

UNITED STATES  
NUCLEAR WASTE TECHNICAL REVIEW BOARD

ENVIRONMENT & PUBLIC HEALTH PANEL

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BOARD MEMBERS PRESENT

Dr. Melvin W. Carter, Chairman  
Dr. D. Warner North  
Dr. John E. Cantlon

Dr. William D. Barnard, Executive Director  
Dr. Sidney J.S. Parry, Senior Professional Staff

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P R O C E E D I N G S

DR. MELVIN CARTER: Good morning. My name is Mel

Carter. I'm a member of the Nuclear Waste Technical Review Board. I also serve as the chairman of the Environment & Public Health Panel and that's the meeting that we'll be having today running approximately from 8:30 a.m. until 1:00 p.m., and we will be addressing primarily socioeconomic matters related to the Yucca Mountain Project, the high level waste repository activities.

First, I'd like to just briefly mention that the Nuclear Waste Technical Review Board was created approximately a year and a half or two years ago. It began to function at least slightly over a year and a half ago with the appointment of the first eight members. Now, the Board eventually will have eleven members. At the current time, we have nine. Three of us are here today, myself and my two colleagues, and I'd like to introduce them to you. The gentleman to my immediate left is Dr. John Cantlon. He's a native of Sparks, Nevada. He spent many years at the Michigan State University, has recently retired in East Lansing. He's not only a member of this particular panel, but of course, a member of the Nuclear Waste Technical Review Board. And, the gentleman to his left is Dr. Warner North. He's associated with Decision Focus in the Palo Alto area of California, also associated with Stanford University, and he also is a member of our panel and a member of the Board itself. And, to his left is Dr. Bill Barnard. He's the

Executive Director of the Nuclear Waste Technical Review Board and those activities are in Roslyn, Virginia. And, the gentleman to his left is Dr. Jack Parry and Dr. Parry is a member of the Senior Professional Staff of the Board.

And, so with those introductions, we appreciate very much being in Nevada and particularly in the Reno/Sparks/ Carson City area. We had a public hearing yesterday which turned out to be rather interesting and I hope useful and informative, as well. So, with those introductory remarks, we'd like to begin the program and our first presentation will be by Eric Lundgaard of the Yucca Mountain Project Office.

MR. ERIC LUNDGAARD: Thank you, Dr. Carter.

It's certainly a privilege and a pleasure to be here to represent the Department of Energy. I've chosen to arrange my presentation along the lines of organization, talking about the Office of Civilian Radioactive Waste Management, essentially where socioeconomics fits in, where it fits in with the Office of Geologic Disposal. And, the evolution of the program is the second element I'd like to talk about. Essentially, there's two laws that I'm sure a lot of you are familiar with, the Nuclear Waste Policy Act, the Nuclear Waste Policy Amendments Act, and then there's also a set of policy that the Department of Energy has formulated based on those two Acts and some interpretations

of National Environmental Policy Act. Then, I'd like to finish with an overview of the consultation draft of the socioeconomic plan which is essentially where our program is at this time.

In terms of the structure, I'll start off at the top with the Office of Civilian Radioactive Waste Management where you see John Bartlett directs the office. Below him is an associate director who is Carl Gertz who is with us today in the front row here. He's our supervisor for that Office of Geologic Disposal at the associate director level, plus also the Yucca Mountain Project Office here in Nevada in Las Vegas. From there, the project and operations control division -- now I've been asked to provide a little more explicit direction here while I'm talking about these things because we're recording this. There's a recorder taking this down, and if I just say at the bottom, it's probably not very explicit, but anyways, one up from the bottom there, we're talking about the Project Operations and Control Division. My supervisor, Wendy Dixon, is also here in the front row today.

I reside or I'm in the Operations Control Branch which currently does not have a branch chief and, as you can see there at the bottom, the socioeconomics, transportation, and environmental programs are basically from the oversight of the Project Operations & Control Division. The inter-

actions there include things like, in terms of transportation, we're looking at siting a rail line within the State of Nevada. That, of course, would require socioeconomic work in trying to determine how many employees it would take to build such a rail line and where that rail line might be located. In terms of what type of communities, facilities, and services would be available to determine whether or not there would be a potential for impacts. In the environmental program, this includes the radiological monitoring program which has been discussed before this Board before and we provide socioeconomic data for the radiological monitoring program.

The next slide, in terms of an overview I'll go over this quickly because I deal with three of these things in more detail later. The context and the complexity and the composition of policy as it's been developed to date is, in large part, because of the number of sites that we started out with in the Nuclear Waste Policy Act of 1982. At first, there were nine sites in six different states and then we went to five sites in four different states and three sites in three different states. And, as you know, currently the only site being characterized is at Yucca Mountain. But, as you try to develop policy, it certainly matters how many different states you're trying to deal with and the composition of our policy, I think, the tone was set back in

1982 and '83 by that complexity of trying to deal with those number of states. At that time, we dealt with affected states and Indian tribes. The Department of Energy relationship in terms of our socioeconomic program was directly with the state and Indian tribe and oversight grants were provided to those two entities. And, the other three items here that I'm going to talk about in more detail are developing siting guidelines -- 10 CFR 960 were the siting guidelines -- and, also to produce an environmental assessment, and from that, a socioeconomic monitoring and mitigation plan which we call the SMMP.

The next slide, the second major change in the program -- or, actually, the first major change after the program's inception in 1982 and '83 was back in 1987. Close to the end of 1987, an Omnibus Budget Act was passed and the Nuclear Waste Policy Amendments Act was attached to that. And, as I said before, one site is being characterized now at Yucca Mountain which changes the relationship. The Department of Energy now deals with that one site instead of those several different states and sites and the participation of State of Nevada and local jurisdictions also changed. We had something that was defined as affected unit of local government which automatically was the situs unit of local government which is Nye County and any contiguous unit of local government could become affected depending on

criteria that were developed by the Department of Energy, which one is socioeconomics. Lincoln County and Clark County have been added as affected units of local government along with Nye County.

After that, the Section 175 report was produced or about the same time. Section 175 is just a section of law within the Nuclear Waste Policy Amendments Act and that law or that Act asks us to do a mini-socioeconomics assessment. I'll provide more detail on that further into the presentation.

We also produced a consultation draft of the Yucca Mountain Project socioeconomic plan following the Nuclear Waste Policy Amendments Act. I'll talk a lot more about that here in a few minutes.

The key policy objectives or policy that has developed from the program again began by talking or dealing with multiple sites in multiple states and it became an approach which essentially was the least common denominator approach and could not deal effectively with one state's particular interests without taking that into context of another state's particular interest and trying to formulate a unified Department of Energy policy. We used the National Environmental Policy Act, and based on our reading of the Nuclear Waste Policy Act in conjunction with NEPA, we determined that the characterized site became the baseline



and the baseline -- I'm talking probably not to the Board here, but beyond to the general audience -- the baseline in this context means just a situation where you'd want to develop socioeconomic impact assessments from the current conditions essentially without the project for comparison with future conditions with the project. And, that was our interpretation at the time and that stands today.

The next key elements of our policy came from an interpretation of the PANE decision which was developed in 1983 or was decided by the Supreme Court of the United States in 1983. The PANE is People Against Nuclear Energy who sued Commonwealth Edison and it was a decision rendered by the Supreme Court dealing with the Three Mile Island situation. And, basically, our interpretation of that decision was that psychological factors were not cognizable under NEPA. And, that essentially stands today.

Psychological factors, I believe most of you would be more comfortable in talking about them as perception of risk as that issue rather than psychological factors. Back in 1986, a memo was produced that we called the Purcell Memo which basically reiterated that policy and set forth the objective that we did not want to be looking at psychological factors or perception of risk. And, we currently have no primary research concerning the area of perception of risk. However, Argonne National Labs has reviewed recent literature

and has developed an analytic capability. They have an annotated bibliography which has been produced here recently which we have available.

DR. CARTER: Let me ask you a couple of questions, if I might.

MR. LUNDGAARD: Certainly.

DR. CARTER: One, you say you don't have these things and yet your consultation draft now talks about the stigma effects of perception of risk and that's one of the major categories that apparently you're concerned about. And, I presume these are radiological effects, primarily, or possible radiation effects?

MR. LUNDGAARD: Well, perception of risk, that would be associated with transportation of nuclear waste or siting of a repository. But, I'm just curious, in terms of our consultation draft, we don't deal with that directly in there, either.

DR. CARTER: Well, it's addressed partly, at least, on Page 1-2 of your consultation draft dated April of 1990.

MR. LUNDGAARD: As I remember, that reiterates the same statement that we are not doing any primary research in that area.

DR. CARTER: Well, it may indicate you're not doing the research. I'd like a discussion, though, of what you consider to be the stigma effects and perception of risk.

It's a strange set of words, as far as I can --

DR. WARNER NORTH: Yeah, I'd like to hear more about this, as well. It seems to me this is quite an important area. We heard in our public hearing yesterday a great deal of stress on issues of trust and credibility and one individual, who incidentally had a PhD., comparing Chernobyl to the repository site. Now, for some of us, that's a comparison that doesn't seem to make a lot of technical sense. But, a lot of people may have that perception. It seems to me that creates a considerable problem for the Department of Energy's program. And, I'm rather distressed to find that you're not doing research on the magnitude of that problem and how to deal with it.

MR. LUNDGAARD: I appreciate that.

DR. CARTER: Let me mention one other thing in connection with this that's also in the draft on the same page. It also indicates that DOE -- and this is quote -- "is developing the capability to evaluate risk perception studies prepared by the Nevada Nuclear Waste Project Office", which is a state office. And, again, I'd like some discussion of what DOE has in mind in that regard.

MR. LUNDGAARD: Well, one of our primary objectives in our program is to deal with impact mitigation requests. That's a very important element of our program. We feel that the State of Nevada has a very comprehensive program in the

area of risk perception and that, of course, is funded through the grants that are provided through the Nuclear Waste Policy Act and through the fund, the Nuclear Waste Fund. And, assuming that they will at some time come up with some kind of estimate from that program of what kind of mitigation they would expect to receive in the area of perceived risk, we expect to be responding to that. There's another issue here. One of the primary ways of doing that type of research is survey work and we're a little concerned as a department that if we go out there and start asking the questions, the questions that came up about Chernobyl, and we are seen as the Department of Energy asking those questions that we may actually perturb the baseline a little more and create even more stigma in doing survey research.

DR. CARTER: Well, let me tell you how you could look at this statement that I just read to you. It could be interpreted in a way that the state's out in front in this area, the DOE is trying to catch up. That's one interpretation that I think a reasonable person could make from that statement. They're making risk evaluations and you folks are trying to figure out how to evaluate those, in essence. And, I don't think that's what --

MR. LUNDGAARD: Okay, okay.

DR. CARTER: But, you could put that interpretation on it without any problem.

MR. LUNDGAARD: I understand your concern. Would you like to discuss this any more or --

DR. NORTH: I think we'd like to hear more about it. I'll speak for myself. I feel there may be opportunities here that aren't being taken advantage of.

MR. CARL GERTZ: Excuse me, Warner, could I interrupt?

DR. NORTH: Sure.

MR. CARL GERTZ: I'm Carl Gertz, Yucca Mountain Project Manager. When you're speaking of opportunities, are you speaking of opportunities of education which, in effect, if we can educate the public in the effects and the differences between a Chernobyl and a repository, that's an education process. What Eric is involved in is how do we mitigate any socioeconomic impacts of a, as you alluded to, stigma effect and it kind of has been our position to let's see what the state is doing in that area, not create a secondary stigma effect ourselves by being out front and analyze what's going on because it's a very, as I'd say, new field with lots of debate as to what are the appropriate ways to do it.

DR. CARTER: Well, Carl, let me ask you a specific question. I presume, the way I read the consultation draft and the number of your other documents, that stigma effects is a euphemism for radiation. Is that --

MR. GERTZ: No, stigma effects is will someone take a vacation in Las Vegas and -- will someone plan a vacation in

Las Vegas and because they believe there would be a repository there they then may not take their vacation there.

MR. LUNDGAARD: Dr. Carter, what it relates to is essentially when I say the word "Nevada", what do you think of? What's the first thing that comes to mind? Well, a lot of people will say gaming. Some people will say test site. Some people will say desert. You know, those kind of things. Well, in the future with the repository or with transportation associated with a repository, if someone says Nevada, then if the first response out of a lot of people's mouth is wasteland -- and, that's hypothetical -- then, that is the kind of thing that stigma is referring to.

DR. CARTER: I think they're already ahead of you. I think it's a nuclear dump.

DR. NORTH: There is a lot of work going on in this general area not just about high level waste in Yucca Mountain, but the whole problem of siting facilities for disposal of non-radiological wastes, incinerators, landfills, prisons. And, quite a bit is being learned about how you understand the public's concerns and how you can promote, I'll call it, more effective dialogue with affected communities. And, I've recently attended meetings at the Society for Risk Analysis annual meeting and I was impressed with the amount that was being learned in this research that tends to indicate that a lot of these problems can be dealt

with. Early and extensive communication with the affected parties seems to be one crucial element. People having the sense that their concerns are being listened to and that there are opportunities for the people to learn the complex technologies that somebody proposes to bring into their community so that the community is in a sense empowered rather than disadvantaged because they don't have the technical material with which to evaluate these technologies.

So, it seems to me these social science studies of this kind of a problem are potentially very valuable to the project. Not in the narrow sense of educating people perhaps with the idea of bringing them around to your point of view, but rather creating a more effective climate for understanding differences and perhaps finding ways where those differences can be accommodated.

MR. LUNDGAARD: Excuse me, if I can clarify so I understand. You're saying that the best approach then based on your recent conference is to try to show/demonstrate that you're interested in dealing with the concerns, the effects perceived, or whatever, you know, however we want to categorize them, rather than trying to educate.

DR. NORTH: Understand the affected community's point of view. For example, one case study that was described in this conference, it turned out a crucial issue for the local community was the integrity of their school district. There

were proposals to make the school district encompass another community, as well, and that would have led to a loss of community identify. And, for the siting of this particular proposed incinerator, that issue turned out to be a crucial socioeconomic issue. And, no one would have known that without going out and talking to the people in the local community and finding out. So, my concern is that I think to the extent that you are not doing research in issues relating to the perception of risk and, more broadly, to the perception of the impacts of this project, you are missing opportunities which may be very important to you in the overall conduct of this project.

MR. LUNDGAARD: I appreciate that.

DR. JOHN CANTLON: The most recent issue of the proceedings of the American Academy of Sciences called *Dedalus* is devoted to risk and risk perception and the whole history of that. I recommend it to you because it addresses explicitly the almost total ineffectiveness of scientific communication in allaying risk.

MR. LUNDGAARD: Okay. Um-hum.

DR. CANTLON: And, I think, Carl, in terms of public discussions, Warner has put his finger on it. You can't start with where the scientific and technological and engineering community is. That is not the basis of the unease. The basis of unease has to do with perceptions that



are not grounded in technical and scientific data, but are grounded in many things, some of which have very little root in reality. It's like the Chernobyl model of what a repository would behave like. And so, I think those of us who have scientific and engineering training have a great deal of difficulty and you people from the social sciences, I think, are the point of departure that we really are going to have to rely on.

DR. CARTER: Let me mention one thing and then I think we're going to let you get back to your presentation. But, in my reading of these things, I look for several things and some of these I found and some of them, I guess, I did not find. Now, what I was looking for, for example, were the identify definition or description of all the socioeconomic effects that you could have, an evaluation of the impacts of those effects, the criteria that you use to measure such effects, then the levels at which you would mitigate, what the mitigation measures themselves were, and then the assessments of the mitigation effects; how effective were they in resolving problems? We'll talk about these, I'm sure, in the next hour or so.

MR. LUNDGAARD: I discuss those in more detail as we go into the monitor --

DR. CARTER: Like I say, I found some of these and some of these I didn't quite find.

MR. LUNDGAARD: Okay.

DR. CARTER: All right, sir. We can --

MR. GERTZ: Mel, excuse me, can I just summarize a little bit from our point of view?

DR. CARTER: Sure.

MR. GERTZ: Certainly, I think I absolutely concur with you that risk communication, risk education is a valuable part of the program. I think we did even sponsor a National Academy study that Dr. North was part of and we're continuing to work on risk communication, risk evaluation. It cross cuts, though, several of our programs; education, outreach, et cetera. What Eric is really here today to talk about is a socioeconomic mitigation and part of that mitigation may be mitigating effects caused by risk perception. We have made a policy decision, as you see and Eric points it out, not to do any primary research in that area and we appreciate any comments you have about the wisdom or non-wisdom of that policy decision. So, we appreciate your input in that area.

The other thing I'd just like to point out, I believe Congress in putting together the Act recognized it would be an undesirable facility. In the Amendments Act, it provided an opportunity for benefits. The state is welcome to take the initiative and if there is a school system or a transportation program or something they would like to receive benefits for, they're welcome to propose benefits

agreements. There's a negotiator on board. That mechanism is in place for the state, when we're talking about Yucca Mountain, to take an initiative in that area and then for us to respond and to provide Congress with our analysis.

DR. CARTER: Okay. What I think I'd like to do is proceed with the program, but I think you understand some of the concerns that we have here.

MR. LUNDGAARD: Yes, sir.

DR. CARTER: All right. Why don't you proceed, Eric?

MR. LUNDGAARD: I'll go back into a more detailed discussion in the next slide. Following the Nuclear Waste Policy Act in 1982 -- I'll put up the next slide -- there were siting guidelines developed, 10 CFR 960, which dealt with favorable conditions, potentially adverse conditions, and one disqualifying condition. And, these basically were the community's capacities to absorb project related population without significant disturbance. The area's available labor force, whether or not they could provide the labor that was necessary to characterize the site and potentially construct the repository. And, potential positive effects due to increases in employment, sales, government revenues, and improved community services.

The adverse conditions included almost the opposite of what was seen to be potentially positive and that is if there was a potential for significant impacts on community

service, housing supply and demand, and government finances or a lack of adequate labor force, or the necessity to purchase water rights and those were potentially problematic.

And then, the one area that was seen as a disqualifying condition was if the site was seen to be significantly degrading the quality or quantity of water from major sources of off-site water supply.

DR. CARTER: Okay. Now, these are the only two siting guidelines, as I read it, in 960, is that correct, one dealing with populations and distribution and the other one with quality and quantity of water.

MR. LUNDGAARD: The economic structure, yeah. Um-hum. And, these are being studied in environmental field activity plans and the site characterization plan. A disqualifying condition was being studied there.

The next slide, in terms of specifics with the environmental assessment, we finally at that point in time -- well, the environmental assessment was developed to answer the questions on 10 CFR 960, the siting guideline questions that were raised. And, at the point in time in May of 1986 when this was produced, we finally had a schedule, we had costs, we had manpower requirements, we had socioeconomic factors developed, and we had design and what our objectives were at that time. So, it kind of was the first time we had an idea of what the project was going to look like. Conclu-

sions that were developed or derived from the environmental assessment was that there would be no significant adverse impacts in the socioeconomic area or the environmental area and the social and economic impacts of site characterization related to population are basically expected to be small and insignificant. It's important to recognize at this time since the program has evolved that the words "significant adverse impacts" were the guiding criteria at that point in time. Those are the things we are looking at. As you'll see as I discuss the program a little more, we're looking beyond that now and we're not just looking at significant adverse impacts. The other criteria or the other conclusion we derived from the EA was the assessment of economic, demographic, and social conditions basically provided evidence that Yucca Mountain is likely to meet qualifying conditions.

Following the EA, we produced a socioeconomic monitoring and mitigation plan similar to the environmental monitoring and mitigation plan. And, this was the characterization of our program or basically what the program was up until '88. We met compliance and again this was dealing with significant adverse impacts. A requirement of 113(a) of the Nuclear Waste Policy Act of 1982 was to minimize any significant adverse environmental impacts.

The characteristics of population growth and distribution and the economic structure are going to be dealt

with in more detail in the next slide and those were areas that we decided to monitor. And, the reason we thought we'd monitor those anyway is because even though we felt there were no significant adverse impacts and we were complying with the law, we also felt it was important that if any problems were to come about that we needed some indicator of those problems and we thought that population changes, employment changes were the areas and economic structure were the areas that we needed to look at to get an indication of whether or not there would be any problems and since we've expanded the program even more from that point in time in that thinking.

DR. CARTER: Let me ask you a question if I might since you've been in existence for some years now.

MR. LUNDGAARD: Yes, sir.

DR. CARTER: The Act itself calls for a lot of consultation between DOE or the DOE Secretary specifically, the Governor of Nevada, and also the legislature. There is the safety, public health, environment, and so forth. I wonder if you'd describe that process as it's ongoing? Is this actually taking place now?

MR. LUNDGAARD: I think what I'd rather do is when we get to the socioeconomic plan there's some specific elements of that program in terms of socioeconomics that we'd like to suggest to work with to state and local government. We

currently are open to any discussions, but I think we're going to formalize the process a little better in the future, and if we'll wait until I get to talking about socioeconomic plan, it will become a little clearer.

DR. CARTER: Okay. But, that's sort of an ongoing, I presume --

MR. GERTZ: This is Carl Gertz again. Let me reflect on that. The Act calls for a consultation or cooperative agreement with the states, local governments, et cetera. We have been on record several times seeking to enter into a consultation, a cooperation agreement with the State of Nevada. The State of Nevada views entering into that agreement as cooperation with us and that would be contrary to their adamant opposition to the repository. So, they do not -- have expressed in writing a position they do want to enter into consultation/cooperation with us. We are available to the state's legislative committee whenever they ask us to testify. We hold open meetings. So, we try to consult and cooperate with them as much as possible in the arena we're operating in.

DR. CARTER: Okay. Let's see if I can summarize that. The Act calls for such consultation with the governor or with the legislature and certainly with local governments. It's been offered by DOE or the Yucca Mountain Project Office and perhaps headquarters and has been refused thus far by the

state.

MR. GERTZ: That's right, at the state level.

DR. CARTER: Okay.

MR. GERTZ: We're trying to work now with the affected parties to reach some kind of agreements that could be called consultation and cooperation.

DR. CARTER: Okay, thank you.

Go ahead?

DR. NORTH: If I could make a comment at this point. One of my concerns here is the scope of the monitoring as you've described it and I should perhaps state a little bit of my background, where my concerns are coming from. Back in the 1970's, I was involved with analysis on the synthetic fuels development issue and that was the last time I was heavily involved in socioeconomic impact analysis. And, at that time, some of the analysis, most of the analysis that was being done for proposed synthetic fuels projects focused on population growth and distribution. And, by that, they meant the number of workers and families that would be coming into these communities, the amount of new schools that would be required, other infrastructure. Rather a process of -- I'll try not to be pejorative -- bean counting as to how many items of various kinds the community would need. The communities found this analysis wasn't responsive to their concerns. They were concerned about a workforce coming in



that was of a different culture, a different kind of people from the people that lived in these small western towns. They were concerned about the impact on the character of their communities from bringing in a group of construction workers and building oil shale plants and the like. Now, I'm worried about the same issue here. I think if you're just counting population and looking at economic structure you may miss some of the cultural and social issues which are of primary importance to these communities. It's more than counting the beans. It's trying to get a qualitative description of what this project will do to the communities.

And, I've tried to phrase this in such a way that I'm not bringing in perceptions about things nuclear, but rather looking at other issues which have been very important in other large construction projects of this kind.

MR. LUNDGAARD: Dr. North, I think you'll see as we move on into the socioeconomic plan that we're open to monitoring those type of things or at least discussing monitoring those things with the affected parties and that that process is going to be open.

DR. NORTH: Well, I hope what open means is that you're actually going out and engaging in dialogue with some of the affected communities as opposed to waiting for them to come to you.

MR. LUNDGAARD: Certainly, we are and, depending on the

local governments, sometimes they want to be the ones to do that type of questioning, too, in terms of monitoring and we're working out a process that we're both comfortable with on getting the answers to those type of questions. I think John Carlson is going to be presenting some of the unique characteristics of the State of Nevada and especially the three counties or four counties we're dealing with and that that will give you a better flavor of some of the things you're talking about, such as -- and, I'll talk a little bit about it myself -- there's a couple of towns that are growing right now that are really close to the test site and then there's two more that aren't growing, at all, and they're very close to the test site. They may have different responses to construction of a repository, even site characterization activities. Currently, we see most people live in Las Vegas that are working on the program, but that will all come out if I just go on to the next slide.

DR. CARTER: Well, let me ask you one question that I've got about your monitoring program. Now, you've put out a number of quarterly reports in this area. As I understand it, the information and data for those reports comes from ten sources, namely the Yucca Mountain Project Office, the three national laboratories, and some seven contractors?

MR. LUNDGAARD: That's true, yes.

DR. CARTER: Okay. It does not include the State of

Nevada. Unless it's inferred, it does not include any of the local communities, but that's the basis of the program now that's been ongoing for a number of years.

MR. LUNDGAARD: That's true.

DR. CARTER: And, only monitoring data that represent those ten sources and those ten sources only.

MR. LUNDGAARD: Well, we're monitoring the workers that are working on the Yucca Mountain Project and migration and also the families that they bring in with them. And, we feel that those are the key components of changes in population that we need to be monitoring.

DR. CARTER: You don't bother to check them with the local communities or the counties or --

MR. LUNDGAARD: We haven't yet and part of the reasons we really haven't is because the employment hasn't changed a whole lot in the last few years. If we get to the point or when we get to the point that there are greater changes in the population or greater changes in employment, I think there will be a need to be looking and cross checking that information.

DR. CARTER: It will be too late then.

The other thing, though, I don't know that I would agree with you, one of your reports, as I recall, from December of one year and it may be '89, to January of the following year, you know, like one month differential,

there's some difference of 200 employees out of a total of 1500 or so. That's a glitch. It looks like to me that's a significant number to me, a couple hundred out of something like 1200 or 1500.

MR. LUNDGAARD: Well, I think when John talks about those numbers, he's going to specifically be talking about those numbers and I think we ought to address it at that point in time.

DR. CARTER: Okay. John, you be prepared. I've got a question about those numbers.

MR. GERTZ: I'm aware of those numbers because we did lay off a couple hundred designers last year. Now, whether they left the community or not is something, but just after Christmas we laid off a couple hundred design engineers.

DR. CARTER: But, that number obviously represents some degree of trauma. There are at least 200 people and their families.

MR. GERTZ: Significant trauma to people on the project that were working with them also. It's not fun for a project manager to do that.

MR. LUNDGAARD: The key characteristics, as Dr. Carter has mentioned, these come from our on-site new hires since the beginning of site characterization phase which was June of 1986, settlement patterns of all workers, inmigrants, and dependents to southern Nevada since the beginning of the site

characterization and occupational classification of the workers, such as technical, non-technical, managers, clerical, those type of characteristic --

DR. CARTER: Eric, could I ask you a question about that list? I notice you used the list. And, I guess my question is is that a generally accepted list? I forget whether there are a dozen or whatever. You know, you talk about managers, crafts, and so forth. I just wondered, I didn't see any reference to where that comes from. Is this pretty much a generally accepted categorization of --

MR. LUNDGAARD: It's fairly standard, yeah.

DR. CARTER: Okay.

MR. LUNDGAARD: The data is issued quarterly. Again, since March, earlier this year, all this data is becoming available. And, anybody who wants to can request the information. It's being sent regularly to affected parties.

This is some of the characteristics that we were beginning to touch. The workforce on the far left hand corner of this graph, workforce residential distribution as of June 1990, you can see that most people live in Clark County. I think John will give you a better flavor of what Clark County looks like in terms of new immigrants at this point in time. About 6,000 a month are moving to Clark County. Nye County has 34 of the distribution and other, Carson City is the other and some variation between Carson

City and Mercury. Basically, we have 929 as of June 1990.

DR. CARTER: You don't have any people living in Esmeralda County?

MR. LUNDGAARD: No. Cumulative immigration and again that's cumulative, workers and then workers and their dependents are shown on the far right hand side of this graph. Basically, workers are 253 immigrated; in other words, took a job to come here and work and those are living in Clark; two of them are in Nye County. And, they brought with them their families, of course, their dependents, except those in Nye County which were single living at Mercury. And, the total is 656. Basically, 401 accompanied the workers.

I'll move on to the Amendments Act discussion. As I mentioned before, the Amendments Act designated Yucca Mountain as the only site and required report to Congress which we designated as the 175 Report that we were supposed to do a mini-socioeconomic impact assessment in one year on 14 categories and those categories are described later and authorized direct participation of affected local governments.

And, this is the continuing evolution of the program. At this point in time, we started looking at impacts rather than significant adverse impacts, as I mentioned in the Nuclear Waste Policy Act. And, policy began

to change and understanding about what we might want to be doing with our program began to change, too. Significant adverse, I think, was a very restrictive term and we were, I think, less restrictive in looking at impacts and even less restrictive than that now with the socioeconomic plan, which I'll discuss in a few minutes.

This gives you an idea about the four communities that are close by in terms of the results of the 175 Report.

There are four. As I said four, there's Beatty, Amargosa Valley, and Pahrump are all in Nye County and there's Indian Springs which is on the border of Nye County just into Clark County. Those four communities were seen to be the ones that could potentially have the most severe impacts because of their location and proximity to the site and also because of their size.

DR. CARTER: All of those are unincorporated, aren't they?

MR. LUNDGAARD: They're all unincorporated, correct. Two of them, as I mentioned, Beatty is experiencing rapid growth at the time. Facilities and services are strapped right now because there's a lot of mining activity in the area. And, also Pahrump is experiencing growth and that's largely retirement complexion to the community. People are moving there to retire. The other two, Indian Springs is not growing much, at all, and neither is Amargosa Valley, if at

all. But, in terms of their social characteristics, they're very similar based on the results I've seen of some of the state's work, what they want in terms of community. But, as will become more clear as we go on, in dealing with the effects and potential problems and areas of concern, the local governments really set up a process where they tell us where their problems are rather than us defining as experts -- quote/unquote, "experts" -- what their problems are.

We made commitments at this time for a more comprehensive socioeconomic monitoring program which is borne fruit in the socioeconomic plan and also we provided the basis for socioeconomic impact mitigation process at this time. And, we decided that impacts was not the key characteristic to look at, but rather effects. And, effects is the term we're using because we don't want to define whether it's positive or negative. We want the communities to make that determination for themselves as to whether or not growth is positive for them or negative and changes in their facilities and service needs. They are the planners for those areas and have a better understanding and a better understanding of the social complexity of their community.

These are the 14 categories that we looked at. These 14 categories came from a Senate Joint Resolution passed back in 1987 by the Nevada State Legislature, Senate Joint Resolution #5, and were basically just put into the



Nuclear Waste Policy Amendments Act. There were only two areas that we did not see the potential for impacts or effects and that's basically -- and, let me explain this a little bit. We didn't look for degree of impact on this, at all. We were just saying whether or not there was any potential, whatsoever, and it was not how severe or how light it might be. It's just if there was potential. It, basically, read the letter of the law. The one at the bottom left, distribution of public lands, was not seeming to be a problem because we felt there were processes available to dispose of the public lands, Bureau of Land Management lands, either disposed of directly to private parties or to Government entities. And then, vocation training and employment services, because of the large number of employees being processed through these type of services right now, we felt that that wasn't a significant area of impact in terms of the number of employees we thought would be here working on a repository project.

DR. CARTER: Okay. After several years, this still looks like a reasonable list that Congress gave you to work with.

MR. LUNDGAARD: It's a reasonable list, we feel, and it's also subject to expansion or contraction based on our discussions with the affected parties.

The next slide deals with the overview of the

consultation draft socioeconomic plan which provides the basic status and the framework of where our program is today.

We feel it's not really our prerogative to determine whether or not there's an impact. As I've said it's more the prerogative of the local governments and that's why we're dealing with the facts. The program again has evolved from the point in time where we are looking at significant adverse impact to the word "impact" and now I think "effects" is what we're concerned with more than anything else. That leaves us a broad array of problems to deal with as requested by local governments.

Our objective is to identify potential effects of project activities on socioeconomic characteristics of Nevada communities, counties, and state. And, we feel we have a process of consultation, communication, and coordination working closely with these individuals. This will become a little clearer in terms of what kind of processes we'd like to develop and, of course, that will be in coordination with these local communities. Basically, we're looking for either elected officials, representatives of those governments, or we're looking for some kind of designated official that would represent that government. And, along those lines, we produced a consultation draft distributed back in April of 1990 and received the last of the comments here just recently and are looking forward to working closely.

We've also held meetings with those that were interested in discussing this draft with us already. We're putting the comments together in terms of exactly how they're similar, how they're different, and we're planning on holding other meetings with those parties that are interested in trying to make sure that we understand the context of all those comments. And, again, as I mentioned, this is going to be with the representative groups.

The next slide, I think, answers some of the questions, especially down here towards the bottom, the third bullet down, county steering or impact alleviation committees. We would hope to have quarterly meetings or if we need -- depending on how employment changes, how immigration changes, those kind of things, we could have more regular meetings, or if a quarterly is too often, we'll certainly work with, you know, every other, what, half a year or yearly or whatever. And, with that, we provide technical assistance. This is --

DR. CANTLON: Are these meetings ongoing or planned?

MR. LUNDGAARD: These meetings are planned. This is a suggested format at this time. And, I think at our next series of meetings which I would expect will be held by the end of the year with the local government representatives -- we've discussed these options already with them. They're contemplating how they feel the best way is to have this

ongoing process of consultation and I think we'll formalize it at the next series of meetings.

DR. NORTH: Is there such a process going on now maybe with slightly different format? You're out there talking with them regularly for identification of issues, information needs, and methodologies?

MR. LUNDGAARD: Right, we are. Clark County has a steering committee. They've invited us to those meetings. Again, I have spoken with the governments that were interested in discussing this socioeconomic plan already. We've talked to them each at least once and on the phone, also. So, it's kind of an informal process to date and I think will become a little more formal depending on the objectives and needs of the affected parties.

MR. GERTZ: I think that's important, to answer or clarify John's question. Although this is our proposed formalization, we are interacting with them regularly right now to get that, right.

DR. NORTH: Sure.

DR. CARTER: Go ahead?

MR. LUNDGAARD: In summary, I think I've demonstrated or hopefully I've demonstrated from talking about this that we now have a commitment to an interactive process with local governments and affected parties and that we have provided from the beginning when we started talking about significant

adverse impacts and employment and economic structure to a list of a greater number of categories that we would monitor and have opened up the door to potentially other areas based on discussions with local parties in expanding our technical scope even more. We've also provided for a cooperative process for impact assessment and mitigation.

I'll move on to the next slide. So, as a reminder or as a refresher here, the evolution of the socioeconomic program started off back in 1982 characterized by numerous sites dealing with the socioeconomic policy trying to satisfy numerous sites and was refined in '87 down to one site being characterized. And, the tone and I believe the complexity of the policy and what it's focused on has changed over time because of going from several different sites to essentially one. And, now we are asking for input from state and local governments and we have had some input in terms of the comments on the socioeconomic plan and a couple of their suggestions that we've had to date are to expand the geographic scope beyond the four cities that I mentioned or the four unincorporated towns and enhance the technical scope, also. And, we look forward to meeting with them in the future, during their future.

DR. NORTH: Could you give us a little bit more detail on what was suggested under enhanced technical scope?

MR. LUNDGAARD: I think what I'd rather do is let John

deal with that. He's got the details if we want to move on to --

DR. CARTER: Okay. Yeah, go ahead --

MR. GERTZ: If John doesn't, we'll surely come back and try to get that with you.

DR. CARTER: Dr. Barnard?

DR. BARNARD: You had a viewgraph showing the project workforce characteristics and you indicated in that viewgraph that around the order of 255 workers have come in, immigrated, over the last four years and a total population of 656. How does this compare to the overall increase in population that's occurred over the last four years in these particular counties?

MR. LUNDGAARD: Well, as an example of what's happened in the state, that's about, what, 2.58 workers, I believe. Or, 1.58 dependents per worker which is characterized very similarly to what's happening in the state in terms of immigration for other employment. I don't think that quite answers your question, though, specifically in terms of the counties.

DR. BARNARD: Yeah, how does this 656 compare to overall immigration that may have occurred in these counties over the last four years?

MR. LUNDGAARD: Well, I mentioned and John is going to talk a lot more about it, but 6,000 people a month are moving

into Clark County right now. In terms of comparing, this is very, very small compared to that type of growth. Nye County, I don't know exactly what the statistics are in terms of growth. Two of those communities are growing rapidly, at least of the four that I mentioned. Beatty and Pahrump are growing. The other ones are experiencing about zero population growth.

DR. CARTER: Well, these numbers then actually for Clark County are quite small on a relative basis?

MR. LUNDGAARD: In comparison, yeah.

DR. CARTER: I would caution you, though, about the number. Your number is 6,000. I guess, in the last few months, I've heard at least three numbers associated with Clark County. One is 4,000 a month, one is 5,000 a month, and now we're up to 6,000 a month.

MR. LUNDGAARD: One is 5,000 and one is 6,000.

DR. CARTER: And, I don't know whether the truth is in between there or not.

MR. LUNDGAARD: Those figures --

MR. GERTZ: It depends what month you look at because we were going about 4,000 a month and maybe Clark County can answer that later on today when they come up.

DR. CARTER: Yeah, somebody must have an accurate handle on that.

MR. LUNDGAARD: Well, University of Nevada-Las Vegas,

Keith Schweir, is the one that produces that information and they do it -- I think they compare utility billings, new phone hookups, those kind of things, and I guess that's increased just recently. Although there was a caveat provided with that number of 6,000, it had been 5,000 for a long time. The caveat was that we don't expect this to continue. It just can't keep going the way it's going right now.

DR. CARTER: Let me ask you a couple of questions, Eric, before you leave on this consultation draft. You didn't spend much time on Section 116 which involves grants to Nevada and local governments, the provision of financial and technical assistance to Nevada and local government, and then payments equal to taxes or the so-called PETT program. I wonder has there been any activities in those areas, whatsoever, thus far?

MR. LUNDGAARD: The grant program has changed, I mean, in terms of what's happening with the law. It now includes affected parties. As you know, there is currently in the 9th Circuit Court of Appeals a decision on whether or not there are to be two other affected counties. Esmeralda and Inyo County have sued the Federal Government to become affected counties, also. I think that pretty much exemplifies the current status.

MR. GERTZ: Let me point out there's been one other



major change, too. Initially in the program, DOE was making the grants as they thought was appropriate. Two years ago, Congress stepped in and said we'll determine the amount of grants for the state and in total for the affected counties.

So, they have become a line item the last two years of the budget. Congress says how much the state or the counties will get.

DR. CARTER: Okay. I guess I would be interested in a summary of what's taken place to date, what grants or technical assistance or whatever has been provided to what local government agencies and so forth.

MR. LUNDGAARD: We can certainly produce that for you, sure.

DR. CARTER: Yeah, I'd like to see that.

MR. LUNDGAARD: Okay. And, you asked about the PETT program, too.

DR. CARTER: Yeah.

MR. LUNDGAARD: A rule has been produced for the PETT program to try to define exactly what the Department's position is. There have been a series of comments provided to us on that rule and we're now considering our options and we're really not prepared to say what those options are at this time, but we're working on trying to be responsive to those comments.

DR. CARTER: Okay. Well, a couple of specific

questions. Of course, we've seen a number of your quarterly socioeconomic data reports. Also mentioned though in the consultation and other places is the fact that there are also semi-annual socioeconomic monitoring report, a little bit different title. Have any of those actually been issued?

MR. LUNDGAARD: No, they have not been issued to date. That was going to be a broader term of responsiveness to the needs of local governments and I think we will define exactly what those are going to be in our meetings with the local government people.

DR. CARTER: Okay. So, those have not come out?

MR. LUNDGAARD: No, they haven't.

DR. CARTER: So, I think I know the answer to the next question, but I'll ask it anyway. Also mentioned in there is annual socioeconomic program progress reports. Has any one of those been issued?

MR. LUNDGAARD: No, that has not been issued either.

DR. CARTER: Okay. The other question and I guess I could relate it -- the interest in requests for payments and so forth of all types. It's really related, I suppose, to the mitigation part of this, 5.1. There's a list of things or requirements that would be ongoing. So, my interest is whether you've had requests, what payments have been made, what's occurred? Just sort of a summary of that if that's available?

MR. GERTZ: Yeah, that's an easy one, I think. Go ahead?

MR. LUNDGAARD: Oh, you mean, in terms of -- excuse me, was it in terms of PETT?

MR. GERTZ: No, mitigation requests and we've received no --

MR. LUNDGAARD: Oh, no, none have been made, at all.

MR. GERTZ: No formal requests for mitigation.

MR. LUNDGAARD: No requests, at all, have been made. That's very simple. There has been one request made from Nye County for PETT.

DR. CARTER: And, the other are only requests for assistance and that sort of thing?

MR. GERTZ: Yeah, the grants. We'll give you -- we have a record of that. We'll get it to you right after break.

DR. CARTER: Okay. Now, having looked at this whole socioeconomic program, DOE is obviously the prime mover in it, although the state obviously and the local government units/local communities are involved in it, if there's a difference of opinion on these things, what's the appeal process by the State of Nevada or a local -- let's take Nye County. If they don't agree with your evaluation of how they have been impacted socioeconomically, what's their appeal process?

MR. LUNDGAARD: I think that when we start talking about

effects, there hopefully won't need to be an appeal process because we are saying what the changes are. We are providing information in the area of the repository employment, costs of site characterization, and that information will be provided to the local government people. Okay. As those changes then make demands on their facilities and services, then we'll ask whether or not that is an impact essentially and try to avoid that if we can or minimize it. And, if not, then we would go to a payment process for the impact. Is this helping characterize that and if --

DR. CARTER: Well --

MR. LUNDGAARD: You want to know what happens after that?

DR. CARTER: Yeah, you've really not answered the question. Let's say I'm Nye County and I've been impacted as far as we're concerned. The County Commission has decided that the impacts are worth \$1.5 million to Nye County over a two year period and DOE offers us \$75,000. Is there appeal process for Nye County?

MR. LUNDGAARD: It has not been formalized to date.

DR. CARTER: Okay.

DR. NORTH: I'd like to add another dimension to this and perhaps other speakers can comment on this, as well. It seems to me important for us collectively to look at the repository in its context, not just as here are the potential

effects -- I'll use that word rather than impacts -- from this particular proposed project. But, let's consider what else is going on in this general area, as well. For example, we have new mining activities that have been developing. What are the impacts or effects measured the same way of some of these activities? You know, what effect are they having on these communities in terms of numbers of workers, need for infrastructure, possible changes in the character of the community, et cetera? And, given the predominance of the Federal Government in this area of southern Nevada, what if that should change? I gather there is some debate on the future of the Stealth airplanes and would that affect Nellis Air Force Base? Or supposing there should be a major change in the national program with regard to nuclear testing, what might happen at the Nuclear Test Site and what would the socioeconomic impacts of that be? I suppose the more likely scenario might be a reduction. What would that imply for the local communities? It seems to me as a way of making comparisons as to what do the numbers mean for the repository, you would have to consider the context of what else is going on or might go on in the time period of repository development where we're looking ahead at least 20 years? And, I would hope that type of investigation has been done or will be done and can be reported to us.

MR. LUNDGAARD: It certainly will be accomplished

certainly with the environmental impact statement depending on the results of scoping. And, those are essentially conditions with the project and sensitivity analysis based on changes in the future conditions with the project. Certainly, those will be undertaken for the environmental impact statement.

MR. GERTZ: I think what Dr. North is wondering if we're going to be doing that before that time, Eric, and it's certainly a --

DR. NORTH: Yeah, the environmental impact statement is 1997?

MR. GERTZ: Years down the road, yes.

DR. NORTH: Yeah. I think we'd like to see some of this information developed relatively quickly, like within the next year. I'm sure the counties must be very interested in what's going on with respect to these large Federal facilities and different private sector projects that are being developed in their areas. And, I would urge the DOE program to find out about these things so that when we see the report, these other issues are discussed, as well. We just don't see a description of the repository impacts in isolation.

MR. GERTZ: I certainly appreciate your comment. Also, I'd like to add my thoughts to that. Certainly, we do have a limited program with limited funds and we have to set

priorities and what has Congress asked us to do with the Waste Policy Act and has it asked us to look at more of a macro level or not, or in looking at just the repository, should you? And, your position is you should be looking at a bigger picture also.

DR. NORTH: Well, I can't imagine that the local communities and county governments are not very concerned and interested in these other issues, as well.

MR. GERTZ: Certainly, they are as they well should be. I think it's appropriate for them to be and I think we take it from them, so to speak.

DR. CARTER: Okay. Dr. Barnard?

DR. BARNARD: You mentioned the fact that you were developing a mitigation program that focuses on avoiding impacts by changing site characterization activities and schedules. Can you give us a little more detail on what that program looks like or has it been completed?

MR. LUNDGAARD: It's basically conceptual, I would say.

DR. BARNARD: Conceptual?

MR. LUNDGAARD: Yeah. Essentially, you know, if we find that there is going to be a large influx coincidental, say, into Beatty with a new mining operation, then we've got a problem over in Beatty, just for an example. Is there a way that housing could be provided? And, again, this is hypothetical. Housing or some other type of way to change

-- excuse me, that's not right. Is there a way to, say, lengthen the schedule for construction or whatever we're doing at the time to draw it out or change it so those people don't coincide with the problem that's occurring from, say, mining. That would be a better example.

DR. BARNARD: Do you feel that these impacts can be avoided or are you trying to just minimize the impacts?

MR. LUNDGAARD: I think minimize is probably more appropriate. I don't really see -- if we get a mandate, you know, at some point in time -- and again this is hypothetical assuming that there is a repository constructed -- I don't expect the schedule is going to change a whole lot because there's potential impacts out there. I expect that we'll try to minimize those and make the least amount of them as we can and then deal with mitigation through compensation.

DR. CARTER: Okay. A couple of other things. Let me make one comment. I think the panel has a number of concerns that we've expressed in this area, so far. Certainly, one of them is the communication of risk information and this sort of thing that's obviously a very important part of this. I'm also a little concerned about the fact that, you know, only the project office, the three labs, and the contractors do this and I would hope that that would be broadened so at least you would use the counties, the local community as at least sounding boards to at least verify the data if that's



not being done or at least to check it with them because I'm sure they have their sources of this sort of thing also. And, it looks like it's just a unilateral kind of an operation. I guess that's what troubles me, Carl.

MR. GERTZ: Yeah, Dr. Carter, when the state wanted to indicate how many workers were affected, they went out and gave questionnaires to our employees. What we were trying to determine is what employees on the program, what are they doing, and what are they working? So, I don't know if counties have capability to ascertain for influx workers where they're working at. We certainly do because we know. We make them fill out a questionnaire.

DR. CARTER: Well, that dichotomy or misconnecting the datas in one or several of the monitoring reports and we'll bring it up there. Perhaps, that might be the time to do it.

The other thing I would like to ask you, Eric, if you would, I wonder if you would take a minute or so and sort of summarize your background for us just for the record, please, sir?

MR. LUNDGAARD: I went to the University of Arizona. I have a BS in watershed management and an MS in agricultural economics. Resource economics is my area of study. I used to work for the Bureau of Reclamation, did economic impact assessments, regional economics, benefit cost ratio studies, and then have worked for the Department of Energy for the

last four years as a socioeconomic program manager.

DR. CARTER: All right. Very good. Thank you, Eric.

MR. GERTZ: Eric also has some real life experience as an elected official. Eric, why don't you put that on --

MR. LUNDGAARD: I'm the assistant mayor of Boulder City, also, and serve on numerous boards and commissions for Clark County interests.

DR. CARTER: All right, very good. Thank you, sir.

All right. The next presentation will be given by John Carlson with SAIC. John?

MR. JOHN CARLSON: Good morning. My name is John Carlson. I have a master's degree in economics from the University of Missouri. I've spent approximately five years as Director of Research & Planning at the North Central Texas Council of Governments in Dallas, Texas. I was a private consultant for six years basically doing health care analysis and market research for development firms in the Dallas/Ft. Worth area and have been with Science Application International for two years as an economist.

DR. CARTER: Thank you.

MR. JOHN CARLSON: Eric has touched on the evolution of the socioeconomic program from a policy perspective and this segment of the presentation was designed to try to deal with some of the technical issues that are involved in the socioeconomic program, specifically in terms of the character-

istics of southern Nevada, in terms of how the geography of southern Nevada affects the economic and demographic characteristics and ultimately how it would affect the data base from which we're able to develop benchmark estimates of population and employment, demographic characteristics, so that we can, in fact, develop a data base that would be both current and reflective of the current situations within the communities that we've talked about.

We'll discuss a little bit about the current requirements from a technical perspective to include the development of the monitoring process, how we have gone about the development of small area plication and employment projections, and the projection process itself, how we perceive going through a continuation of the monitoring process and the forecasting capabilities as were developed from the 175 report. As with the policy perspective, the technical process is continuing to evolve as we collect a more accurate data base in terms of our benchmark estimates and broaden the technical scope of the program. Socio-economic characteristics would be addressed in terms of geography and again this becomes important because of the nature of southern Nevada and its effect on the data base, as well as the demographics and the economic characteristics of that area.

This map provides you an overview of southern

Nevada as it was represented in the 175 Report. As we can see, the communities that Eric alluded to in southern Nye County, Beatty, Amargosa Valley, Pahrump, are in close proximity to the proposed repository. Indian Springs in Clark County is just over the border, as he had mentioned. It becomes important to recognize the character of the three counties in the sense that Clark County has been designated by the Department of Commerce as a metropolitan statistical area. The importance of this is the availability of data not only from Federal sources, but also from state sources, as well as local planning agencies. The designation of a metropolitan statistical area provides for published statistics within Clark County not only at the county level, but also at municipality level, as well as the census tract level, a very small level of analysis within a metropolitan statistical area.

Converse to that would be Lincoln and Nye Counties which are obviously of very rural nature. As a result, there's a very limited data base from your traditional Federal sources and those data that are available would be available only at the county level. Within each of the counties, Lincoln and Nye County, there would be one incorporated community. The communities are of such a small population base that even if there is data published for the municipality, it would only be in terms of total numbers.

So, to be able to develop benchmarks from your traditional Federal sources of Department of Commerce becomes nearly impossible because of the disclosure of those records.

DR. CARTER: Let me ask you a question, John. Are Pioche and Tonopah the respective county seats for Lincoln and Nye Counties?

MR. CARLSON: I know Tonopah is. I'm not certain about Pioche. I think it is. But, they are both unincorporated places.

The geographic characteristics, as I have mentioned, Clark County is a relatively large county of approximately 8,000 square miles. Approximately 95% of that is Federally-owned land. Clark County has a designated urbanized portion with the central city being the Las Vegas metropolitan area which is concentrated in an area of approximately 400 square miles. As a result of the character of Clark County and the designation by the Department of Commerce, we do have a substantial socioeconomic data base from which to develop benchmarks from the decennial census. Lincoln and Nye Counties, as I mentioned, have a very limited data base because of the unincorporated nature of the communities and the very small population which creates disclosure problems within these particular areas.

The demographic characteristics within Clark County are extremely diverse also. As we had mentioned previously,

the population growth in Clark County has been extremely rapid. It has been estimated by UNLV that their growth rate is currently approximately 6,000 persons per month. If we go back though and look at the relationship between the 1980 census and the 1990 census and break it down on a per month basis, that translates into approximately 2,250 persons per month. But, you would expect that the early part of the decade would have a relatively slow growth rate, particularly as you see the construction activities in Clark County, Las Vegas area in particular, as well as the job opportunities that are available. So, I suspect that we're probably somewhere in between that 2,250 per month and the 6,000 figure that's estimated by UNLV, which again this comes from administrative records from the county. So, it's anybody's guess at that point, but it does fluctuate from month to month because it's a very cyclical thing in terms of when people turn in their records for DMV or whatever.

The demographic characteristics of Clark County and the migration patterns are also extremely broad. We have a lot of obviously natural increase in terms of births exceeding deaths. There's an extremely strong migration component to the population because of the job opportunities and also there's a significant amount of retirement migration coming into the area because the amenities are available and the low cost of living and so forth.

Nye County, the estimated population from the 1990 preliminary census counts has about 18,000 people. The county has nearly doubled in the last 10 years, but you know, a doubling of the Nye County population represents approximately 9,000 people. Lincoln County, on the other hand, is currently estimated at approximately 4,000 population. However, Lincoln County is experiencing what's referred to as zero population growth as indicated by the change in population from 1980, a net positive change of approximately 30 people since 1980.

The economic characteristics of Clark County are such that currently estimated to have approximately 340,000 jobs. The Clark County economy is a uniquely structured economic environment in the sense that it's focused heavily in one particular standard industrial classification. That would be the services industry which obviously represents hotels, gaming, amusements, and the like. Approximately, 46% of the jobs within the Clark County structure are focused on this service industry. Conversely, at the national level, the average is approximately 26%. Less than 3% of the jobs in Clark County are focused on the manufacturing sector. The typical kinds of structures that most economic/demographic models are built around would include a more diversified economic structure, a larger component of the manufacturing sector, and a broader distribution across all standard

industrial classifications. The kinds of economic characteristics that Clark County exhibits provides a significant challenge both in terms of the monitoring program and also, more importantly, though, in terms of the forecasting programs to try to develop an accurate representation of the future in terms of our forecasting capabilities because of the unique structure of the economy as opposed to the typical structures that have been built into most forecasting models in recent years.

DR. CARTER: John, could I ask you a question? It would appear to me that the total employment in Clark County in ratio to the total population is extremely large. I wonder if you have any information comparing that sort of thing with national averages or other states or metropolitan areas or whatever?

MR. CARLSON: You said extremely large?

DR. CARTER: Yeah. It looks like you've almost got one out of every two people fully employed; 700,000 and some population, as I recall, and 340,000 --

MR. CARLSON: I don't have the statistics right off the top of my head, but the labor force participation rate at the national level was generally somewhere around 60 or 62%. And, if we're looking at 340,000 jobs over a population of roughly 750,000 population, that's about 2 to 1 or a little bit lower than that actually. So, a good deal of it comes



from the fact that there is, as I mentioned, the significant retirement population. So, you might expect the statistic to be a little bit lower in Clark County than it might be at the national level, but I think it's explainable in terms of the demographics and the economic structure of that area.

DR. CARTER: Does this include all the population? I presume it includes the old, infirm, young children, the whole --

MR. CARLSON: The 736,000 population?

DR. CARTER: Yeah?

MR. CARLSON: Yes, it does. That's the count that has been released by the -- the preliminary count from the 1990 census. You know, the jobs are those jobs that are jobs in Clark County by place of work and the population is by place of residence. So, it should correlate. It should correlate.

DR. BARNARD: John, why isn't Esmeralda County included in your analysis here?

MR. CARLSON: From the 175 Report, the three counties that were identified as being potentially impacted were Clark, Lincoln, and Nye Counties.

DR. BARNARD: Is there anything to prevent you from including Esmeralda County in your analysis?

MR. CARLSON: No.

DR. CARTER: Well, I guess they've applied for affected status.

MR. CARLSON: They have applied, yes.

DR. CARTER: -- County in California.

MR. CARLSON: Yes, sir.

DR. CARTER: That may be coming, though.

MR. CARLSON: The economic characteristics of Nye County are somewhat unusual also. We have a situation here where Nye County is reported to have nearly 11,000 jobs and there's quite a distortion in terms of that labor force participation rate that we measured earlier, but nearly 43% of those jobs at the Nevada Test Site are at the Nevada Test Site, of which approximately 75% of those people commute daily back and forth to Clark County. So, again, that will bring that ratio back into balance in terms of the population to employment ratio. The remaining jobs besides the Nevada Test Site are primarily in the areas of mining services and government. In recent years, there's been some resurgence of agricultural activities because of a lot of activity in southern Nye County, in particular the community of Pahrump.

Lincoln County has an employment base of approximately 2,000 jobs, most of which are in the service and the retail sector. So, Lincoln County economic base not only is extremely small, it's also very focused on specific industries and provides a very limited resource as far as potential economic activities. That's not to say that it couldn't happen, but it's very, very limited.

Briefly, the socioeconomic requirements -- and maybe I can start to answer some of the questions that have come up through this segment -- is some of the ways by which we begin to monitor activities within the various communities. We've talked in some detail about the characteristics of the project workforce in terms of monitoring, total employment, residential locations, the number of dependents associated to each employee, and the occupational mix of these jobs.

Furthermore, we have been doing some work in the last two years in terms of developing economic and demographic base for each of the communities within southern Nye County, in particular the communities that have been referred to in Beatty, Amargosa Valley, Pahrump, and Indian Springs. The focus has been on developing a benchmark for these communities in terms of population, housing characteristics, economic activity, and other things that would be important in terms of trying to get a handle on what's going on in the communities without a repository in place. A good deal of our work because of the lack of data base that's available from traditional secondary sources has come from local experts in each of the individual communities. We have worked with administrative records from electrical or utility companies in these areas so that we can try to get a good focus on the number of residential units in

these particular areas, as well as working with local people who are knowledgeable of things with regard to school enrollment characteristics, any fluctuation in school enrollment activity, changes in migration patterns, any fluctuations that might occur with regards to the mining activities that Eric mentioned in the community of Beatty. So, we are in a process of trying to monitor those kinds of activities right now before the repository is in place so that we can, in fact, try to measure the impacts of these activities as the repository would come on line so that we have some notion of what was the character of these communities, what was the economic and demographic characteristics prior to the development of the proposed repository and then we can, in fact, try to make some judgments of what exactly is the impact of the proposed repository.

Furthermore, we're in the process of developing a mechanism by which to monitor service standards in terms of the provisions of facilities and public services within these particular communities, again the four communities in southern Nevada, in terms of school enrollment statistics, what kinds of fluctuations do we see in enrollment by grade, health care facilities, the provision of health care facilities, fire protection, police protection, et cetera. It's a mechanism by which to monitor these activities in

advance.

Also, in support of the radiological monitoring program, we've been in the process of developing a data case that would be specific to each of the individual cells within the radiological grid. So that we are in the process of developing a longitudinal data base for these radiological grid cells so that we can develop population and employment forecasts, demographic characteristics of each of these cells over time.

The forecasting requirements, as stated in the draft of the socioeconomic plan, are extremely diverse as is everything else that we deal with in this particular area. The socioeconomic plan suggests the need for short-term forecast, three to five year forecast, to be evaluated against the monitoring activities of each of these individual communities. In support of the radiological monitoring program, we're asked to forecast for the life of the project plus 100 years which would be comparable to trying to make a forecast for Las Vegas back in 1830 and imagine what the technology and the lifestyle changes and all the rest of it.

It just boggles your mind to think about what's happened that last 160 years and where we're going in the future.

The impact assessments that would be built into the monitoring program basically are aimed at identifying impacts or potential impacts within the communities, both in terms of

a before and after. So, as we see the monitoring programs go on as we develop our data base in such a way that we think we have reasonably good benchmarks for these communities in terms of the economics and demographics, we can measure that against our forecasting to determine, one, the accuracy of these forecasts, and two, the potential for any recalibration of the model parameters to improve those forecasting capabilities.

Just a brief recap of what we've talked about in terms of geographies, in terms of the development of the data base, in terms of Clark County, we have a very robust and rich data base both in terms of Federal sources and other secondary data. In Lincoln and Nye Counties or Esmeralda or any of the rest of such a rural nature, there's a very limited data base which translates into the need of enhanced field work, more communication with the locals, and a better handle on exactly what's going on in the community on a more direct basis.

The distinct requirements of the forecasting program, again the three to five years for the short-term forecasts, the 160 years for the radiological monitoring program, and further the 160 years within the radiological program down to specific grid cells. And, it becomes quite a challenge. Furthermore, we are, as Eric mentioned, in the process of trying to develop interactions with the states and

local governments so that we have some notion of whether our forecasts are, in fact, on target and that, you know, comes through the communication and cooperation with local planning agencies and local individuals who are knowledgeable of particular characteristics of the community.

A simplified diagram of the general approach in terms of the impact assessments basically flows through nine different boxes from which we develop specific data for the monitoring program. The first approach is oriented towards two basic components. The first box entitled model inputs identifies or offers the opportunity to provide information about any particular project, be it a repository or the development of a major manufacturing facility, whatever might be under evaluation, so that, for example, during the 175 Report, we developed baseline forecasts and then would input specific information with regards to the direct effects anticipated from the development of the proposed repository, as you see on the graph, identifying the fluctuation over time in terms of the number of employees that would be anticipated through the life of the repository. Although the schedule has shifted significantly, the nature and character of the data base would be, I think, probably similar to that.

Information addressing the number of persons employed, the materials and services that will be required, and the wage and salary payments to the workforce would be the inputs

provided into the modeling structure.

The model, itself, will output both the direct and the indirect economic and demographic effects in terms of population growth and any changes that might occur in terms of major industrial structures. And, again, these are compared with or against the baseline forecasts.

Let's just back up and identify the modeling structure and the mechanism by which this particular economic/demographic model flows without going into a lot of detail about the model. Basically, what this REMI model is, Regional Economic Models, Inc., is a localized national economic/demographic forecasting model. For our purpose, it's constructed in terms of what's referred to as a four region model which will address Clark County, Nye County, and Lincoln County separately, and then the rest of the State of Nevada. In its simplest form, the REMI model is an economic/demographic model that will simply try to address the supply and demand interactions within a regional economy.

DR. NORTH: May I stop you and ask again the question I raised at the end of the previous presentation? How are you taking into account potential changes at the Nevada Test Site and changes in mining activity around Beatty and perhaps other areas of southern Nevada within this four county region? Is that in there?

MR. CARLSON: The specific changes within the mining



activity would be imbedded within the historical data set built into the model when you make your baseline forecasts. So, for example, the data base that we would feed to the model is historical data base from 1969 to 1987. And, we will see over time within Nye County fluctuations, for example, within the mining industry.

DR. NORTH: Does that mean that if some firms are proposing to open a new mine and have been talking to Nye County about getting the permits and approvals they need, you might not have that in the model? You've just been looking at past data. You haven't looked at plans that are being made in this area?

MR. CARLSON: No. No, let me just back up a second. What this REMI model does is forecast for any particular industry at the county level. When we make the next step and that is to allocate that control total, if you will, to individual communities is when that information would become important to us. For example, hypothetically say that mining industry within Nye County is going to increase from, say, 1,000 to 1,500 and we were then interested in trying to allocate that 1,500 into the sub-county allocation process, that is the communities in southern Nevada, the information that we would receive from locals not only in terms of southern Nevada, but all of Nye County, would become important. So that we try to balance proposed developments,

mining, or any other industry for that matter, we would try to balance those proposed developments against the projected for any particular industry. And, you know, obviously, you're not always going to have a complete balance in terms of that accounting structure. But, the idea is take the information from the local governments as it becomes available to us and balance that against the forecast or the control total, if you will, for each individual community.

That's about the only mechanism that's available to feed specific local information into the modeling structure.

At the county level and the way a model of this nature, whether it's Regional Economic Models, Inc. or any other forecasting capabilities, it has to work off of a historical trend that's a national base information source. And, it is also going to be driven by some national level forecasts that keep things, if you will, proportionally in balance. So that as Clark County grows and absorbs more population, that comes from some other portion of United States structure. So, there's immigration and there's outmigration. So, we're trying to -- and, that's why we have been in the field for two years trying to collect specific information about these communities, in particular Beatty, Amargosa Valley, and Pahrump. So that we have a longitudinal data base that will address some of the kinds of concerns that you'd mentioned. The mining industry in Beatty is very cyclical as it is

anywhere. So, an industry such as that, it becomes a bit difficult, but still over the long term I think we have at least the ability to address those kinds of concerns and reflect them in the forecast for the small area analysis, the local governments, if you will, local unincorporated areas.

DR. NORTH: Could you tell me a little bit more about how you propose to address the cyclical nature of the mining industry?

MR. CARLSON: As I've tried to identify the economic structure of Nye County is extremely unusual. Mining is extremely important. And, so what we have thought about in terms of the economic forecasting capabilities is that's associated to price factors. At what point in time is mining gold, for example, more profitable? So, what we basically would have to do is not forecast the mining industry, per se, you'd have to step back and do an analysis of what do we expect in terms of prices of gold, the new technologies that have come on line to recover the minerals, and at what point is it profitable? So, what I think we have to do is to be able to forecast not mining, per se, but the profitability of mining specific minerals that would be available or minable in that community. No simple task, but there's a lots more information available from national, and for that matter, from world sources that will give you some notion of what's the price of gold going to be in 10 years, what's the

technology likely to be during that 10 year period, what's the break even point in terms of facilities? Even more, we'd go on and say what's the availability of the labor force? That becomes a major issue. So, we would also begin to monitor and continue to monitor the availability of labor within these communities. That's got to be a major component.

DR. NORTH: So, that would sound like it would be useful to do a sensitivity analysis to future price of gold over time to see what impacts that would have on the demand for labor and in the potential extent of mining activity within the county and similarly for other important minerals.

MR. CARLSON: That would be my opinion, yes.

DR. NORTH: Has that been done or have you laid out a plan to do it?

MR. CARLSON: We have laid out an in-house plan on how you would go about doing that. So, I guess the answer is formerly no, but within the research structure of our program, it's on the agenda for upcoming activities.

DR. NORTH: Are you aware of any activity to do forecasting of this kind that's been done by any of the government agencies in the region?

MR. CARLSON: In the region? I don't believe it would be done in the region. When it would be done or if it's done

--

DR. NORTH: The counties, the towns?

MR. CARLSON: You mean, in terms of price sensitivity to the gold and mining activities?

DR. NORTH: I mean, in terms of the officials within the affected government entities being concerned about where is our entity going to be in five or 10 years? Depending on whether the XYZ mine goes forward or closes down, it's going to have a big impact.

MR. CARLSON: Absolutely, absolutely.

DR. NORTH: So, I would think this would be an area where they would be interested in seeing the results of your analysis and you might be quite interested in seeing the results of theirs.

MR. CARLSON: Absolutely, as well as the interest that's generated within these communities. Again, when I say these communities, I'm talking about those in near proximity to the repository -- they're as interested in what's going to happen to the repository in terms of future job opportunities as they are about the mining industry. They're extremely interested in finding out information about what is the schedule, what is the projected labor force. How do we begin to plan for providing potential housing opportunities if, in fact, there is going to be the kind of labor demands put on the repository as we saw in the cyclical graph of the workers? So, you know, it goes both ways. They're extremely

concerned. These communities are -- for example, Beatty, a community of approximately 1500 people, you know, has the potential of being impacted if there's, all of a sudden, 3,000 repository construction workers. They've gone through that recently in terms of the cyclical major mining activity that's come through the town. So, you know, they have responded to that in a lot of different ways. They're into mining concerns, work closely with the community to be sure that they can minimize the impacts. They've built schools in the area. They've purchased additional land from BLM and provided more housing opportunities. So, these kinds of things are very much in the minds of the local people in and around the repository.

But, as far as the question specifically about the sensitivity of the gold mining activities, to the best of my knowledge that has not been done, although I would suggest that some of the major mining concerns in and around that area certainly have looked at that or have determined the profitability at least at this particular point.

DR. NORTH: Have you been in touch with those mining concerns to see what their plans are?

MR. CARLSON: To the extent that, you know, we would like to talk to them about where their workers reside, how they provide and accommodate for the growth that they will anticipate, how aggressively they anticipate the project and

move forward for the next three, four, five years. And, it becomes important when we look at projects in and around the community of Beatty because these are relatively long-term projects also. Some of the mining concerns expect to be in the community for as long as eight to 10 years. So, as this project moves forward, you know, you see a potential for a conflict in terms of the need for housing opportunities.

So, to that extent, yes, we have talked to them on a fairly regular basis. And, this is done -- and, again, back to the local experts that we rely on, we rely very heavily on a lady that operates the Yucca Mountain Information Center in Beatty. She's a local resident, and on a monthly basis, she will go through and monitor any changes that have occurred in the community to try to account for those changes and try to identify, you know, the people that we need to be able to talk to in terms of those who are coming into the community to further develop the area, if you will. So, both from the office in Las Vegas, as well as through our local contacts at the information office there in Beatty, we try to monitor it the best we can.

DR. NORTH: John, do you routinely monitor permits for mining activity in the state?

MR. CARLSON: Permits in Nye County would come through, I think, the water rights information and we would monitor -- we have monitored that activity. I'm not terribly well-

versed on it, but permits are somewhat scarce in that area. You know, I'm sure they have --

DR. CARTER: Well, I presume they have to have them if they're going to start a new mine or maybe expand one on a major basis.

MR. CARLSON: I would assume so, but -- maybe, we could ask Steve Bradhurst a little bit more about how the permitting activity -- for example, I know --

DR. CARTER: Your organization doesn't routinely do that?

MR. CARLSON: For example, and this is kind of a left-handed way to answer the question, but there are no residential building permits issued in the county. I'm not sure how they deal with permits for commercial facilities.

DR. CARTER: That's what we're interested in --

MR. CARLSON: Well, but again the way we gather our information is more from a local expert that we would talk to as opposed to the permitting itself. You know, I think that we probably get as good information from talking to the people who are running those facilities as we would going through a permitting process, however that might be --

DR. CARTER: Well, I guess that depends on the caliber of people you've got, but certainly mining permits and this sort of thing are a matter of record and I presume they're there before things happen.



MR. CARLSON: I understand.

DR. CARTER: The other is a question of, you know, what people have heard with their ear to the ground or whatever and I presume you have competent people that are qualified and keep their lights on and look for that sort of thing.

MR. CARLSON: Sure. Sure. That information certainly would enhance our data base. It would augment what we're already doing.

DR. CARTER: Okay. Why don't we let you move along.

MR. CARLSON: I don't want to belabor the -- issue, but let it be that it is a localized national model that takes into account a lot of different factors in forecasting both for the U.S. model, as well as for the individual counties that we've talked about.

I've already alluded to the next step in the process identified to be Box 3. In essence, what's done here is we take, if you will, the control total from the REMI model and that will be at the county level. We would be interested in terms of population change, total population, the demographic profiles that would be forecast for the community, economic characteristics, income activities, any changes in income, and allocate those to the communities within the respective counties which is where the historical data base that we have been developing becomes important.

As I had mentioned earlier, there is very limited

data base from any secondary sources in the communities of Beatty, Amargosa Valley, Pahrump, or Indian Springs. So, the allocation of these data has to come from a development of benchmark estimates that we would develop ourselves using various parameters. So, the allocation model becomes somewhat of a proportional share built off the historical trend line of what has happened and what do we project to happen within the county and how do we think that might affect any of the local communities.

We also would input any information that we would have that would come from the locals in terms of the mining activities, in terms of known real developments within those communities, not speculative developments but known real developments, as well as any activity that might go in terms of withdrawals of the bases in and around these particular areas. So, we try to take into account all the information that is available to us and interface that with, first of all, the county control tolls and, second of all, the historical benchmarks that we would develop over time.

DR. CANTLON: John, while DOE has made a policy decision not to consider stigma effects, if that policy is reversed, where would you fit that sort of consideration into your overall model?

MR. CARLSON: In terms of perceived risk activities?

DR. CANTLON: Sure, sure?

MR. CARLSON: We'll get to it at a little bit later date, but generally in the area that's identified to be Box 7 which is going to be non-economic activities and activities that are outside of the normal modeling structure.

DR. CANTLON: Thank you.

MR. CARLSON: Next, we would take into account -- and, I tried to identify from this analysis, first of all, the geographic areas that are likely to be affected in terms of any change in population that might be related to the repository and identify the resulting demographic effects in terms of these potential impacts and identify those specific characteristics in terms of the categories that you see below familiar to the 14 categories that Eric had alluded to earlier.

Next would be the type of analysis that we referred to in terms of non-economic conditions associated to the development of the project. And, as with the development of the repository or any other major project, this would be where you would insert some policy variable that would identify impacts in tourism, for example. Any impacts that you would receive and quantify it in terms of either increase or decrease of total revenues, an increase or decrease in terms of the number of jobs that might be either gained or lost, any changes that might be perceived in the community which is less quantifiable, but still it could be inserted to

the model and you can do that kind of sensitivity testing within this particular structure and it would come in this particular area. You would have already have run your benchmark forecast, probably would have already run a set of forecasts that says if the repository develops, this is what happens. The next step is if the repository develops and this also happens in terms of stigma effects, this is what we would expect to result.

DR. CANTLON: Right. Some of the stigma effects could, in fact, be demographic and economic in nature.

MR. CARLSON: Absolutely, absolutely.

DR. CANTLON: Persons about to retire making choices of where they're going to go. Why should we take on the area's problems? Let's go elsewhere.

MR. CARLSON: Sure, absolutely. And, that could be quantified in terms of slowed migration rate in terms of the migration is broken down in terms of economic, non-economic, military -- it's to the population -- and then, the retirement population. So, you can affect the model's outcome by tweaking, if you will, that particular variable in the structure.

DR. CANTLON: All right. Now, if DOE were to change its policy, how would you address that research-wise?

MR. CARLSON: In terms of the -- for example, any changes that might result in terms of, let's say, tourism,

gaming --

DR. CANTLON: Retirement, tourism, those would be two large ones.

MR. CARLSON: Yeah. Well, of course, I mean, as we've already addressed here, we have to develop our benchmark. Where are we right now? And, as we go down through time as the project were to come on line, do we see any significant deviations?

DR. CANTLON: Um-hum.

MR. CARLSON: A simple case in terms of the gaming industry, we would monitor probably on a monthly basis changes in total revenues within the county structure, Clark County, Nye County, and to the counties in the state for that matter. You know, do we see any real decline or increase for that matter to total gaming revenues? Can it be explained by exogenous sources totally unrelated to the repository?

DR. CANTLON: but, a short-term activity like the typical gambling tourist would be very different from a retirement which is essentially a life commitment, remainder of life commitment.

MR. CARLSON: Absolutely. Right. Not being a risk expert myself, but yeah, I mean there's a lot of different ways you can get into the structure of this model and measure those kinds of activities. The retirement community, you'd probably look at changes in the growth rates, changes of the

absorption of housing units that are traditionally those that would be occupied by the retirement population.

DR. CANTLON: Some of the critics of DOE raised the specter that you cannot generate baseline data now because the stigma effect is already in operation. How would you address that?

DR. CANTLON: You're getting me out of my field of expertise, I think. You know, we've obviously seen information to that extent, but that's a field that I would not classify myself to be an expert in and would feel uncomfortable to try to respond to something and get in over my head.

DR. CARTER: We'll accept that.

MR. CARLSON: And, finally, we have the Box 9 which gets into the analysis of potential impacts and we use as an example, the monitoring program which gives us an historical view of what the employment in Nevada at the Nevada Test Site has been. This gives you a perspective of the data that has been recorded through the monitoring program since actually the first part of 1988. You see a significant deviation in the trend during the approximately April time frame of 1988.

This was during the period of time where the survey was being conducted by the State of Nevada in cooperation with the Department of Energy to try to determine some of the characteristics of the workers. So, the time that was spent

to fill the questionnaire out was actually assigned to the project and consequently you see a significant deviation from the normal trend. It gives you some kind of a feeling that, you know, the monitoring program as it's set up, strictly in terms of employment at the test site, appears to be working.

And, now we go to the monthly full time equivalents in Nevada and we see the decline in employment that was referred to earlier during the first part of 1990 which, as I understand it, is basically accountable for the layoffs that would have been for the design engineers because of a budgetary consideration, as well as a delay in the schedule of the project. So, we see that slight deviation in the employment levels during the first part of 1990.

And, finally, we provide a comparison of the projected employment from the 175 Report as opposed to the actual employment levels in terms of full time equivalents from the monitoring program. And, keep in mind the straight line on the graph would be the estimates that would have been developed in preparation for the work on the 175 Report. These would be inputs to the model structure. These would be engineering estimates that would have been made in the early part of 1988, assuming a schedule as was shown on the chart so that we would be in site characterization between 1988 through 1998. So, these estimates are obviously going to be -- will represent our current monitoring program to be an

underestimate of the employment as it might relate to the actual project activities.

DR. CARTER: John, could I ask you a couple of specific questions?

MR. CARLSON: Yes, sir?

DR. CARTER: Let me make sure we show for the record the blip as a result of the state doing the survey in 1998, that was a difference of some 1,100 people, I believe, in the --in the data.

MR. CARLSON: Yes, sir.

DR. CARTER: And, that essentially was the fact that they were counting NTS workers in Yucca Mountain?

MR. CARLSON: Yes, sir.

DR. CARTER: Okay.

MR. CARLSON: To complete the survey work that they were doing. It may have only been a couple of hours per worker, but still it was assigned.

MR. GERTZ: When a worker filled out that questionnaire, he charged time to the Yucca Mountain Project. as a result, the company's reported those people as being working on the project that month.

DR. CARTER: Okay. I wanted to make sure the record showed that. How do you define on-site workers? Now, is this the people working at Yucca Mountain or is it people that might be Yucca Mountain Project folks that spend full



time in Mercury, for example, or what?

MR. CARLSON: It's workers within the State of Nevada. It would include Clark County. No?

DR. CARTER: No. I'm talking about on-site now, not off-site.

MR. CARLSON: Just NTS related. Just NTS workers.

DR. CARTER: These are your descriptions. Most of these graphs and these quarterly monitoring data or -- like Yucca Mountain Project monthly employment. You've got on-site workers and off-site workers and I'm trying to find out precisely what you consider on-site workers?

MR. CARLSON: On-site workers would be those that would be physically located at the Nevada Test Site. Off-site would be those workers within Nevada that would be anywhere else other than the test site.

DR. CARTER: Okay.

MR. CARLSON: So, on-site would include Mercury and, you know, all of the --

MR. GERTZ: Sample management facility people working out the geologic research facility.

DR. CARTER: Yeah, that's what I was trying to find out. Okay. It's sort of inclusive if their connected with Yucca Mountain, per se, or the Nevada Test Site, in essence, or locale.

MR. GERTZ: Yes, sir. Well, excuse me, when we say on-

site workers, we mean on-site doing Yucca Mountain work.

DR. CARTER: Okay.

MR. CARLSON: Yeah.

DR. CARTER: Now, the other question, how do you round off the EFT's? Is this rounded off to the nearest tenth or two-tenths?

MR. CARLSON: Full time equivalents?

DR. CARTER: Yeah.

MR. CARLSON: It's to the nearest half, I believe.

DR. CARTER: Nearest half.

MR. CARLSON: Half a worker.

DR. CARTER: Okay.

MR. GERTZ: I'd like to just make a comment on the graph about projected versus actual. Certainly, it reflects a change in the schedule from what the schedule was perceived and it also reflects the appropriations of Congress. If there is not money, there is not people. And, that's another variable to be considered in all projections and this reflects it very vividly right there.

DR. CARTER: Okay. I had another question about the data in the monitoring report and this is the one, I guess, for January through March of 1990. But, there's a table that says Yucca Mountain Project's residential distribution of employees in states other than Nevada --

MR. CARLSON: Yes, sir.

DR. CARTER: And, two questions, you've got listed now a number of states specifically, Arizona, California, Colorado, New Mexico, and Utah, and then you've got other states. So, my question is I'd like to know, I guess, where other activities are ongoing that pertain to Yucca Mountain and whether, for example, you include here the headquarters contingent, for example, in the D.C. area and the ones that live in those states nearby, Virginia, Maryland, and so forth.

MR. CARLSON: Those workers would identify their primary residence to be in some state other than Nevada. They make --

MR. GERTZ: The question is, no, the DOE headquarters workers to the best of my knowledge are not included in there.

MR. CARLSON: I thought I said no.

MR. GERTZ: Okay, no.

MR. CARLSON: The residential distribution, now those people are physically at the site or working with the Yucca Mountain Project, but they still identify their primary residence to be in some other state. If they've migrated here, for example, and have not sold their home in a previous state from which they've come, they still classify that to be their primary residence.

DR. CARTER: Okay. So, this is a decision they make?

MR. CARLSON: Well, it's the assignment they make to their permanent residence.

DR. CARTER: Well, that's a decision they make, I presume.

MR. CARLSON: Yeah, they may be living here in temporary quarters or renting something until they can sell their home or whatever.

DR. CARTER: All right. That helps.

MR. GERTZ: I don't know what other states are included, but we have Pacific Northwest Labs working in the state of Washington. We have lots of people working on the Yucca Mountain Project in --

DR. CARTER: Yeah, I know. You know, you've got Apache Leap. There are a number of things going on.

MR. GERTZ: Sure.

DR. CARTER: All right.

MR. CARLSON: Okay. Just as a recap, we've tried to identify obviously the unique characteristics of the geography that we deal with in terms of southern Nevada, the economic and demographic characteristics, and how those affect our ability not only to monitor in developing accurate benchmarks, but also in terms of the development of short and long term forecasts. The limitations of the methodologies that we've described are such that the lack of secondary data in the rural counties, in particular, provides a lot of

problems in terms of being able to develop consistent benchmarks between the rural counties and Clark County. The benchmark data for Clark County obviously comes from decennial census. And then, from that, from the local planning agencies. Most of the information that we retrieve for Nye and Lincoln Counties comes from primary field research and the utilization of administrative records from utility companies and the like.

The program requirements, as we've tried to address, in terms of the development of the ongoing process and how we would envision this evolution of the technical program, in terms of how we might become not only more technically advanced, but more flexible in terms of how we would address some of these issues.

I'd be glad to answer any other questions anyone might have.

DR. CARTER: All right. Dr. North?

DR. NORTH: I'd like to reiterate my previous point going back a couple of slides to any one of the ones you've called general approach for addressing potential effects. I'm concerned lest this be a methodology applied to generating one set of forecast analysis of potential impacts.

I think given the uncertainty you have, the long time scales involved, the concentration on the mining industry, the dependence of this region on other Federal facilities, such

as the Nevada Test Site and perhaps Nellis Air Force Base, it seems to me you need to consider a set of sensitivity cases rather than one baseline case and look at the analysis of potential impacts in Box 9 given a variety of scenarios for what could happen in this region, not just one.

MR. CARLSON: Yes, sir. Although we didn't go into the detail, during the preparation of the 175 Report, there were four different scenarios, at least four different scenarios, that were identified in terms of the potential impacts that some of these decisions that you're referring to could make over the long haul. I skipped over it because of the time limitations, but there was sensitivity analysis done during the development of the 175 Report and as these different sensitivity analyses might affect each of the individual communities that we have referred to here and it's worked that we continue to -- that we see something that we will continue to develop in the future.

DR. CARTER: Yes, Dr. Parry?

DR. PARRY: I'm sorry to take you back to your slide on the Section 175 Report. I'm a little confused by the changing ratios between Nye and --

MR. CARLSON: Oh, okay.

DR. PARRY: The changing ratios between workers from various counties, Clark and Nye, and then trying to compare that or relate that to the information that you provided

listed as economics.

MR. CARLSON: Yes, sir.

DR. PARRY: I wonder if you could care to, you know, try and clarify that? I notice it looks like 90% of the people will be coming from Nye County during the construction and operation phase.

MR. CARLSON: This would be the location of the jobs themselves. As it was characterized here, during site characterization, the majority of the jobs would be more of a professional engineering nature and would probably be concentrated in the Clark County area. During the construction phase, the vast majority of the workers, construction workers, would be located in Nye County. So, these are the engineering estimates of jobs at place of work.

DR. PARRY: So, the key phrase is job location?

MR. CARLSON: Yes, sir.

MR. GERTZ: Yeah, not necessarily where they're going to live.

DR. PARRY: Yeah, okay.

MR. CARLSON: No, sir, not at all. It's jobs at place of employment. Just as the economic data reports employment at place of work, so would these engineering estimates that were developed for the 175. It's place of work, not place of residence.

DR. BARNARD: That's an outdated schedule, isn't it?

MR. CARLSON: Very much so.

DR. CARTER: Okay. Any other questions for Mr. Carlson?

MR. GERTZ: Dr. Carter?

DR. CARTER: Yes?

MR. GERTZ: I'd like to read into the record a question you asked us before about the grants and I'll provide you those comments. I'll provide this for you in the record. But, since the inception of the program, we've provided the State of Nevada about \$39,500,000 in grants. In 1989, we started funding counties directly. Previous to that, the counties received funding through the state's money, but -- and these are figures through '90 -- Clark County has received \$6,300,000; Nye County, \$2,700,000; and Lincoln County, \$990,000.

DR. CARTER: Okay. Carl, do you have various categories in which those funds were allocated or distributed?

MR. GERTZ: We do.

DR. CARTER: Okay.

MR. GERTZ: Some of it is for technical oversight, some of it is for socioeconomic studies. They provide us a scope of work and we --

DR. CARTER: Yeah, we'd like to have a breakdown of that information.

MR. GERTZ: Sure, we'll provide that to you later on for the record and I'll provide you this for the record.



DR. CARTER: All right. Okay.

MR. GERTZ: And, my only other comment is, as you're well aware, the schedule has changed. We're going to be studying the mountain for the next 10,000 years or next -- we're going to be studying the mountain to the year 2000, maybe 10,000 years, a Freudian slip. As we study the mountain, we expect our Nevada workforce until the year 2000 to be approximately in the 1500 numbers.

DR. CARTER: Okay. You are awake. This wasn't something that came up in a dream or --

MR. GERTZ: No.

DR. CARTER: Okay. I want to thank then Mr. Lundgaard and Mr. Carlson for their presentations and now we're going to -- oh, excuse me, Wendy, yes?

MS. WENDY DIXON: Excuse me, I'd like to make a closing statement after the last two presentations and that is that I think your assessment that we started out basically in the Bean County mode is probably a correct one. What we were looking at, as was described, was significant impacts. What we did was move from significant impacts to effects which led to the 175 study which led to the four communities that we looked at in greater detail with respect to services and service providers. And, from that, we used that Section 175 Report and its results to move into the consultative draft of the socioeconomic plan.

And, what I'd really like to emphasize in closing is that we sent out that document as a consultative draft, albeit removed from the 175 Report, but because we are looking at an expanded program, we're looking at taking input from the state and affected local governments and moving into an evolution of our program based on that input. And, we have received numerous comments from state and local governments on that plan, comments requesting that we broaden the geographic scope of our socioeconomic studies beyond the four communities and our technical scope, and based on those comments, we'll be moving on to, like I said, the next phase of our program which will be broader, which will include those issues, and generating a process whereby we figure out together the best way to collect data, whether we do it independently, whether one party does it and they share it, what kind of schedule it's necessary on, and basically moving into the consultative process or mode that you have been asking about during the course of this morning.

DR. CARTER: Okay. We appreciate that and I think the record will show of our concerns that have been discussed or brought up here at the present time.

We certainly want to thank each of the morning speakers and after the break that we will have in just a moment, we will be hearing from representatives of the Shoshone National Council and also three of the counties that

have been discussed to some extent here already; namely, directly from Nye County, Clark County, and Lincoln County.

So, with that, I would like to have a break now for 15 minutes and we will begin promptly at 11:00 a.m.

(Whereupon, a brief recess was taken.)

DR. CARTER: The next presentation will be by a Nye County representative, namely Mr. Stephen Bradhurst. He's with the Nye County Planning Commission. Steve?

MR. STEVE BRADHURST: Dr. Carter, members of the panel, for the record my name is Steve Bradhurst and I am Director of the Nye County Nuclear Waste Project Office and have been directing the Nye County Project Office since 1983. So, when the State of Nevada received a letter in 1983 from the Department of Energy indicating that Yucca Mountain was one of nine sites to be considered as a repository, Nye County soon after that started to gear up and put together a program at least to monitor DOE activities, as well as to be involved in developing data and things of that nature. And, as you'll see in our presentation this morning that we have, I believe, come a long way since 1983.

With me this morning is the socioeconomic advisor to the Nye County Nuclear Waste Repository Program and socioeconomic advisor is Planning Information Corporation out of Denver and the two principals that are here, George Blankenship who is sitting to my left here with the overhead

and Jim Williams who will be giving a followup presentation, a brief presentation on the socioeconomic component of our program and I think you'll find that quite interesting.

As far as what I'd like to cover this morning, I'd like to provide a brief overview of our program, the history organization, and a program of work, as well as key policy issues raised with DOE on DOE's socioeconomic program in line with your questioning this morning of DOE's activities in this area. I'd like to talk a little bit about this panel and its involvement in the socioeconomic area and the arena and also, as I mentioned, get into the specifics of our program, that portion of our program that deals with socioeconomic studies.

The next overhead is just by way of orientation. I'm sure you don't need this, but I'm quite pleased with the graphics so I thought I would show it to you anyway. But, you can see that Nye County is the third largest county in the United States area-wise. It's a little over 18,000 square miles and you can see the Nevada Test Site, as well as the Nellis Air Force Base gunnery range and the communities at the very far southern part, the town of Pahrump, the town of Amargosa Valley, where the Transportation Panel met a couple of months ago. The town of Beatty as you go on up Highway 95, you can see it next to Beatty, is Death Valley National Monument. Of course, that extends over into

California. Further north on Highway 95, you see Tonopah. Then, all the way up to the left there, you may not see that clearly, but that's our only city and that's the city of Gabbs, population of about 800 people. Then, you can see the Yomba Indian Reservation and Round Mountain is the area that's cross-hatched, a lot of road and development activity occurring there. And then, further to the right is the Duck Water Indian Reservation.

We quite often say that Nye County is in central Nevada, it's in southern Nevada, it's in eastern Nevada, and it's in western Nevada. The only place it isn't in is northern Nevada, but it definitely is in all those places because of its geography, unique geography.

DR. CARTER: Steve, are most of the people in the Round Mountain Valley here, is that essentially retirees and so forth?

MR. BRADHURST: No, sir. Round Mountain is -- the primary activity in Round Mountain is the Round Mountain gold operation and that's Echo Bay out of Canada and they have the largest heap leaching operation in the United States and maybe in the world. It's a significant operation. They produce a lot of gold up there.

The next viewgraph is again of Nye County, but this is more specific to the repository program. You can see -- George, if you'll point it out -- Yucca Mountain, of course,

down there in the southern portion and you can also see the proposed rail routes to Yucca Mountain that are the subject of studies by DOE. The first study this year is on the Caliente Route -- George, if you'll point that out -- from Lincoln County on across south of Tonopah and then south through Esmeralda County and then back into Nye County to the site. And then, there are two other routes, the Jean Route, which is the southern route coming off the Union Pacific, and the northern route would be the Carlin Route coming off of the Southern Pacific.

The next slide, please. As far as the history of Nye County's program, I mentioned just briefly that the county has been involved since 1983 and our funding originally was from the State of Nevada. Early-on, the Federal Government, DOE, decided that any funding that would be provided as far as to governments in Nevada had to go through the state office and the state office fortunately wanted to work with the local governments. So, the state office, in turn, had contracts with Nye County and Lincoln County and Clark County, as well as a couple of the other entities in Clark County.

Nye County worked very hard in 1987. It was apparent that the Nuclear Waste Policy Act was going to be amended and we appeared before one committee and testified and our testimony essentially was, look, if you're going to

amend the Nuclear Waste Policy Act of 1982, we'd like to have you insert wherever you see "state", put "and affected unit of local government". And, that did occur.

Later, while they were working on this revision -- and I mentioned this to the Transportation Panel and I won't bore Dr. Carter with this, but the Bullfrog County, the infamous Bullfrog County surfaced about May of 1987. So, we went back and talked to some people on Capitol Hill. They had not finalized the Amendments Act and that, of course, did not occur until December. But, we asked the folks on the committee if they would change the definition of affected unit of local government from the situs jurisdiction to the situs jurisdiction and the adjacent jurisdictions -- in fact, George, if you'll put that previous viewgraph up -- and to the adjacent jurisdictions if in the eyes of the Secretary of Energy the adjacent jurisdictions should also be designated as affected. The reason being is that if Bullfrog County existed, which was the Yucca Mountain site, that Nye County would surround it and, therefore, we would have the opportunity to petition to the Secretary of Energy to have the affected status designation in case we didn't win the battle in Court. We did win the battle in Court and so Bullfrog County no longer exists.

To some extent, the embarrassment has disappeared, but it's still there, of course, for the State of Nevada.

But, what that did is the law remained the same because we didn't win the Court battle until the following year and, as I say, the previous year the law went into effect. What that meant is that all those counties surrounding Nye County have the opportunity to go to the Secretary of Energy and get designation as an affected unit of local government.

I might point out in your press release for this meeting today, September 15 press release, it says, talking about who is going to testify before this Review Board or this panel, it says, "Additionally, representatives from Clark and Lincoln Counties have been invited to make presentations. In the Nuclear Waste Policy Amendments Act of 1987, Congress designated Clark, Lincoln, Nye County as the affected units of local government." That is not the case. In the Nuclear Waste Policy Act as amended in 1987, Nye County, the situs jurisdiction, was designated as the affected unit of local government. The other counties do not get that designation. Legislatively, they have to go to the Secretary of Energy to get that designation. So that there's only one jurisdiction that is written into the law, the others have to go to the Secretary of Energy to get the designation. And, as was pointed out earlier, Lincoln County and Clark County did do that. White Pine County, Esmeralda County, and Inyo County over in California have been denied that designation by the Secretary and Esmeralda County and



Inyo County are before the 9th Circuit Court of Appeals to have that overturned.

As far as the situs local government, our feeling, of course, is we would be directly impacted. As we pointed out to DOE, the word would be first among you equals or primus inoperis of all the jurisdictions out there. We feel that with the repository located or possibly located in Nye County, also with the rail and possibly having some of the work force located in these small communities of 1,000 people, you bring in 100, 200, that you could see a significant impact. That we think that the potential is there for Nye County to receive significant impacts when you compare that to, let's say, Clark County, with a population of a million people or the Las Vegas Valley with 700,000 some.

As the jurisdiction designated as the situs jurisdiction, we have the responsibility or the authority to have an on-site representative and Nye County has not exercised that authority yet. We will do that when something is occurring at the site. We also have, of course -- we're the only jurisdiction to have the authority to re-seek grants equal to taxes and, as was pointed out earlier, we have done that. We haven't been successful, but we have done that. And, of course, we receive independent funding from DOE as a result of the Amendments Act starting in July of 1988. Our

focus has been on socioeconomics and we have relied on the state in the geotechnical area and, as you will see in our program, we're going to be making some changes in the future.

As far as the program itself, and I'm not going to go through this list, but some might say it's motherhood and apple pie, but these are the things that Nye County, these are the reasons that we're involved in this program, primarily to protect our citizens, not only the people that live in the community today or these communities today, but also those that will be there in the years to come, to make sure that if this program does go forward that there is some impact assessment and planning and mitigation work done to try to soften whatever adverse impacts may occur out there.

If you'll go to the next overhead, George. This gives you a pretty good picture of the county's repository program. Board of County Commissioners set policy. I manage the program. So, I implement that policy and I have, as far as a program goes, the management policy support program which would be contract administration, technical advisor, legal advisor, data base development and management, a CPA to monitor the grants or the contracts, as well as, of course, grants equal to taxes. Under the actual program components, you see public involvement/education, impact monitoring and assessment which has two parts to it, the socioeconomic program and environmental program. Our environmental program

is new and it has not started. We have focused, as I mentioned, on the socioeconomic program, but we have in our FY-'91 grant application to DOE work to be done in the environmental program area. Geotechnical program, it's the same. We have relied on the state, but we will be doing some work in the geotechnical area primarily oversight and monitoring and what have you, nothing original. And, finally, we have our procurement outreach program which has been in place for close to a year.

As far as the program of work and it's very clear there that Nye County performs its oversight role and that's, as mentioned earlier, was primary responsibility or role of the county from 1983 to the present through document review, attending meetings, and direct participation in various repository type activities, and independent data collection, socioeconomic, as well as radiological health monitoring.

The emphasis has been, as I mentioned, on socioeconomic and we will be going into other areas in the near future. And, we have also provided testimony to various Congressional committees, whether it be oral or just written testimony. And, you have before you our latest testimony that we provided to the Subcommittee on Nuclear Radiation of the Senate Environment and Public Works Committee on October 2. I think you might find that useful. It outlines the county's activities, also Nye County's position on the

repository program, and also there's some attachments, such as the letter from me to DOE regarding our grant entitlement, what is a grant, and regarding the grant entitlement claim that we made to the Department of Energy in March of 1989, and there's also our comments on the DOE Yucca Mountain Project socioeconomic plan.

DR. CARTER: Steve, could I ask you one question? We heard yesterday and have heard before, of course, there have been a number of comments about I guess the lack of information and data on radiation monitoring programs. And, I gather from what you're saying and others that actually in addition to some other programs which have not been mentioned, there is indeed a sizeable number of independent monitoring programs that are looking, I presume, at radio-nuclides in the environment and those data from such reports are publicly available. Is that --

MR. BRADHURST: Our only source of data on the radio-nuclides would be from DOE. What we plan to do is to look at the location of the people, look at the dwelling units, and things of that nature. In other words, build on DOE's radiological monitoring program. We will not be going out and taking measurements, meteorological measurements and things of that nature. So that if the data exists in that area, Dr. Carter, we would rely on DOE. Where we expect to depart is to take the DOE activity or information, radio-

logical monitoring program information on the people, and other activities, commercial activities and what have you in the area, and build on that and you'll see that in a few minutes.

DR. CARTER: All right. Thank you.

MR. BRADHURST: As far as key socioeconomic policy level issues raised with DOE, our feeling is that the county should be the primary source for county level data collection and the county's models should be the source of assessing sub-county impacts. And, we have talked to DOE about this. There certainly is a common thread in our comments to the socioeconomic plan and I think that we will probably come to a resolution on that and our concerns and questions and what have you in the near future.

We're talking about processes. If you go down to the second bullet, processes for addressing key socioeconomic issues should be defined and consultation with affected parties. What Nye County has done and we're quite pleased and we have to applaud DOE is that we have essentially initiated a process with DOE where we said, look, we've got some concerns about how we interact, we have some concerns about the socioeconomic data, how it's collected, who collects it, the analysis done, et cetera, et cetera, and we think we need to sit down and develop some agreements on who is on first and who is on second and who is doing what as we

move down the road. And, DOE has agreed to do that. We've had two meetings to date of the DOE team and the Nye County team and we're working on what we call for lack of a better word as protocols between DOE and Nye County on socioeconomic work, as well as o interaction. And, we'll be working on other protocols as this program unfolds. So that it's on paper. We have the agreement of the Department of Energy and the Nye County Board of County Commissioners as to who is to do what in this program that could be fast-moving in the near future.

As far as the grants equal to taxes, I'm not going to spend a lot of time on this. We have, as I mentioned, submitted an entitlement claim. Nye County is the situs jurisdiction. We have a right to do that. Our entitlement claim was for three tax years based on the tax value placed on that facility by the State Department of Taxation using consultants. Nye County did not develop the tax value. The liability value was determined by the State Department of Taxation. There's a difference of opinion between the State and Nye County on one side and DOE on the other in terms of what is the tax liability. And, it was mentioned earlier there was a notice of interpretation that went out recently by DOE saying we think it ought to go this way. And, so we've responded to that notice of interpretation in terms of how to determine that liability, as well as others.

I might say that, you know, I mentioned this before to DOE, as well as my friends in other counties in this state, as well as the state legislators, and that it's great to have grants equal to taxes written into the law. We think that certainly if the private sector were responsible for this repository, they'd be on a tax roll. So, there would be a tax flowing to the situs jurisdiction and that money would go into our general fund and we would spend it however we choose. DOE is saying, well, we're going to determine the value and we're saying, no, that's not the way tax law is determined or is practiced in this state. We don't have General Motors coming in and telling us what the value of their property is. It's something that is determined by the local assessor or by the State Department of Taxation. But, when we look back in time and we see the problems that we have experienced with grants equal to taxes in terms of the feeding frenzy that occurred in 1987 that manifested into Bullfrog County, at times my client wonders if it may have been better just to eliminate that provision from the law altogether and that would have lessened that feeding frenzy because I'm convinced that the reason for Bullfrog County was desire on the part of others in this state to cash in on what they thought was big bucks coming from GETT, grants equal to taxes.

We have not gone to Court. We are trying to get

DOE to make the payment. We're coming up -- probably in March of next year, it will be two years that our bill has been out there. We're working with DOE. We're trying to understand why they aren't going in our direction. Our recommendation was, look, if you don't understand or you don't want to agree with our tax entitlement claim, our GETT entitlement claim, why don't you form a third party or bring in an independent third party association of appraisers or tax collectors or whatever and have them look at our tax entitlement claim, look at the background information prepared by the State Department of Taxation, and we'll go with their decision.

As far as the last viewgraph, and I briefly mentioned this in the Transportation Panel Meeting in Amargosa Valley, I am very pleased that this panel is giving us the opportunity -- local governments, as well as DOE, an opportunity to talk about their socioeconomic program and would like to think that this would be an integral part of the Technical Review Board. As I mentioned, as I say, at the Transportation Panel Meeting in Amargosa, it would be nice to even have, quote/unquote, "a specialist" in the socioeconomic impact assessment area on the TRB if that was at all possible, but you're filling up quickly the seats, as I understand it. But, we do think that it needs your attention. We think socioeconomic impact assessment is an



integral part of the DOE program, certainly a site characterization construction operation, and we think you need to be plugged into that. And, as I said, I'm very pleased that you are showing some interest and I hope that this will continue.

As far as the component of our program, our Nuclear Waste Repository Program that deals with the socioeconomic activities, assessment, planning, mitigation, what have you, I'd like to ask Jim Williams with Planning Information Corporation -- as I said, PIC, Planning Information Corporation is our socioeconomic advisor. They have been on board since November of last year. A work program was developed, submitted to the Nye County Board of County Commissioners. That is a socioeconomic work program. It was approved. And, you'll see from what Jim presents that we've covered a lot of ground in a short period of time. So, we won't take much of your time, Dr. Carter, but would like to have Jim step forward at this time.

DR. CARTER: Okay. I wonder, Steve, if you'd give us a brief resume of your background, please?

MR. BRADHURST: I have a bachelor's degree in planning from George Washington University, a master's degree in geology from the School of Mines, University of Nevada-Reno, assistant director of the Regional Planning Commission here, Reno/Sparks/Washoe County. I directed the state MX assessment when the Air Force was thinking of putting the MX

Missile Project in Nevada. I've been directing the Nye County Repository Program since '83, as I mentioned, and am also a consultant.

DR. CARTER: Very good, thank you.

MR. BRADHURST: Jim?

MR. JIM WILLIAMS: I'm Jim Williams. I'm with Planning Information Corporation and this is my partner, George Blankenship, who may help me respond to some of your questions if you have some.

DR. CARTER: Well, maybe you could start by giving us a little background on yourself?

MR. WILLIAMS: I went to Williams College which is in Massachusetts. I went to the University of North Carolina in urban and regional planning. I was a community planner at a fairly intensive level for about a decade in the east coast.

Someone here mentioned the synfuels program. That was my first major initiation into socioeconomic assessment formally when I was working on the Ford Administration's programmatic socioeconomic assessment of the synthetic fuels program.

DR. CARTER: Several of us were involved in that debacle one way or the other.

MR. WILLIAMS: Since coming out west, George and I have been heavily involved in oil and gas socioeconomic impact assessment in Wyoming, Utah, overthrust belt stuff including a major several year association with the Exxon LeBarge

Project which at one point involved 7,000 people and employees and three or four counties in southwest Wyoming. Also, involved in oil shale development in Colorado, socioeconomic assessment of that in about 10 gold mines in various states in the Rocky Mountain west. And, since 1986, on the repository program beginning as part of the state Yucca Mountain socioeconomic team.

I'd like to say before talking about the Nye County socioeconomic program just a few words about Nye County, the place. I understand that your panel has met in Amargosa so that you have a basis for appreciation of some of the character of Nye County. But, it's worth repeating, the sheer size of this county. I mean, this is not a county on the eastern model where every part is within a one day round trip wagon ride from the county seat. I looked this up in the City and County data book and Nye County is about the same size as New Jersey, Massachusetts, Delaware, and Rhode Island, all together. The implication is that its settlements are separated by vast stretches of desert, by large Federal reservation of land withdrawn for special Federal purposes, and that its settlements in various places have very different economies, different demographic characteristics, different trade orientations. I mean, these are different places in different parts of the State of Nevada, virtually.

DR. CARTER: I can see this difference on a personal basis very well. I've lived in Nevada where I believe you have 17 counties and I reside in Georgia which I think has 106.

MR. WILLIAMS: So, that's one point and it's a point that we're trying to capture in the socioeconomic program and I'll get to that.

The second point -- and this is a point made by John Carlson, but it's one that we are responding to -- is that like a lot of rural communities that we've dealt with we find a lot of people there, citizens and in local government, who have extraordinary and extensive knowledge about the character of their county and concerns about it. On the other hand, the formal information systems especially for socioeconomic assessment are rudimentary, at best. And, so we are trying to part and to fill that gap.

The next map shows what Steve has already said, that Nye County is affected. That is the site for the repository. It does have the three rail lines selected for study by DOE across large stretches of Nye County and affect not one, but several communities. And, it may be worth -- one of the distinctions between this program and, you know, some other socioeconomic programs that I've been involved in is the, you know, extraordinarily long lead time for repository planning, development, and operation, and the many

uncertainties involved with the repository program. And, that forces us to consider at a pretty intensive level, the development of monitoring and updating and testing of a socioeconomic assessment system and transferring that to local people and making it part of their ongoing capabilities. So, that's a point that I wanted to make.

On the next one, in the program we're trying to combine three distinctive types of activities. In the center, a set of assessment and projection systems developed to reflect Nye County conditions at the county and the sub-county community level which we hope to use to assess repository impacts in a Nye County context. On the side, to update those projection systems and recalibrate them with a set of information systems and monitoring systems also at the county and the sub-county level. And then, the projection systems on the right are informed by a series of special investigations and analyses of particular communities or particular policy topics. For example, to investigate economic prospects in a particular community or growth policy options.

Now, on the next one, I'll just sort of sketch through how these topics are elaborated here at least in our concept as it's developing. The assessment and projection systems are which is kind of the core of the assessment system are a linked set of economic/demographic and fiscal

models, each of which operates at the county and the sub-county level. The economic and demographic model incorporates specific current information about key enterprises in Nye County. For example, NTS, the Tonopah Test Range, Bond Gold Enterprise in Beatty, Round Mountain Enterprise in Smokey Valley, the Death Valley, what is locally called the Death Valley Loop, a linked series of roads that extend through Death Valley out to U.S. 95, Amargosa, Beatty, and so forth. That's kind of a tourist loop. And, information about the future prospects of specific enterprises or areas. And, we have looked at some of these things on a scenario basis. What happens if it develops the way planned, what happens if it develops in some way different than planned, what happens on the back side of the impact process for these communities?

These facilities and service system components are developed to identify and measure types, levels, and costs of various kinds of services and facilities in Nye County now. Both the currently achieved levels of services and the alternative standards which the community aspires to, but can't achieve because of revenue limitations or levels that are going to be required of a community under mandates that we can foresee. Landfill is an example. You know, the historical approach to landfill is about to come to an end. The new approach is going to cost a heck of a lot more money.

We want to have some information on those kinds of things.

The revenue projection portion of this is designed to reflect the Nevada specific state and local revenue structure, significant portions of which are state controlled with revenues collected by the state and allocated by the state. And, Nevada is an extreme example among the 50 in that regard. And, other portions of which are vulnerable to sudden increases or decreases. And, mine proceeds is one key example of that one. In any case, operated in integrated fashion, what we are aiming to do here is to develop a system designed to assess a repository scenario which incorporates various uncertainties in the repository in its Nye County economic, demographic, and fiscal context. And, to do that -- and, I think this is in a way that describes those impacts in a way that it's not only defensible to panels like this, but also that makes sense to Nye County residents. It's important for Nye County residents to see Round Mountain in this system or Bond Gold in this system or NTS in this system or the Beatty Ambulance Service in this system. And, we've found that if this system for its complexities can also present information at that level, then it gains credibility among the local people who need to believe in it and use it and test it and make it part of their ongoing operations.

The next one, George, just adds to that core a set of information systems that are required for update and

recalibration. And, yes, there is some secondary data that's useful at the county level; for example, the BEA data on employment and income and earnings and so forth. But, we are trying to incorporate into this system also information at the community level which needs to be developed. For example, specific information on, let's say, the Bond Gold employment residency patterns, wages, purchases, hiring status, on-site residents if any, and so forth. That kind of information is part of this information system.

And then, George, on the next one, we add a column of linked studies that are special investigations of particular sub-areas or policies. And, examples have been growth management policies in the rapidly growing community of Pahrump that's beginning to think seriously about the implications of the lack of a growth management policy, the economic potentials under various scenarios in part involving the Tonopah Test Range in the Tonopah area, capital improvement programs and priorities, a whole report here on the Beatty mining development in Beatty, each of which of these studies on the right hand set of columns is trying to develop this assessment program so that it reflects Nye County reality.

Then, the next chart is one that has too many words for a good viewgraph, but it displays the building blocks of the socioeconomic program with the shaded blocks being items



that have been completed or underway in the last year and the unshaded blocks some of the items that are in the program for the upcoming year. We are finding that as we sort of develop this system that we tend to work back and forth among components. That the special investigations, when we get into what's going on and what the prospects are with the Tonopah Test Range, are indicating special prospects, policies, and information sources. That becomes part of our information system and our information system design and that becomes part of the model. So, we are sort of working back and forth among these kind of components under the columns.

The next one is a sketch of another aspect of the Nye County program and a type of information that's really lacking in Nye County which is a consistent set of maps and map information. We've begun to develop that set of map resources. On the right hand of the rows here are some of the types of information included. In South Nye, we've built upon work done by DOE and SAIC in their radiological monitoring program, but have attempted to compliment that with information related to growth management policies, fiscal conditions, facilities management in community by community. So, the plan is to sort of fill in that block community by community across the board and up and down.

Then, the last one that I have here, also a wordy viewgraph, but one in which we're trying to convey that Nye

County has considered in a fairly detailed basis some of the roles and responsibilities in developing and sharing and reviewing socioeconomic information in this study, considering the same basic set of topics that have been on the left hand side of all of these graphs, but you know, looking at who needs to be the primary source of this information and who needs to be in a review, consultation, and response and request capacity. Along the aspects of this that have to do with Nye County communities and Nye County government functions, I think the Nye County position is that Nye County wants to be the primary source and to develop these information sources and feels that that's part of its responsibility and obligation as an affected community, but to be absolutely prepared to submit all that data for critical review and response by other users, it needs to be credentialed.

DR. CARTER: Okay. Dr. Cantlon?

DR. CANTLON: To follow up on that, does the county have a QA system in place or is it evolving one?

MR. WILLIAMS: I'd say it's evolving one. We're sort of developing the system and the QA procedures at the same time.

DR. CANTLON: Um-hum.

MR. WILLIAMS: And, the system is in parts, but -- and subject QA procedures are also in parts. But, yes, there's a -- you know, each report is reviewed internally by somebody

that's not involved in that report and this extensive questioning in-house before that report gets -- I mean, we also, you know, intend to solicit active review of that outside the project.

DR. CANTLON: Um-hum. Have you done any consultation with DOE's QA processes in the socioeconomic data area?

MR. WILLIAMS: I don't think that we have, but Steve was mentioning this process initiated to some extent by Nye County in sorting out these roles and responsibilities and interactions at various points and I would assume that there's a place for that in that process.

DR. CANTLON: It would make good sense to get commonality there.

MR. WILLIAMS: Yeah.

DR. CARTER: Any other questions for Mr. Williams?

(No response.)

DR. CARTER: Let me ask you one. I don't want to put words in your mouth, but I guess what I've heard from you and also from Stephen Bradhurst is the fact that your activities in Nye County in the socioeconomic area are going along reasonably smoothly with DOE, the Yucca Mountain Project, and the State of Nevada. Is that a fair assessment? I don't mean all the problems have been solved or whatever, but I wonder if you want to comment on that, we would appreciate it.

MR. WILLIAMS: Steve?

MR. BRADHURST: Dr. Carter, we've had concerns with DOE in certain areas and we've had concerns with State of Nevada, but what we have done since my involvement is to avoid going out to the public with our correspondence and with statements and things of that nature. So, fortunately, we've talked to the state, we've talked to DOE, we've talked to them about our concerns, we've exchanged letters back and forth, and we think there's an effort. There has been an effort over the years to address these concerns and when they can't address them, they tell us normally the reasons for it and then we go on from there. So, I'd say our involvement with the state, as well as DOE, for the most part has been a positive one and we are very pleased that DOE has taken our invitation to sit down and try to formalize our interaction through, as I said, protocols, letters of agreements, what have you, so that if I'm gone, Carl Gertz is gone, Dr. Bartlett is gone, and this program continues, there's something on paper that says, DOE, you shall do this with Nye County and, Nye County, you shall do that.

DR. CARTER: Okay. Yes, Dr. Cantlon?

DR. CANTLON: Since the rate payors have to pay both DOE's expenses and the county and the state, not surprisingly the Board gets importuned periodically by representatives of the rate payors. And, is there any kind of oversight and

look at whether or not there's needless redundancy in data gathering? Is there some kind of a vehicle that would look across this process to try to move toward a -- not necessarily least costs, but at least looking in a very cost sensitive way at it because we're going to be at this a long time.

MR. BRADHURST: That's a good question and I think this chart that you see, this viewgraph, is the start of that. We have not again gone to the public and talked about the interactions, the effort by Nye County to formalize a protocol for interactions and sharing and analyzing socioeconomic data, but our feeling is that the primary effort here, particularly in the socioeconomic protocol, would be to do exactly that. And, you'll see that in our comments in the socioeconomic plan which certainly can be reviewed by anyone. And, we're saying, as Jim Williams pointed out, we think we have primary responsibility and there's no reason to duplicate effort here. That we have primary responsibility with respect to collecting information on Nye County, Nye County government, local facilities and service, and things of that nature, and DOE should verify it.

There should be a QA program and if they're not happy, then we need to sit down and address that. But, that way, we don't have DOE scientists, surveyors out there asking the same people the questions that we -- and, in effect getting

information from us because we collect the information and we're the source of the information. It just doesn't make sense for us to be having a program with that information and then have DOE come back and say, well, now, we want that information through their consultants who are spending a lot of money on the same effort. So, we're hoping that, as we told Dr. Bartlett, we think the effort that's put here with respect to these protocols should be something that should be emulated down the road maybe with the other local governments and the state to avoid duplication of effort.

DR. CANTLON: Shouldn't there be a third column on that which would be the state because clearly you've got three actors there, the local community, the state, and DOE, and the second point would be if you could get the three parties to agree on a common QA system so there's mutual respect for the data, then you don't need to generate it three different ways.

MR. WILLIAMS: I think that's a good point. Supplementary to that, we sort of brought along a foot high stack of --

DR. CANTLON: Handouts?

MR. WILLIAMS: Well, no, not handouts, just products that, you know, really I think as we produce these products they need to go through more a formalized review process than they have to date. And, we would welcome that. It's been

mentioned the NTS workforce survey which as we did under authorization of DOE, but of the contractor for the state and that's been completely shared, also along with a fairly extensive amount of material that's not included here that have been developed during state study about rural communities and their characteristics and --

DR. CANTLON: Could we get copies of your --

MR. WILLIAMS: Reports, sure.

DR. CANTLON: No, this set of handouts. I don't think we --

MR. WILLIAMS: You're supposed to have a copy.

DR. CANTLON: Oh, okay. All right.

DR. CARTER: Okay. Let me make one comment and then I think we'd better move along. One is that this is very important what Dr. Cantlon has raised in terms of potential redundancy and added resources and these kinds of things, and for a long haul that's, of course, going to be extremely important. And, I agree, certainly, there's at least the three actors that he's mentioned in the play. Now, the other thing that I would suggest to you is the fact that if you want your information and data to be used in the licensing process, then it has to be rather rigorous in terms of quality assurance and so forth. And, you know, if you've not thought extensively about that, we'd certainly recommend that you do that.

Okay. I want to thank each of you gentlemen, Steve, Jim, and George, for presenting this information and also for the material you've given us for the record.

MR. GERTZ: Dr. Carter, could I --

DR. CARTER: Yes, Carl?

MR. GERTZ: This is Carl Gertz. I just wanted to add to your last statement. Since DOE is the license applicant, if we're going to use any kind of data in a license application, it has to meet all the requirements of our quality assurance program for license application. And, while we really enjoy the sharing of data and the quality of a scientific data, that may not be the same as meeting the requirements for documentation in a licensing application. And, all parties may not have the same objectives of a licensing application, also. So, there may be some redundancy at some point in time just in order for us to meet licensing requirements, but we're working with Steve to try to sort that out.

DR. CARTER: Okay. Hopefully, you and I said the same thing different ways.

MR. GERTZ: Yeah, I think so.

DR. CARTER: Okay. We'll now turn in the program and we will hear from the Western Shoshone National Council and to make the presentation, Mr. Ian Zabarte. Ian, glad to have you with us.

MR. ZABARTE: My name is Ian Zabarte. Let me give you



some of my background. I've had two years of college in Las Vegas. I'm with the Western Shoshone National Council Wildlife and Plant Resource Commission. I'm a wildlife commissioner. I'm also a committee member of the Western Shoshone National Council Environmental Protection Committee and I've been involved with the state and local government steering committee for three years now. And, if you have any more questions on my background, I'll answer them. I appreciate the opportunity to give comments today on behalf of the Western Shoshone National Council regarding the Department of Energy socioeconomic study plans.

I have questions about the Department of Energy socioeconomic study program, as I'm sure many people do. It is very unsettling to me to see the Department of Energy continuing to maintain the illusion of a credible repository siting program. The Department of Energy has not accurately identified potentially involved Native Americans or potential impacts to Native Americans.

There is no method for Native American participation besides being an affected Indian tribe. And, because of this, we fear that the Department of Energy will attempt to minimize the significance of our socioeconomic situation and any potential impacts. It's very nice for the Department of Energy to suggest that it recognizes our special concerns, but this statement comes from an earlier

cultural resource study that had Department of Energy subcontractors appointing representatives on behalf of the tribes and coerced participation by these individuals through threats of future impact. When I saw and understood the self-serving and unethical achievement of these studies, I was disgusted.

An example of the lack of attention and focus by the Department of Energy or any subcontractors rests in the failure to even recognize or identify the 1863 Treaty of Ruby Valley at any stage in the investigation of Yucca Mountain. The 1863 Treaty of Ruby Valley is highly valued by the Western Shoshone people and is a basic and significant part of the fabric of the Western Shoshone Nation today. For me to be here today and still have the Department of Energy deny the importance and significant of the 1963 Treaty of Ruby Valley in any credible and reliable study of Yucca Mountain is unbelievable. The Western Shoshone people still have hunting, fishing, gathering, and other possessory and usage rights throughout Nevada and including the Yucca Mountain area.

The Yucca Mountain lands are part of a larger area which is occupied by the Western Shoshone ancestors for many generations in a nomadic manner. The lands aboriginally held by the Western Shoshone Nation were incorporated into the United States from Mexico by the 1848 Treat of Guadalupe

Hildago. That Treaty provided that in removing Indians or opening up their lands to settlement, the United States should not cause the Indians to invade Mexico. The United States Supreme Court has made it clear that Indian rights survived the transfer of the territory from Mexico. It also made clear that only Congress could extinguish title and that a mere executive action wholly unauthorized by Congress could not affect an extinguishment.

In 1863, the United States entered into a treaty of peace and friendship with the Western Shoshone Nation. The United States has admitted that the 1863 Treaty of Ruby Valley is in full force and effect. Article VI of the 1863 Treaty of Ruby Valley has not been implemented by the President of the United States by establishing a reservation for the Western Shoshone Indians within their ancestral territory as described by the Treaty. We would like to have a reservation established some time in the future on our lands if there are any lands available. That's part of the study that Bill Rossi was talking about yesterday when he spoke.

Yet, today, the United States asserts that the Western Shoshone Tribal title may no longer be asserted against the United States due to the preclusive effect of the Indian Claims Commission Act bar as determined by the United States and as continues to be defended and upheld by the Department of Energy when we have expressed our concerns for

the Treaty and title.

There is a gross misrepresentation being perpetrated by the United States that Western Shoshone title to their ancestral territory was extinguished. Western Shoshone title to land which includes the Yucca Mountain site was not at any time necessarily in issue during the past 40 years of litigation and was never actually litigated. It is the position of the Western Shoshone Nation that Western Shoshone title has not been extinguished or abandoned and such lands have been continuously used and occupied by Western Shoshone people and their ancestors according to aboriginal and treaty rights.

It is because of the 1863 Treaty of Ruby Valley that the Western Shoshone leaders have maintained peace and friendship with the United States. It is because of the 1863 Treaty of Ruby Valley that the Western Shoshone National Council believes that it must do what is necessary and possible to protect Western Shoshone interests at Yucca Mountain and to prevent the possibility of future impacts. We have a social contract with the United States.

Unfortunately, our concerns when expressed to the Department of Energy have fallen on deaf ears. There is no consultation nor coordination by the Western Shoshone Nation with the Department of Energy. The question of a Tribal role in nuclear waste decision making has been fabricated when

convenient for the fulfillment of Department of Energy operations, but at all other times, minimized. The most outstanding reasons for the sad state of these relations are a basic mistrust of the actions of the Department of Energy, a feeling that cooperation with the Department of Energy studies would be misrepresented as an endorsement of Yucca Mountain, a fear that by identifying specific sites of interest or concern, the Department of Energy could continue its program based on the false notion that Western Shoshone accord sacred status site-specifically rather than recognize that all land is sacred, and the reality on the part of the Western Shoshone Nation that there has been no measurable progress and little action to our priority concerns.

The Western Shoshone Nation's cultural and religious relationship with the land, water, and all growing things within our ancestral lands and our fundamental belief that the interdependence and the protection of the land, water, and all living things are a sacred duty under the Creator's laws and need to be understood by the Department of Energy.

The Yucca Mountain cultural resource studies were not an accurate scientific investigation about cultural activity and impacts and impact mitigation. The Department of Energy cultural resource study seemed more so to be an academic exercise for the enjoyment and benefit of the

Department of Energy and a handful of subcontractors. The Department of Energy's subcontractor study activity and reports are simply an amalgamation of primary and secondary source data designed to describe the existing conditions of a small sampling of Western Shoshone living on certain reservations and colonies and can only be considered a sampling of the immense body of information concerning the Western Shoshone Nation. It is based upon incomplete information avoiding the 1863 Treat of Ruby Valley. It seems that the Department of Energy is only collecting data that will not present problems that would preclude Yucca Mountain's use.

Take a look at the 1863 Treat of Ruby Valley. By itself, anyone could draw a question regarding the difference in conditions the Western Shoshone people may have experienced in the Great Basin as opposed to those conditions that may have been experienced by the Southern Paiute people who have no treaty with the United States. Though culturally similar, the conditions for each Tribe have rendered socioeconomic situations sufficiently unique that it could easily be warranted that discreet discussions of these two ethnic groups be done separately.

The Department of Energy has not chosen to discuss the two groups separately in its cultural resource study, but has instead chosen to minimize the involvement of the Western

Shoshone Nation by focusing on the Souther Paiute people and treating different socio-political and cultural differences for these two groups as similar. The Western Shoshone Nation believes that this a transparent attempt to avoid any potential problems that may arise through an accurate in-depth cultural and socioeconomic investigation in order to meet the threshold requirements of and compliance with Federal laws and regulations.

The Department of Energy site characterization process will have a significant and adverse socioeconomic impact upon the future of the Western Shoshone Nation. If allowed to continue without the necessary balance given to the concerns of the Western Shoshone Nation including title questions to the lands at and around Yucca Mountain, the Western Shoshone people will fall victim to yet another United States program with the effect of genocide.

The site characterization of Yucca Mountain for a high level nuclear waste repository presents a land use activity in conflict with Western Shoshone use and occupancy.

Social values, religious values, economic values of the land within the borders of the Western Shoshone Nation and the effect of the Yucca Mountain site studies upon these values are being discussed by the Western Shoshone people. These discussions reflect every change in the Yucca Mountain Project, as do the attitudes of the participants involved,

uncertainty, despair, disbelief, and fear, just to name a few.

In closing, I want to reiterate the belief and understanding of the Western Shoshone Nation that the 1863 Treat of Ruby Valley reserves for the Western Shoshone Nation certain social and economic rights, interests in resources that are highly valued and worth defending at any price.

I'll be happy to answer any questions.

DR. CARTER: Dr. Cantlon?

DR. CANTLON: One of the issues that I'd like to have you address is the extent to which the proposed site differs from lands occupied by the urban areas within the Tribal land region or rights of way of railways, highways, mining operations? In other words, is the Tribe making a point that is explicit relative to the proposed repository or is this more a general claim that the Treaty covers all of the lands and that all of the past uses are not recognized by the Tribe?

MR. ZABARTE: Well, as I'm sure you'll agree, this repository siting program is one of the highest profile activities that's been undertaken by the United States, even more so than nuclear testing until recently. We're part of that agreement, the Treaty. We recognize the activities that were involved in that Treaty. We may not agree with all of them. We would have never expected that mining would have



gone on to the extent that it is now with some of the strip mining that is being done. I live near Ely. It's still 80 miles away. And, from 50 miles away, I can see the open pit copper mine on the way to town. But, these activities are recognized and we have been involved in these activities trying to get reclamation for the mines, as Bill Rossi was telling you yesterday. I think that because the repository program is a high profile activity, we're doing what we can.

You know, we're not just here to be DOE bashing. You know, that's not why I'm here. We're here because we need to be involved. We have rights and interests. As Bill Rossi mentioned yesterday, he said we're land rich, but along with that, we're dirt poor. So, it's very difficult for us to defend what is ours. We have other interests, the environment around all these areas. The railroads were allowed to go through. They're still there. But, we have concerns that if we could, we would be addressing them with regard to transportation of nuclear wastes. Right now, my program is only funded at \$50,000. You know, the other states, other programs are millions of dollars. I think we've only broke maybe \$150,000 in over three years. And, it's difficult to really address those concerns. We have been able to get funding from other sources to do some of the resource studies that are necessary for us to identify our concerns, as Bill Rossi was mentioning yesterday, with regard

to cultural resources in a more site-specific manner, as well as our economic and hunting resources, grazing, wild horse management, and some of these other areas.

DR. CANTLON: Well, what I'm trying to draw you out on is it appears to me as a Board member that in a sense you've posed a Catch 22. On the one hand, there is a whole array of other types of activities that go on in the Tribal region and Tribal lands some of which, I gather from your last remarks, you would be content to see some mitigation to in a sense avoid unsatisfactory results of that land use. Yet, as I read your paper and listen to your presentation, you find it difficult to interact with the DOE for fear that that process of interacting endorses forward momentum. And, why then does the Tribal Council take that attitude on this repository when you don't take the same attitude on mining or any of the other uses of Tribal land?

MR. ZABARTE: Frankly, we don't know how to deal with these things. There have been times when we've been involved with the mining companies. You know, the BLM and other people have told them, okay, if you come across any remains, just go right over them because we don't want to get involved with the historic preservation or Native American Religious Freedom Act or any of these other Federal laws. And, we've had people try to deal with these from the different areas, but they just can't be dealt with in isolation. They're

being disturbed more and more. As I mentioned the last time I came before the Board, this is part of the problems that we're having and this is the only opportunity that I can see of in the future that there might be able -- that there might be the resources to try to do part of the research or studies necessary to gain a better understanding of how we can deal with these things in the future. We don't have specific places that we bury our people that won't be disturbed. We don't believe it's right to pick these people up and move them at any rate. I can't say that there's --

DR. CANTLON: Well, I guess what I'm trying to arrive at is are we at a situation in which it's an absolute no or is there a conceivable course of action that DOE or whoever eventually develops the repository can move that would be acceptable to the Shoshone Nation?

MR. ZABARTE: Personally, I'd like to see something that -- now, this is only my personal opinion -- that would work.

DR. CANTLON: I understand.

MR. ZABARTE: I mean, I'd like to see something that would work. I don't think that the Western Shoshone National Council or many of the elders would at any time in any way see any reason for disturbing those cultural resources and I would have to present their position.

DR. CANTLON: Um-hum. Yeah, and as I say, that's almost a no win proposition. You're there and it's a flat no and

there's no way to negotiate or proceed. And, it seems to me that if we're to move ahead in some kind of a consensus approach to it, that doesn't lend itself to any kind of a negotiation. You've just said no. And, that's your interpretation of what the Council's view is likely to be.

MR. ZABARTE: Yes.

DR. CANTLON: So, there may be no way that either you can win or that DOE can win.

MR. ZABARTE: It rides hard on my heart when these things happen. You know, you hear about these things. It's, you know --

DR. CARTER: Any other questions? Dr. North?

DR. NORTH: I'd like to follow up on the same line of thought as Dr. Cantlon and make a suggestion. I appreciate your position that for you the Yucca Mountain Project represents a unique high profile opportunity to make some generic concerns of your relationship with the U.S. Federal Government and with the development on the private sector in the State of Nevada on your ancestral lands which you want the acknowledgement through the Treaty of Ruby Valley and that's something that's really a legal issue that our Board has no authority to deal with. But, with respect to the area where we do have the responsibility, oversight of site characterization on Yucca Mountain, you know, it seems from what I understand of your comments that the issues are

similar in character to mining development or an Air Force base or the Nuclear Test Site or a number of other things that have gone on. It might be useful, at least for those of us that are trying to understand the Tribe's concerns, to see an example of what the Tribe would like for any kind of development -- call it Project X, treatment of ancestral burial sites, access for hunting, fishing, gathering, other usage rights, et cetera -- to give us some idea of what the potential might be for what I might call multiple use of this land where projects are not precluded and yet you can have as much as possible of the things that are important to you.

MR. ZABARTE: Your comments are well received. I think that some of the things that we're trying to do right now -- I can't do anything today about that, but we do have a lawsuit against the State of Nevada dealing with our hunting and fishing and gathering rights and we're waiting. We haven't received any formal notification from the Department of the Interior regarding our affected Indian Tribe status petition.

We still have this lawsuit going on and we believe they're waiting for that to finish before they make a decision that would verify or clarify our possession and usage rights and make us an affected Indian Tribe pursuant to the Nuclear Waste Policy Act and Amendments. At that point, we'd be able to do the studies, you know, and try to deal with some of these questions. It would open up a wide variety of things

that we'd be able to do, interest, grants equal to taxes, a lot of socioeconomic concerns.

The other thing I was talking about is we're talking about trying to get that reservation established that was guaranteed through the Treat. Whether that means enlarging our existing landholdings or creating an entirely separate reservation, that's something that we're hopeful for, but many of these projects continue to edge out our interests. And, we don't like it.

DR. CARTER: Okay. Any other questions?

(No response.)

DR. CARTER: Okay. If not, I'd certainly like to thank you, Mr. Zabarte, for coming and presenting the views of the Western Shoshone. We appreciate it very much.

Let me use another microphone here, if I might, for just a moment. Now, what we've done is hopefully give everyone the opportunity today to cover the subject material. And, of course, we have delayed that a considerable amount by the panel's comments and questions. But, certainly, for this afternoon, we would like to allow people the same availability of time as far as we're concerned. So, what I'm going to suggest is that we modify the schedule now. And, what I'm going to suggest is that we break for lunch and then come back. We have on the schedule an additional approximately an hour and a half of testimony. So, if that's not

going to inconvenience anyone too greatly -- and, if it does, let me know. Otherwise, what I would suggest we do is break and be back here in the room and we will reconvene the Environment & Public Health Panel at 1:15 p.m.

Thank you very much.

(Whereupon, a luncheon recess was taken.)

A F T E R N O O N    S E S S I O N

1:15 p.m.

DR. CARTER: I'd like to reconvene the Environment Public Health Panel of the Nuclear Waste Technical Review Board, and we will continue with our agenda.

The first gentleman on the agenda is Mr. Jerry Duke from Clark County. We are pleased to have him with us. Jerry.

MR. JERRY DUKE: Good afternoon. My name is Jerry Duke. I am a Principal Planner of the Nuclear Waste Repository Program for Clark County, Nevada. On behalf of the NWRP, I would like to welcome you to Nevada and thank you for providing the opportunity to voice our concerns.

I am here today to hear a presentation by the United States Department of Energy on its Socioeconomic Plan, provide comments to that plan and present to you some of Clark County's concerns on the potential socioeconomic impacts of site a permanent repository at the proposed Yucca Mountain site in Nye County, Nevada. I will also include a summary of the NWRP so that the panel can better understand the ongoing efforts in Clark County to identify potential repository impacts. I hope to convey to the Board today a description of the Socioeconomic Plan for Clark County. I have, therefore, invited Dr. John Petterson of Impact Assessment Inc., Clark County's Socioeconomic consultant to briefly discuss the program at the end of my remarks.

In its attempt to adequately address the problem of



permanent and safe storage for high-level nuclear waste, Congress enacted the Nuclear Waste Repository Act of 1982. In 1987, Congress enacted Public Law 100-203, the Nuclear Waste Policy Amendments Act. As you are aware, the Texas and Washington sites were eliminated from consideration, and the Department of Energy was authorized to study only one site in Nye County, Nevada, known as Yucca Mountain. Until 1987, Clark County was funded entirely by the State of Nevada's Yucca Mountain program. The amendments, however, provided an opportunity for affected units of local governments to independently assess their impacts to the community. Clark County requested and received affected status in April of 1988, along with Nye and Lincoln County. These three comprised the three affected local governments. The County continues to coordinate its efforts with the State to maximize available funding, however, the three affected local governments are concentrating on local concerns while the State is placing emphasis on regional issues.

Before providing specific comments on the Department of Energy's plan and presentation of the Clark County Nuclear Waste Repository Program, I would like to provide you with a few brief economic, demographic and transportation facts that might help to demonstrate some of the unique characteristics and challenges facing Clark County.

The population first of all in Clark County, has

nearly doubled between 1980 and 1990.

Approximately four to six thousand people move into the county each month. And as you had stated before, this is something that is being watched now, and the current numbers tend to fluctuate. I would say a good average is 5,000 per month for at least 1989 and part of 1990.

Nevada is one of the fastest growing states in the country with most of the growth occurring in Clark County.

Due mainly to rugged geographic features in southern Nevada, there is a limited highway network in Clark County. A fact which may impact us in the future.

Eighteen million people visited Las Vegas in 1989. This represents a 5% increase from 1988 and a trend that has continued over the past decade. The visitor revenue contribution for 1989 alone was over \$12 billion.

Seven hundred eleven (711) conventions were hosted in Las Vegas in 1989. These conventions attracted over 1.5 million visitors and revenues exceeded some \$1.1 billion.

I think these observations helped to capture some of the elements which reflect the current setting in Clark County. Independent of the potential risks and concerns of siting the repository at Yucca Mountain, the County government is currently trying to resolve some very difficult growth related issues. The introduction of a repository further complicates planning matters and could possibly, depending on

the severity of the impacts, detract from the County's current excellent quality of life.

DR. CARTER: Jerry, I guess this is just a typo, but on the map I noticed on the upper-left side of it, I presume that's Highway 95 rather than Highway 93. Or, am I mistaken?

MR. DUKE: No, that's 95. At one point it's 93 and 95. It's shared from Hoover Dam to the Las Vegas area and then it splits into 95 and 93 goes north to Lincoln County.

DR. CARTER: But you have two 93's.

DR. CANTLON: But, you've got two 93's at the top of the map.

DR. CARTER: In the northern part of the state.

MR. DUKE: It is called alternate 93. I don't know why the designation. Perhaps NDOT could tell you that.

DR. CARTER: That's fine.

MR. DUKE: To continue, Clark County's repository concerns are as follows:

First, the County service delivery system which include as examples, schools, fire protection, transportation networks, sanitation and water, is currently becoming stressed to its limits. The current growth dictates constant revision and reallocation of resources in order to keep pace with the service demands. For example, it is estimated that the needed transportation projects in Clark County now exceed \$2 billion. Although the number of support and construction personnel

expected to move into the County would not, in and of itself, represent an overwhelming growth increase, it could have significant implications on an already deficient infrastructure and service delivery system, in which the County is working to up-to-date now. It could in other words require County government to provide services well in advance of current requirements. The numbers, therefore, may be disproportionate in their intended impacts.

Second, the population growth in Clark County represents an every increasing planning challenge and responsibility in order to enable government to maintain the quality of life that citizens have become accustomed to and to ensure public health and safety. As the absolute number of residents increase, the health and safety risks accompanying the siting, construction and operation of the proposed Yucca Mountain high-level waste repository increases, we feel, proportionately.

Third, current Department of Transportation regulations route high-level nuclear waste shipments on I-15 and U.S. 95 which traverse the most densely populated area in Clark County. Because we do not have a system of limited access highways bypassing the city's center, we are concerned about waste shipments and the potential risks to the public. Even though the shipment is quite a few years off, we think it is a legitimate concern because of the roadway network that

services the County now would have to be addressed soon.

DR. CANTLON: Let me interrupt.

MR. DUKE: Sure.

DR. CANTLON: Are there any long-term plans for a beltway around the Las Vegas area?

MR. DUKE: It is being investigated now by the Regional Transportation Commission. It is a very contested concept. And I would say in the next three to five years, we will have a determination as to whether or not we build a bypass system.

DR. CANTLON: Thank you.

MR. DUKE: Fourth, the mode of transportation of high-level nuclear waste to the proposed site is currently unknown. The use of rail is an option which the Department of Energy is currently exploring. While shipment by rail could, we feel, reduce the overall number of shipments, this also poses risks to the citizens of Clark County because the only southern mainline rail route goes through the downtown Las Vegas area. Since the existing alignment of mainline tract servicing southern Nevada does not link with Yucca Mountain, several of the proposed spurs would also pass through the County. This raises another series of issues that would have to be addressed including emergency response, impact on the environment and other potentially hazard elements.

Fifth, the growth of Clark County has occurred in

all sections of the Las Vegas valley. As population increases and transportation corridors become more constrained, County residents could be impacted by transport through the valley. And, at this time, the specific direction of growth is unknown. Much of the land to the west is in BLM hands, but as you probably know, the BLM has a disposal program in place, whereby they are selling this land, so it's difficult. There are other institutional agencies that have a bearing on how our metropolitan area will grow.

Sixth, the Nevada test site is located approximately 65 miles north of Las Vegas. The availability of amenities has resulted in approximately 90% of NTS workers residing in Clark County. It is probable that Yucca Mountain employees would also largely choose to reside in the Las Vegas valley.

Seventh, the average monthly non-resident population in Clark County further complicates the provisions of service and is a planning concern that has to be addressed in conjunction with long-range repository related issues. If on a straight line analysis there are 1.5 million visitors per month to Clark County, specifically the Las Vegas metropolitan area, and what you are seeing here is the dispersal of those hotels around Craig Road, which is the link between I-15 and U.S. 95.

Eighth, tourism accounts for a major percentage of Clark County's total revenue. The transport of nuclear waste

through the Las Vegas valley by the Department of Energy's so-called "preferred routing" scheme could negatively affect tourism. If visitors and convention planners choose other vacation destinations, the Clark County economy could suffer, we feel, dramatically.

I believe, as these statements indicate, the potential repository-related impacts on the economic vitality, health, safety and quality of life for Clark County residents is currently unknown. Clark County is therefore committed to utilize every aspect of Public Law 100-203 of the NWPA to ensure that a comprehensive and an appropriate impact assessment system is in place to identify, define and mitigate potential repository related impacts.

Our effort is therefore divided into two components.

One, the first part, is the development of a Nuclear Waste Repository program that defines a system to address impacts. And the second is input into the Department of Energy's repository planning process.

As such, we regard the draft Socioeconomic Plan as one of the most important components in the Department of Energy's mission to investigate Yucca Mountain. This document, we feel, should provide a framework for a long-term monitoring of the potential socioeconomic impacts in the State of Nevada and for affected local governments. The key to a successful plan, of course, is that a comprehensive baseline

of information be available and a monitoring system be in place so that the impacts can be identified and quantified. We are hopeful that the Department of Energy will work with local governments and the State of Nevada to achieve these objectives.

To date the County has detailed comments to the Department of Energy, and today I would like to reiterate these concerns in a summation fashion. They are as follows:

The current plan is lacking specific details regarding the plan of action.

The plan does not incorporate a methodology to establish or reflect an accurate baseline.

The plan assumes that impacts will be confined to an arbitrarily defined distance from the Yucca Mountain site.

The plan does not identify a methodology for assessing economic impact issues other than to commit to evaluate it through the State of Nevada's past work on perceived risk. Not considering potential impacts to tourism obviously presents an incomplete analysis of potential problems.

Next, the plan does not establish a system for data collection, management and dissemination. Our specific concern is, that the DOE should recognize that information regarding impacted communities would best be collected and more efficiently by local governments.



Next, although it identifies the need for cooperation and consultation, the plan does not define how data collection and other efforts will be integrated into the ongoing socioeconomic monitoring process.

Next, the development of the plan requires more rigorous interaction with state and local communities.

And finally, the plan relies too much on the Section 175 Report which is, we feel, inadequate in defining the potential impacts from the program.

Now, I would like to provide you with a brief synopsis of the Clark County Nuclear Waste Program, the second component of our effort.

Since the passage of the 1988 Nuclear Waste Policy Amendments Act, Clark County has initiated a process of identifying important issues in formulating study objectives.

Our program stresses the development of an accurate baseline as a reliable backdrop from which repository related impacts can be assessed. We feel that the Clark County program effectively fills the gaps left open by the Department of Energy's draft Socioeconomic Plan. However, we do not believe that this should exonerate the Department of Energy from considering an integrating Clark County's concern into the Plan. Our program consists of five main components: Socioeconomic Studies, Transportation, Environmental, Technical and Fiscal Studies.

Program oversight is provided through a steering committee which is comprised of the incorporated cities in Clark County, a member from the Regional Transportation Commission, the Moapa Paiutes, the University of Nevada at Las Vegas, and a citizen designee. A representative from the State of Nevada, Lincoln and Nye Counties are ex-officio members. This group assists in all phases of program development, including grant and study review, policy formulations, consultant selection and generally provides an advisory function.

As noted earlier in this presentation, Clark County has recently contracted with Impact Assessment Incorporated to undertake a multi-year socioeconomic study work effort. This study will provide a basis for all future efforts, will evaluate current conditions in the County and develop a representative socioeconomic system, we feel, that is capable of developing an accurate baseline related impact assessment system. The fiscal studies, also part of this program, will be conducted by Planning Information Corporation, a sub-consultant to Impact Assessment. Dr. Petterson of Impact Assessment is here today to provide you with some details on the program, and will peak to you immediately following my remarks.

To continue, the Transportation Study Development is generated through the Nuclear Waste Repository Program of

Clark County, but studies are administered by the Regional Transportation Commission, the designated planning organization in Clark County. RTC ensures that all nuclear waste studies are properly coordinated as per their legal mandate of a comprehensive, coordinated and continuing planning process.

The data base management system, a central component of the Nuclear Waste Repository Program for the County, is being developed by Environmental Systems Research Institute, in coordination with Impact Assessment.

In conclusion, I hope my remarks have provided you a perspective of Clark County's Yucca Mountain Program and a feeling of the context of the area in which we are developing our program.

I would also like at this time to invite the panel to informally feel free to call us or we would be willing to visit the Panel at some designated location to further identify what we feel are important issues.

If there are not any questions, I'll turn it over to Dr. Petterson.

DR. CARTER: Let me do a couple of things. First, we appreciate that offer very much. But, two things, I wonder if first you would give us a little bit of your background for one thing.

MR. DUKE: Certainly.

DR. CARTER: Then the other thing, I would like to ask you the same question I asked Steve Bradhurst. Namely, what's the view of Clark County, mainly on the socioeconomic issues area if you will review that particular area, as far as the cooperation and coordination with DOE, per se, the Yucca Mountain Project and the State of Nevada as far as activities in the socioeconomic area?

MR. DUKE: For my background I have undergraduate degrees in Political Science and Sociology. I hold an MA in Urban and Regional Planning.

To answer your question on socioeconomic activities, I think the climate is changing to an extent in Nevada in that the front line, the Department of Energy people we feel have very good communication with Clark County. The Board of Commissioners has gone on record opposing the repository, but we feel that our program sets up a well-defined contingency plan if in fact the site characterization and eventual, if it was proven to be a technical suitable site, construction takes place.

We in terms of our cooperation with the State of Nevada, we feel we are trying not to perform duplicative efforts. And an example of that for right now is the risk studies, the NWPO from the State has put out a series of perceived risk studies that we are just utilizing as just part and parcel of our program at this time. Until we see fit that

the studies aren't defining our needs or that the Department of Energy begins to change its position on perceived risk and how it's defined.

DR. CARTER: Any other questions for Mr. Duke?

DR. CANTLON: Yes. In terms of the matter of risk assessment and so on, particularly its impact on the tourism industry which you point out DOE has chosen not to consider, based on a fairly long track record of activities at the Nevada test site, is there very much in the way of anecdotal or other kinds of data to indicate that the typical tourist to Las Vegas gives a great deal of concern about that? What do we have in the way?

MR. DUKE: I understand there is seemingly a paradox that exists there because of the test site's presence.

DR. CANTLON: Okay.

MR. DUKE: What we think is happening, is that as the nuclear waste issue gains prominence in the national issue of national spotlight, that all of the citizenry of the United States will become more aware of waste, waste disposal and how those methods are being taken care of, including where it's being proposed to be stored out at Yucca Mountain. So at this time, I think what you are seeing is the snowball is rolling down hill and how people are going to begin to perceive that is right now, we think, undefined, but is moving in the direction of a greater knowledge of nuclear waste, the

industry and itself.

DR. NORTH: Can I ask a follow-up on that?

MR. DUKE: Sure.

DR. NORTH: Is there any equivalent to what you just showed us with the map, the Craig Road? Are there transportation activities related to the test site that go through greater Las Vegas regularly that would be easily perceived by anybody who happens to be nearby?

MR. DUKE: There are a couple of answers to that. First, there certainly exists some test site shipments that traverse the Clark County, but the Department of Defense shipments are kept secret and we are unaware of their movements to a large extent.

Low-level waste certainly passes through onto its way to the site, and if the WIPP site is eventually opened, that yeah, that will begin to have a greater frequency of shipments through the Las Vegas and the metropolitan area.

The Nevada Department of Transportation has currently, or is in the process of its final steps of designating routes for those shipments and to this date, some alternatives have been identified, but have not been fully determined.

DR. CARTER: Okay. Any others?

(No audible response.)

DR. CARTER: All right. We thank you very much and

we will now hear from Dr. Petterson.

DR. JOHN PETTERSON: Good afternoon. I'm pleased to be here. My name is John Petterson. I am President of Impact Assessment, Incorporated. And before I get asked, I'll give a little brief on my background.

I have a Ph.D in Anthropology from the University of California. I taught at the University of California San Diego in Political Science from 1979 to 1980. I started Impact Assessment, Incorporated, and have done about a dozen-- have been principal investigator and project manager on approximately 15 major socioeconomic impact studies. I was the principal investigator and project manager of the Hanford Socioeconomic Impact Study parallel to the Nevada Study. We started that in 1986. That concluded abruptly, precipitously in 1988 with the Nuclear Waste Policy Amendments Act.

Since that time I have been principal investigator on the Socioeconomic and Psychological Impact Assessment of the Exxon-Valdez oil spill. So, that's where we came on.

In August we started this study, so we've been up and running about two months.

DR. NORTH: Who has your work for the Valdez oil spill been for?

MR. PETTERSON: That's a public study being funded by the communities themselves. Twenty-two communities--the mayors of the 22 directly contaminated communities, formed a

group called the "Oiled Mayors" of the Alaska Conference of Mayors, an appropriate name. And they obtained money from the State of Alaska to fund the study. It's a comprehensive Socioeconomic Psychological Study Physical Impact Assessment, conducted for each of the cities, a business survey of all 7,000 businesses in the region, and a 600 person, up to three hour interview for psychological impacts. It's an abusive survey. But, never mind, that's another story.

In my presentation today, unfortunately we sent out copies of the scope of work which is a couple of hundred paged document of graphics and text and you probably wouldn't have had a chance to review that, but my hope was just to give a real superficial overview of what's a major four year socioeconomic study.

What our objection was in designing a study was, to achieve credibility. That's kind of the key theme of the study. We have recruited people from the Hanford study that we had, who we thought were some of the best in the nation. Those who worked best, we kept. The second theme is study integration. We have seen in our own experience and in the experience of others, assessors, the problem of having a whole series of studies. The Nevada Study, as you know, has a whole series of various documents, but it's difficult to understand what the major theme and how one issue relates to the other. So that's another theme we've taken up. Hopefully we will be



successful. Maybe not.

Products of immediate and enduring value; we also have the experience at Hanford that a lot of the work we did on projections and a kind of imaginary scenarios were wasted, once the project terminated abruptly. Now we have started and designed the project so that if some programmatic, it's possible some programmatic change occurs in the program, that the work we've done, a major portion of it hopefully can be transferred directly to the affected communities and result in some benefit from that expenditure.

MR. CARTER: Let me ask you a question. I gather there is sort of a substantial or appreciable difference between the two areas. This being a growth area and I suspect the Richland area is either going to be a plateau area or maybe decreased as far as population.

DR. PETTERSON: Yes. It's totally different. I mean the issues of concern--there are some parallels in terms of the Richland area with, say the NTS site and Mercury and people. There is a scientific community to perceive that there is no risk whatsoever to this issue. And there is the public perception as well. And I think if you go from Richland to Kennewick and from Kennewick to Pasco on the Hanford side you see that contour as exactly the same. But the farther you get from the site, the farther you get from the technical understanding of the key issues that the more

the concern increases. So, it's very differently economically, as well, as you point out.

Our objective was, Clark County had a wide range of study objectives, major documents that just basically outlined key, technical objectives. Our agency in this plan of work and scope of work was to integrate these things, put them on the same pattern of development, and I think that's what we have achieved. I hope you see that when we get to the documents.

So we have also tried to simplify it. Instead of-- each particular issue could be studied independently if you wanted to look at one community and study all the issues and the various timing. We wanted to put everything on a consistent time scale so that we are looking at everything at the same time, so anybody from the outside would understand exactly where we are in the process.

Our study also emphasizes flexibility. We know that what we know now is not what's going to be known in three years. We need to have a framework that will allow incorporation of new knowledge, changes in technology, changes in the repository plan itself, changes in the transportation corridors, etc. So, I think you'll see how we have built that into the project as well.

Inter-study integration and coordination, we've already got a coordination document that's been developed and

is in the process of review now by the steering committee that looks at how we are going to relate to the State studies that they've done, ongoing State studies, how it relates to Nye County studies, how it relates to DOE studies. And as DOE is mentioned, I think we concur that there is a critical thing here of let's not spend the same money twice for the same thing. Let's figure out who is going to do what.

There will be areas, I guarantee, where we need to do the same work that they are doing, but we want to minimize that so that the minimum waste of money is achieved. And we want to develop a monitoring program.

The repository is going to be in effect if it happens in 20 years. This is a job for my son. I'm sure you've heard that kind of talk before. It won't even start construction for a decade. We need to develop a program that we can deliver to the affected parties for them to monitor, for them to maintain this. I would like to be doing it for ten years. On the other hand, maybe I wouldn't, but we need to develop something that at the end of this project, we turn over to the communities and they are able to monitor these variables by themselves. And that's the transfer plan that I'll talk about later. Next graphic.

Basically--let's see if I can put this politically. DOE's program looks at the repository as a project, as a mining project. Essentially, how many people is it going to

take to drill this hole? What are the impact of this? And they look at it from a County perspective. I think that's their mandate. I don't think that is to be unexpected. But, it's not just a mining project. If it were, I think Nevada would be out there trying to recruit it in terms of diversification, etc. It's much more than a mining project. It has already had significant impacts on government, on people's perception of Las Vegas, of Nevada and etc. It's very much unlike NTS which is part of the background now. People aren't raising the NTS issue in the newspaper everyday like they are the nuclear waste issue. So, I think it is very different.

Unprecedented duration, Carl, I think in his freudian slip hit it exactly right. This is a 10,000 year issue. It's beyond human understanding, really, in terms of the affects it is going to have in terms of the long-term. How do we plan for institutional changes that are going to be 10,000 years. How do we even know where it's going to be a thousand years from now? How do we plan for 100 years? We have a problem with a decade. Okay, so there are issues here that are science fiction issues, basically.

DR. CARTER: Let me point out one thing. You may be familiar with it, but back a number of years ago when the operation of the NTS Weapon's program, there were essentially similar kinds of problems. There was a gentleman that was

presumably a part-time resident of Nevada named Howard Hughes.

He was quite concerned about whether or not tourists would continue to come into the State with nuclear tests and this sort of thing, again one of these perceived problems also because of most of the things that dealt with Mr. Hughes and his organization were obviously fairly secretive. But, I gather at that period of time, he at least owned a sizeable amount of real estate outside of Las Vegas and was considering putting a light manufacturing operation related to electronics and so forth in the area. And I gather, the rumors at least were that he decided not to do that because of these--the perceived problems with the growth or lack of growth in Las Vegas and so forth.

And of course history shows that he did buy a lot of hotels and operate them and I guess this corporation--I assume his corporation is still running those places. But at least a plant wasn't built here and one about the same time was put down in Arizona.

So, like I say there are some historic things there. I suspect it would be very difficult to find a lot of information and data on that particular episode.

DR. PETERSON: Well, that's very interesting and I think accurate, as well. I would add to that that DOE plans to do a with/without analysis. And our perspective of it from our experience is that you need--I mean a before or after is

that we need to do a with/without. And that's a very different kind of analysis.

For NTS for example, we can't know what Las Vegas would have been without NTS. That would be the key question here. And that will be the question for the repository.

Radiological concerns, I think we are all familiar with that, the "special impact" areas. These are still reasons why it is not standard. The irreversibility issue, a critical one. Once it's buried there, my feeling is it is not going to come out. It's there forever and it's going to affect thousands of generations if there are people living in Nevada.

DR. CARTER: Of course the plan is that it would be retrievable for a period of at least 50 years.

DR. PETERSON: Fifty years, yes. Okay, that's--I see that as a drop in the proverbial bucket. But, in any case, it does involve issues of irreversibility.

Political consequences, it's already had. Regardless of whatever happens in the future, it's already taken political time. I mean, I think an impact assessment could be done of the amount of legislative time that's been committed to the issue already, that had been diverted from other projects, there is an analysis that could be performed there to assess actual impacts to date. That's not part of our mandate, but it may come to be.

And it's in a non-standard economic context, exactly as you mentioned. This is an area, Clark County, where growth is astronomical. They are already so far behind in infrastructure that we are talking about threshold kinds of impacts that could be significant.

We are also looking at an economy that is unbelievably dependent on a single resource, which is the tourist industry and the gaming industry, which can change. I don't know if I want to go on record with this, but there are other scenarios that we could conceive of that show a different kind of future for Las Vegas valley. And if that were the case, then the impact of this would be very different, the repository issue, the impact of these things would have very different threshold impacts. The next one.

DR. CARTER: You mean sort of like legitimate gaming in the State of California for example?

MR. PETERSON: Palm Springs. Something like that. We call it our Palm Springs scenario. What would happen, well if gaming comes down--even if it just levels off, that has to be one of your baseline scenarios, which I'll get into later. It's a very different impact than if we are on a growth contour. So it's a different kind of analysis.

I now want to get into basically how the technical direction for the study and how it is organized. We are under the Comprehensive Planning Department of Clark County, but if

the project is being--we are under contract to the Department of Comprehensive Planning, but we are being directed--the technical direction for the study is being given by the Nuclear Waste Steering Committee of Clark County, which consists of these various entities. They are all represented on the Clark County Steering Committee and have input. The State of Nevada, Nye, Lincoln County are ex-officio but have essentially as much say as anybody else. The next graphic.

That's the technical level. So they are giving direction to the study. As far as how we implement study, our plan is to essentially to interact with these same entities, being given the directive, but also being sponsored by these entities to work with the various agencies and departments who collect data and basically integrating the existing data, collecting missing data, and filling in our study design and essentially figuring out how to integrate this into a system of data collection. Next graphic.

All right. The quality control is a key question for us. It has got to be a key question. Carl Gertz mentioned that if the data are no good, then they are not going to get into the system, they are not going to be evaluated. They are worthless. And this is a critical concern to us. How do we establish that? There is such a variety of data forms and information and file systems, etc., it's a mess. How do we make sure that our system conforms



with the system that they need, so that this information actually gets in to be evaluated in the end.

Our peer review--this is how we organized the peer review process. There is going to be a national peer review, 5, 7, 9 that hasn't been determined yet of national authorities that have expertise in the area of the study itself. These aren't going to be chemical engineers. They are going to be people that know the business, know the technical aspects of socioeconomic impact studies. There is going to be an implementation review committee that consists of experts that are currently socioeconomic experts that are attached to the comprehensive planning office.

The peer review will give their recommendations to the steering committee and the implementation review committee which is always a problem in this kind of process is, the peer review committee sends in something to the steering committee and what does the steering committee do with it. Do they evaluate it, break it down, figure out the cost--it's a complex process. So, this implementation review committee will figure out what it would cost, what kind of labor commitment, how it fits in the overall project design, whether it is worth doing or not, and provide a set of options to the steering committee which can then evaluate which aspects of the recommendations they want to implement.

DR. CANTLON: How will you choose the national peer

review committee?

DR. PETTERSON: They've got an advisor who is putting together a set of--

DR. CANTLON: They, meaning whom?

DR. PETTERSON: Clark County Comprehensive Planning Office, Dennis Bechtel who is our boss has two socioeconomic consultants. One is John Gervers. You probably know him. He puts together several bulletins. He knows the people. He has put together for the steering committee a package of ten or fifteen page set of criteria, which to me is excessive, but never mind. Then the steering committee wants to pick from that representatives from various categories of expertise of whether they are workers or not and various kinds of criteria.

And then, the committee will select the final people and he will then go and recruit those identified individuals.

DR. CARTER: Let me ask you a question. We raised this issue of the quality assurance as far as information and data that will be used in the licensing process. It is sort of interesting. Have you given any thought into how you are going to actually do that? I'm thinking primarily you expect the relationship will be primarily between Clark County for example, and DOE. Or, might there be direct liaison with the NRC since these are their QA requirements?

DR. PETTERSON: No, you jumped right over--when you went to NRC, my vision of it is still low down. I mean basic

on the ground, how do we make sure the people that are collecting the information in the cities, unincorporated areas, et cetera, can be routinely collected so that it is systematic between the communities to start with. How do we get that on line? Then how do we get the county departments in line? What is the waiting of things? Who does what within the project?

As far as we go, it's up to DOE as far as I've thought about the coordination. I imagine in your phase II or whatever, we might be thinking about NRC. But, right now, we are not.

DR. CARTER: I'm not suggesting anything except that you may want to give this thought, because if you think about the total process, the criteria that have to be met are NRC criteria.

DR. PETERSON: Absolutely.

DR. CARTER: So in a way, DOE is an intermediary in this process. Maybe quite an important one, don't misunderstand, but still intermediate.

DR. PETERSON: Yes. Well, I can see from that comment that we need to know the NRC criteria at least as well as DOE, because I think in the end we are going to end up doing more primary data collection than DOE can. It's not because DOE doesn't want to or sees the need for that, but they are not going to be in a position to go out and do that.

And in the communities we are dealing individually with citizens and with cities, et cetera, to collect the data.

We are essentially working for that--for those people directly, the cities and communities. So I think we are in a position to do that.

Again this is quite superficial, but it gives you a vague sense of what it is we are doing. These are the deliverables in our research design--not our research design, our plan of work. We have--maybe we can skip to the next graphic and I'll show them the overall picture first. That's probably not the right order.

This kind of shows you, really superficially, what it is we are going to be doing. The first product is due in December. You'll see the dates on this for the previous graphic.

The research design is going to lay out what it is we are going to do, why we are going to do it, the methodology to be employed in doing that, the data collection plan, the plan of work, the work tasks themselves and how they break down. The first product that we already--the basic framework of the study is already on track, I think. It's how to do these various elements.

The first thing we think needs to be done is the base case. We distinguish radically between baseline and base case. Base case to us is the way it is in a particular year.

I think probably we will be using 1990 as our base year. We'll be using a lot--information is going to be available for 1990 that isn't going to be available 1991 or '89, et cetera. And, we are starting now.

We are going to look at current facilities for emergency management, current facilities in terms of transportation issues, tracking, response plans and all of these things. How are they now? The key question we want to say is how are they now and how are they going to change in the future and to what degree are those changes a result of the repository issue across all of the variables that we are going to be looking at?

So, the baseline scenarios is the key question. You asked about, well, what about NTS increasing or an Ellis Air Force closing down, or closing out nuclear testing, that's exactly the right question to answer. We did this on Hanford.

We had to look at the Nuclear Plant 1, going into tritium production and N-reactor stopping, et cetera. Combining these things, you have to look at them in combination because it's not just one thing. But in fact, overall the baseline scenarios are the key question. That is what's really going to happen in the region and over power anything that the repository can do.

If growth continues as it is it will be the dominant thing for the valley. If something else happens which reduces

that growth contour, that's the major thing, and that will have an overpowering effect on the analysis that's performed.

The third thing we want to do is that given these scenarios, we then want to look at what is the repository? What impact does it have? What rule does it play in the big picture? What does it mean if it happens in terms of training for emergency response? How much time and what are the implications of that in terms of necessary facilities, et cetera, et cetera. And then we want the repository input into the process. And the difference between those repository plans and the various baseline scenarios, we come up with impact assessments. But, we need the impact assessment. It's not just a single event. The repository is the characterization phase which has a very different contour from the construction phase in terms of all the variables, economic perceived risk, et cetera. And, construction has a very different contour from operation. Once it gets into operation there will be very different variables that pertain, and then closure which goes on for a long time has a different contour again.

So, what we've got for example for characterization for ten years is an impact assessment for characterization under scenario one, two, three, four and et cetera. So, that's four impact assessments just for the characterization, and those four apply as well for each of the scenarios for

each of the phases. So, you've got 12 to 16 impact assessment documents.

Then it's the "so-what" question. Okay, you've got these impacts. What is it the county needs to do about it? What do the cities need to do about it? What is it they can do to avoid those impacts? How can they side step those impacts? What is it that the repository program itself can do to mitigate those impacts, or to avoid those impacts? If they can't, then what is it they can do to mitigate those impacts?

Ultimately, I'm sure there will be a compensation issue that comes in, but as far as Clark County is concerned, we've been given the mandate to consider only impact avoidance and mitigation and not compensation and I think we know the history of that.

So, we have this mitigation plan of what can be done and projections into the future. What do we leave the communities? What is the actual product of the overall study in terms of something enduring, since we'll be out of here in four years? We need to develop this into a program, hopefully computer based, GIS related, that can be transferred to the communities and to the county government that will allow them to then pull in that data. Therefore, it's all the more critical that the data collection objectives criteria used for the data of the quality control/quality assurance, are fixed

very early in the project, because that's what we are going to be leaving is that system for collecting that information in a methodical way.

Then the final thing we want to do is not just walk, but to actually produce a monitoring report that assesses actual impacts of the characterization, because that's where we will still be up to that point in time so that they've already tried to implement it and we've proved that it works or it doesn't work.

Now we can go back to this schedule--am I going--

DR. CANTLON: Before you go ahead, in your number 1 base case, how sanguine are you that you can actually generate a base case when you've had repository activity already under way for a substantial time. You are not starting from ground zero.

DR. PETERSON: Our base case is going to include existing activity.

DR. CANTLON: Right. So it is really base plus X,Y,Z.

DR. PETERSON: That's right. We've asked--this is our effort to encourage the state study. They are kind of in an enclosure mode in certain ways, to come up with and take their reports and the best expertise that they have developed over many years of working on this to provide a report to us or to the county or to the state as a deliverable that says



impacts to date, so that we can at least have that incorporated into your framework as well, so that we know what they have come up with. I would like to see them get into this legislative impact, economic impacts that may have already occurred in terms of property value, et cetera. I would like to see that. And, it sounds like they may go for that.

Okay, next to deliverables or other questions on these?? You know, I can always go back. I hope I'm not taking too long. I don't have any concept of the time today.

These are the various products over time that the base case appear, then a draft interim site characterization monitoring report, where are things. This will be what we cover in that document. And then you see--this is the only thing we have an interim base case, because that's kind of our scoping out things, then a draft base case and a final base case analysis.

We know already that whatever is incorporated in that base case isn't going to be everything. We are going to discover in the process of doing the work, things that "darn", should have been in the base case. Well, if we include them in they will be in the monitoring program as it evolves. So, we won't be losing it.

Then we have our base line scenarios, which will be series of scenarios and combinations and permutations

pertaining to NTS and analysis, et cetera. Then we have the repository related plans. What plans in the community need to be changed to address this? What is it going to take to bring emergency management up to snuff? That includes not only stuff related to repository, but how far behind are they? So it's a document of what needs to be done to bring them up to meet SERA Title 3, et cetera.

Then you see the various impact assessment reports, a construction operation report, we may separate those two out. We are still ambivalent. I think we will end up separating those two and making two separate reports. And then a closure and post-closure report. And the various monitoring--final monitoring reports and transfer plans et cetera are on the list.

I guess we can go over very briefly what I've said as far as the various boxes were concerned. Our study framework is what are the current conditions? This is what seems to be missing in most of the major studies is a good base case that has covered all of the things that need to be covered. And that's what we want to do is have a good base case that covers all the key issues.

How are conditions expected to change unrelated to the repository issue? And then what additional incremental changes in it? What points will the repository then influence those various scenarios and then what are the costs and

impacts of those changes in terms of the impact assessments? Again these things are elaborated on compulsively in the Scope of Work, which hopefully will end up in your hands.

Finally, how can these impacts be avoided or mitigated or compensated. In my mind down the line if they need to be? And finally, how do we transfer this over, this program over to the County and that's the transfer plan--the Monitoring and Transfer Plan. That's the last product--second to the last product.

I would like to answer questions. I hope you are critical with us. We are in our second month of the project and can use the criticism early.

DR. CANTLON: The transfer you are talking about is transfer from your organization to Clark County?

DR. PETTERSON: Correct.

DR. CANTLON: Okay

DR. CARTER: Any other questions? Dr. North?

DR. NORTH: Let me ask you a very broad one. Here you are presenting us essentially with your plans for something that is barely underway.

DR. PETTERSON: Yes.

DR. NORTH: I'd like to get your reflection on some of the other exercises you've done where you went much further. I'm not sure whether I should ask you about what you learned on the Hanford assessment or points you in the

direction of the 22 communities affected by the Valdez spill, wherein that case there definitely was an event impact that flowed from that event and you are trying to come up with an overall summary of all of that.

DR. PETTERSON: It's been a major education. Hanford, I should say, this research design--it's not like we went out and reinvented the wheel. We spent--I'm not going to tell you how much we spent on Hanford developing a research design that we thought we go to Congress and be defensible, for the Hanford and for the Washington case. So a lot of this is by virtue of is a benefit of having done that work. We learned a lot about the pitfalls in designing these kinds of projects for Hanford. We learned lots of other things from Hanford.

From the Exxon-Valdez spill we now see what you do in case--we've seen everything magnified in terms of an acute actual incident and know very well what you need to look for and therefore what you need to incorporate into a long-term monitoring. The issue normally is how do you do these things for ten years in the future. It really can become science fiction in terms of what you are looking at, unless you've looked at an actual accident and know what happens in an acute event.

I also did the Goiania incident that's reported in Nuclear News in 1988, it's my work. I did the study on the

social and psychological impacts of that radiological accident. I know very well what perceived risk can do. It undermined the entire economy of that state in Brazil. And I believe it. I know the key question isn't an issue of perceived risk, blah, blah, blah, perceived risk, but moving that perceived risk into behavior. What do people do? Measuring what people do as a result of their perceptions, that's the question. If property value goes down, well that's a behavioral consequence. If they don't come here that's a behavioral consequence that then has economic impacts.

DR. CARTER: John, let me just suggest just briefly, because we are running a little behind schedule, but since you mentioned the Brazil accident, I wonder if you would just take maybe a minute to summarize the major consequences of that. I don't think the record--

DR. PETERSON: A minute. I refuse.

DR. CARTER: Well--

DR. NORTH: How about the five minute version?

DR. PETERSON: I will say--

DR. NORTH: Including your contribution, what you learned from it and what was written up in your study.

DR. PETERSON: All right. Well I will provide you with a copy of the Nuclear News article that goes into that and pretty much sums it up, but it's numerous pages.

To begin with, the political consequences, the

psychological consequences, but first of all the thing that most interests people, is the economic. Within a week of the accident, you could not sell a product from Goias. Not Goiania, the city, but the State of Goias. Fifty percent of the value estimated for that two month period--remember, that this is an accident that killed four people. We have worse traffic accidents in every day in Los Angeles. Four people died. I'm sorry, but the impacts were gigantic.

DR. CARTER: It was very localized as well.

DR. PETERSON: It was just in the city. Well, it depends on how you--I mean, people wouldn't let--hotels would refuse reservations to people from Goiania. They stoned cars in Sao Paulo which is 500 to 800 miles away. I mean these things went--it's unbelievable the things that happened.

Perceived risks--my favorite example is a health/safety person was asked by a reporter, who would you recommend be particularly cautious? I mean, a standard question, whose at risk? And he said, well, pregnant women, the standard--collect all the standard suspects; pregnant women, children, okay, because they down close to the ground and domestic animals. The next day the planes were full of pregnant women, children--fifty percent of the kids didn't go to school. And that night a rash of shootings of dogs and cats around people's houses. This is behavior. This is what happens.

And people say, well that's a cultural thing. These are brazilian natives. Well, if you have been to Brazil, these aren't primitive people. They are standard doctors and lawyers and such. They were the first ones on these planes. I mean, they were out of town. So, behavior is real.

DR. CARTER: Anything else?

DR. PETTERSON: No.

DR. CARTER: Well, very good, Jerry, we appreciate it very much, you and Dr. Petterson being with us this afternoon. I appreciate it. I am sure that information will catch up with us and we will certainly take a look at it when it does. I appreciate that as well.

All right. Let's move to the last presentation of the day. We heard from this young lady yesterday, Geri Ann Stanton representing Lincoln County.

MS. GERI ANN STANTON: Mr. Chairman and members of the panel, my name is Geri Ann Stanton and I am here today representing Lincoln County, the City of Caliente, and the City/County Joint Impact Alleviation Committee. We appreciate the opportunity to present testimony to the panel concerning socioeconomic aspects of the High-Level Radioactive Waste Repository Program.

Lincoln County is one of three units of local government which have been designated by the Secretary of Energy as being potentially affected by the repository as a

system. I would stress the emphasis upon viewing the repository as a system such that project components and activities away from Yucca Mountain are expressly included.

Lincoln County can be characterized as having had a somewhat unique relationship with federal nuclear activities in Nevada. During the period of above-ground weapons tests, the County was immediately within the path of radioactive fallout. Many existing residents of the County personally witnessed the above-ground tests. And having not been informed about the risks associated with such tests, many residents today exhibit high degrees of distrust towards the federal government. Presently, below-ground weapons tests are typically not conducted until prevailing winds are away from the Las Vegas metropolitan area and towards rural areas predominately affecting Lincoln County.

Despite having been the recipients of historical radioactive exposure and presently being at risk from exposure of on-going below-ground tests, Lincoln County has not enjoyed a significant share of economic benefits which have been associated with the federal nuclear programs in Nevada. In the past and continuing today, a high degree of disparity has characterized the distribution of benefits and impacts of such programs in Nevada.

Surveys of County residents sponsored by the Nevada Nuclear Waste Projects Office suggests a somewhat balanced



acceptance of an opposition to the proposed repository system.

These same surveys clearly depict the significant level of distrust of the federal government characterizing our area residents. Findings of the survey also demonstrate that area residents are willing to accept risks to health and safety in the interest of preserving economic vitality of local communities. Based largely upon the state's survey work, County and City elected officials have taken neutral positions regarding the repository. Specifically, representatives of the City, County and their Joint Impact Alleviation Committee have as their goal the minimization of any potential negative impacts of the program and the maximizing of related benefits.

These same officials are committed to fully cooperating with both the state and federal agencies to accomplish such goals.

Lincoln County is very concerned that the proposed repository could serve to intensify and prolong the longstanding inequitable distribution of risks and benefits of nuclear programs in Nevada. Presently, and in the foreseeable future, a majority of the repository workers will reside in Clark County. Economic benefits accruing to the Las Vegas metropolitan area will spur an already rapid pace of growth. Today, several thousand workers are bussed daily from the Las Vegas area, ninety miles to Mercury at the Nevada Test Site.

Inadvertently, the repository program will intensify Clark County's resolve to appropriate more and more of

Nevada's limited financial and natural resource base to support growth in southern Nevada. This will mean ever greater pressure by Clark County to acquire all unappropriated waters within Lincoln County. The Las Vegas Valley Water District has already filed applications with the Nevada State Engineer to appropriate all such waters in Lincoln County for importation to Clark County.

To date, the Department of Energy has shown little interest in seeking ways to redistribute prospective repository program benefits. Many opportunities for such benefit sharing are possible. Examples might include restriction of employee bussing between the Las Vegas area and the Yucca Mountain area; or the initiation of bussing between rural communities in Nye and Lincoln Counties to the site; location of program administrative facilities within the situs county; and the distribution of future support facilities in areas such as Lincoln County.

Continued failure on the part of the Department of Energy to address inequitable aspects of the repository program will serve to heighten what is already an unacceptable level of political divisiveness within Nevada. Lincoln County believes that as long as such divisiveness is pervasive in the program, effective decision-making based upon reliable technical information will remain an elusive goal.

With regard to the Department of Energy's

socioeconomic plan, the following specific comments are offered. First, the plan does not provide a sufficient basis for the prediction of impacts. This is due largely to the fact that the plan is based upon monitoring of socioeconomic factors rather than upon assumptions about project characteristics.

Second, Lincoln County believes that the design and implementation of effective impact mitigation programs are not possible without such predictions about possible impacts. The limited projection capability anticipated by the Department of Energy does not provide sufficient lead time to effectively avoid or reduce the project impacts. This is particularly true for those impacts which are identified through monitoring. Once an impact has been detected by observation, it is obviously too late to avoid.

Finally, the plan does not give sufficient recognition to the propensity for site characterization workers to reside in Lincoln County. Previous work by the Department of Energy and the State of Nevada have shown the immigration of repository related workers to Lincoln County is possible. A nearly complete Labor Market Survey conducted by the City/County Joint Impact Alleviation Committee suggests that a significant percentage of the labor force in Lincoln County is presently employed at the Nevada Test Site. Failure on the part of the Department of Energy to adequately evaluate

baseline, combined with project conditions, could diminish opportunities for redistribution of population effects.

I will close my remarks by requesting that the panel consider the significant relationship that socioeconomic issues do now, and will continue to have, on the technical aspects of the repository program. Much of the present opposition exhibited by the State of Nevada is grounded in a fundamental belief that the process for selection of Yucca Mountain has been an inherently inequitable one. Assuming that Yucca Mountain project moves forward, it is not likely that local acceptance of the facility will result unless an equitable distribution of risks and benefits within Nevada is achieved. Without local acceptance of the facility's operations, the facility's operations may never reach the full efficiency to which they may be designed.

DR. CARTER: Well, thank you ma'am. I wonder Ms. Stanton if you would respond to my sort of standard question to each of the counties, and that is again in the socioeconomic area. Your feeling in regards to the coordination and cooperation of the county with the State of Nevada with DOE per se and with the Yucca Mountain project of DOE.

MS. STANTON: I'm going to ask--I'm going to pass on this one. I'm going to ask that Rex Massey who is a sub-consultant to the county answer this question.

DR. CARTER: All right, sir. Please, Mr. Massey.

MR. REX MASSEY: In the areas that I've been involved with, typically I believe what I've asked DOE to provide us, they have generally done so.

There are situations, however, where you may ask for something from DOE/Yucca Mountain and they run into institutional constraints which they may or may not have the control over. But generally they have been cooperative with us. And other subcontractors or prime contractors, Reynolds Electrical Engineering, which I've worked with on one small project and Science Applications International have been very receptive and helped us a great deal providing information and have been very open to our suggestions and information that we've provided on the program.

DR. CARTER: What about any relationship at all directly with DOE headquarters and the other question of course pertains to the Nevada Yucca Mountain project office.

MR. MASSEY: I personally haven't worked directly with DOE headquarters in Washington. Mike Bothman who is the program administrator would probably be the best person to ask that question. He typically handles those issues which involve the DOE Washington office.

DR. CARTER: What about the State of Nevada? The project office?

MR. MASSEY: There have been some problems herein

that we really haven't worked with them much in the past year or so and I think there are some funding constraints which create some problems for the state agency as far as disseminating information and working with us. But up until probably about a year ago, we had a fairly good working relationship with the state. I think the counties did too, but it has somewhat disintegrated since that point.

MS. STANTON: The county is going to make efforts though in the near future. We are working on some projects that we would like to work with the state on and we are currently discussing those.

DR. CARTER: Any other questions or comments of Ms. Stanton or Ms. Massey? Dr. Cantlon?

DR. CANTLON: Yes. Part of the tone of your presentation and your article as I've read it, looks at historical damage and injury to the people of the county. And looking at what is requested out into the future, one might conjure up an image of a referee in a baseball game who makes a bad call and then makes a compensatory call in the other direction. To what extent is the county looking for accurate benefits coming out of future activities as opposed to that value plus a makeup? It's not clear from the presentation whether or not the county is looking for what one might call a makeup benefit.

MS. STANTON: Do you want to take that?

MR. MASSEY: I don't know if you can classify it as a makeup, but I think what we are looking for with this program is at least some equal distribution between the benefits and the risks, whereas, in the past I don't believe that that equitable distribution has existed. And I think with the Downwinders decision recently, that that may be some of the makeup.

MR. CANTLON: Thank you.

MR. CARTER: Well, we want to thank you very much. We appreciate your time, both you Ms. Stanton and you, Mr. Massey.

With that--oh, yes, could we get your background, Mr. Massey?

MR. MASSEY: I have a BS in mathematics and economics and I've got an MBA. I'm currently enrolled in a masters of science and land use planning programmed in with the Lincoln County Repository Program for the last two and a half years.

MR. CANTLON: Thank you.

DR. CARTER: Very good. Thank you very much.

Again, I thank each of you. And with that I would like to certainly thank all of our presenters, both yesterday and today, informal as well as formal if I could divide them up into those two categories. We certainly appreciate the welcome we've had and the hospitality since we've been in the

Reno area in the last several days. There will certainly be other panel meetings, not only of this panel in the State of Nevada, but other panels in the board itself as far as the Nuclear Waste Technical Review Board is concerned.

And with that I would like to conclude this meeting of the Environment Public Health Panel, and we thank you very much.

(Whereupon, the meeting was concluded.)



CERTIFICATE

This is to certify that the attached proceedings before:

UNITED STATES NUCLEAR WASTE TECHNICAL REVIEW BOARD

In the Matter of:

ENVIRONMENT & PUBLIC HEALTH PANEL

PUBLIC MEETING

Location: RENO, NEVADA            Date: OCTOBER 16, 1990

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