49*	0	0	1	0	0	0	0	1
Chemical waste landfill	Q51*	0	0	1	0	0	0	0	1
Underground nuclear waste repository	Q52*	0	0	1	0	0	0	0	1
Nuclear weapons test site	Q50*	0	0	1	0	0	0	0	1
ATTITUDES TOWARD GOV'T & INSTITUTIONS									
Trust in government agencies									
President of U.S.	Q55A*	0	0	0	0	1	0	0	0
U.S. Congress	Q55B*	0	0	0	0	1	0	0	0
U.S. EPA	Q55D*	0	0	0	0	1	0	0	0
U.S. Dept. of Energy	Q55C*	0	0	0	0	1	0	0	0
U.S. Nuclear Regulatory Comm.	Q55F*	0	0	0	0	1	0	0	0
Governor of Nevada	Q55G*	0	0	0	0	1	0	0	0
Nevada State Legislature	Q55H*	0	0	0	0	1	0	0	0
U.S. Dept. of Transportation	Q55E	0	0	0	0	0	0	0	0
NV Commission on Nuclear Waste	Q55I	0	0	0	0	0	0	0	0
Trust Fed. Gov't to do what is right	Q18	0	0	0	0	0	0	0	1
	Q114	0	0	0	0	0	0	0	1
Gov't pays attention to people like you...	Q19	0	0	0	0	0	0	0	0
	Q115	0	0	0	0	0	0	0	0
Federal officials competent	Q20	0	0	0	0	0	0	0	0
	Q116*	0	0	0	0	0	0	0	0
Fed. officials waste tax money	Q21	0	0	0	0	0	0	0	1
	Q117*	0	0	0	0	0	0	0	1

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

QUESTIONS AND DESCRIPTIONS	Quex IV Qx IV	A	B	C	D	E	F	G	H
You can affect what fed. gov't does	Q22	0	0	0	0	0	0	0	0
	Q118*	0	0	0	0	0	0	0	0
Trust Carson City gov't to do what's right	Q23	0	0	0	0	0	0	0	1
	Q119*	0	0	0	0	0	0	0	1
You can affect Carson City gov't	Q24	0	0	0	0	0	0	0	0
Trust local gov't to do what's right	Q25	0	0	0	0	0	0	0	1
You can affect local gov't	Q26	0	0	0	0	0	0	0	0
Work for public well-being	Q35A	0	0	0	0	0	0	0	0
Sensationalize findings	Q35B	0	0	0	0	0	0	0	0
Tries to increase practical knowledge	Q35C	0	0	0	0	0	0	0	0
Guided by high moral standards	Q35D	0	0	0	0	0	0	0	0
Creates more problems than it solves	Q35E	0	0	0	0	0	0	0	0
Trust scientists?	Q36	0	0	0	0	0	0	1	0
Scientific results beneficial/harmful?	Q37	0	0	0	0	0	0	1	0
Aware of law just passed	Q92**	0	0	0	0	0	0	0	0
Heard of Nuclear Test Site?	Q59	0	0	0	0	0	0	0	0
Heard that rep. might be built at Yucca Mt	Q67	0	0	0	0	0	0	0	0
Risks faced from...									
Transporting wastes to Yucca Mountain	Q81	0	0	0	0	0	1	0	0
Rep. at Yucca Mountain	Q80	0	0	0	0	0	1	0	0
How close would you live	Q70,12	0	0	0	0	0	0	0	0
How close would you live to rep.	Q126	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
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QUESTIONS AND DESCRIPTIONS	Quex IV Qx IV	A	B	C	D	E	F	G	H
Evaluation of problems									
Rep. can be made safe	84*	0	1	0	0	0	1	0	0
	124**	0	0	0	0	0	0	0	0
Pro & Anti-repository statements									
D.O.E. will promptly report probs.	Q87	0	0	0	0	0	0	0	0
Repository beneficial/harmful	Q79	0	0	0	0	0	0	0	0
	Q131	1	1	0	0	0	0	0	0
Benefits/problems likely to occur	Q60	0	0	0	0	0	0	0	0
NTS will cause health problems	Q61/63	1	0	1	1	1	0	0	0
Technicians operate facilities safely	Q53*	0	0	0	1	0	0	0	0
	Q85*	0	0	0	0	0	0	0	0
Technicians follow safety procedures	Q54*	0	0	0	0	0	0	0	0
	Q86*	0	0	0	0	0	0	0	0
Transportation of harzardous materials									
Accidents inevitable	Q66A	0	0	0	0	0	0	0	0
	Q124C	1	1	0	0	1	0	0	0
Shouldn't go through populated area	Q66B	0	0	0	0	0	0	0	0
	Q125B	0	0	0	0	1	0	0	0
Safe to transport	Q66C	0	0	0	0	0	0	0	0
Trans. safety left to experts	Q66D	0	0	0	0	0	0	0	0
Trans. methods safe	Q66E	0	0	0	0	0	0	0	0
	Q125A	0	0	0	0	1	0	0	0
No control over trans. near my comm.	Q66F	0	0	0	0	0	0	0	0
Attitudes toward accidents									
Accident at rep. won't harm me	Q91A	0	0	0	0	0	0	1	0
Can't protect myself from accident	Q91D	0	0	1	0	0	0	1	0
Gov't precautions will work	Q91C	0	0	1	0	0	0	1	0
Will cause harm despite precautions	Q91B	0	0	1	0	0	0	0	0
Nothing will help if accident at rep.	Q91E	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

QUESTIONS AND DESCRIPTIONS	Quex IV Qx IV	A	B	C	D	E	F	G	H
POLITICAL ACTIVISM									
Talked to gov't person about issues?	Q27	0	0	0	0	0	0	0	0
	120-1	0	0	0	0	0	0	0	0
Worked for an election	Q28	0	0	0	0	0	0	0	0
	120-3*	0	0	0	0	0	0	0	0
Worked to pass or defeat some measure	Q29	0	0	0	0	0	0	0	0
	120-3*	0	0	0	0	0	0	0	0
Attended any speeches	Q30	0	0	0	0	0	0	0	0
	120-2*	0	0	0	0	0	0	0	0
Contributed money to political cause?	Q31	0	0	0	0	0	0	0	0
	120-4	0	0	0	0	0	0	0	0
Participated in marches, rallies, etc?	Q32	0	0	0	0	0	0	0	0
	120-5	0	0	0	0	0	0	0	0
Contacted a gov't office with problem/ques	Q33	0	0	0	0	0	0	0	0
	120-6	0	0	0	0	0	0	0	0
Vote in 1986 NV elections	Q34	0	0	0	1	0	1	0	0
Vote for Yucca Mt. site (Y/N)	Q122*	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Problems

IMAGES (RATED NEG TO POS)	Quex IV Qx IV	A	B	C	D	E	F	G	H
Nuclear Waste Repository (6 images)	Q68-69	0	0	0	0	1	0	0	1
Gov't. Honest in reporting accidents at NT	Q65	2	1	1	1	1	0	0	0
How close to Highway w/other hazardous mat	Q71		0	1	1	1	0	0	0
Interest in plans for rep.	Q72	2	1	0	0	1	1	0	0
How likely rep built in Nevada	Q73	0	0	0	0	1	0	0	0
Benefits to Community if Rep built	Q74	0	0	0	0	1	0	0	0
Will you personally benefit	Q75	0	0	0	0	1	0	0	0
Benefits to LV area	Q76	0	0	0	0	1	0	0	0
Harmful effects to your community	Q77	0	0	0	0	1	0	0	0
Harmful effects to you	Q78	0	0	0	0	1	0	0	0
Health risks from transport nuclear waste	Q81	1	0	1	1	1	1	0	0
Rep. threat to economic loss in LV	Q82	2	0	1	0	1	1	0	0
Concern about harmful effects	Q83	2	0	1	0	1	1	0	0
Gov't can respond to nuclear waste accid.	Q88	2	0	0	1	1	0	0	0
Can construct safe rep.	Q89	1	0	0	1	1	0	0	0
Transport nuclear waste in safe way.	Q90	1	0	0	1	1	0	0	0
Nuclear Waste Repository (6 images)	Q68-69	0	0	0	0	1	0	0	1

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

Question and Description	LOC Qx IV	Quex IV A	B	C	D	E	F	G	H
PERSONAL CHARACTERISTICS									
Age	Q137*	0	0	0	0	0	0	1	0
Marital Status	Q139	0	0	0	0	0	0	1	0
Race	Q154*	0	0	0	0	0	1	1	0
Gender	Q138	0	0	0	0	0	0	1	0
Income	Q155	0	0	0	0	0	0	1	0
Highest grade completed	Q150*	0	0	0	0	0	0	1	0
Degree or Diploma	Q151	0	0	0	0	0	0	1	0
Trade, technical, or vocational training	Q152	0	0	0	0	0	0	1	0
Religious Preference	Q153	0	0	0	0	0	0	1	0
RESIDENCE & HOUSEHOLD									
Own home or rent?	Q11	0	0	0	0	0	0	1	0
Type of dwelling	Q158	0	0	0	0	0	0	1	0
OCCUPATION									
Employment Status	Q140	0	0	0	0	0	1	1	0
Occupation	Q142*	0	0	0	0	0	0	1	0
Supervise Others?	Q145	0	0	0	0	0	0	1	0
Describe work organization	Q144*	0	0	0	0	0	0	1	0
Ever worked at a gov't facility (NTS, AFB)	Q146	0	0	0	0	0	0	1	0
Family member ever worked at gov't fac.	Q147	0	0	0	0	0	0	1	0
Ever worked with radioactive materials?	Q148-9	0	0	0	0	0	0	1	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Quex V Qx V	A	B	C	D	E	F	G	H
How serious in U.S.									
Garbage from landfill	Q2A	0	0	0	0	1	0	0	0
Air pollution	Q2B	0	0	0	0	1	0	0	0
Radioactive wastes	Q2C	0	0	0	0	1	0	0	0
Water pollution from chemicals	Q2D	0	0	0	0	1	0	0	0
Acid rain	Q2E	0	0	0	0	1	0	0	0
Radiation from weapons testing	Q2F	0	0	0	0	1	0	0	0
People have right to change env.	Q22A	0	0	0	0	0	0	0	0
No limits to growth for advanced countries	Q22B	0	0	1	0	0	0	0	0
Environmental problems important in comm.	Q3	0	0	0	1	0	0	0	0
Describe self as...									
Outdoors person	Q4A	0	0	0	1	0	0	0	0
In favor of nuclear power	Q4B	0	0	0	1	0	0	0	0
Environmentalist	Q4C	0	0	0	1	0	0	0	0
Too much spending on pollution control	Q4D	1	0	0	1	0	0	0	0
Trust gov't to make repository safe									
Federal government	Q14A	0	0	0	0	0	0	0	0
State government	Q14B	0	0	0	0	0	0	0	0
Local government	Q14C	0	0	0	0	0	0	0	0
Info on nuclear waste in last 3 months,									
Heard anything about nuclear waste?	Q5	0	0	0	0	0	0	0	0
How often heard anything?	Q5A	0	0	1	0	0	0	0	0
Sought info on or discussed waste?	Q5Ba	0	1	0	0	0	0	0	0
Attended meeting about?	Q5Bb	0	1	0	0	0	0	0	0
Discussed with friends/relatives	Q5Bc	0	1	0	0	0	0	0	0
Where do you think most waste now stored?	Q6	0	0	0	0	0	0	0	0
Storage option being seriously considered?	Q7	0	0	0	0	0	0	0	0
How long is rep. designed to store waste?	Q8	0	0	1	0	0	1	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Quex V Qx V	A	B	C	D	E	F	G	H
RISK BEHAVIOR & PERCEPTIONS									
Community near rep. undesirable place to...									
Vacation	Q9A	0	0	0	1	0	0	0	0
Attend convention	Q9B	0	0	0	1	0	0	0	0
Locate new business	Q9C	0	0	0	1	0	0	0	0
Raise family	Q9D	0	0	0	1	0	0	0	0
Change retirement plans	Q10	0	0	0	0	0	0	0	0
Change retirement plans despite cost	Q10A	0	0	1	0	0	0	0	0
Risks faced from...									
Accidents in the home	Q11A	0	0	0	0	1	0	0	0
Accidents on the job	Q11B	0	0	0	0	1	0	0	0
Nuclear power plants	Q11D	0	0	0	0	1	0	0	0
Hazardous chemicals from landfills	Q11E	0	0	0	0	1	0	0	0
Nuclear Weapons Test Site	Q11C	0	0	0	0	1	0	0	0
Transporting wastes to Yucca Mountain	Q11F	0	0	0	0	1	0	0	0
Rep. at Yucca Mountain	Q11G	0	0	0	0	1	0	0	0
Risks from a waste repository									
Accident at rep. spells certain death	Q12A	0	0	1	0	0	0	0	0
Accident at rep. could kill many	Q12B	0	0	1	0	0	0	0	0
Scientists understand risks	Q12C	0	0	0	0	0	0	0	0
Local people could control risks	Q12D	0	0	1	0	0	0	0	0
People dread living near rep.	Q12E	0	0	0	0	0	0	0	0
Likelihood of massive radiation leak due to..									
Accident at rep.	Q13A	0	0	1	0	0	0	0	0
Wastes leaking into water	Q13B	0	0	1	0	0	0	0	0
Wastes being transported to rep.	Q13C	0	0	1	0	0	0	0	0
Terrorist sabotage	Q13D	0	0	1	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Quex V Qx V	A	B	C	D	E	F	G	H
Risk behaviors									
Wear seatbelt	Q21A	0	0	0	0	0	0	0	0
Question authorities	Q21B	0	0	0	0	0	0	0	0
Buy extended warranties	Q21C	0	0	0	0	0	0	0	0
Statements about repository									
Compensate state where rep. located	Q15A	0	0	0	0	0	0	0	0
Should have rep. in each region of U.S.	Q15B	0	0	0	0	0	0	0	0
Rep. best way to store waste	Q15C	0	0	1	0	0	0	0	0
Rep. would stimulate local economy	Q15D	0	0	0	0	0	0	0	0
Rep. pose risk to future generations	Q15E	0	0	0	0	0	0	0	0
Benefits to local comm. outweigh risks	Q15F	0	0	0	0	0	0	0	0
Transporting waste to rep. biggest risk	Q15G	0	0	0	0	0	0	0	0
NV safest place in US fc rep.	Q15H	0	0	0	0	0	0	0	0
NV best place b/c NTS already here	Q15I	0	0	0	0	0	0	0	0
Safety and compensation steps by gov't									
Inspector at rep. at all times	Q16A	0	0	0	0	0	0	0	0
Advice from local committee	Q16B	0	0	0	0	0	0	0	0
Local committee could shut rep. down	Q16C	0	0	0	0	0	0	0	0
Rebates and credits on income tax	Q16D	0	0	0	0	0	0	0	0
High tech. gov't projects in local comm.	Q16E	0	0	0	0	0	0	0	0
Gov't grants for schools, parks, etc.	Q16F	0	0	0	0	0	0	0	0
Gov't would protect property values	Q16G	0	0	0	0	0	0	0	0
Vote no if pay taxes to locate rep elsewhere	Q17-17	0	0	1	0	1	0	0	1
Vote yes if community given grant	Q18	0	0	0	0	0	0	0	0
Vote yes if given tax credit/rebate	Q17-17	0	0	1	0	1	0	0	1
Vote yes if taxes decreased	Q17B*3	0	0	1	0	1	0	0	1
How likely that rep. built at...	Q19	0	0	1	0	1	0	0	0
POLITICAL ACTIVISM									
Vote for site (4 sites)	Q20	0	0	1	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
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Question and Description	LOC Qx V	Quex V A	B	C	D	E	F	G	H
PERSONAL CHARACTERISTICS									
Age	Q26	0	0	0	0	0	0	1	0
Race	Q28	0	0	0	0	0	0	1	0
Hispanic?	Q29	0	0	0	0	0	0	1	0
Gender	Q30	0	0	0	0	0	0	1	0
Income	Q36	0	0	0	0	0	0	1	0
Highest grade completed	Q23	0	0	0	0	0	0	1	0
Liberal-Conservative scale	Q27	0	0	0	0	0	0	1	0
RESIDENCE & HOUSEHOLD									
Years in present community	Q31	0	0	0	0	0	0	1	0
Own home or rent?	Q33	0	0	0	0	0	0	1	0
Zip Code	Q32	0	0	0	0	0	0	1	0
No. of people under 18/12 in household	Q35	0	0	0	0	0	0	1	0
OCCUPATION									
Occupation	Q24	0	0	0	0	0	1	1	0
Describe work organization	Q25	0	0	0	0	0	0	1	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Quex VI Qx VI	A	B	C	D	E	F	G	H
ENVIRONMENTAL ATTITUDES									
How serious in U.S.									
Garbage from landfill	Q7*	0	0	1	0	1	1	0	0
Air pollution	Q8*	0	0	1	0	1	1	0	0
Radioactive wastes	Q9*	0	0	1	0	1	1	0	0
Water pollution from chemicals	Q10*	1	0	1	0	1	1	0	0
Acid rain	Q11*	1	0	1	0	1	1	0	0
People have right to change env.	Q908	0	0	0	0	0	0	0	0
No limits to growth for advanced countries	Q91	0	0	1	0	0	0	0	0
Environmental problems important in comm.	Q12	0	0	0	1	0	0	0	0
Describe self as...									
Outdoors person	Q14	0	0	0	1	0	0	0	0
In favor of nuclear power	Q15	0	0	0	1	0	0	0	0
Environmentalist	Q16	0	0	0	1	0	0	0	0
Too much spending on pollution control	Q17	1	0	0	1	0	0	0	0
Trust gov't to make repository safe									
Federal government	Q50B	0	0	0	0	0	0	0	0
State government	Q51	0	0	0	0	0	0	0	0
Local government	Q52	0	0	0	0	0	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Quex VI Qx VI	A	B	C	D	E	F	G	H
KNOWLEDGE & AWARENESS OF ISSUES									
Info on nuclear waste in last 3 months,									
Heard anything about nuclear waste?	Q18	0	0	0	0	0	0	0	0
How often heard anything?	Q19	0	0	1	0	0	1	0	0
Sought info on or discussed waste?	Q20	0	1	0	0	0	0	0	0
Attended meeting about?	Q21	0	1	0	0	0	0	0	0
Discussed with friends/relatives	Q22	0	1	0	0	0	0	0	0
Where do you think most waste now stored?	Q23	0	0	0	0	0	0	0	0
Storage option being seriously considered?	Q24	0	0	0	0	0	0	0	0
How long is rep. designed to store waste?	Q25	0	0	1	0	0	1	0	0
RISK BEHAVIOR & PERCEPTIONS									
Community near rep. undesirable place to...									
Vacation	Q26B	0	0	0	1	0	0	0	0
Attend convention	Q27	0	0	0	1	0	0	0	0
Locate new business	Q28	0	0	0	1	0	0	0	0
Raise family	Q29	0	0	0	1	0	0	0	0
Community near repository, would you...									
Change retirement plans	Q30	0	0	0	0	0	0	0	0
Change retirement plans despite cost	Q32	0	0	1	0	0	0	0	0
Risks faced from...									
Accidents in the home	Q33B	0	0	0	0	1	0	0	0
Accidents on the job	Q34	0	0	0	0	1	0	0	0
Nuclear power plants	Q35	0	0	0	0	1	0	0	0
Hazardous chemicals from landfills	Q36	0	0	0	0	1	0	0	0
Nuclear Weapons Test Site									
Transporting wastes to Yucca Mountain									
Rep. at Yucca Mountain	Q37**	0	0	0	0	1	0	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Quex VI								
	Qx VI	A	B	C	D	E	F	G	H
Risks from a waste repository									
Accident at rep. spells certain death	Q39	0	0	1	0	0	0	0	0
Accident at rep. could kill many	Q40	0	0	1	0	0	0	0	0
Scientists understand risks	Q41	0	0	0	0	0	0	0	0
Local people could control risks	Q42	0	0	1	0	0	0	0	0
People dread living near rep.	Q43	0	0	0	0	0	0	0	0
Likelihood of massive radiation leak due to..									
Accident at rep.	Q46	0	1	0	0	0	0	0	0
Wastes leaking into water	Q47	0	1	0	0	0	1	0	0
Wastes being transported to rep.	Q48	0	1	0	0	0	1	0	0
Terrorist sabotage	Q49	0	1	0	0	0	1	0	0

A=Neutral Framing; B=Value Conflicts; C=Realistic Constraints; D=Item Balance;
E=Context Effects; F=Format Problems; G=Subgroup Identification; H=Other Deviations

QUESTIONS AND DESCRIPTIONS	Qx VI	Quex VI A	B	C	D	E	F	G	H
Risk behaviors									
Wear seatbelt	Q87B	0	0	0	0	0	0	0	0
Question authorities	Q88	0	0	0	0	0	0	0	0
Buy extended warranties	Q89	0	0	0	0	0	0	0	0
Statements about repository									
Compensate state where rep. located	Q54	0	0	0	0	0	0	0	0
Should have rep. in each region of U.S.	Q55	0	0	0	0	0	0	0	0
Rep. best way to store waste	Q56	0	0	1	0	0	0	0	0
Rep. would stimulate local economy	Q57	0							0
Rep. pose risk to future generations	Q58*	0							0
Benefits to local comm. outweigh risks	Q59	0							0
Transporting waste to rep. biggest risk	Q60	0							0
Safety and compensation steps by gov't									
Inspector at rep. at all times	Q62	0	0	0	0	0	0	0	0
Advice from local committee	Q63	0	0	0	0	0	0	0	0
Local committee could shut rep. down	Q64	0	0	0	0	0	0	0	0
Rebates and credits on income tax	Q65	0	0	0	0	0	0	0	0
High tech. gov't projects in local comm.	Q66	0	0	0	0	0	0	0	0
Gov't grants for schools, parks, etc.	Q67	0	0	0	0	0	0	0	0
Vote no if pay taxes to locate rep elsewhere	Q70-76	0	0	1	0	1	0	0	0
Vote yes if community given grant	Q85	0	0	0	0	0	0	0	0
Vote yes if given tax credit/rebate	Q78-81	0	0	1	0	1	0	0	0
Vote yes if taxes decreased	Q82-84	0	0	1	0	1	0	0	0
POLITICAL ACTIVISM									
Vote for Yucca Mt. site (Y/N)	Q86.1	0	0	1	0	0	0	0	0

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Question and Description	LOC Qx VI	Quex VI A	B	C	D	E	F	G	H
PERSONAL CHARACTERISTICS									
Age	Q96	0	0	0	0	0	0	1	0
Race	Q98	0	0	0	0	0	0	1	0
Hispanic?	Q99	0	0	0	0	0	0	1	0
Income	Q106	0	0	0	0	0	0	1	0
Highest grade completed	Q92	0	0	0	0	0	0	1	0
Liberal-Conservative scale	Q97	0	0	0	0	0	0	1	0
RESIDENCE & HOUSEHOLD									
Years in present community	Q101	0	0	0	0	0	0	1	0
Own home or rent?	Q103*	0	0	0	0	0	0	1	0
Zip Code	Q102	0	0	0	0	0	0	1	0
No. of people over 18 in household	Q104*	0	0	0	0	0	0	1	0
No. of people under 18/12 in household	Q105	0	0	0	0	0	0	1	0
OCCUPATION									
Occupation	Q93	0	0	0	0	0	0	1	0
Describe work organization	Q95	0	0	0	0	0	0	1	0

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QUESTIONS AND DESCRIPTIONS	LOC Qx VII	Quex VII A	B	C	D	E	F	G	H
CONVENTION INFORMATION AND PLANS									
Selection/Attendance Criteria									
Service and cleanliness of hotels	IV.B6*	0	0	0	1	0	1	0	1
Cost of hotels and meals	IV.B3*	0	0	0	1	0	1	0	1
Environmental hazards	IV.B11	0	0	0	1	0	1	0	1
Distance between city and attendees	IV.B5*	0	0	0	1	0	1	0	1
Crime rate	IV.B9*	0	0	0	1	0	1	0	1
Cost of transportation	IV.B4*	0	0	0	1	0	1	0	1
Possibility of natural disasters	IV.B10	0	0	1	1	0	1	0	1
Climate	IV.B8*	0	0	1	1	0	1	0	1
Night life and recreation	IV.B7*	0	0	0	1	0	1	0	1
Overall image of the city	IV.B12	0	0	0	1	0	1	0	1
Topics to be discussed	IV.B1	0	0	0	1	0	1	0	1
Meet with peers/prospective employers	IV.B2	0	0	0	1	0	1	0	1
WASTE REPOSITORY & ENVIRONMENT									
Harmful facilities affect decision to attend									
Prison (100 mi.)	VII.1	0	0	0	1	1	0	0	1
Hazardous waste incinerator (100 mi.)	VII.2	0	0	0	1	1	0	0	1
Nuclear power plant (100 mi.)	VII.3	0	0	0	1	1	0	0	1
Low-level nuclear waste rep. (100 mi.)	VII.4	0	0	0	1	1	0	0	1
High-level nuclear waste rep. (100 mi.)	VII.5	0	0	0	1	1	0	0	1

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QUESTIONS AND DESCRIPTIONS	LOC Qx VII	Quex VII A	B	C	D	E	F	G	H
DEMOGRAPHICS									
Highest grade completed	VIII.1	0	0	0	0	0	0	1	0
Age	VIII.2	0	0	0	0	0	0	1	0
Gender	VIII.3	0	0	0	0	0	0	1	0
Income	VIII.9	0	0	0	0	0	0	1	0
Marital Status	VIII.5	0	0	0	0	0	0	1	0
Race	VIII.4	0	0	0	0	0	1	1	0
Occupation	VIII.8	0	0	0	0	0	0	1	1
No. of professional associations	VIII.7	0	0	0	0	0	0	1	0
Zip Code	VIII.6	0	0	0	0	0	0	0	0
CITIES, LOCATIONS, IMAGES (RATED NEG-POS)									
Las Vegas (6 images)	IIA1	0	0	0	0	0	1	0	0
Phoenix (6 images)	IIA1	0	0	0	0	0	1	0	0
Rate 4 cities on 9 factors									
Cost of hotel room and meals	VI.1	0	0	0	1	0	0	0	0
Travel costs	VI.2	0	0	0	1	0	0	0	0
Quality of accommodations	VI.3	0	0	0	1	0	0	0	0
Availability of recreation	VI.4	0	0	0	1	0	0	0	0
Climate	VI.5	0	0	1	1	0	0	0	0
Crime rate	VI.6	0	0	0	1	0	0	0	0
Natural hazards	VI.7	0	0	1	1	0	0	0	0
Pollution & environ. hazards	VI.8	0	0	0	1	0	0	0	0
Overall image	VI.9	0	0	0	1	0	0	0	0

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QUESTIONS AND DESCRIPTIONS	Quex VIII Qx VIII	A	B	C	D	E	F	G	H
How close would you live to...									
Garbage dump	Q12*	0	0	1	0	0	0	0	1
Nuclear power plant	Q13*	0	0	1	0	0	0	0	1
Oil refinery	Q14*	0	0	1	0	0	0	0	1
Chemical waste landfill	Q15*	0	0	1	0	0	0	0	1
Underground nuclear waste repository	Q16*	0	0	1	0	0	0	0	1
How harmful to env...									
Pollution	Q3	0	1	0	0	0	1	0	1
Nuclear Power	Q3	0	0	0	0	0	1		1
Trucking of gasoline	Q3	0	0	0	0	0	1	0	1
Storing nuclear waste	Q3	0	0	0	0	0	1	0	1
Favor more nuclear power plants?	Q4*	1	0	0	1	0	0	0	0
ATTITUDES TOWARD GOV'T & INSTITUTIONS									
Trust in government agencies									
U.S. Dept. of Energy	Q19*	0	1	0	0	0	1	0	0
Trust Fed. Gov't to do what is right	Q18*	1	0	0	1	0	1	0	0
Gov't pays attention to people like you...	Q20*	0	0	0	0	0	0	0	0
Trust scientists?	Q17	0	0	0	1	0	0	0	0
KNOWLEDGE & AWARENESS OF ISSUES									
Knowledge of recent legislation									
Aware of law just passed	Q27**	0	0	0	0	0	0	0	0
Info on nuclear waste in last 3 months,									
Heard anything about nuclear waste?	Q5	0	0	0	0	0	0	0	0
How often heard anything?	Q6*	1	0	1	0	0	1	0	0
Where do you think most waste now stored?	Q7	0	0	0	0	0	0	0	0
Storage option being seriously considered?	Q8	0	0	1	0	0	0	0	0

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QUESTIONS AND DESCRIPTIONS	Quex VIII Qx VIII	A	B	C	D	E	F	G	H
RISK BEHAVIOR & PERCEPTIONS									
Community near rep. undesirable place to...									
Vacation	Q28A*	1	0	0	0	1	0	0	0
Attend convention	Q28B*	1	0	0	0	1	0	0	0
Locate new business	Q28C*	1	0	0	0	1	0	0	0
Raise family	Q28D*	1	0	0	0	1	0	0	0
Retire	Q28E*	1	0	0	0	1	0	0	0
Work	Q28F*	1	0	0	0	1	0	0	0
Travel to avoid nuclear waste transportation	Q22	1	0	0	0	0	0	0	1
Change travel plans if route X miles frm rep.	Q23	0	0	0	0	1	0	0	0
How close would you live	Q24*	0	0	0	0	0	0	0	0
Buy a house near	Q25A	0	0	1	0	0	0	0	0
Move away from	Q25B	1	0	1	0	0	0	0	0
Commute to work on in area of	Q25C	0	0	0	0	0	0	0	0
Immediate area of repository is..(miles)	Q11	0	0	0	0	0	0	0	0
Evaluation of problems									
Rep. can be made safe	Q9**	0	0	0	0	0	1	0	0
Most fair storage option	Q26*	1	0	0	0	1	0	0	1
Transportation of harzardous materials									
Accidents inevitable	Q21A*	0	0	0	0	0	0	0	0
Shouldn't go through populated area	Q21B	0	0	0	0	0	0	0	0
Safe to transport	Q21C	0	0	0	0	0	0	0	0
Attitudes toward accidents									
Accident at rep. won't harm me	Q10A*	0	0	0	0	0	1	0	0
Can't protect myself from accident	Q10B*	0	0	0	0	0	1	0	0
Gov't precautions will work	Q10C*	0	0	1	0	0	1	0	0

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Question and Description	LOC Qx VIII	Quex VIII A	B	C	D	E	F	G	H
PERSONAL CHARACTERISTICS									
Age	Q33	0	0	0	0	0	0	1	0
Marital Status	Q34	0	0	0	0	0	0	1	0
Race	Q37	0	0	0	0	0	0	1	0
Hispanic?	Q37	0	0	0	0	0	0	1	0
Gender	Q38	0	0	0	0	0	0	1	0
Income	Q43	0	0	0	1	0	0	1	0
Highest grade completed	Q29	0	0	0	1	0	0	1	0
Political Party	Q35	0	0	0	0	0	0	1	0
Liberal-Conservative scale	Q36	0	0	0	0	0	0	1	0
RESIDENCE & HOUSEHOLD									
Years in present community	Q39	0	0	0	0	0	0	1	0
Own home or rent?	Q40	0	0	0	0	0	0	1	0
No. of people over 18 in household	Q41	0	0	0	0	0	0	1	0
No. of people under 18/12 in household	Q42	0	0	0	0	0	0	1	0
OCCUPATION									
Employment Status	Q30	0	0	0	0	0	0	1	0
Occupation	Q31	0	1	0	0	0	0	1	0
Describe work organization	Q32	0	0	0	0	0	0	1	0

END

DATE
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6/18/93