UNITED STATES NUCLEAR WASTE TECHNICAL REVIEW BOARD

WINTER BOARD MEETING

ENVIRONMENTAL ISSUES

SOCIOECONOMIC IMPACTS

EXPLORATORY STUDIES FACILITY UPDATE

DOE WASTE ISOLATION STRATEGY AND PROGRAM PRIORITIES

Beatty, Nevada
January 10, 1995

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Dr. Clarence R. Allen, Member
Dr. Edward J. Cording, Member
Dr. Donald Langmuir, Member
Dr. John J. McKetta, Member

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# I N D E X

P R O C E E D I N G S

DR. CANTLON: Would you take your seats, please, and we'll get the session underway.

I doubt that anyone needs to be informed, but this is a meeting of the Nuclear Waste Technical Review Board. My name is John Cantlon, and it's always a pleasure for me to be back in my home state of Nevada and to have this opportunity to visit with some of the natives and recent arrivals.

Today, we've chosen to meet here in Beatty for two reasons. First, we wanted to provide a better opportunity for neighbors of the Yucca Mountain Site to attend one of our meetings and possibly to learn a little bit more about the Yucca Mountain Project and perhaps the way the Board interacts with DOE in its efforts to evaluate that site. Secondly, and more importantly, we want to hear what some of the people that live near the site have to say about the project.

Our meeting agenda includes opportunities at specific points during the day for public comment, and we will return here tonight after dinner to listen to anyone who might not be able to attend during the day. The subjects of today's meeting are environmental and socioeconomic issues, but your questions and comments do not need to be limited to those subjects. Anything you want to ask or tell us is fair game.

However, it is important for you to recognize that we are a technical review board with expertise primarily in science and in engineering. Political decisions that affect the Yucca Mountain Project and the political impacts of the project on affected communities are really outside of our areas of expertise. Our input into the political decision-making processes will come from the interpretations by others of our scientific and technical judgments and recommendations.

As you may know, the Nuclear Waste Technical Review Board was created by Congress in the 1987 amendments to the Nuclear Waste Policy Act. The Board was set up to assess the technical and scientific validity of DOE's efforts in designing and managing the nation's high-level radioactive waste management system, including site characterization at Yucca Mountain and transportation and storage of high-level waste.

It is the Board's belief that our activities, since early in 1990, have contributed to improving the quality and the factual content of the open dialogue that must go on in a democratic society on issues as important as high-level nuclear waste management.

Let me now introduce other members of the Board. Clarence Allen is a geologist and professor emeritus in geology and geophysics at the California Institute of

Technology. Garry Brewer is a political scientist and professor of resource policy and management and dean of the School of Natural Resources and Environment at the University of Michigan. Ed Cording is a geotechnical engineer and is professor of civil engineering at the University of Illinois. Pat Domenico is a geohydrologist and a professor of geology at Texas A&M University. Don Langmuir is a geochemist and is professor emeritus from the Colorado School of Mines. John McKetta is a chemical engineer and professor emeritus from the University of Texas. Dennis Price is an industrial and systems engineer and is professor of industrial and systems engineering at Virginia Polytechnic Institute. Ellis Verink is a metallurgical engineer and professor emeritus from the University of Florida. My own field is environmental biology, and I've served as vice president for research and graduate studies at Michigan State University until I retired.

We are awaiting appointments by the president for four of our Board members whose terms have recently expired.

Before we begin our review of the environment and socioeconomic issues, we would like Lake Barrett, deputy director of the DOE's Office of Civilian Radioactive Waste Management, to bring us up to date on the outlook for DOE's high-level waste program. Lake, thank you for taking the time to join us here in Beatty.

MR. BARRETT: Thank you, John.

Good morning, members of the Board, members of the public. Thank you for the opportunity to update you on the Program. I'd like to basically go over what we have been doing since Dr. Dreyfus spoke to you last October in developing our Program plans. Our office is committed to providing you comprehensive, accurate and timely information about our Program, and I believe this is one of the ways we can do that, through exchanges over this next couple day period. As Dan described to you last October, we are in the midst of restructuring the Civilian Radioactive Waste Program to ensure that measurable progress is being achieved and that we are making advancements in the critical components of our mission over the next several years.

We have just completed an important document, the "Civilian Radioactive Waste Management Program Plan." The purpose of this document is to describe our revised program which is being used for the planning and conduct of our activities. We have brought copies of this, and I believe they're on the table over there. Is that right, Chris? And there will be copies to each of the Board members and anyone else that would like that.

The "Program Plan" was prepared to provide the Program's constituents with an overview of the revised approach that is being implemented. The Plan consists of

three volumes. The first volume is an overview of the entire Program Plan. It provides the background on the situation that led to the decision to implement a new approach, and it also has the key features of the approach that is being implemented also. Volumes II and III describe, in detail, the goals and the activities, the schedule milestones and funding requirements of the Program's two business centers. The business centers are the Yucca Mountain Site Characterization Project and the Waste Acceptance, Storage and Transportation Project. The Program Plans also cover the current fiscal year, '95, as well as a five-year look ahead, '96 to 2000. As you read these plans, you will notice that they reflect many of the recommendations that the Board has given us over these several years.

As the Program moves forward, we will continue to evaluate our progress, solicit the views of our stakeholders, revise our plans as necessary, and implement our mission to safely dispose of the Nation's spent nuclear fuel and high-level radioactive waste. The Program Plan is intended to be a living document. It will be revised periodically to reflect results of the scientific investigations and engineering analyses and to respond to external advice and comments. It is not a pre-planned detailed recipe; it is a reference benchmark that will change as the program develops or is modified by the external regulatory or political

environments that we live in. It is the best program that we can describe with currently available information within the existing constraints that exist for this program.

The input of this Board helped shape the elements of the new approach and our plans for implementing it. Your continued guidance is critical as we further define its details. In particular, we appreciate your letter of December 6th that provided the Board's comments, recommendations and conclusions on the Program Approach. I am hopeful that we can begin to address many of those issues in this meeting over the next two days.

I'm here today to review our progress in '94, discuss with you our plans for '95 and beyond. These plans are ambitious, and with effective management, we believe they are also achievable. We are aware of the concerns that the Board and other groups have expressed that our new approach is overly simplified and too schedule-driven. We believe that the schedules we have set are essential tools for effective, goal-oriented management of the program. We do realize, however, that we may have to adjust our schedule as data requirements for evaluating site suitability, preparing the license application if the site is suitable, and complying with NEPA are more clearly defined, things will change. But revising our schedule at this point, before we have solid evidence that the changes are needed would be

premature.

Probably our most significant '94 accomplishment was to establish a consensus within the Administration and the Congress on the program funding levels that will enable us in 1995, for the first time, to bring stakeholder expectations for progress, program performance schedules and budgets into realistic alignment.

The first slide shows the budget planning for '95 and beyond. Congress responded to our request in 1995 that we would move along and achieve and demonstrate significant program progress, and they agreed to the 40 percent increase in '95. This is a very notable accomplishment considering the severe government-wide budgetary restrictions that have been imposed in 1995. Most of the additional funding we received in '95 has been allocated to the Yucca Mountain site characterization scientific activities. We are hopeful that by continuing to demonstrate progress toward our near- and longer-term objectives that the future year funding profile that we have outlined in the '95 budget, as shown there, can be realized even in face of even more restrictive government-wide deficit controls that are likely to lie ahead for the years ahead.

At the Yucca Mountain Project, the tunnel boring machine is in place and is proceeding down the North Ramp. We have resolved a succession of testing and start-up

problems and have commenced limited production operation. We are working hard to substantially improve the productivity. This is a first-time endeavor of bringing together three very distinct and different incompatible cultures, those of Nuclear Regulatory Commission documentation and quality assurance, underground construction, as well as the scientific endeavors of proceeding forward, because the real purpose of that machine is to get down and determine the scientific suitability of the mountain.

So the start-up of that machine has been a major learning experience for us. We believe it would be a major learning experience for any organization that was trying to do this. We are not satisfied with its progress yet. It is boring today, at least last I heard last night it was going to bore today. We are proceeding ahead as quickly as we can with that, but we expect that we're going to be able to improve its productivity substantially beyond what it's doing now.

On the waste acceptance and storage front, we are in the process of evaluating the responses for request for proposals for the design of the multipurpose canister system. We have also initiated the NEPA process that you will hear more about later on from Jerry Parker.

Now I'd like to talk about the Yucca Mountain site characterization program. The new program approach for the

Yucca Mountain site characterization program is consistent with the funding levels that we can reasonably expect to achieve. It provides the targets for effectively directing and coordinating our scientific activities to produce timely results, and it provides a means for measuring annual cost and progress. Our plans distinguish between tests that provide information for evaluating the suitability of the site; tests required to support licensing and repository and waste package design efforts; and tests required to confirm the safety of the repository before closure. It is important to understand, though, that a single, integrated testing program supports all of these three regulated activities. Therefore, in many cases, individual tests support multiple regulatory documents. My colleagues from the Yucca Mountain Site Characterization Office will discuss that program in much more detail and how it's linked to the waste isolation strategy and how it addresses the key uncertainties that we face in the future.

Our approach focuses the near-term site characterization activities on the requirements for evaluating the suitability of the Yucca Mountain site. The Board's letter of December 6th asked for a clearer definition of the Technical Site Suitability. We will address this in our formal response, which should be provided next month. In the meantime, let me briefly address some of the concerns

expressed about this new milestone. The Technical Site Suitability Milestone, which we expect to reach in 1998, includes milestones associated with the individual higher-level findings. These decisions and their technical bases will enable the Director of the Office to respond more substantively at an early date to questions about the probable adequacy of the site from a technical point of view. In addition, the milestones provide us with a management tool to facilitate program planning, to focus the various elements of the scientific program on a timely coordinated progress approach, and to help us establish priorities and allocate resources. Technical Site Suitability is neither a Secretarial action nor a Final Agency Action. It does not preempt or replace the regulatory determinations required under the Nuclear Waste Policy Act.

We intend to give full consideration to the Board's concerns regarding the sequence of activities and the societal decisions related to siting of the repository. However, we believe those concerns must be addressed primarily in the context of the Site Recommendation, which is a Secretarial and Final Agency Action with all the attendant requirements, rather than the interim Technical Site Suitability Milestone.

On the screen is the major milestones for the Yucca Mountain Project for the next years. Following the Technical

Site Suitability Milestone in 1998, site characterization activities will support the preparation of the Repository Environmental Impact Statement which we intend to complete in the year 2000 as shown. We intend to begin scoping activities later this year for that effort, and you'll hear more about that from Wendy Dixon later this morning. Site characterization will also provide input to the License Application in 2001, if the site is suitable, and an updated License Application in 2008. Tests to confirm the performance of the repository will continue until the repository is closed.

The plans described above for obtaining data to support the regulatory decisions embody a waste isolation strategy that identifies the key barriers and features of the site. This strategy is based on the concept of defense-in-depth and is a maturation of the strategy described in the Department's 1988 Site Characterization Plan. The strategy relies on the favorable features of the natural barrier such as low aqueous flux to provide long-term waste isolation. The strategy also relies on engineered barriers to provide containment to limit the release of radionuclides. The latest iteration of this strategy reflects the multipurpose canister development, as well as increased understanding of the site environment derived from our scientific work since 1988. Details of this strategy will be discussed by Drs.

Brocoum and Younker tomorrow.

The waste disposal concept calls for in-drift emplacement of large, multi-barrier waste packages that will provide substantial containment of the waste for periods well in excess of 1,000 years. The concept preserves flexibility so that firm technical bases can be developed and validated prior to the selection of the repository thermal loading. Consistent with this strategy, the evaluations associated with the findings leading toward our Technical Site Suitability Milestone and our Initial License Application, should the site prove suitable, will be based on a design consistent with a low-range thermal loading. We intend to continue the long-term in-situ heater tests to develop additional data to support proposals for higher thermal loadings that would provide improved performance of the repository.

Our repository strategy is closely coupled to our strategies for waste acceptance, storage and transportation. In particular, the development activities for the multipurpose canister. Let me briefly describe our plans and recent activities in that area.

On waste acceptance, we received more than 1,000 responses to our Notice of Inquiry that we issued last May on

waste acceptance issues, and we are in the process now of evaluating those comments. They will assist us in recommending to the Administration a position on near-term waste management.

In the storage area, we will concentrate on the design of the multipurpose canister subsystem and on the compliance with the requirements of NEPA. In November and December of last year, we conducted three scoping meetings in advance of preparing an Environmental Impact Statement for the decision to fabricate and deploy an MPC-based system. Jerry Parker will be discussing that in more detail later this morning.

The multipurpose canister design specifications incorporate provisions for satisfying transportation and storage requirements and for the compatibility with the disposal requirements. We intend to integrate the design of the multipurpose canister with the maturing repository and waste disposal package designs. And we have deliberately scheduled the completion of the Title I waste package design in 1997, prior to any commitment to fabricate and deploy multipurpose canisters.

We are presently evaluating the technical and cost proposals for the contracts for the MPC design and certification that we requested June of last year. In April, we expect to complete our evaluation of the proposals

received and award one or more contracts for the design of a multipurpose canister system.

In May, we plan to submit to the Nuclear Regulatory Commission a topical report that will provide the basis for their consideration of our use of "partial" burn-up credit for storage and transportation. This will also include any special cask loading procedures that may be required for later proposals for the use of full burn-up credit and other regulatory considerations.

Slide 3 should be the OWAST milestones. They're on the board. I'll point out a few of the items here.

In 1995, as I mentioned, the award of the contracts for the initial certification.

In '96, we plan to complete the MPC environmental impact statement and record of decision. Also in '96, complete the MPC subsystem design and submit the safety analysis reports to the NRC and complete the MPC scale-model testing for the transportation aspects under 10 CFR 71.

We have been planning to begin deployment of the MPC's for at-reactor storage in 1998. A recent December 16 letter from the Nuclear Regulatory Commission indicated that their review process may take longer than we had initially planned. We will continue communications with the NRC regarding their ability to support our goals. We have a meeting scheduled for next Friday to do exactly that.

Finally, regarding transportation of spent fuel, I will just briefly say that our current schedule under the Program Plan is paced to match repository availability in 2010 but to maintain a readiness for earlier transportation should a site for Federal interim storage become available sooner than that. We are continuing with the development of advanced technology truck casks. This past summer we submitted the Safety Analysis Reports for packaging for both the GA-4 and the GA-9 truck cask designs to the NRC. We hope to receive certificates of compliance on those designs in 1996, and we plan to have those casks available for transportation operations in 1998 if that becomes necessary.

In the coming year, we will be concerned not only with the effect of implementation of our Program Approach, but also with important policy issues. These are likely to include the near-term management of spent fuel, the removal of Federal Deficit reduction constraints imposed upon the use of the Nuclear Waste Fund, and the need for a contingency plan should Yucca Mountain site prove to be unacceptable for a repository. We are prepared to make substantive contributions to this debate, especially by providing our assessments of the desirability and feasibility of various proposed legislations to amend the Nuclear Waste Policy Act. I know the Board is prepared to contribute as well, and we look forward to your participation in this coming

Congressional season.

Thank you, Mr. Chairman and the Board. I'll answer questions from the Board or from the staff as you would so desire.

DR. CANTLON: Board questions?

(No response.)

DR. CANTLON: Okay, staff?

DR. PRICE: Yes.

DR. CANTLON: Dennis.

DR. PRICE: Lake, you mentioned you are continuing GA-4 and GA-9 in the event that you need to use them in 1998. What is the contingency of additional support facilities that will be necessary, because these are good for transportation? What do you do with them in 1998 and what-- you know, you can transport, but where do you put them and what do you do with them and what kind of continuing support is going on in those areas?

MR. BARRETT: We have not done much. We've done minimal work in the institutional area. Let me say in the operations area. We have kept a minimum level on that, that we can crank those up if a site is identified. The key to shipping before 2010 is the designation of a site, putting a pin in the map somewhere. Once the nation decides or decides not to do that, then we would crank up the supporting aspects to the transportation. As we evaluated that, the longest

pole in that tent was the development of a high-capacity cask. To design it, to put it through the regulatory process takes, you know, five plus years to start that. So we have concentrated on the technological certification aspects.

If a site is designated basically by Congress, because it requires a law change, we would then kick into higher gear the operational aspects, which would be the cask maintenance facilities, how you operate, how many, where, where would your command centers be, and also all of the institutional issues of vehicle inspections and all of that.

So until a site is designated, we have channeled our resources to the Yucca Mountain characterization program, is what we've done with our money. So we would kick those in once the site is designated. So we've done not much.

DR. PRICE: So basically you can have these transportation casks, but there may not be the supporting facilities at the other end to do something with the casks. Contrary to the MPC, which you could probably set down someplace, you need to have facilities and things available to handle it at the terminal area.

MR. BARRETT: Well, the design of the GA cask, the advanced technology cask similar to existing technology casks here today, would be standard handling. You could handle it in any nuclear capable facility that would come out--existing DOE facilities, a new facility that you would have an off-

loading, you know, hot cell type of arrangement for. So it's a standard cask, it's small, 25 tons, so you can handle it pretty much anywhere. So whatever the Nation decides is the receiving point, we believe that establishing the receiving technical aspects would not be the critical path for moving fuel.

DR. CANTLON: Other questions from the Board?

(No response.)

DR. CANTLON: From the staff? All right.

UNIDENTIFIED SPEAKER: Woody Chu.

DR. CANTLON: Oh, Woody.

DR. CHU: Yeah, this is Woody Chu, Lake. Just a point of clarification on your Chart No. 1 on the funding. These are the planned levels rather than requests going into the Congress this month, is that correct?

MR. BARRETT: These are our planned levels that we have that are in the program plans. That's what these numbers are. This is still in the process with OMB and preparation of the president's budget, so these are draft, but this was our best ability to do that. There is no official '96 budget until the president signs it and submits it. There's a 1948 Harry Truman memo, and it does bad things to me if I get in front of the president.

DR. CHU: Thank you.

DR. CANTLON: Other questions? If not, then thank

you, Lake.

As I mentioned, the subjects of today's meeting are environmental and socioeconomic issues. Garry Brewer, the chair of our Board's Panel on Environment and Public Health, will chair both of these sessions. Garry.

DR. BREWER: Thank you, John.

The Environment and Public Health Panel, of which I am the chair for the Board, reviewed environmental studies and activities in November of 1993 and again in March of 1994. The full Board, which is all of my colleagues here assembled, has not considered environment and socioeconomic issues for several years now, since the very beginning of the Board. It seemed appropriate to all of us that this was the time to begin to take full accounting of the environmental as well as socioeconomic effects at Yucca Mountain and elsewhere.

A further decision, and one that represents an ongoing commitment on the part of the Nuclear Waste Technical Review Board, was to hold the meetings in the place where the socioeconomic and environmental effects are likely to occur. And that led us to Beatty, Nevada, which is why we're all here assembled.

Another commitment of the Board which is worth mentioning is that we take very seriously the need to have full and appropriate public input and accounting and an

opportunity to have questions raised by whomever in the public stakeholders as well as anyone else. And you will notice in the agenda for the Board meetings that we have structured in a way that is not quite our normal pattern very specific times when the public is invited, if you wish, or anyone else for that matter, to raise questions and open discussion. The discussion periods will be at 11:30 until 12 for the morning session and 4:30 until 5:30 this afternoon, where comments and questions can be related to the socioeconomic or to the environmental, it doesn't matter. And furthermore, for those who perhaps could not be here during the day because they're working or the distance, the Board has decided to hold an unusual evening session between 7 and 8:00 in this building, again to give the public or whomever an opportunity to raise questions and enter into the conversation.

Having said that, let me also point out that we do have quite a bit of ground to cover this morning and this afternoon, and so the presentations will be according to the schedule. We will take a break at 10:00, after the first two presentations. There will not be opportunities at the end of each presentation to raise questions, but rather we'd like to collect them all into the periods which have been assigned, between 11:30 and 12, 4:30 and 5:30, 7:00 and 8 this evening. And comparable pattern will hold for the conversations

tomorrow.

If anyone in the audience wishes to raise questions at the appointed times, there will be a sign-up sheet in the back of the room with Helen and Linda, two of our staff people. Or if you don't want to do that, just raise your hand and we'll recognize you. We've got microphones here. That's the whole point of bringing this collection of people and the Board to Beatty, was to bring the focus of the activity to the place where the activity is.

Now, by way of background. We wanted to take the Big Picture look today at all of DOE's environmental work. This is the Big Picture; it is not a formal technical scoping discussion in the sense of the Environmental Impact Statement process. This is just to give the Board, our Board, and anyone in the public a sense of what the environmental program looks like, what efforts have been underway in the past, what's happened as a consequence of the two panel inputs that we've had in '93 and '94, which are fairly intense and directed with very specific recommendations and suggestions, to find out what's happened in '94 as a way of updating not only the panel, but the full Board.

One of the major issues here for our Board is the question of integration. How does the environmental work fit with the whole of the Site Characterization Program and all of the other activities at Yucca Mountain and elsewhere

related to the disposal of high-level nuclear waste? Integration throughout the program. That's why the full Board. From a technical point of view, that's why we're here. How do these pieces fit into the larger picture?

Another general point that's worth making, that when one tries to evaluate the adequacy of environmental plans and activities, questions always arise about the legal adequacy of the work. They always do. It is not our intent to question the legal adequacy of the advice the Department of Energy has obtained from its counsel. Nor is it our intent to second guess the management decisions that must be made, always must be made, when planning and carrying out an environmental program. This is really quite important. We're a technical review board. Our intent is to limit the review to the technical adequacy of DOE's plans and activities. That is a terribly important thing, and I want everyone to keep that in mind in terms of the ground rules for the day's activities.

The morning's agenda includes three basic subjects. First, Wendy Dixon will update us on the environmental monitoring activities that have been underway for several years at Yucca Mountain, with specific emphasis on what's happened in 1994. Afterwards, we'll have presentations on the preparation of Environmental Impact Statements, compliance with NEPA, the National Environmental Policy Act,

and we've also asked DOE today to tell us how they are integrating--back to one of the things that we're really most interested in--how they're integrating the on-site work characterization studies for the preparation of the EIS, the Environmental Impact Statement, for all of Yucca Mountain.

I want, before introducing Wendy, to make some personal comments on behalf of the Board. Thanks to Beatty. This is a big stretch for a town of 1,500, plus or minus, people, and we realize that we're imposing in a funny way. Look at the socioeconomic impact we've had just this morning. Plus the year's rain fell last night. I mean, that's the other thing.

With respect to pointing out very specific people, I would like to thank Mary Ball and the various ladies from the senior citizens group of Beatty who provided us with a very nice continental breakfast. Thank you very much.

One other logistic point, there's a coat rack in the back in the hallway, as well as the two restrooms. When we take our break, be fleet of foot.

Our first speaker this morning will be Wendy Dixon, the Assistant Manager for Environment, Safety and Health at the Yucca Mountain Site Characterization Project, and Wendy's going to provide the update and an assessment of what's happened in '94. Wendy.

MS. DIXON: Thank you. It is a pleasure being here

today before the full Board, and I guess I'd like to emphasize the point that what I was asked to present today really was an update on our Terrestrial Ecosystems Program and accomplishments for 1994. But I did want to emphasize, as Dr. Brewer was stating, that our program is much broader than terrestrial ecosystems. We have a very extensive program. It's based on approved plans, approved procedures. It covers a number of different areas, including environmental compliance as it relates to permits, hazardous waste management. We have a full compliance audit and surveillance program to assure that the work that we're doing and our workers out at the site are living within the conditions that have been imposed upon this program.

We have a number of field programs that have been set up to insure compliance and to provide input and data as it relates to potential impacts and other regulatory requirements that include: air quality, meteorology, archaeological resources, we have a Native American studies program, an extensive radiological monitoring program, a water resource program that includes both water quality and quantity, as well as terrestrial ecosystems.

This program, as I mentioned, was put together to be in compliance with State and Federal regulations as well as the mandates of the Nuclear Waste Policy Act. A lot of our emphasis, or the majority of our emphasis to date has

been on site characterization activities, but the information that we're gathering as it relates to site characterization activities will be largely picked up and utilized in the Environmental Impact Statement that we'll be discussing a little later on this morning.

There are four major components of our Terrestrial Ecosystems Program that we'll be chatting about. One is Reclamation, one is the Desert Tortoise Program. We have a Biological Survey Program and a Site Characterization Effects Studies Program. I'll go through each one of these briefly.

The purpose of our Reclamation Program is to return sites disturbed by site characterization activities to a stable ecological state with form and productivity similar to the undisturbed sites.

That program's broken down into four component parts:

Reclamation feasibility studies, which look at a number of different scientific treatments, what type of reclamation techniques work best in the type of environment that we're dealing with right now. So we have a number of different plots and studies set up, and the information derived from our feasibility studies is picked up and utilized in our actual Reclamation Program.

We have an interim reclamation effort. That ties to the fact that we have procedures in place, and prior to a

site characterization effort taking place, that potential user has to go through our office for concurrence and we do preactivity surveys. One of the focuses on preactivity surveys is going out and getting a species list for reseeding, to provide input back to the engineers and the scientists on appropriate methods for topsoil stockpiling or erosion control. So those stipulations are at that time provided to the scientific community and the engineers, whoever the parties are that are involved in that particular activity.

The procedure that we have that we follow also states and informs that potential user that at the end of his site characterization activity, if it's a drill program or a trench or whatever it is, they come back through our office, indicate that they're finished, and we go on out and do our final reclamation activity. We compare what was actually done with what our stips were. We do a very site-specific reclamation plan, and then we go ahead and recontour and revegetate the area.

And then, obviously the last step, post-reclamation activities, is our follow-up to see how well our reclamation plan is working.

Accomplishments in reclamation in 1994. We completed final reclamation on four sites and interim reclamation on 56 sites. We did several reports, one of

which was the draft report on natural plant succession on disturbed sites. I have down there several conclusions from that report, one of which is that the recovery rate to meet our goal of similar form and productivity is 20 years, very optimistically, and more probably on the order of 800 years. Many species on disturbances were not major components of undisturbed sites. And again, this is natural plant succession, this is not a reclamation program, but if you left the site alone and let nature take its course. You know, what are we seeing there? Again, many plant species on disturbances were not major components of undisturbed sites, so that doesn't tie into our goal. And a suggestion that research is necessary to determine whether the species that are now dominating those disturbed sites are facilitators, inhibitors or tolerators; i.e., you know, are they plant species that would be good for us to use for part of our Reclamation Program.

Other accomplishments. We monitored plant mortality and seedling emergence on reclamation sites. We found that fencing to exclude rabbits was a major contributor to plant cover; that treatments obviously that increased soil water holding capacity were major assets--we're talking about mulches or polymers or gravels, in some cases; and that seedling mortality was caused by desiccation and animal browsing, primarily the rabbits. Continued soil microbe

studies in topsoil stockpiles continued, and we found no decrease in active bacterial biomass since the soils were actually stockpiled; and that soil moisture in topsoil stockpiles were greater than in undisturbed sites.

We also have an extensive Desert Tortoise Program, the purpose of which is to conserve the tortoise population and to insure compliance with the Endangered Species Act. Little bit of history probably is warranted in that area. This species was petitioned for listing back in 1984 and emergency listed as endangered in August of 1989. Fortunately, the Program had some foresight. They had started doing some studies on desert tortoises prior to the listing, and we had the ability based on the information that we had at hand to put together a biological assessment. And in fact we received a "No Jeopardy" Biological Opinion in February of 1990, which as I know a lot of you know is a very fast turnaround. The species was downlisted or reclassified as threatened in April 1990, but the stipulations that were included in our Biological Opinion remain and we'll continue to enforce them. That Biological Opinion gave us an incidental take for site characterization of fifteen tortoises, and there were a number of terms and conditions required and specific actions required on our part to implement as part of that program, which is ongoing.

There are several key objectives, one of which is

to evaluate impacts of site characterization activities on tortoises; two, to mitigate those impacts to the maximum extent possible to minimize incidental take; to develop and test the efficacy of mitigation techniques; and to obtain site-specific information on desert tortoise biology to achieve the top three objectives.

Major accomplishments. We monitored 70 adult radiomarked tortoises in near-field, far-field and controlled areas to assess potential impacts of site characterization activities on the tortoise population. In our monitoring study, none of the tortoises died. We also monitored tortoise reproduction; we looked at 27 nests. To date, there is about a 50 percent survival. These small hatchlings are now in hibernation and we'll have to wait and see what the results are in March when they come out.

One of the reasons for listing the desert tortoise was a bacterium that caused an Upper Respiratory Tract Disease, primarily noticed in tortoise populations that were surrounding other larger populations of people. So one of the things that we do do is test for the Upper Respiratory Tract Disease. So last year we collected blood samples, which is not easy on desert tortoises, from 91 radiomarked tortoises and evaluated them for exposure to this disease. We found that 20 percent of the tortoises actually did test positive for exposure to the disease, but they had no

clinical signs at all. We found that there were no differences in percentage of tortoises testing positive between impacted areas and the controlled areas, and we also found two tortoises that showed clinical signs of the disease but did not test positive.

Changes to be made in '95. Every year that we conduct our monitoring program, we take a look at the results that we achieved the prior year, and those results tell us whether or not we need to modify our environmental monitoring program. There were indications based on the data results from 1994 that there were some changes that we could make, and those changes have been made for 1995. The number of radiomarked adult tortoises is being reduced. Our raven abundance survey--ravens are one of the primary predators of the desert tortoise--we're reducing the amount of surveys by 40 percent that we're doing as it relates to raven abundance. Again, that was another area that we can't discern impacts from, or we haven't to date. And the blood sampling for disease monitoring will be reduced to once a year. It was twice a year in 1994.

Probably the biggest accomplishment, however, is that since the listing of the desert tortoise as threatened, the DOE/YMP has been in compliance with the Endangered Species Act, no site characterization activity has been delayed because of the desert tortoise, and no significant

adverse impacts to the desert tortoise population at Yucca Mountain has been documented.

The next major component of our Ecosystems Program is our Biological Survey Program. It's objectives: to identify the potential direct impacts of site characterization activities on important species and on biological resources; to recommend impact mitigation measures; and to make sure that those impact mitigation measures are implemented as they relate to important biological species.

Again we have several component parts to this program. One again ties to preactivity surveys. Again, in accordance with the same procedure I mentioned under the Reclamation Program, we go out and do preactivity surveys as it relates to biological resources as well. We'll go ahead and do very extensive searches of proposed construction sites. We'll flag inclusion zones/exclusion zones, burrows, things to stay away from. Those tortoises that are within an area that has a potential impact to those tortoises have radiotelemetry devices placed on them to ease our finding them again and continually monitoring them during that particular construction activity or site characterization activity.

We do preactivity survey reports that report the findings of our preactivity surveys and that recommend

specific mitigations to protect the biological resources.

And then we have, finally, the mitigation implementation program, which includes resurveys, species monitoring, as I mentioned, as an example the desert tortoises. If we need to, we'll displace a desert tortoise or relocate the desert tortoise to protect them from harm's way, and post-activity surveys. Finally, when the activity is complete to assess our accomplishments.

Overall accomplishments in 1994, we conducted sixteen preactivity surveys. It may seem low in number, but overall as it related to acres, that was 630 acres. We made recommendations to avoid important biological resources, and we monitored tortoises during the construction activities. Last year we displaced five tortoises to prevent death or injury from construction activities, and we did end up with one incidental take. We lost one tortoise through construction activity, which brings our incidental take provision up to two for the program to date.

And lastly, as a result of our Desert Tortoise Program, these different elements interface. Our Desert Tortoise Program and the data that we receive from that basically, you know, pretty much substantiated the fact that tortoises are in hibernation from December 1st to March 1st. As a result of that, we modified our monitoring procedures and basically dropped off monitoring during that time frame.

Site Characterization Effects Monitoring Program. This is the last area that I'm going to talk about, and Ron Green will follow up with a more detailed discussion on how we've modified this program for 1995 and why. But the objective of this overall program is to monitor and document potential effects of site characterization on biological resources at Yucca Mountain.

This program's been underway for some period of time. It was based on the SCP where, at the time, there was an understanding of Site Characterization Activities. The plots were established based on where those activities were to be located.

We now have three years of data that are predisturbance data, prior to the initiation of site characterization, and we have three years of data that are postdisturbance data, and to date really have found that there are no differences, discernible differences, between those areas that are treatment plots, i.e., adjacent to site characterization activities, compared to those areas that are control plots. But we have found, over the years that we've been monitoring, major deviations from year to year on both treatment plots and control plots.

Those deviations are principally tied to changes in precipitation, and in the last six years, we've had some pretty dramatic changes in precipitation that very much and

very directly affect the biological resources that live in the area. Hard to find an average year here. The average precipitation at Yucca Mountain is six inches, and 1991 was the closest year to that.

At this point, I guess I'd like to introduce Ron Green.

DR. BREWER: Ron Green is the manager of the Population Monitoring Program for the M&O/EG&G. The presentation is Site Characterization Effects Monitoring and Thermal-Loading Ecosystem Studies. Ron.

MR. GREEN: Thank you, Dr. Brewer.

In my presentation today, I'd like to cover three areas. First I'd like to provide an update on the status of the Site Characterization Effects Monitoring Program, then provide a report on the status of the Thermal-Loading Ecosystem Studies, and then conclude with some comments on an ecosystem perspective in environmental studies. These are three areas that the Board has expressed a strong interest in and that were discussed at some length in review meetings in the fall of '93 and again last spring, spring of '94.

The last time I had an opportunity to speak before the Board was to the Panel on Environment and Public Health. And before I update our work progress and accomplishments in 1994, I'd like to quickly review the original site characterization effects study design for the benefit of the

full Board and any new members that might be present. Then discuss some of the reasons why we modified the program and then discuss changes in the study design, and then conclude with some accomplishments in 1994.

As Wendy Dixon stated earlier, the goal of the Site Characterization Effects Monitoring Program is to monitor potential impacts to biological resources at Yucca Mountain during site characterization. And in designing a monitoring program, we looked at a number of things. First we looked at the location of site characterizations. These were described in the Site Characterization Plan. Where were things going to occur at Yucca Mountain? Second we looked at a description of the activities that were expected out there, what type of potential disturbances could we expect? Things such as drilling, drill pad construction, road construction, utility corridor construction, vehicle traffic. Third we looked at potential types of disturbances, such things as land clearing, possibly fugitive dust, human activity, human disturbance, those types of things. And then finally we looked at the types of impacts that we could expect. And really, we categorized them in two categories. One was direct. That is, in most cases there would be a complete loss of vegetation and habitat when an area was cleared. And then possibly some indirect effects in areas adjacent to these disturbances due to a change in habitat quality because

of the activity.

In 1989, we identified areas adjacent to existing disturbances at Yucca Mountain and areas that we felt would receive future activity during site characterization based on the site characterization plan. This was done in order to obtain predisturbance data. We located 24 treatment plots--by treatment we mean areas immediately adjacent to a disturbance or an activity--and these were randomly selected, and we randomly selected six plots in four major vegetation associations that we identified at Yucca Mountain. A comparable number of control plots were selected in areas that were greater than 500 meters from any existing disturbance or any expected future disturbance.

The experimental design that we selected was a randomized block, split-plot design with samples within our study plot stratified by distance from the disturbance. And then within each plot we identified indicator species or parameters that we felt would be appropriate for monitoring environmental changes or environmental impacts. And these included characteristics of the vegetation, such as vegetation cover, density, production. We also are monitoring small mammal abundance, because they're probably one of the most abundant mammalian species out there. They're sufficiently abundant to treat statistically. We're also looking at reptile abundance, and we're also measuring

some of the major driving abiotic variables out there, such as precipitation, soil moisture, soil temperature.

Okay, why are we redesigning the Monitoring Program at this time? First, and probably most important, in the six years that we've been monitoring impacts at the site, three years before and three years after site characterization started, we have little evidence of impacts. We have observed no changes in variables monitored on control and treatment plots.

The locations of some of the specific activities are better known now. Things have changed at the site based on engineering design. During the past year, for example, the location of the muck storage area became final and is now marked in the field. The north portal site has changed over the last several years, it's increased in size. And so we have a better understanding of where most of the activities are going to occur.

And third, based on the latest information, we know that most of these disturbances are going to occur in one vegetation association. That is Larrea-Lycium-Grayia association. Site characterizations are now concentrated primarily in one vegetation association, and that's the vegetation association that surrounds the north portal facility in Midway Valley. And we're also responding to concerns that the Board expressed during their last two

reviews of our program.

The changes that we've made are, like I said, we're going to monitor only one vegetation association, the Larrea-Lycium-Grayia association. We're going to establish three experimental units, and right now we have two experimental units with the existing design, a treatment area of those sites immediately adjacent to disturbances and a control site. And there were some questions raised about the validity of our control sites. We identified a criteria that the control plots had to be more than 500 meters from a disturbance. Some concerns were raised that those were too close. Our feeling is that they were sufficient control plots, but in response to that, what we're going to do is establish a far-field control site. So we'll have three experimental units, a near-field control, which is our existing control site, a new far-field site, and then the treatment areas near the exploratory studies facilities. And within each one of these experimental units we're going to establish six sample plots like the existing study design. That really represents a reduction in effort from 48 study plots to 18, so we'll be reducing our effort by 30 study plots.

Okay, let me talk a little bit about some of the accomplishments in 1994. We did complete data collection on the existing 48 study plots this year. Precipitation, as

Wendy indicated, was below the long-term average. And accordingly, measures of vegetation cover, small mammal abundance, reptile abundance also declined. But again, this response was similar on control and treatment plots. So we really have not seen any measurable effects of site characterization activities at the site.

We've also started mapping vegetation communities at Yucca Mountain.

And third, we have implemented the changes that I just talked about. We've established a new experimental unit of far-field control plot. We've established new treatment study plots near the downslope side of the muck storage area, the east side of the north portal facility, and one on the south edge of the planned general support facility. We're going to use two existing study plots in this area that we've been monitoring for the past six years, and then a sixth plot will be located near the site of the south portal. We haven't located that yet. We will locate that in the next two months. We're still waiting on exact location of where that disturbance is going to occur. We've located six far-field plots in a far-field control area near Little Skull Mountain, and we're going to be using the existing six control plots in the Larrea-Lycium-Grayia that we've been monitoring for the last six years. And so that design has been implemented, and we'll start measurements this next

spring.

Okay, I'd like to spend a few minutes and talk about the Thermal-Loading Ecosystem Studies. Again, this is something that was discussed in our review meetings with the Board last spring. We talked a little bit of what we've done in regards to the Thermal-Loading Ecosystem Studies and some of the accomplishments during the past year. Like I said, we participated in discussions with the TRB. Your concerns and recommendations were underscored in your report to Congress and to the Secretary of Energy in May of '94. We also continued reviewing literature on soil-plant-water relationships that might be relevant to questions regarding thermal loading. We've identified members of the scientific community that are doing studies or conducting studies that may be of interest to some of the studies that we may be doing specifically or thinking about. Specifically scientists that are looking at soil heating studies, conducting plant ecophysiology studies and/or developing or using ecosystem models. We also met with the USGS to discuss some common information needs and existing data sets. At this time, we have not exchanged any data sets. We know what each of us has in terms of available information, and that information is available in the YMP technical database if it's needed. We've also developed a study approach for the Thermal-Loading Ecosystem Studies. And I'd like to expand

just a few minutes on this last item.

The approach that we've developed and are planning on taking is to develop or adapt existing models of ecosystem functional relationships to address questions concerning the effects of thermal loading. It's really a combined effort of simulation modeling and field measurements. And although the modeling, the field measurements and the evaluation phase here are listed as separate items, I'd like to stress that these efforts are really closely tied together, and they really represent an iterative process. They feed back into each other.

The goal is to develop models of functional processes that we can use to ask specific questions about the long-term effects of thermal loading. The plan is to use existing models to the extent possible. We want to look at things such as water balance, models of plant growth, productivity, and possibly nutrient cycling among other things.

Let me stop here for a minute and discuss why we felt this was an appropriate approach. In other words, why a modeling approach. Modeling can be an excellent way to help define problems and questions. They can be particularly useful in identifying specific data requirements that can improve the efficiency of field measurements. Oftentimes when you enter a modeling situation you find out much of the

data that you may have collected is really not relevant or useful for what you're trying to accomplish. So hopefully we can use models to streamline our field measurements.

Models are also useful when they involve problems or questions at temporal and spacial scales or human activities for which we have no empirical experience. And the questions concerning thermal loading are on a temporal scale of greater than 1,000 years.

Third reason for using modeling is multiple combinations of variables. In a complex situation such as this, we can look at various multiple combinations of variables, which would be very difficult to do with field experiments or would nearly be impossible to do with field experiments.

However, we must exercise caution when we use a modeling approach, because I don't think we need to get trapped into thinking that models can provide us all the answers. They are a tool that we can use, or one approach that we can use, to reduce the amount of uncertainty about what would happen to the terrestrial ecosystem under different thermal-loading strategies.

Field measurements to parameterize models to local conditions would probably be essential, although we feel much of this data already exists. But as we go along through the modeling exercise, we may learn that we do need some

additional information and field studies--or field measurements, I should say, could be tailored to answer those data requirements. Some of the data sets that may be required are precipitation, soil moisture/temperature, evapotranspiration rates, soil parameter, soil texture, those types of things. But those will evolve or become more apparent as we get into the modeling exercise.

And the last step, of course, is evaluation of model output. In other words, how robust are the models. Are they sensitive enough to estimate effects of an increase, say, of soil temperature at the surface of one to two degrees? Do we need additional information? Our anticipated time frame for model development and evaluation is about eighteen months at this time, and that's assuming that we'll be using existing models.

I'd like to conclude with some general comments on an ecosystem perspective for the Environmental Studies. DOE has determined that they feel that the appropriate information is being collected for assessing impacts for site characterizations. Again, the focus here is on site characterization activities. The vegetation-ecosystem model developed for the thermal-loading studies could be useful in terms of identifying and evaluating other variables or parameters that may be useful for monitoring ecosystem change related to site characterization activities. And finally,

these models could possibly serve as a basis for evaluating impacts to other trophic levels. And so the ecosystem models could maybe be used as a tool to integrate not only effects of thermal loading, but possibly site characterization.

With that I'll conclude and open it up to any questions.

DR. BREWER: What I would like to propose--thank you very much, Ron--is that we limit the questions to the Board and staff, and I'd like to open it up right now. Dennis Price.

DR. PRICE: Just for clarification for me, Wendy, on the incidental takes of fifteen, is there any limitation on time on that? Is it throughout the entire life of the Yucca Mountain Project?

MS. DIXON: It's just for the time period of site characterization. That's what our Biological Opinion was tied to.

DR. PRICE: Okay. And there's a great deal of activity yet to take place there, and you've had two incidental takes. What happens if you exceed fifteen? What happens?

MS. DIXON: We won't exceed fifteen. What will happen is, if it appears as if there's a potential of exceeding fifteen--what I'm saying is we won't be out of compliance with the Opinion. If there's a potential that

we're getting close to that target number, we obviously want to stay within the bounds of the Endangered Species Act and our Biological Opinion. We'll go back and consult with the Fish and Wildlife Service and ask for an increase in incidental take beyond the level of fifteen. That will require us to go back and negotiate with the Fish and Wildlife Service.

DR. PRICE: I see. And this question just on your behalf, you indicated in your statement no significant adverse impacts to the desert tortoise population at Yucca Mountain have been documented. Does that mean that none have been observed?

MS. DIXON: None have been observed. Thank you.

DR. BREWER: Other questions from the Board? John Cantlon.

DR. CANTLON: Yes, I'd like to pursue a little bit the ecosystem studies. You indicated that you are exchanging data with the USGS Hydrology Study. I take it that you haven't yet thought about any process by which those data sets could be coupled.

MR. GREEN: We haven't actually exchanged datas. We have met and discussed what types of data that each of us have been collecting and trying to find out whether we have data sets that they can use and they have data sets that we can use. No formal request has been made by either group to

exchange data sets. But as we get into the ecosystem studies, certainly they have been collecting information that would probably be of value to us in terms of parameterizing models. And that information is in the YMP technical database and gets submitted, so we have easy access to that data.

DR. CANTLON: Well, it isn't pertinent to site characterization, and I think we would agree that the data sets acquired for assessing impacts of site characterization, we would agree, are probably pretty well set there. But you do have an Environmental Impact Statement in the wings now, you're beginning to move toward that, and at that point you're going to be asked, really, to look beyond site characterization and to try to estimate what the impact of the repository would be. And for that you really do need to couple these data sets together, and I guess I'm wondering whether you're going to be far enough along by the time that demand is upon you, and in particular whether or not you're going to have any experimental data to feed into the models. Is there any thinking at all about a heating experiment, a surface-heating experiment?

MR. GREEN: At this time, we have not made any commitments to do a soil heating experiment. The real question there involves a time scale. In the thermal-loading scenarios, you're talking of very, very long time frames,

several hundreds of years, over which this heating would occur. And if you go out and put in a soil-heating experiment and crank up the temperature over a period of two to five years, really the question is, is that a valid experiment to evaluate the long-term effects and whether that would have any added value in terms of making an evaluation on what the long-term effects are above and beyond what we can do with a modeling approach.

DR. CANTLON: Clearly, the biological processes that go on will go on. Many of them, not all, by any means. Many of them will go on over longer time scales commensurate with the time scales of the heating, the lag of heating pulse moving up from a repository. And it is true that current thinking is that you will go in early on with a lower temperature rather than the hot repository model. Nevertheless, in the Environmental Impact Assessment process, which we're a little premature to be discussing at the moment, you are going to be looking at other processes that are operating on a much, much shorter time scale. The straight physical process of relating evapotranspiration to the hydrologic cycle and the impact of any heating from bottom up as opposed to top down, which is the typical summer/spring heating process, you'll have no data on.

MR. GREEN: Well, I think the need for those types of data sets are going to emerge very quickly here as we

start, within this next year, by the end of this calendar year. And I think we need to go in and look at what specific pieces of information that we really need to evaluate those models before we actually jump into a very large scale field experiment. And that's the point I wanted to make, is that it's an iterative process, and we want one to lead the other. Because you can design a field study and end up finding out that you collected the wrong information in the end.

DR. CANTLON: Well, the modeling will be clearly a help in guidance--

MR. GREEN: Right.

DR. CANTLON: --in that process.

Totally different type of question now. You have a fairly general picture now of several years of data of your desert tortoise population in the area. You also have data on the cost per year of your desert tortoise study. What does that calculate out to in crude numbers? How much per tortoise does it cost to do this? And the question one might ask in today's environment on regulatory issues, particularly environmental issues, can you invest that much per tortoise in other ways to enhance that population?

MS. DIXON: I guess I'd like to respond to the question, if you don't mind. We don't evaluate the merits of any of the regulatory compliance laws or regulations that exist. We obviously need to respond to what Congress has put

in place and, you know, statutes that are on the table, and a lot of these statutes are addressed. I'm not sure that the cost benefit thereof per tortoise is an issue. We need to be in compliance with the Endangered Species Act. We have gone in in good faith and negotiated with the Fish and Wildlife Service. We have a Biological Opinion that is very positive compared to a number of other Biological Opinions that are in the area. We have met the mandates of that Opinion and we've worked in good faith with the U.S. Fish and Wildlife Service. I'm not sure--

DR. CANTLON: Well, let me clarify the question, because I think you're tangential to the question. I'm not quarreling with the law or making any kind of a derogatory innuendo about the law. What I'm saying is, now you have a database. You know what you have invested to lay down that knowledge about that species. Now typically, once you have that database, you could now make essentially a proposition that investment of a similar amount or a much smaller amount of money can enhance the species' long-term survival in a much more intelligent way. In other words, are you going to be committed to continuing to grind on this kind of data assessment as long as the repository is running? And we're talking, you know, a very long period of time. My question is, how do you now draw a line? Here's the database, now here's a proposition. DOE makes this proposition about

addressing the well-being of that species. See, it's a way to get out of continuing to do something just because it makes you look good.

MS. DIXON: I guess I'd like to try again. A couple of other points. One is that, as we've mentioned today, with the data that we do end up getting, we do adjust our program and decrease certain of the monitoring efforts because we have a technical basis to do so. But to drop out the conditions that are implicit with our opinion is another story. One of the processes that is within the Fish and Wildlife Services hands that could drop this program off the table for us altogether is to delist the species. And if the Fish and Wildlife gets enough information, and the information that we gather on our program goes to the U.S. Fish and Wildlife Service, so that they can document the fact that the species is no longer decreasing in size over time, in fact it's actually reestablishing itself, the Fish and Wildlife Service has the ability to delist the species. At that point in time, all of our requirements go away. So hopefully there's some potential of that happening in the future. And in fact they have a recovery plan that they have developed that they are working to, but it's unfortunately not a short-term recovery plan.

DR. CANTLON: Well, this presupposes that the Fish and Wildlife Service will be motivated to do that kind of an

act. DOE has an economic incentive to make it happen.

MS. DIXON: But we don't have the authority to delist desert tortoises.

DR. CANTLON: No, you have the authority to generate a data set and a recommendation, and can do it.

MS. DIXON: But our recommendation--I'm not arguing with the fact that our information is going to them and will be used by them, but it's very site specific, and there might be information in other parts of the areas that are also faced with desert tortoises and the Endangered Species Act where the results are somewhat different. So their ability to delist is dependent on more than just the information we provide in our specific area.

DR. CANTLON: I'm just addressing a strict management question.

MS. DIXON: Okay.

DR. CANTLON: You've got a challenge, you've got a money drain that you could divert--

MS. DIXON: We definitely agree with that.

DR. CANTLON: --you could divert to other useful purposes once you've established there's no reason to continue this drain. But that isn't going to happen just because you give data to the Fish and Wildlife Service. They don't care whether you've got a money drain. But you do, and you have a responsibility to the taxpayers. It's a mind set.

DR. BREWER: Are there any other questions from the Board? Staff? Bill Barnard, staff.

DR. BARNARD: Bill Barnard, Board staff. Wendy, you mentioned that the recovery rate for natural plant succession range from 20 to 800 years. That's a pretty significant range. Can you give us a little more information about why that range is so large? And how do you determine the 800--the end of the range that is in the area of several hundred years? You certainly haven't watched plants that long.

MS. DIXON: Definitely not.

UNIDENTIFIED SPEAKER: You want Kent to answer that?

MS. DIXON: Yeah. Kent, are you back there somewhere? You're probably best able to address this specific question, and in fact we'll make sure we'll share a copy of your--it's a draft report right now, but we'll share a copy with you.

DR. BREWER: Please identify yourself.

DR. OSTLER: Kent Ostler with EG&G.

DR. BREWER: Thank you.

DR. OSTLER: The difference comes in in the regression and the curve setting through different data that we have. If one takes a straight line regression towards the sites that we sampled, you come up with twenty years. We

know that that really isn't the appropriate line. That's the most conservative that one would ever come up with. What we've seen in natural systems is that the curves tend to plateau out, and as you stretch that line out then, where it then comes up is at 800 years. Now, it's going to be somewhere in between those two points, we know, not 800 and not 20. Most likely, you know, around 100 years or so, 150 years.

DR. BREWER: Other questions from Board or staff? Dan Fehringer.

DR. FEHRINGER: Let me try to summarize what I think you said were the accomplishments for the past year, '94. First of all, you kept the project in compliance with all the laws and regulations and allowed the site characterization work to go forward, which is no trivial accomplishment in itself. Second, you extended the baseline of information about what exists at the site. You've been monitoring for several years, and you added one more year to it, in particular a year that helps to round out some of the precipitation variations. The third one I'm less clear on. Did you learn much about the way the ecosystem functions, and particularly what the relationships between the varying precipitation might be and how the ecosystem responds to that? Or is that still something yet to come and you haven't really accomplished that yet this year?

MR. GREEN: I would say that's really still to come, because it's really in the next phase. This year we're starting, in FY-95, we are preparing some reports based on the last six years of monitoring. In particular, we're preparing a report on the vegetation studies, and then from that we'll also prepare a topical report looking at the difference between treatment and control plots. So that evaluation will be forthcoming in reports and is in the process right now. I think things responded as we expected to this year, and I would hate to push my comments any further other than to say that those things are going to be documented in topical reports in the next two years.

DR. FEHRINGER: Some hydrologic modeling has been suggesting that the heat from a repository could serve to sort of pump moisture up through the strata underneath Yucca Mountain and perhaps raise moisture levels in the soils that are on top of Yucca Mountain. Do you feel that the information you have now will allow you to do a good modeling study that will predict whether or not that will significantly affect the environment or will you need to do different types of studies to get a handle on the importance of that?

MR. GREEN: There are probably some field measurements that we need to do in the footprint of the proposed repository, the potential repository. If you look

at our study plots out there, we don't have a great deal of study plots in that footprint right now. Again, if fracture flow is one of the scenarios that we need to consider, we'd probably need to do some characterization of the vegetation along those fault lines. So there are some data sets that do need to get collected to support those types of modeling exercises. Possibly some characterization of the soils along those fault lines as well.

DR. BREWER: Other questions.

DR. PRICE: Excuse me, Dennis Price.

DR. BREWER: Dennis Price.

DR. PRICE: Just a follow-up. But that's a function of heat drawing water up through the repository, and you wouldn't get that from what you just described. Am I not correct?

MR. GREEN: And that's the other thing, we wouldn't get that from, say, a soil-heating experiment, either. Moisture moving up from below would be an impossible condition to handle in an experimental setting. You really couldn't experimentally create that setting, and I think that's one of the reasons we're interested in looking at a modeling approach, is that we can address scenarios of looking at moisture movement or increases in different soil layers. And those types of models do exist, have been well documented in the literature and have been developed for the

last ten, fifteen years. So that is a scenario we'd have to consider in our evaluation.

DR. BREWER: Okay, other questions from Board or staff? If not, thank you both, Wendy and Ron Green. We will break now until 10:15. We will resume promptly.

(Whereupon, a break was taken.)

DR. BREWER: Our next speaker is Chris Kouts, and Chris is going to give us an overview of DOE's strategy for complying with the National Environmental Policy Act, or NEPA. Among other jobs, Chris is designated as the NEPA compliance officer for DOE's OCRWM, the Office of Civilian Radioactive Waste Management. Chris.

MR. KOUTS: Thank you very much, Dr. Brewer, members of the Board, staff and members of the public. I've been in front of the Board in various other incarnations. It's good to see some familiar faces on the Board from my days in the Transportation Program.

Right now, my duty within the program is basically Director of Regulatory Integration Division for program management and integration. This essentially means that I wear two hats. One is an environmental hat to coordinate environmental activities throughout the program. And I also wear an NRC interaction hat. I basically coordinate interactions with the Nuclear Regulatory Commission. Today I'm wearing only one of those hats, and

what I would like to talk to you about today is a topic that the Board has been interested in and there's been a lot of stakeholder interest, is basically the NEPA approach for the program and various other issues related to that.

I don't--unfortunately, my view graphs didn't make the plane, so I hope you all have copies of my presentation, and I'll try to let you know what page I'm on. It will also cure me of the habit of turning my back to people and pointing to the view graphs. I'll try to keep my head up also so I don't look down at my presentation too much.

I'm on the second page now and I'm talking about the overview of my presentation. I'm going to basically be talking about seven different subjects, starting with the NEPA approach, the programmatic EIS issue that many people are interested in, our schedule for our EIS's that we're planning on developing, general costs of NEPA compliance for the program and for the individual projects, how we coordinate on NEPA within the program and with other DOE offices and also with other Federal agencies throughout the government.

Now on page 3, if you would turn your pages. Our NEPA approach is basically dictated by the guidance, the very specific guidance we've received in the Nuclear Waste Policy Act. That guidance basically was related to the repository and Repository EIS, Repository EA and also the MRS program.

We have added the major decision point for the program related to the fabrication and deployment of multipurpose canisters.

So our basic approach is to do two EIS's, one to deal with that decision on the MPC, or the multipurpose canister--again, fabrication and deployment--and the second to deal with the repository siting decision. As you might remember from the Act, we're required to provide an EIS along with the site recommendation to the president, and also that same EIS would accompany a license application to the Nuclear Regulatory Commission. We would also have an EIS prepared for an MRS facility, a monitored retrievable storage facility, if one is sited. That's basically simplistically what our approach is.

And let's turn the page now, if you will, to deal with the programmatic issue. I'm on page 4. We've had a variety of stakeholder interest in the issue of whether or not we should be preparing a Programmatic EIS. Prior to the time that the MPC Notice of Intent came out for the MPC EIS, we did inform our stakeholders that at that time our current intention was not to prepare a programmatic document, but we did indicate that the issue was still under advisement. That situation to this point has not changed. We do hope to close this out in the near future, and primarily it will be based on the comments that we've received in the MPC scoping

process, which you might remember closed last Friday, January 6th. We will carefully review those comments and look at the issue again of the programmatic, but at this point in time, as I said, our current thinking is not to do one.

I should indicate that a Programmatic EIS decision is not one that's totally made by the program. DOE is part of a larger organization, if you will, that has other players, if you will. The Office of Environmental Safety and Health basically owns NEPA guidance for the Department, and also the Office of General Counsel is very much interested in that also. They have a very definite role to provide consultation to the Office of ES&H. So basically there are three players involved in any major decision associated with NEPA. One is our program, or the program's view, one is ES&H's view, and the other is also General Counsel's view. So we are working to bring that to closure and hope to have that done in the near term.

I would want to mention something about Programmatic EIS's. For those of you who are unfamiliar with them, they are typically done when there is a lack of specific NEPA guidance to an individual Federal program, and that Federal program uses that document as a methodology, if you will, and as a public process to determine policy as to how it should implement specific aspects of legislation when there again is not specific direction. In our case, we felt

we've received very specific direction from the Nuclear Waste Policy Act. Programmatic EIS's are also done in many cases when a Federal agency or department intends to initiate a legislative proposal with the Congress. Certainly that's not the case with our program at this time.

On the rest of page 4, I think the only other point I would like to make is that the Department's reading of the Act was that there was specific Congressional intent to limit the types of NEPA documents that this program would be involved in, and that was to expedite the program, and we intend to follow Congressional guidance specifically on that.

Oh, we do have view graphs. Gee, I was doing so well without them. Thank you. If we could just flip that one over.

What I've provided in this view graph is a general idea of what the schedule for the overall program is in relation to some of the activities that are going on within the program and the documents that also would be prepared, the NEPA documents that would be prepared. The top part of the graph, you can see the MGDS, or the Mine Geologic Disposal System, design process along with the multipurpose canister design process and how the NEPA process fits into that across the program.

On the next slide, what you're looking at is the timing of the two EIS's that we're presently planning on

developing. This NOI should be moved back a little bit, since we did start scoping for the MPC-NOI in--I'm sorry, that's fiscal, so we did do it in Fiscal of '95, excuse me, so that is correct, since our fiscal year starts the beginning of October. So basically you're seeing that we're going to have two concurrent EIS's going on at the same time. In the discussions today I think Jerry Parker and Wendy Dixon will be explaining to you the difference in the scope between the documents, where the MPC EIS is more of a generic analysis for the deployment of the canisters. The repository will be doing more site-specific evaluations, and of course other aspects of environmental analyses that need to be done for the site recommendation should we have one.

Next slide. Before we totally leave the next slide--in fact we can put it back up for a moment, Rich--I would want to make a comment that Secretary O'Leary issued some National Environmental Policy Act guidance to the Department as a whole this past fall, in which she very much was interested in expediting the NEPA process. In fact, she indicated that she would like the median time for all EIS's within the Department to be fifteen months from Notice of Intent to Record of Decision. This is a median time and a goal for the Department. It is understood by the secretary and by the people who work in NEPA within the Department that there may be certain EIS's that are a little bit more

controversial than another, a little bit larger than others, and may take a little bit more time. But basically the Department is moving to accelerate, if you will, our process for NEPA. You can see that the MPC EIS will take a period of roughly about two years. The Repository EIS from Notice of Intent to Record of Decision will be closer to five years. So we're not going to be totally consistent with the Secretary's guidance on that.

Talking a little bit about costs of NEPA compliance, within my office, my budget is spent on primarily making sure that the Office of Civilian Radioactive Waste Management is plugged into and involved with other activities within the Department. We review other EIS's and are involved with issues related to our EIS, many of them coming out of the Office of Environmental Management and Restoration. There are several programmatic documents that are being undertaken at this time, and we are aware of those documents. We participate in their processes and we also respond to comments in relation to disposal, basically for high-level waste and for departmental spent fuel.

We also, within my office, are responsible for developing procedures for the program in relation to NEPA. We also do NEPA training. We provide guidance where appropriate to the project offices and we spend a great deal of our time coordinating between the project offices to make

sure that one arm of the program knows what the other is doing in relation to their NEPA activities. That's basically my role. The individual project offices' role are to prepare the documents, and we have our two document managers here, Wendy Dixon for Yucca Mountain, and Jerry Parker for the MPC EIS, who will be giving you presentations in a moment.

To give you an idea of the general costs of what we're looking at in relation to overall coordination, in my office we have about a million dollar budget in this area that's basically contractor support and other support to make sure that we can coordinate well. The MPC EIS right now, our fiscal year expenditures for '95 are expected to be somewhere a little bit over 4 million, and the total cost of that document will be somewhere over 7.5. The Repository EIS, we're going to be starting scoping later this year, and it's about a $2.5 million budget, and our total expected budget for that is somewhere around $30 million. Our MRS document, of course, is unknown at this time since we don't know whether or not we're going to have such a facility.

I'd like to certainly mention that within our program, the NEPA process is a team effort. We've had substantial involvement from our senior management in terms of looking at how we're going to embark on NEPA activities. I should mention that when we went through our strategic planning process last year, one of the I think major items

that came out of that was that it was very important for this program to get engaged in the NEPA process and to get out in front of the public and give the public an opportunity to comment on what we were doing through this process, which is a very good one for assuring public involvement. And what you're seeing is that the program is doing essentially what we said we were going to do in that strategic planning process, and we have embarked on the MPC EIS and we plan to do the repository again later this year.

We do have many meetings on EIS issues. We have teleconferencing capabilities now within the program that put Yucca Mountain on the screen as well as ourselves at headquarters, and it certainly helps the situation. We've also done what the secretarial guidance has asked us to do, and that's to create integration groups within our program. We have one for the MPC EIS that was started last June, and we're preparing to do one also for the Repository EIS. This makes sure that everyone basically within the program is on board in terms of what we're doing. And that's a very helpful activity. Some of the issues that we deal with in those meetings, environmental justice is a very important activity, an item that came out of a presidential directive last year, transportation analyses. We want to make sure that those are coordinated between the documents. Those types of issue. We also have many different individuals and

different disciplines in those meetings, from engineers to systems people to regulatory and environmental people.

Basically this goes over a little bit more detail on the integration groups. They are chaired by the Document Managers, and these meetings are held on a regular basis.

Next slide. We have other players in these groups. As I mentioned before, the Office of General Counsel certainly needs involved in this, as well as Environmental Safety and Health, also EM, or Environmental Restoration and Management, or the Office of Environmental Management, defense programs, nuclear disposition. That's nuclear materials disposition. That's essentially the people who are dealing with plutonium that's around the DOE complex. We also have other programs as appropriate, Naval Reactors being one of them.

Next slide. We, as I mentioned earlier, participate in other NEPA documents. Either Dan Dreyfus or myself sits in on Executive Committee Meetings of the INEL Programmatic EIS. We sit and listen to the decisions related to that document and participate in that as well as are there for general policy purposes. There are other EIS's that the program's heavily involved with. Many of you are probably aware that there's a Site Wide EIS now being developed by the Department. We have a very active role. Our people here at Yucca Mountain are involved in that, as well as people back

at headquarters. I mentioned the PEIS already going on. There's some plutonium solutions, EIS's, and this is the storage and disposition of basically the plutonium that's around the complex. So we are involved in that.

We can go to the next slide. There are other Federal agencies besides the Department involved in NEPA, primarily they relate. The Council on Environmental Quality, which was set up by the National Environmental Policy Act, is the overall guidance entity, if you will. If we have a problem, we certainly go to CEQ and ask a question. NRC's involved with this program and also can be very much interested in what we're doing in the NEPA process, and we coordinate with them and also the Environmental Protection Agency, which basically publishes the final documents and rates the documents. And I'm sure the Board's had a presentation on that earlier, so they're aware of that.

Summarizing, our general NEPA Approach is following the intent of the Nuclear Waste Policy Act. Again, this is not a closed issue at this point, and we are very much interested in looking at all the comments we've received in the scoping process. We do try to integrate as much as we can amongst ourselves and bring in other entities as appropriate.

I'd be happy to answer any questions that the Board or the staff might have.

DR. BREWER: Chris, thank you very much. Questions from the Board? John Cantlon.

DR. CANTLON: Yes, looking at the prospective budget for this process, looking at the portion that is related to the repository, I think you have a figure down, some $30 million identified for the repository. Could you give us some kind of a breakdown of what you think the categories of those expenditures would be? How much of it would be public discussion, how much of it would be generating new data?

MR. KOUTS: Wendy, do you want to take a shot at that?

MS. DIXON: Okay. I can't give you a detailed breakdown for the whole 30 million, because that's a ball park estimate.

DR. CANTLON: I understand.

MS. DIXON: There's no way to really do that. So the answer is no. What I do need to emphasize, though, is the data gathering efforts that are going on for site characterization activities. If we already have an ongoing program collecting air quality information or met information as an example, those costs are not included in that effort. So this is the cost, principally, of document preparation, public interface, responding to all the comments that will come in on the DEIS and from the scoping hearings, preparing

the required plans that are required for the EIS, which obviously there's a number of them, and finally, it does include some money--and again it was a guesstimate as to where the data gaps exist, what the cost of filling those data gaps might be. But studies that are not now part of site characterization that need to be added. For example, aesthetics, which, you know, is not part of our current monitoring program, but we're picking it up right now for input into the EIS. Aesthetics costs, it's a small dollar amount, but because that's tied to the EIS, would be incorporated in that dollar amount.

DR. CANTLON: Okay, thank you.

DR. BREWER: Other questions from the Board? Dennis Price.

DR. PRICE: Just a quick clarification. You used the acronym PEIS, and sometimes it meant Programmatic EIS and sometimes it meant something else, a Plutonium EIS?

MR. KOUTS: No, it's--

DR. CANTLON: It's always--

MR. KOUTS: No, it's always Programmatic. PEIS is kind of a term of ours. Plutonium, usually the materials disposition or something like that is used to indicate plutonium. PEIS is typically used for Programmatic.

DR. PRICE: So on your page 12, then, the PEIS's that are used there are Programmatic EIS's.

MR. KOUTS: Right.

DR. PRICE: Okay, thank you.

MR. KOUTS: That's correct.

DR. BREWER: Other Board members? Carl Di Bella on staff.

DR. DI BELLA: Carl Di Bella. Chris, also on page 12, you have at the bottom that the OCRWM Program is a potential ultimate disposition for the material covered in these EIS's. That suggests that there are other potential ultimate dispositions. Can you elaborate on what those might be?

MR. KOUTS: Well, we always say potential because we don't have a site. And we're the only activity that's looking for a site for final disposition. So what many of those documents are really involved in are the management of the materials up until the point of disposition, and they reference our program in relation to the final disposition.

DR. DI BELLA: Right.

MR. KOUTS: And we need to be very careful in those documents, and that's one of our coordination roles, that those documents clearly indicate that we are simply characterizing a site, we do not have a site yet for final disposition. But again, from a planning perspective, they can use this program as a prospective site, if you will.

DR. BREWER: Lake Barrett.

MR. BARRETT: Lake Barrett. One of them is on the disposition of weapons usable plutonium, the deep borehole of several kilometers down that the National Academy recommended would not necessarily be in this program. If the world was to do that, or the United States was to do that, it clearly would not be under this, it would be a different regulatory status and everything else. So there's an example of one that is not, but the majority does.

MR. KOUTS: They're looking at several alternatives related to the disposition of those materials. We're just one of them, one potential.

DR. BREWER: Any other questions, Board or staff? Yes, Dan Fehringer.

DR. FEHRINGER: Chris, environmental justice is a concept that's arisen in the last couple of years, and you mentioned it just briefly in your presentation. Could you say just a little bit more about what environmental justice issues you think might come up in this program?

MR. KOUTS: Well, let me give you some perspective of generally where the Department is with environmental justice. There was an executive order signed by the president last year which requested Federal programs to develop policies related to environmental justice. Environmental justice basically indicates a concern on the part of the government that there is--and I forget the exact

term, and maybe someone from my contractor support people might be able to help me, but whether or not there are-- Wendy, do you remember?

MR. PARKER: I think it refers to--if you're referring to disproportionate impacts--

MR. KOUTS: Disproportionate and--

MR. PARKER: --on minority and low-income populations.

MR. KOUTS: That's the term I'm looking for, disproportionately high in adverse environmental impacts related to minority and low-income populations.

MR. PARKER: Chris, that's what I said.

MR. KOUTS: Thank you.

MR. PARKER: You're welcome.

MR. KOUTS: I always like to have Jerry around, because he's very, very helpful in that regard. But that's primarily what the interest in the executive order is, to make sure that the departments and agencies, in implementing their activities, are very sensitive to that, and the Department right now is still developing its own policy on that.

DR. BREWER: Okay, thank you very much, Chris. We're going to move on now to our next presentation, by Jerry Parker. The first EIS to be prepared is the one related to the development and procurement of the multipurpose

canisters, and Jerry Parker is the EIS manager for MPC procurement. Jerry, would you take it from there?

MR. PARKER: Yes, thank you very much, Dr. Brewer.

I appreciate the opportunity to present some information about the Multipurpose Canister EIS to the Board and to the others assembled here today. Lacking the coordination to do both view graphs and speak, I have asked my colleague Larry Gorenflo from Argonne National Laboratory to help me with the view graphs.

The three topics I'd like to cover are, very briefly, the process and schedule for the preparation of the MPC EIS, then give an overview of our approach and the structure and we see it for the MPC EIS effort, but spend most of the time--and I believe this is responsive to the December 9th letter from the Board to Dr. Dreyfus--on the technical considerations, what the key environmental analyses are and what information needs we foresee are required in order to do our analyses. And I should stress the preliminary nature of this, because that is the point in our planning that we're at.

I'll use this one view graph to discuss process and schedule. As Chris mentioned earlier, the MPC EIS public scoping period began on October 24th with the publication of the Notice of Intent in the Federal Register. The scoping period closed last Friday, January 6th.

The next step in the process is for us to reflect on the input we received from the public, prepare something called an Implementation Plan. This Implementation Plan is a formal requirement under the DOE NEPA regulations. The Implementation Plan will summarize the comments we received from the public, will indicate how we're going to utilize that input in preparing the EIS. It will detail specifically the alternatives that will be covered in the EIS. It will detail the environmental issues and concerns that will be covered. And of equal importance, the Implementation Plan will indicate what environmental issues and concerns will not be covered in the EIS.

The next major step we'll take will be to publish the draft EIS. We estimate in the fall of this year we'll have a draft EIS out for public review and comment, during the winter of '95, during which we'll conduct public hearings to take comments orally from the public.

And then finally we will reflect on the comments we received on the draft, prepare a comment response document as a formal piece of the Final EIS, issue a Final EIS in a Record of Decision in the fall of '96. We're not putting specific dates on these various milestones because we're obviously captive to the complexity and the scope of the comments we receive on the documents that we propose.

Let me now talk a bit about the overall structure

of the EIS as we see it. In the NEPA contacts, the starting point really is answering the question, why is this agency doing what it's doing, the need for the agency action. Clearly the Nuclear Waste Policy Act will require the Department of Energy to select a hardware system in order to fulfill our mandate for transportation, storage, ultimately disposal of spent nuclear fuel.

The purpose of the EIS, this EIS, as with any, is to make sure that environmental issues, environmental concerns, are fully integrated into that decision-making on what hardware system that the Department should decide to use. And it is very important in that it provides a forum for public participation so that the public can share with us what concerns they may have in regard to this decision.

Very clear at the outset. To make clear what the decision, what the proposed action is. And here it is to fabricate and deploy the Multipurpose Canister-based system for spent nuclear fuel. One of the reasons it's important to get a clear focus on this is to point out that our past and ongoing efforts on the MPC in regard to designing the system, in interacting with the Nuclear Regulatory Commission to seek regulatory approvals, none of those activities will bias, prejudice our ultimate decision of what hardware system we will actually use as part of our waste management system.

The heart of an EIS, the real core, is to develop a

set of alternatives to the proposed action. And here you see what we laid out in the Notice of Intent as three proposed alternatives. The first, and it's required, it's standard for any EIS, is the no action alternative. Essentially, this is current technology, predominantly single-purpose canister/cask systems. A second hypothesized alternative is this current technology supplemented by a high-capacity rail cask. And then finally a dual system, a dual-purpose system, transportable storage casks. So in its simplest sense, what the EIS will focus on in terms of analysis is single-purpose systems, dual-purpose systems and multi-purpose systems.

Again, as with any EIS, it will focus on the environmental impacts of the MPC-based system and the other alternatives as I've described, or alternatives that we would generate as we reflect on what we heard during the scoping process. These impacts cover the manufacture of this technology as well as the various applications at the powerplants themselves, using their systems for transportation, at a centralized storage facility, the MRS facility, and looking at the surface operations at a repository for all of the alternative technologies under consideration.

That kind of takes me through what I described as the structure of where we're going on this MPC EIS. And the remainder of my time I will try to address the Board's

request that we detail some of our technical approaches and our information needs that we see.

I don't want to belabor, but I want to spend a few moments on setting up some hypotheses which we believe are reasonable in our approach to this EIS. One is that we will not be dealing on a site-specific basis with either the manufacturing facilities for this hardware, for storage impacts at an MRS, nor for the repository surface operations. In terms of the manufacturing facility or the MRS, obviously these are facilities that have not yet been chosen, have not been selected. No site has yet been deemed suitable, or we're pursuing for an MRS at this point. The MRS, if developed, and the repository, if developed, will have their own NEPA documents, and Wendy will describe her plans for the Repository Environmental Impact Statement. So the site-specific consideration of the development of any site for a repository or for any MRS site, if one is found, will be contained in those documents. And again, the MPC EIS is to try to differentiate amongst these hardware alternatives, and that is how we have structured our program.

In regard to At-Reactor impacts, we see some important key analyses that will require us to gather some reactor-specific information. And again, I'm going to provide some details as I go further into the presentation, but this is to differentiate the At-Reactor impacts from the

other impacts that we're investigating.

And then finally, in terms of the overview on transportation, we're basically going to pursue a state-of-the-art approach to transportation analysis, very similar to several other DOE EIS transportation analyses. We'll be using some existing models, and I'll get into more detail on this as well. And in terms of the analysis that we will do within the State of Nevada, we intend to do, as with many EIS's, a bounding impact analysis. And I'll describe the details of that as I go further here as well.

So moving into the first area of consideration. That is, fabrication impacts. Clearly health and safety impacts to both the workers and the public will be one of our focuses. We'll look at the consumption of resources, raw materials, such as steel, depleted uranium, borated metals. Pollution considerations: emissions, air, water, and any other waste emissions that may be a by-product of the manufacturing process. And then finally socioeconomic conditions. Clearly the communities that will be involved in constructing, fabricating such hardware systems will have employment associated and the normal range of socioeconomic impacts.

So how are we going to go about doing these analyses? What kind of technical information do we foresee needing? Clearly we need the design of the various

alternative hardware systems and what the manufacturing process entails for each of them. We have to have projected rates for the production of these pieces of hardware. Gather either from existing vendor industry data or other related heavy industry data what the accident and the injury rates are, and estimated employment levels in order to do the socioeconomic analyses.

Moving then to the At-Reactor storage impact analyses. And I think as I go through you'll see these key analyses and impact areas parallel what I present for the MRS or the repository key analyses for the MPC EIS. Clearly health and safety public/worker considerations, both radiological and nonradiological concerns. The generation of a variety of waste, with an emphasis here on low-level waste generation. Clearly, the difference in the amount of individual fuel assembly handling and the various contamination steps that these alternative hardware systems entail will generate different levels of low-level waste generation. And we see those as the key analyses.

Once again, for all of the alternatives we'll need design information. We'll have to have discrete handling operation information. We will need reactor-specific information on what the actual requirements and facility capabilities are. That will be comprised of information as to what the fuel assembly discharge rates are from the

reactors, clear definition of what the at-capacity storage capabilities are in terms of either existing wet or dry storage capabilities at each of the reactors, and the capabilities to handle the various technologies. Such capabilities as crane capacity. Do they have the crane capacity to handle the large weights involved with a multipurpose canister, for instance. Or rail spur capabilities to handle the MPC option. We will gather reactor-specific met and population data in order to do the modeling analyses to get the population dose estimates. And once again, we'll need accident and injury and abnormal event scenario information.

Moving to transportation impacts then. Here we will use the RADTRAN 4 model, as shown here on the slide, in order to do the model calculations for collective dose for both routine and accident scenarios, and RISKIND, another code, another model, to do the worst case scenario type analyses involved with "bounding" accident and maximally exposed individual calculations. And another key analysis, clearly, in the transportation sector is nonradiological impacts.

To do that modeling, perform that impact analyses, we'll create a definition of what the modal mixes are. For each of the reactor sites, what are their capabilities--as I described earlier--to ship by rail? Will there be required,

for some of the alternatives, more truck than rail transportation? Will there need to be intermodal transfers? Perhaps heavy haul using truck to the rail facilities. To do the transportation modeling, you have to have the network. Where are the reactors on the map? We will come up with hypothetical MRS locations. Clearly we have a need to come up with hypothetical locations. One in the east and one in the west for the analyses, and because the only site under consideration for a possible repository is Yucca Mountain, the end point of the analysis will be the Yucca Mountain site. We'll clearly need the rate of spent nuclear fuel shipments, and along each of the routes population data, which is an input to the modeling analyses.

As I go into the last two impact areas here, the MRS and repository, they're very, very similar, and I'll point out one significant difference in the repository arena. But again, it's the health and safety and the waste generation impacts that we see as key in the EIS analyses. The information needs, clear description of the handling operations for each of the alternatives. And here we will have to deal with generic/representative data. What we'll do is some scenario options. We will have perhaps rural/urban settings and bound the impacts of each of the alternatives using this kind of generic/representative information. We'll come up with a definition, a clear description of any fuel

handling accidents scenarios and abnormal events, and obviously we'll need the projected cask/canister receipt rate at the storage facility.

The repository surface operations impacts similarly will focus on the health and safety impacts, both to workers and the public, and the waste generation entailed. The same sort of surface facility handling operation information will be required to do the analyses. We'll use generic/representative population and met data. Again, some bounding scenarios. Since we have not yet determined a specific site for the repository, we will use some bounding scenarios in order to calculate the impacts.

And it is the bottom item on this particular view graph that is the difference between how we'll be looking at the MRS operations, surface obviously, and at the repository. There is a potential need to open the multipurpose canisters at the repository. This could take place either because ultimately it's determined that the multipurpose canister cannot be part of the waste package, the waste form, or because the Nuclear Regulatory Commission perhaps requires us to open them to put in filler materials or something of that sort. So we will also do some analyses of what the impact will be of opening the multipurpose canisters.

In summary, I would emphasize the preliminary nature of our thinking. We will late spring or early summer

be making available formally by the Federal Register the Implementation Plan which will detail our technical approach. And welcome any questions from the Board at this point.

DR. BREWER: Thank you, Jerry. Are there questions from the Board. Let's see, John Cantlon, and then Dennis.

DR. CANTLON: Jerry, could you tell us, in the look at materials alternatives and fabrication, is there any look at recycling a material, for instance old naval reactor vessels, things like that, of putting it into the manufacturing process? Any recycling of metals?

MR. PARKER: To be frank, Dr. Cantlon, we have not considered that up to this point.

DR. CANTLON: Thank you.

MR. PARKER: Sounds like a good idea.

DR. BREWER: Dennis Price.

DR. PRICE: You mentioned in the transportation technical information needs that you'll get population data along each route. The routes are not yet selected, or will be by the time you do that, the specific routes. Are these typical routes, or what are they? And especially with respect to Nevada, where there's no rail line and the MPC's going to depend upon the establishment of a rail line, how are you handling that particular problem?

MR. PARKER: Okay, thank you, Dr. Price. I must not have been clear earlier. What we will do to establish

specific routes for purposes of modeling analysis is lay out the network of the reactor sites, which are firmly in place. We'll hypothesize two nodes for the MRS and do some scenarios with either an eastern or a western MRS. We'll do one without an MRS as well. And we will look at the Yucca Mountain site as the potential end point of this entire network. And with that we will, as I understand it--and I'm not a transportation impact modeling expert--we will feed into the RADTRAN 4 code those specific interstates that would service those network points.

DR. PRICE: But now with respect to the lack of a rail head, as I understand the strategy that you have, that DOE has, is that the rail head route and its selection becomes part of the Repository EIS. Is that a correct understanding? So you are divorcing any impact that there is to the establishment of a rail within the State of Nevada any environmental impact from MPC and putting it onto the EIS statement that you do for the repository.

MR. PARKER: Not quite. IT's a different approach to dealing with transportation impacts within the State of Nevada. But you're essentially correct, Dr. Price. The nodding heads from both Wendy and Chris certainly--I saw something shining off the back here, Chris.

MS. DIXON: I was just going to add as help, hopefully, in the explanation, that there's a difference in

purpose and need for Jerry Parker's MPC EIS versus Repository EIS, and maybe that might help explain the differences. What he's looking at are major differences as it relates to whether or not you go with an MPC or one of the alternatives and what are those impacts between those various alternatives. So everything he's looking at needs to focus in principally on the differences between those major alternatives for a technology decision versus Repository EIS while scope is considerably broader.

DR. PRICE: But one of the differences among the alternatives is that the MPC is much heavier, it requires a rail, and you--

MS. DIXON: Yes.

DR. PRICE: --you're really committed to the rail head to the repository.

MR. KOUTS: If I could--

MR. PARKER: Chris, could I take that?

MR. KOUTS: Sure, go ahead.

MR. PARKER: Wendy, I think structured, I think, the difference between the EIS's appropriately. The proposed approach here, the bounding analysis, the conservative bounding analysis approach, which we believe is adequate for differentiating among these four or how many alternative hardware systems that we're evaluating. We think the bounding analysis would be conducted such that we would look

for the--I believe that there are three potential rail spur routes that are being focused on at this point. We would do a bounding analysis of the range of distances involved, the range of modes, indeed if it requires heavy haul and transfer or if it requires rail. And for all four hardware systems, or however many alternatives we're dealing with here, we would be able to do that kind of bounding analysis to try to differentiate impacts of those systems. The MPC EIS is in no way selecting or dealing with the development of the Yucca Mountain site. And we believe that we can adequately differentiate among the hardware systems without pinpointing a specific rail spur and dealing with that in the MPC EIS.

DR. PRICE: But those environmental impacts involved in the construction of a rail route, or changes to a rail route or so forth, really are not going to be attached to the MPC.

MR. PARKER: That's our current thinking, right.

DR. PRICE: Let me ask another question. In your EIS, are you considering at all a mixed fleet with the MPC plus anything else? Like plus the use of the conventional-type cask, single-purpose cask or a dual-purpose. Are you considering the mixed fleet itself? You mentioned you were dividing off the other alternatives. Then another issue is, is one of the alternatives to have a mix of some sort?

MR. PARKER: The current scenarios--and again this

goes to bounding the impacts in our analyses--are to use the current technology. And that's our greatest challenge, to define what the no action current technology really is in terms of those systems that are out there, those that the NRC has certified or those that are on the docket for certification, and defining that as the no-action alternative. Because that would be the no-action alternative.

MR. KOUTS: In terms of the other alternatives we're considering, we're considering maximum utilization of the largest of the multipurpose canister sizes, the 125-ton crane capacity, supplemented by the 75-ton crane capacity as needed. And for those few facilities that may not be able to accommodate either, we would use a legal truck weight system. And during the scoping process, we did hear some rather convincing arguments for several reasons that DOE should be looking at a 75-ton only alternative, and there's a good chance that we'll be pursuing that as another alternative.

DR. PRICE: But supposing as you carry forward GA-4 and GA-9, and at the time you really need to start your campaign, for some strange reason the MPC is not available, so now you end up with accommodations for--this is part of what was in my previous question to Lake--receiving of conventional type single-type casks, and of necessity you use them and then you phase in the MPC and so forth. Have you

considered that kind of a mix occurring in your operations?

MR. PARKER: Lake Barrett is going to answer that question.

MR. BARRETT: I believe the answer to that is yes, because Jerry said that there are some reactors that, you know, for planning purposes would use the truck, would not use an MPC at all, so some would go by truck. So the answer is yes, that we'll consider that. The keeping on that would be schedulewise, and work is where, when and what. And that we don't have the answers yet, because we don't have the storage.

DR. PRICE: I didn't detect that in your presentation of your EIS.

MR. BARRETT: But I think Jerry said that they would consider those that had the truck only. There are few reactors that cannot in either the 125 or the 75 unless we have a dry transfer system that could do that.

DR. BREWER: Okay, other questions from the Board colleagues? Staff? Jerry, thank you very much.

We're concluding the morning session by giving the floor back to Wendy Dixon, who this morning started off by talking about the Environmental Program at Yucca Mountain for which she is responsible. She's also responsible for the EIS at the repository itself. That is to say at Yucca Mountain. First part of her presentation will be a summary of the

processes and the procedures for the EIS at the repository, and the final part of the presentation, before we go to public comment, will be in response to our request to talk about the integration. How does all this stuff fit together with the larger scheme of studies at Yucca Mountain? Wendy.

(Whereupon, there was a casual conversation concerning the microphone being unplugged.)

MS. DIXON: What we've tried to do in this presentation is to give you a little bit of information on where we're heading right now with the Repository Environmental Impact Statement, what some of the issues are, and what we try to do also is focus in on what I think is one of the Board's chief concerns, which is the integration of what the environmental issues are, or in this case Environmental Impact Statement, with other elements of the program.

First off, I wanted to go over the primary objectives of the Repository Environmental Impact Statement. Obviously there's a requirement in the Nuclear Waste Policy Act that an EIS must accompany the site recommendation report. So we most certainly are working toward satisfying that requirement. We also most certainly intend to develop this EIS in compliance with not only the Nuclear Waste Policy Act but the CEQ regulations, and both NRC and

DOE also have their own orders that try to meet the preparation. So we'll tie into those as well. We're also at this point in time intending to prepare the EIS in such a fashion that it will also satisfy related Congressional land-withdrawal issues so that this one EIS will take care of both of those purposes. As required by the Nuclear Waste Policy Act, we'll attempt to prepare this EIS in such a fashion that it could be adopted to the extent practicable by the NRC. And this EIS will be prepared in such a fashion to provide the technical basis for evaluating environmental, socioeconomic and transportation siting guidelines.

Current plans. We're right now planning to initiate the public scoping process by publishing our Notice of Intent. Our estimated date of that happening right now is mid-1995. Following the scoping meetings, the scoping hearings, there will be an EIS Implementation Plan prepared. That Implementation Plan will explain the scope of the EIS, which will be a product that comes out of the scoping process. It will respond to the comments made by the general public during the scoping process, and it will provide an annotated outline of the Environmental Impact Statement.

Chris gave you the overall schedule for the Repository EIS, but I wanted to spend just a few moments going through what is the more detailed schedule. As Chris mentioned, the secretarial policy is to get an EIS out from

beginning, which starts out with your Notice of Intent, to the end point, which is your ROD, your Record of Decision, in fifteen months, barring extraordinary circumstances, as the guideline states. Well, we believe that, as Chris indicated, this is a program that has an awful lot of public interest. Most certainly we've already heard from the public and from the Technical Review Board and others towards that end. It's national in scope, it encompasses a long time frame, so it's very complex. So we wanted to make sure that in putting together the schedule there was enough time to interact with the public, which is one of the intent and purposes of an Environmental Impact Statement, and have the time to deal with, you know, the numbers of comments and questions that we feel coming out of these documents. So we built in a scoping process, a scoping time period, of four months. We have two months in there for the EIS Implementation Plan, we have a full year in there for additional baseline data gathering. There is a public review time frame of a draft EIS of six months, which is considered very long, and then we have a time frame for actually responding to the comments on the DEIS and moving forward with the actual completion of the ROD in the year 2000.

The overall objectives of scoping are to invite in, as you all know, the Federal, State, affected units of government, other local agencies, Indian tribes and the

public to participate. We want to interpret or understand what the appropriate scope is and what the significant issues are. And one of the real intent and purposes of a scoping process is to start focusing not on all the minutiae of issues that are out there, but focusing in on what are the significant issues that will really make a difference, so that we're spending our time in the right place, dealing with significant impacts.

We also need to during this time frame determine what data gaps might exist in our existing database. We'll be dealing with cooperating agencies and working on assignments. They'll be getting input from these cooperating agencies. And we'll be identifying and dealing with, because we have the opportunity to incorporate by reference, other work that's been done in other EIS's. For example, if there's work that we can incorporate by reference on efforts that have been done in Idaho's EIS or the NTS EIS, those things can be identified and dealt with during this time frame as well.

EIS public involvement. As I've mentioned, there's definitely a strong component of public involvement. It's critical in the NEPA process. The Notice of Intent is what initiates the scoping process, wherein affected agencies and people that are interested from the general public are invited to participate. And the other area where there's an

awful lot of public involvement in this time frame in this process is during the DEIS, Draft Environmental Impact Statement, time frame, where we'll be requesting comments from Federal, State, local agencies, Indian tribes, the general public, you know, yourselves, for comments.

With respect to input into the Environmental Impact Statement, there's a number of categories that fall into an EIS. And what goes into the annotated outline, you know, we'll specify how we're going to roll these things together, but standard types of impacts include things such as air quality, terrestrial ecosystems, met data, socioeconomics, defining the affected environment, the geology, the hydrology, tectonics, seismicity. Those are things that you would pick up and include into your EIS. This particular EIS has some unique qualities to it, one of which is the time frame. Most EIS's deal with issues that are less than 100 years in duration, and we have an EIS that's looking at, you know, thousands of years. So that most certainly is unique, and some of the issues tied to obviously the construction and operation of our repository are unique. That will also be included into the document.

Alternatives. Well, we have some guidance on alternatives, both from the Nuclear Waste Policy Act as well as the CEQ regulations. The CEQ regs state that an EIS need only consider reasonable alternatives. We don't have to look

at every possible alternative out there. We need to focus in on what the reasonable alternatives might be. It also states that the EIS need only provide as much information and detail as is necessary to provide a reasonably thorough discussion. And again we're focusing back to the significant aspects of the probably environmental consequences. The focus is always tied back to significant aspects, significant issues.

Now if we turn to the Nuclear Waste Policy, there's more information on the road map. It says that the EIS required for the repository need not consider the need for the repository, alternatives to geologic disposal and alternative sites to Yucca Mountain. These more programmatic issues have already been dealt with by Congress.

What types of things will be considered? Well, various repository operational scenarios that may affect key design features of the repository would be considered. These things could affect things such as waste package design, surface and subsurface facility design. The purpose is to assist with meaningful comparison of potential environmental impacts of constructing and operating a repository. We will use bounding assumptions to capture the full range of reasonable possible effects from these different operational scenarios that we'll have to deal with.

Again, preliminary planning for EIS alternatives --and these things will be further analyzed and looked at

throughout the entire scoping process--include things such as analyzing proposed repository construction, operation and closure operating scenarios, evaluating design features for alternatives that might reduce, avoid or mitigate environmental impacts, and evaluating, as was discussed a little earlier, possible rail corridors in Nevada.

Coordination with people, the other side of the house, working on License Application issues and site--well, we'll talk site suitability in a little bit. The EIS and License Application teams will have to work closely on coordinating data, design and analyses. We will utilize input into the ACD, the Advanced Conceptual Design, which will also support License Application at a later point in time. A preliminary safety analysis will be utilized in our Environmental Impact Statement that will bound potential rad impacts to workers, the public and the environment. And we'll get support on that from the same people that will be working on the larger safety analysis as it relates to the overall repository effort.

And the EIS will focus on environmental aspects, and I need to make sure that that's understood. I mean, the guidelines for what the requirements are for the EIS are different than the guidelines for the requirements for License Application or the guidelines for the requirements of site suitability. So we will focus in on what the CEQ

requires in an Environmental Impact Statement. We will not duplicate the detailed License Application, but those elements that will be used are necessary in our EIS which are also used in the License Application analyses will be picked up. So they're not going to be the same documents, they're each going to satisfy the regulatory requirements.

Again, with respect to design interfaces, we'll be working closely with the design side of the house. The focus on the EIS is for those design features that can or potentially can affect the environment. We need to describe solid, liquid and gas effluents and emissions. We need to look at pollution-control technologies, different types of mitigation that can be tied into the design. Transportation requirements will be addressed. And when we look at design, we must make sure that it's sufficiently developed to project things such as construction, operation and closure impacts, what are the required resources, what are the workforces, what are the schedules that are tied to that.

A question was asked as to whether or not there would be coordination with the NRC. And yes, the answer is most certainly. The Nuclear Waste Policy Act requires that the NRC adapt the EIS that will be prepared by the DOE, to the extent practicable. So we do need to get with NRC early in the game and brief them on DOE's approach. We need to develop effective communication between our parties and make

sure we know what the appropriate points of contact are, receive their input, address their questions. Most certainly, like I said, we realize this is a major factor that we need to move forward on and keep them informed throughout the EIS process. And in fact, the Nuclear Waste Policy Act basically sets the NRC up as a cooperating agency for this Environmental Impact Statement. So they're tied in.

This ties back to the comment I made a little bit earlier, that we do need to recognize that there are different drivers for the different documents that will be developed as a result of the program: the CEQ guidelines and the DOE orders for the EIS, the License Application ties to 10 CFR 60, Site Suitability ties to 10 CFR 960.

I guess in summary, on this particular presentation, you know, we are recognizing that there are three different data sets and that the data set for the EIS is specific to CEQ requirements, but there will also be a requirement to pull from the data sets that are being generated from Site Suitability and License Application. And we will do that. One of our real issues is not going to be whether or not there's enough information.

I think in some cases one of our challenges is going to be that we've been out collecting data for such a long period of time and we have so much information, how do you ferret-out from this real large data bank what really is

necessary and appropriate to satisfy the requirements of an Environmental Impact Statement. So one of the things that we'll be initiating in 1995 is to sit down with the other team members, from Suitability, from Licensing, from Design, and work out what the technical data requirements are from their efforts. For example, sitting down with the people dealing with tectonics or vulcanism and basically working out what the technical requirements are for the EIS, what subset of information we need for our document, what the format is. We don't have to rewrite it, you know, it can be picked up and utilized after it's developed.

The decision on which data is appropriate for use in the EIS is ultimately going to be made as a result of the scoping process. So we're looking forward to getting that started. And that ties into the next presentation if you want me to just keep going.

DR. BREWER: Please keep going. This is how all the parts fit together, right?

MS. DIXON: Right. But hopefully we've been talking about that a little bit. The next one really focuses in on the integration with the site characterization studies, and as I've mentioned in Site Suitability, the EIS will provide a technical basis for evaluating the environmental, socioeconomic and transportation siting guidelines. It will make use of other site suitability determination analyses, as

required, to address specific impact analyses. There's a lot of data that's being generated, as Dr. Cantlon and other members of the Board know, that will be and are intended to be used for more than one purpose. We have a radiological monitoring program that's being developed, and we picked up data for purely environmental reasons. The same data, a lot of the same pieces of information, are input into some of the study plans that are required and approved by the NRC for site characterization analyses.

We already talked about environmental quality issues that are an issue in both 960 and in the EIS.

Characteristics of the Yucca Mountain effort that affect waste containment and isolation are in fact needed, as I mentioned, for our environmental analyses. And again, this ties back to us putting together our technical criterias so we get the right subsets into the EIS. But this activity is ongoing right now, or there are, as you know, sizeable activities ongoing right now in geology, rock characteristics, climate, erosion and so forth. There's a lot of data out there, and our real goal is to go pull in from those team members the data sets that we need.

Interfaces have been made between the Environmental Impact Statement and site characterization, site suitability design, as we talked about earlier. Early information says there's an abundance of information there. Additional data

needs will be defined through the scoping process. The EIS team, it will be led by my office, but the team is not going to be just an environmental team. We'll turn to Susan Jones from the scientific program side of the house and Steve Brocoum from licensing and site suitability, and there will be team members from the design side of the house as well assigned to work on our program, our EIS. So we'll roll this all together, we'll have permanent contacts as part of this team, and like I said, it will be a lot broader than just the environmental group. It's going to be a large group of experts, and the same experts that work on things such as performance assessment for the licensing types of issues will also be tasked to help out with performance assessment requirements that we have on our particular program. When there are agency comments on our EIS, issues such as tectonics or seismicity or so forth, we'll go to our team member that's from that side of the house to have help answering those questions. The environmental group is not going to delve into areas that belong elsewhere. It will all be integrated into the final output of this program.

There was a question asked to us that indicated that there was some concern by the Board that the overall program that we have right now, the program plan, does deal with a lot of confirmatory data gathering, what kind of effect does that have on the Environmental Impact Statement,

or is there one, or does it cause some grief? And I guess the answer to that is, it does not. The implementing guidelines or regulations to the Nuclear Waste Policy Act recognized up front that because of the long duration of the program and there's some major decision points as you move through time that there will undoubtedly need to be supplements to the Environmental Impact Statement, or at least we need to review whether or not that is a requirement.

And if you look at DOE's own orders, DOE's own orders say that every five years you should go back--or at least every five years--you should go back and review whether or not there's been significant changes to your program, and hence whether or not you need to supplement your Environmental Impact Statement. The guideline for supplemental analyses is that if there are significant--not just new circumstances, because things can change that may not require you to do a supplemental EIS--but if there are significant new circumstances relevant to environmental concerns that bear in the proposed action, then you go back and prepare your supplement.

So I think that the Proposed Program Approach and the CEQ regulations and implementing guidelines to the Nuclear Waste Policy Act all tie into pretty much a very consistent package.

And that concludes my presentation.

DR. BREWER: Okay. Wendy, thank you very much.

Are there questions from the Board? John Cantlon.

DR. CANTLON: Yes, Wendy, as you visualize the EIS as it's going to accompany the Site Recommendation Action, is it your opinion that it will be based on a repository model of a cold repository, the low temperature?

MS. DIXON: Right now, and again, we're not through scoping, my assumption is that the EIS will look at several operational scenarios. It won't just look at the cold operational scenario, it will look at several in the process.

DR. BREWER: Pat Domenico.

DR. DOMENICO: Wendy, who are your contractors or subcontractors on this program other than the EG&G?

MS. DIXON: Okay. There's recently been a reorganization, so a lot of contractors are sort of all under the M&O umbrella right now. But the entity that supports me perhaps the most on the environmental side of the house right now is Science Applications, which is now a team member with the M&O. EG&G supports the Terrestrial Ecosystems Program, and there's a research institute that supports the archaeological program that we have. We are in the process of going out competitively for a contractor to help with the preparation of the Environmental Impact Statement, and that contractor's not important right now.

DR. DOMENICO: Outside the M&O?

MS. DIXON: Yes.

DR. BREWER: Other questions from the Board? Staff? Leon Reiter from the staff.

DR. REITER: Leon Reiter from the staff. Wendy, you mentioned the words "performance assessments and safety analysis." Could you give us an idea as to what the role of the performance assessment in the EIS is? And then once you've done that, what are the criteria that are used? Are they the same sort of criteria that are being considered out by the National Academy of Sciences in their own particular fix that the EAS has on it, and are people looking at those kinds of things?

MS. DIXON: I don't want to lead you to believe that we've done a lot of--I mean, we're not that far downstream. But I think it's important to note that what an EIS looks at as it relates to safety analyses and performance assessment calculations is definitely on a different plain than all the PA requirements that are going to be tying to the License Application decision. But they are perhaps considerably different in magnitude and level of detail, but nonetheless, they still need to be done. The focus is just different, and the questions that we're answering are different, because like I said, the drivers are different.

DR. REITER: Could you give us an example of some differences?

MS. DIXON: Well, yeah, that's not a bad point either. I'm sitting her pausing trying to figure out how to answer the question, but Chris just had a real good definition. When we do the calculations, the PA analyses, which are very complicated and detailed and so forth for the License Application, they're for the NRC and for another level of reviewers. When you write your EIS, what you try to do is put together a document that is written for the laymen. It's not written for the scientific community, it's written in such a fashion that when John Q. Public gets the document to review, it makes sense to him, and again, it's focused on significant impacts, it's not just focused on--it's focus is different, so you're going to have a smaller subset of those analyses, and they're going to be written in such a fashion that almost anyone can understand them. Or at least that's the intent if we're successful.

DR. BREWER: Other questions, Board or staff?

(No response.)

DR. BREWER: Wendy, thank you very much, and I think that was a good transition to John Q. Public. What I'd like to do now is to open up the floor to anyone who has a question for anyone who has made presentations this morning. We have between now, 11:30, and 12. And in doing so, if you have any questions to direct to any of the presenters, please come to the microphone that's standing, or if you prefer,

come and sit down, and identify yourself and then ask the question either directly or I'll help you direct it. We're open for business. There's a microphone there that you can use, too. Please identify yourself, and if you represent an organization, let us know that, too.

MR. BLANCHARD: Jerry, I'm Max Blanchard. I'm a citizen of Southern Nevada. I have a question I'd like to ask each of the speakers associated with conceptualizing the EIS, and I'd like to start with Chris. Chris, I take it from your third view graph that there isn't a plan on the part of the Department to prepare a transportation EIS and that the two NEPA documents you've shown on your third view graph identify one as an MPC EIS and another one as a Repository EIS.

MR. KOUTS: That's correct.

MR. BLANCHARD: Is that how you meant me to understand?

MR. KOUTS: That's correct.

MR. BLANCHARD: So does it naturally follow, then, that the MPC EIS is supposed to cover the MPC in its spectrum of uses and its full life cycle? And is that why it was called the MPC EIS as opposed to something else?

MR. KOUTS: Basically the intent of that document will be to evaluate the use of the MPC in the system, in the waste management system, that's correct.

MR. BLANCHARD: So it's life cycle or its spectrum of uses.

MR. KOUTS: The disposal aspects of the MPC will not be addressed in terms of its impact on disposal or how it will fit into the underground, but we will address it in terms of service operations at a potential repository site.

MR. BLANCHARD: Okay, well, then, I guess my next question is for Jerry then.

MR. PARKER: Okay.

MR. BLANCHARD: On his page 8, he identifies the topics that he anticipates would be covered in the Environmental Impact and its use. He identifies At-Reactor, transportation, monitor retrievable storage, if there is one, and repository surface operations. And if the spectrum of uses and the life cycle of the MPC is going to be covered, it has to be covered somewhere. The aspect of retrieval, using the MPC or not using the MPC, and if you're using the MPC for retrieval, then that's part of the surface operations of the repository possibly. It also could be part of the operations of retrieval after the repository closes. And my question to Jerry is, why was retrieval not in your list?

MR. PARKER: Max, you still ask the same kind of convoluted questions, but you shifted from transportation a bit, and I wanted to close the loop on the transportation issue. One important point that has to be made is the

decision on hardware systems is not a decision to initiate a shipping campaign. If the decision is made to proceed at Yucca Mountain or with any other repository site and to develop that and ultimately to ship, it is that decision that will cause that shipping campaign to take place.

The obligation, I think, in the Multipurpose Canister EIS is to do an adequate analysis to differentiate the impacts among these alternatives the Department will be considering. And that's why I think the approach that I laid out is what we believe will satisfy that requirement.

MR. BLANCHARD: But is the MRS going to be used as an element of retrieval either during operations or after operations? If this is an MRS EIS, then why would it not be covered there?

MR. PARKER: Well, it's not an MRS EIS, Max.

MR. BLANCHARD: I mean, that's what the title of it is.

MR. PARKER: No, it's MPC EIS.

MR. BLANCHARD: I'm sorry, I misspoke, MPC EIS. See, I'm trying to figure out where in the sequence of presentations the retrieval and the use of the EIS in retrieval is being considered.

MR. PARKER: Okay, let me address--

MR. BLANCHARD: It wasn't presented in yours--

MR. PARKER: Okay, let me address another premise.

MR. BLANCHARD: --and it's not presented in the presentation by Wendy Dixon. And retrieval using the MPC is clearly in the cards as a potentiality during operations. It's clearly in the cards with respect to potentiality even after closure.

MR. PARKER: You mean the MPC? You keep saying MRS, do you mean MPC?

MR. BLANCHARD: MPC.

MR. PARKER: Okay.

MS. DIXON: Can I address the question?

DR. BREWER: Yes. Wendy Dixon.

MS. DIXON: The question ties to the Repository EIS, Max. The Repository EIS will look at construction operation and closure issues.

MR. BLANCHARD: But none of your view graphs addressed retrieval.

MS. DIXON: Okay, my apologies, retrieval is included in there as well.

MR. BLANCHARD: And there's two stages of retrieval that are possible, either during operations or post closure.

MS. DIXON: Agreed.

MR. BLANCHARD: And either one of them are going to use the MPC, and so I'm just trying to find out where you all have put it.

MR. PARKER: Chris, you want to answer?

MR. BLANCHARD: It isn't a question about transportation, it's a question about where is that covered.

MR. KOUTS: I think you make an excellent comment, Max, and I would encourage you as a citizen to participate in the scoping process of the Repository EIS when it occurs. Make sure your comment is in there and make sure that we address it.

I think our intent here is that Wendy's document would address that issue for you, and if you feel that it needs to look at an MRS in terms of retrieval, I mean, that's another good comment, and I would make that at the same time in the scoping process.

MR. PARKER: He means MPC.

MR. KOUTS: If you mean MPC, then we mean MPC too.

MR. BLANCHARD: I'm sorry, I misspoke.

MR. KOUTS: That's okay.

MR. BLANCHARD: Over there on the recorder, change all my MRS references to MPC. Sorry about that. I'll do better next time.

DR. BREWER: Okay, is that it?

MR. BLANCHARD: Thank you, Jerry.

DR. BREWER: Thank you very much, Max. Anyone else who has a question? Yes, Steve Frishman in the back.

MR. FRISHMAN: Steve Frishman, State of Nevada. Jerry, you said something that just triggered a question that

I have to ask you. We've been through this before, I'm sure you know. You said that the decision that would come out, an affirmative decision on this EIS, would not be a decision to ship, it would just be a decision to deploy. I presume that means to send MPC's to the utilities, that's the decision.

MR. PARKER: Right, if there is a joint agreement to that effect, yes.

MR. FRISHMAN: All right, well, then I think if that's the case, you have got to recognize in the development of this EIS that you specifically do not have statutory authority to do that. You've tried to rationalize the MPC to me before as being part of an integrated system. But if you're making a decision just to fabricate and place MPC's at the utilities, the act is very clear that the utilities have their own responsibility to take care of spent fuel until the Department can accept it for disposal. So what you've finally done, if this is really the concept, you now clearly are operating outside of your statutory authority.

MR. PARKER: Steve, this is a new one, but you may have lost me. Let me see if I understand what you're trying to say and my take on it. The Department will seek approval from the Nuclear Regulatory Commission if we proceed with the multipurpose canister system for both storage and transportation using the MPC. What we have said, both in our Notice of Intent and in other forums we've been at, Steve, is

that at this point we don't see any reason why use of MPC's as part of the ultimate waste package is incompatible. We believe that's the case. But we're making no final decision on that, and in fact that will be covered in the consideration in the Repository EIS and in the interactions for the license with the NRC for the repository.

I'm not sure I get the connection with your assertion about the legal basis for our authority.

MR. FRISHMAN: No, what I'm saying is that you have narrowed the decision that is made in this EIS to be one of providing MPC's to the utilities for At-Reactor storage. That's what your decision is. That's what you just said it is.

MR. PARKER: No, we--

MR. FRISHMAN: And if that is the case--you saying no, that's not the decision?

MR. PARKER: Well, we will also adequately cover a choice of a hardware system for the transportation of spent fuel as well. And we are frank about the fact that there has been no--for various reasons that you're well aware--final decision as to its use as part of the waste form.

MR. FRISHMAN: All right, well, then, I'm still trying to get down to your recognizing that the narrow decision that this EIS, that you say this EIS is to support, is for the Department to provide MPC's that it has had built

to the utilities for use for At-Reactor storage of spent fuel. Is that the decision that's being made?

MR. PARKER: Well, if I used the term "narrow decision," I maybe led you astray. We believe that the EIS will comprehensively look at storage applications, transportation applications, and to the extent that it makes sense, surface operations at the repository.

MR. FRISHMAN: But you say the decision is not one to transport.

MR. PARKER: Right.

MR. FRISHMAN: You said the decision is one just to have MPC's developed by the Department, paid for by the Department, and delivered to the utilities--

MR. PARKER: Right.

MR. FRISHMAN: --for At-Reactor storage. And now the point that I'm making is, if that is the decision, the Nuclear Waste Policy Act does not authorize the Department of Energy to provide any support in terms of materials or money for the utilities to take care of spent fuel storage At-Reactor. There is no authority, and in fact the Act specifically says that the utilities have that responsibility, not the Department.

MR. KOUTS: That's correct.

MR. FRISHMAN: So what you're doing is you're proposing a decision for which you do not have statutory

authority.

MR. KOUTS: Well, let me try to build on Jerry's comments and try to help you with your concern here, Steve. As you know, we are designing this canister with the expectation that it can also be used in the waste package in the repository. And before we make any final decision as to whether or not we would deploy this, we would seek some kind of indication from the Nuclear Regulatory Commission if they had any concerns up at to that point with the data that we've provided them as to whether or not--

MR. FRISHMAN: You're not facing the point.

MR. KOUTS: No, I am.

MR. FRISHMAN: I understand what you're saying, but you're not facing the point. And the reason that I raised the point is because if you look at the draft of how much money you expect to get over the next few years and the breakout part for MPC, that's an awful lot of money that you're not authorized to spend right now the way you're describing this decision, that maybe could be spent better on finding out how bad Yucca Mountain really is.

MR. KOUTS: Just to finish what I was going to say, Steve, again, to help you with your concern, if our belief is if we do get some kind of indication out of the Nuclear Regulatory Commission that this again is a canister that can be used for disposal purposes, then we are deploying it as a

mechanism as part of the disposal system, which is also being used for storage and transportation. And from a legal standpoint, we feel that since we are using this piece of technology for disposal that we are within our authority under the NWPA to deploy that. Since, again, it is going to be used as a piece of technology that can be--

MR. FRISHMAN: You don't know you can use it for disposal until you have a license, and that's the waste package.

MR. KOUTS: That is correct, and--

MR. FRISHMAN: And you're not going to get a definitive answer from NRC ahead of time, therefore you can't make that assumption.

MR. KOUTS: Well, we would expect to make the best decision we could at the time. If indeed that was not the case, then of course we would have to use it for other purposes.

MR. FRISHMAN: Okay, well, you're intentionally not hearing what I'm saying, but I hope your lawyers do.

DR. BREWER: We have a request from Mr. Davis Gonzales to ask a question. Would you please come forward to one of the microphones, if you would, sir? And if you're associated with an organization, would you please let us know what that is?

MR. GONZALES: Yeah. Good morning, ladies and

gentlemen. My name is Davis Gonzales, and I'm here today as the vice president of the Nevada Indian Environmental Coalition. This is a nonprofit corporation governed by the Board of Directors. The board members are duly elected leaders from 24 Federally recognized tribes in Nevada. In the capacity as vice president and on behalf of the Indian tribes I represent, I have an authority to come here today to give you information about the United States Department of Energy, which I will hereafter refer to as DOE.

I'd like to begin with a brief overview of the problems that the tribes I represent have had with DOE. One, as you know, the State of Nevada, nine Nevada counties and one California county have received funding from DOE so they could conduct studies relating to Yucca Mountain. Tribes located within the boundaries of these counties have received no similar funding. States and counties do not have legal jurisdiction to include Indian country in their studies. Therefore, 1994, our organization made repeated requests to DOE to interpret the Nuclear Waste Policy Act in a manner that would allow tribes located within Nevada to participate in the Yucca Mountain equally with the other government entities. These requests were refused.

Two, because DOE interpreted the Nuclear Waste Policy Act to prohibit the DOE from funding the tribes I represent, in September 1994, our organization requested that

DOE diligently search for alternative source of statutory authorization for funding for tribes. We even gave DOE several examples of what we believe to be such statutory authorizations. Tribes have still not received funding.

Three, after DOE issued its Notice of Intent to draft an Environmental Impact Statement regarding the multipurpose canister systems, our organization represented comments at the scoping which DOE held in Las Vegas. Our first comment was a request that a hearing be postponed until the tribes were notified and had an opportunity to be heard. Most of the tribes I represent were not notified of this crucial hearing, and our organization was only notified at the last minute, thus had little time to prepare comments. This request for DOE to honor the tribes' legal rights was denied by DOE.

In December 1994, our organization requested an agreement with DOE to become a cooperating agency under the rights granted to Indian tribes in the NEPA regulation, specifically under 40 CFR, Section 1508.5. We have not received a reply to this request. If this request is denied, we will appeal that denial. Once we have exhausted our administrative remedies, we will likely seek judicial review of that denial.

In the next week, our organization will request that DOE honor other legal rights granted to Indian tribes

under NEPA regulations. Among these rights is: 1) the right to participate in the NEPA process by being notified and being invited to participate in the scoping hearings; 2) the right to be consulted at the earliest possible time to insure that DOE's later decisions reflect tribal environmental values and to avoid potential conflicts between DOE proposal and tribal land use plans, policies and controls. Neither of these rights have been honored by DOE.

Conclusion: In conclusion, first I want to tell you that we believe that DOE has violated Federal laws in refusing our requests and not honoring the legal rights of Indian tribes that we represent.

Secondly, we also believe that DOE behavior toward the tribes violates a Federal Trust Obligation. As you probably know, Federal courts, including the United States Supreme Court, defines the Federal Trust Obligation as a responsibility imposed upon the Federal government, including Federal agencies such as DOE to protect in advance Indian interest and act with good faith and other locality to the best interests of the Indians. We believe this means that DOE is obligated to insure that tribes, either through the Nevada Indian Environmental Coalition or individually, fully participate in the Yucca Mountain and receive funding as state and counties do.

Third, we believe that the Board, as an agency of

the Federal government, is also bound by the Federal Trust Obligation to listen to our complaints about DOE's treatment of Indian tribes and include our comments in your report to Congress, with recommendation that we would alleviate this injustice to Indian tribes.

Fourth, we believe that DOE has violated its own Indian policy, which requires that DOE insure that tribal rights and interests are identified and considered in pertinent decision making. This means that DOE is obligated to, at the very least, follow the law and honor the legal rights granted to tribes under the NEPA regulation. It also means that DOE is obligated to accept full participation by tribes of Yucca Mountain Project and diligently search for funding sources that would be at least equal to what other government entities receive.

I'd like to present to you our exhibit here for the comments that I made today to justify some of the things that I said. So I'd like to enter this into this hearing.

DR. BREWER: Thank you very much, Mr. Gonzales. This is not so much a hearing as it is a meeting of the U.S. Nuclear Waste Technical Review Board, and I can speak--and I'm sure our chairman will want to say something as well--that we have made as a Board every effort to make available the Office of the Board to anyone who has an interest or a say. We have a session this afternoon involving other Native

Americans who also have an interest in this, as well as your group. The comments that you've made are part of the public record, and thank you very much for having done so.

MR. GONZALES: Thank you. I didn't realize that Beatty was so far away from Las Vegas. So thanks for hearing me out.

DR. BREWER: Yes, you're quite welcome. Now, any of the representatives of the Department of Energy feel that they would like to follow up or respond, please do so. Lake Barrett.

MR. BARRETT: I tried to write some notes, Mr. Gonzales, as you went through a litany of many things. Let me mention a few things that we are doing regarding discharging our responsibilities under the Act in relations with the Indian nations, which we recognize is a very special relationship that we have.

First of all, regarding the affected status, the Department of Interior, by statute, has direct responsibilities in that, and as the correspondence between the Department and the various tribes, including the Coalition, have kind of gone through that, and that is a continuing item, but it's not solely within the Department of Energy's authority to do that.

Regarding methodologies for funding of the Indian nations to relate to this program, we spend over half a

million dollars a year through the NCAI to do exactly that. We send lots of letters and information about the program to the tribes. The Yucca Mountain Project, under Wendy Dixon, has, with the sixteen tribes that have had historical ties with the Yucca Mountain area, we've worked with them for many years and have supported them in that as well.

I know your group is not satisfied with the present arrangements. We are working to try to see if there are better ways. We are working within our general counsel for potential notices to the public following a proper due process if there are better ways to fund Indian nations on the program.

On the MPC EIS, no, the 24 tribes did not receive special letters. I believe 9 out of the 24 actually received letters. But we did have extensive mailings concerning what we were doing. We had ads in the newspaper, it was always talked about in the meetings that we have had, and I believe there has been substantial public notice about what we were doing regarding the special government-to-government sovereign state relationships. That's a complex Indian law, issues that I'm certainly not qualified to deal with. But we do believe that we in our program have discharged the law as we understand it, and we seek to work with all the parties, including the Coalition, to try to find better ways in the future.

I don't know, Jerry, if there's anything more that you wanted to add concerning the MPC EIS.

MR. PARKER: Yeah. Lake, I think you've hit the highlights. As the hands-on MPC EIS manager, just a couple of points. One is that we certainly welcome full participation by the Nevada Indian Environmental Coalition and other Native American groups as we proceed through the MPC EIS process.

In regard to your request for cooperating agency status, we did just receive that letter last week. In the way of background, cooperating agency status, under the NEPA statute and regulations, is granted to organizations with either jurisdiction by law or by special expertise. And what we have begun to do is see if there is special expertise that would warrant participation by the Coalition or other Native Americans as a cooperating agency.

But one footnote to that I would point out is that cooperating agency status, under the NEPA framework, doesn't automatically connote funding. Matter of fact, it is less common for cooperating agencies to receive funding from the lead agency than it is the norm. But we will be giving full consideration, along with our assistant secretary for ES&H and our General Counsels Office, and if there's some way that cooperating agency status makes sense, we'll be happy to pursue that.

DR. BREWER: Mr. Gonzales?

MR. GONZALES: The only thing that we're concerned about is that within the last couple of months the notices to the tribe weren't properly given. The DOE has given the notices within its government itself. You know, you said a little while ago government-to-government relationship. That is true, that is what President Clinton has stated to all of the departments within the government, is that the government to government. But when DOE had let the information about the scoping process, DOE had let the Bureau of Indian Affairs know of the meeting. But Bureau of Indian Affairs and the DOE is the same government, that is separate from us. That's the problem that we're having, is that the government is letting its government know of these meetings but not letting the Indian governments know.

MR. PARKER: The perspective we have on that is a little different. We have soul searched since the November 21st meeting in terms of our notification activities. We have gone to our General Counsels Office, and the essential message we get is as per our regulations, the legally required, in their view, notification--and there's a specific section in the regulations--is the Federal Register of Notice. That's the Federal government's bulletin board. We didn't think that was adequate.

We then, as Lake alluded to, sent out flyers to

over 17,000 folks who routinely get our monthly program bulletin. We sent out information packages, including this lengthy Notice of Intent, to 600 specific stakeholders, of which there were several members of the Nevada Indian Environmental Coalition, including the Coalition leadership.

We had, as Lake said, I guess it was the Las Vegas Review Journal and other local newspapers, a press notification and generally applauded for the breadth of our notification activities beyond the legal minimum.

The November 21st hearing, where we first heard of your concerns, the president of your organization expressed concerns, was, I guess, 45 days or so from the close of the public scoping comment period. And indeed even here the norm is a 30-day comment period. That's what's required in many instances. So that even at the date of that November 21st hearing, there was plenty of opportunity to share your views on our MPC EIS scope. In that regard, we provided a toll-free fax line, we provided a toll-free telephone line, we provided an electronic bulletin board, we provided a four-page structured comment form which would facilitate easily presenting your views on issues of concern and alternatives.

So we feel, to be perfectly frank, that we have gone the extra mile in notification and facilitating public input on the scoping.

MR. GONZALES: See, the only things, sir, is that

when these notifications that you say you've been notifying the tribes is that the Nevada Indian Coalition office has never been notified, and we represent the 24 tribes. And if there's some way in the future that you would start notifying that office in Reno--

MR. PARKER: You're right, you're right. And indeed, if we had been aware that such individual tribe notification would have facilitated it, we would have done it this time. We believe our notification was adequate, but in the future, I guess it's 24 tribal members, will be individually notified from herein in the process.

MR. GONZALES: Okay.

DR. BREWER: Lake, did you have something to say?

MR. BARRETT: I was just going to add we would commit to and keep the Coalition leadership at their address informed of all the RW activities that we're doing.

DR. BREWER: Okay, we have time for one more comment from the floor, and you have been patient. Yes, please. If there are additional comments, because we have to break for lunch after this, we have another period between 4:30 and 5:30 this afternoon for public comment.

MR. MEYERS: What I wanted to say was in regard with the Indian issues. And if you want to put me off, it's fine, but I'm still going to say the same thing.

DR. BREWER: No.

MS. JOHNSON: I will yield to Calvin.

DR. BREWER: She has precedence because she was standing up first. Please, she's yielded to you.

MR. MEYERS: Thank you, Abbey.

DR. BREWER: Say what you have to say.

MR. MEYERS: My name is Calvin Meyers. I'm from Moapa Band of Paiutes. I've followed the issue for three years now. I understand a lot about what's going on, and I understand that when you guys are talking in circles, I understand when you guys don't answer questions. One of the things that makes me mad and really gets me is that the Department of Energy says, "Oh, yes, we do this and we do that." Well, I'll tell you what, they don't do a damned thing for tribes, especially here in Nevada. I know. They stopped coming out to tribes. They said, well, now the tribes have to ask and request that they come out, and they come out and tell us their same lies that they tell everybody else. Because I know, I read about everything.

When they talk about government-to-government relationship, that's a bunch of bullshit to me. Because when you talk to the Department of Energy and they talk with the Bureau of Indian Affairs, that's not government to government. When you're talking about government to government, you're talking about the United States government speaking directly to Indian tribes and nobody else.

And when you talk about trust and responsibility, with Clinton telling the Department of Energy and all of the other departments to work more with tribes, that's a bunch of bullshit, because it's never been done.

And that's one of the things with the Department of Energy, if they're not ever going to live up to what they're supposed to be doing, this is all for nothing.

And another issue is sovereignty. When they start this shipment of nuclear waste, if they don't even speak to us now on anything, they're just going to shove it down our throats. And if that's what they're going to do, well, then, the Department of Energy is just the same old government and the same old people that came before, where they tried to wipe the Indians out. You never will, because we're much stronger than you are, we know more than you do. Yet you don't even speak with us and even ask us any advice on anything. And that's one of the things that the Department of Energy needs to do.

And we have a relationship with the U.S. government. The counties and the cities, they don't have that special relationship. They don't have the standing that the tribes are supposed to have with their government, their so-called government-to-government relationship.

And with notifying tribes about the EIS and things like that, that don't do a damned bit of good, because for

one, tribes don't have the money to get there. For two, they don't have the background on what they should know and what they're talking about. For example, when they had a public meeting in Las Vegas, they invited a bunch of tribes and DOE was all "Oh, it's great, and we had a whole bunch of tribal representatives." That doesn't make any difference, because they didn't even know what the hell you're talking about because they don't have the background. And they're not going to have the background because they don't have the money to have somebody look at this issue all the time, because it's changing. You guys are changing your minds as you're speaking.

So how do you expect us to be able to relate with you people? And that's my big issue. Thank you.

DR. BREWER: Thank you. We have other opportunities in the afternoon, and indeed representatives from many other Native American groups who have an interest in this. We also have one hour in the afternoon and another hour or more this evening for public comment of this sort or any other kind. We also have to have lunch. Would it be--

MS. JOHNSON: Can you give me two minutes?

DR. BREWER: Two minutes. One last short question. Yes, please, your name and organization.

MS. JOHNSON: My name is Abbey Johnson. I represent Eureka County, Nevada. First of all, I want to

thank Dennis Price for coming to the Affected Units of Local Government MPC Transportation meeting in Henderson. His participation was very useful.

The counties are going to be meeting at the end of this week with the Under Secretary of Energy, and I just wanted to highlight some of the NEPA things that we will be sharing with them. First of all, the PEIS remains a compelling option to provide an integrated analysis of the proposed waste management system, and I think in the discussion you've heard today you can already see that that integrated waste management, this picture is still needed regardless of how many EIS's we divide this into.

Regarding the NEPA implementation, we continue to have concerns about the schedule. We see that for the Repository EIS there will be a six-month review period. That's definitely going in the right direction. Public review period. But for the MPC, we see that the Draft EIS is going to be released during a holiday season. This is a concern. We also know that, as Calvin mentioned, that the access was difficult. We'd like to see more hearings in Nevada and accessible, including in rural parts of the state. And we can see that the adequate time and opportunities for public participation directed from the Secretary of Energy in some cases may clash and conflict with the fifteen months get it done directive in terms of timeliness of EIS compliance.

That's the two-minute version. Thank you.

DR. BREWER: Thank you.

MS. JOHNSON: I can do the five-minute version at a later time.

DR. BREWER: All right, sure, a ten-minute and a fifteen. Thank you very much.

I have one final comment. There's a note from one Tom McGowan, a public interest advocate, who has presented the Board with written comments which will be part of the public record of the Board meeting today. He was unable to come.

MR. MCGOWAN: Honorable Mr. Chairman, esteemed members of the Board, attendant jurisdictions and members of the public:

My name is Tom McGowan. I'm an individual member of the public residing in Las Vegas, Nevada. I'm unable to personally attend the NWTRB meetings scheduled for 10 and 11 January, '95, in Beatty, Nevada. However, I hereby request that this candid summary of my public commentary be articulated at the meeting and included in the public record:

1. Ultimately, there are only two rational, responsible and ensured effective means for the Final Disposition of Toxic Radioactive Materials and Hazardous Wastes, TRM/HW:

(a) A National 'Crash Program' dedicated to the

reduction-trans-annihilation of TRM/HW, inclusive of fissile materials and spent fuels, completely and permanently, via a fully integrated compound of Accelerator-Based Conversion, ABC, and Molten Salt Reactor, MSR, Technology;

And, in sequential conjunction therewith:

(b) The ensured safe and secure spatial deployment of the relatively short-lived residue of the Annihilation Process, pursuant to Solar Incineration, Distant Planetary or Asteroidal Collision and Assimilation, Galactic and/or Universal Dispersal and Dilution, and/or Black Hole, Cygnus-X-1, Targeted Annihilation.

2. Both the Final Disposition and the Near Term--30 to 50 years--Requisite Containment, Limited Transport and Interim Storage of TRM/HW Imperative are expressly contingent upon a Genuine Public Consensus Development Process, invocative of a fairly and equitably balanced and diversified Weighted Formula, advisory to the Nuclear-pertinent Public Policy Formulation Process, to ensure Omni-Relatable Participation in the Assumption of Responsibilities, Liabilities and Benefits related to Consensual Address and Resolution of the Nuclear Issues Complex.

(a) It is duly noted that no such Genuine Public Consensus Development Process either currently exists or is planned and projected. Hence, the Generic, you, i.e., Society and Government, respectively and as combined, are

conclusively unqualified to address and resolve the Subject Topical Issues Agenda in any rational, responsible and ensured effective manner or extent whatsoever.

3. The 'Problem' is not and never was either Nuclear Energy or Toxic Radioactivity, per se, which are salient as 'Symptomatic' of the Problem. Rather and irrefutably, the Fundamental Crux Issue Root Causal of the Problem and Perpetuative of both the Problem and its Public-Adverse Consequences is the Fat of Inherently Perverse human nature itself, in self-evident context as Quality-Deficient in terms of applied Ethics, Morality, Reason, Integrity and Responsibility.

In sum, the Problem is You, inclusively, i.e., Quality-Deficient Humankind, literally engaged in mindless self-destruction in consequence of the predominance and furtherance of Limited Special Interests preclusive of and adverse to the Genuine Best Public Interest, aka 'The Common Good'.

Thereas, you are not only not the 'Solution', nor 'a part of the Problem'. You are the Problem, and the only Problem, whose Solution remains expressly contingent upon Consensus-based Massive Fundamental Reform requisite to a Diametric Paradigm Shift, or 'Mindset-Reversal', away from expediency-based Human Quality Deficiency, and toward attainment to context as Utmost Quality-Effective in terms of

Applied Ethics, Morality, Reason, Integrity and Responsibility.

And there is no other rational, responsible and ensured effective 'Alternative'.

4. Whereas your Beatty meeting precedes, by less than two weeks, the impending meeting at the Sahara Hotel in Las Vegas, Nevada, of the expediently misnomered "National Conference on Nuclear Waste Transport and the Role of the Public," wherein the limited spectrum of respectively Limited Special Interests will confront not only the Subject Topical Issues, but unavoidably, and of utmost profound significance, each other and thereas also themselves, it is recommended that you either withhold your conclusions and recommendations pending the eventuation of theirs, or alternately attempt to incorporate yours into the body of theirs, if possible. Or risk the conceivability of the Beatty, Nevada, 'TAil' inadvertently 'Wagging' the purportedly National Coalition Conference's 'Dog'.

Thank you for this opportunity to address the Public Record of the NWTRB.

DR. BREWER: The conversation has not ended, because we have to have lunch. We will continue this and focus on socioeconomic issues in the afternoon. To the extent you can, please try to be back by 1:00.

(Whereupon, a lunch break was taken.)

AFTERNOON SESSION

DR. BREWER: While everyone's taking their seat, I have a bit of housekeeping, literally. Would everyone please take their seats?

I was reminded by one of our staff that this is not a hotel, and there's no one here to clean up the mess. So if you would please pick up your own mess and put it in the trash can before you leave, it would be much appreciated because we have no cleanup crew. Thank you very much for that. Otherwise, we get to stay and do windows and other stuff.

We're running about a half an hour late, and I would like to begin.

I have a request from one citizen to make a presentation. What I would like to do is to put this off until we have the first two presentations of the afternoon, and to have Mr. McGhee come right at that point before our break. He's traveled a distance and has to get home. This is Mr. Earl McGhee. I think that's you standing there by the door.

So, Mr. McGhee, if you would just be patient while we do our two scheduled presentations, I'll make a space for you immediately afterwards.

As was the case with Environment and Public Health,

this is the first time that the full Board, as opposed to a panel, has looked at social and economic impacts and the social science which is related to that.

It's important in talking about socioeconomic studies and impacts that there be a separation made, and this is really important for this particular subject matter, between so-called what we in the social science business call standard impacts, those relating to demography and economics and sociology and institutions and whether you build schools or roads or who pays for them and so on, standard socioeconomic impacts, and those related to risk perception.

This meeting today is not, underline not, talking about risk perception. This is not to say that the Board is not fully aware of how important perception is when dealing with any issue like the siting of a repository, or any other hazardous material for that matter. And as a consequence, we wanted to spend time essentially doing the ground work, much like we have spent time doing the ground work to get to the point where we can have a standard impacts or a standard effects discussion, such as we're about to have. To spend the time in a panel setting with the risk and performance assessment panel of the Board, and also the Environment and Public Health, as public health is part of it.

This is an announcement. It will be followed up with more public announcements. There will be a one-and-a-

half day meeting of the two panels, Risk and Performance Assessment and Environment and Public Health, in Las Vegas on May the 18th starting at noon through the afternoon, early afternoon, of May the 19th.

All right. That's the time when we will be considering and beginning to put the parts together, risk perception. We're not talking about risk perception today.

Okay. I made that about as clear as I know how to do.

Another thing that has to be stressed, and it comes up all the time, I have served on the National Academy's Board on environmental studies and toxicology and have looked at offshore oil and hazardous siting in a lot of areas. The social science part of these very complicated issues, much like the Yucca Mountain repository issue, is often relegated to sort of an afterthought and referred to as "the soft stuff."

Well, it almost--and this is always drawn in comparison to physics or chemistry or things where laws of nature apply. There are different laws of nature applying here, and the social sciences are every bit as scientific and demanding as the geology or the geochemistry, or whatever. And that is a terribly important point to keep in mind. And, in fact, for anyone who has ever been involved in trying to site something or to do something where human beings are

involved and care, the soft stuff often turns out to be the hard stuff in the sense of being the most complex and difficult and challenging from the point of view of politics and management.

My general point here is that in everything that follows, the same scientific and technical standards that the Board tries hard, and I think with some success, to bring to bear on our inquiry will apply. Because it's economics or because it's sociology or it's anthropology or has to do with culture makes it no less scientific. And that, again, is an important general point to make.

What we're going to be doing is somewhat different than this morning. We are asking the OCRWM people, Yucca Mountain, the people in the Site Characterization process-- Program, pardon me, in this case Wendy Dixon again, she's the long distance runner today because she's responsible for it, to give us, first of all, a general overview of the Socioeconomic Program at Yucca Mountain. And she's brought along John Carlson from the M & O/SAIC to assist with more specific details.

We will have these two formal presentations much like this morning. Mr. McGhee will have his chance to go on the record and ask questions, and then we'll take a short break.

Afterwards, we have invited a number of

representative individuals, not the whole world, but representative individuals, to come forward as a panel to provide different kinds of insight and input related to socioeconomic issues at Yucca Mountain.

We've invited Les Bradshaw of Nye County's nuclear waste project, who has been asked to bring along George Blankenship, one of his contractors; Dennis Bechtel, who's from Clark County's Division of Comprehensive Planning. Bob Loux was invited, but will not be here. Michael Baughman--Jeff Strolin will be in his place. Is that the hand in the back? Good. So at least the Nevada Nuclear Waste Project Office will be represented by Joe as opposed to Bob Loux; and then Ian Zaparte from the Western Shoshone National Council, one of several Native Americans who have expressed interest in this particular project.

So let me stop at this point to give you some idea of what we're all about. Two presentations, some sort of Q and A, and presentation from a citizen, Mr. McGhee, short break. We'll go into a panel where individuals have been asked to make comments, and then we open it up again to public input, Q and A. That's the plan for the afternoon.

At this point, let me turn it over again--for about the ninth time today it seems, doesn't it Wendy--to Wendy Dixon from the Yucca Mountain Site Characterization Office.

Wendy?

MS. DIXON: Thank you.

Dr. Brewer said I had to keep doing this until I got it right, so hopefully this will be the one.

As Dr. Brewer stated, we were asked to give an overview of the Socioeconomic Program, and there will be some discussion following mine from John Carlson on some of the results of our studies or findings, what we've been doing on the model inside of the house or where we're heading.

I thought it appropriate, considering how long it's been since we talked about the Socioeconomic Program, to go through history a little bit and review the evolution of the program, review where we're at right now in our Socioeconomic Plan, and talk a few moments about program implementation.

So going back to in the beginning, was the Nuclear Waste Policy Act of 1982, and in the Nuclear Waste Policy Act, Section 113, there was a requirement that we must minimize any significant adverse environmental impact. And we looked at that commitment to include socioeconomics, and from that commitment, develop a Socioeconomic Monitoring and Mitigation Plan.

There was also requirement to develop an environmental assessment, and that environmental assessment, too, looked at socioeconomic issues.

The environmental assessment included a description of the Yucca Mountain project and had some overall

conclusions in it at the time it was written. One of those conclusions was that the social and economic impacts of site characterization, related population was one of the primary impacts as it related to in-migration, were expected to be small and were expected to be insignificant.

It also did an assessment of economic, demographic and social conditions, and that assessment provided evidence that the Yucca Mountain effort was likely to meet the qualifying conditions that you find in 960.

There was also a recognition in the EA, or an assessment that there was not--there was no expectation that the site would be disqualified on the basis of affecting the regional groundwater table or reduce water quality. This is an issue that some people look at and say that they have trouble understanding that it's part of the Socioeconomic Program. It really is being analyzed to our water quality and quantity effort under the environmental side, but it was set up as a socioeconomic disqualifier, so you do find it here. And the socioeconomic side of the house has been involved in this evolution.

The Monitoring Plan that I mentioned, the Monitoring and Mitigation Plan, did tie to Section 113 of the Act, and its original emphasis was dealing with changes in population and how those changes in population, i.e., the demographics, could potentially cause an impact to

communities around the site.

The Mitigation Program developed from that really focused on changing the overall schedule of site characterization activities, and if you changed the schedule or slowed things down, you had in effect an ability to change the demographics.

Then came the Nuclear Waste Policy Amendments Act of 1987, and there were a number of changes that occurred in that Act. There became one site, as you all know. There were other affected counties that were added to the list. And there was a requirement to do what was called the Section 175 Report, which was a report that was due to Congress in a period of one year, and it had a number of specific issues, 14 categories associated with it, and those 14 categories really came from language suggested by the Nevada Legislature. From the Socioeconomic Report, really the Section 175 Report, there was a commitment made that our, at that time Socioeconomic Monitoring and Mitigation Plan, needed to be modified and incorporate these 14 categories.

So we broadened the report at that particular point in time and expanded it.

There were a number of elements, as I mentioned, in that report. I'm not going through all of these, you can read them yourselves, but such things as education, medical care, availability of energy, distribution of public lands.

A number of important categories needed to be evaluated.

We picked areas of study that we felt could have a potential impact. They included the State of Nevada, Clark County, Esmeralda County, Lincoln and Nye Counties. We did our evaluation, and as a result of that evaluation--and I need to emphasize the fact that we weren't looking at significant impacts. We were looking at the potential for impacts, period. We weren't categorizing them as to whether or not they were significant or marginal, or whatever; just potential impacts.

What we did find as a result of that study was that there were three areas in Nye County that showed potential impacts in accordance with these 14 categories. They included Amargosa Valley, Beatty, which is where we're at now, and Pahrump. And there was one area in Clark County that indicated potential for impacts, and that was Indian Springs. We couldn't find any other potential impacts in other areas, but these certainly did show up.

And we gave a commitment, as a result of the study, that we would work with the affected entities to determine if there was a trend in these areas, and also to get input from them as to whether or not these impacts were negative or positive, because some of these impacts could be perceived by the communities as actually being positive impacts.

I mention the 960 guidelines, and socioeconomics is

mentioned there as well. Favorable conditions, where the ability to absorb project-related populations without significant disturbances, an available labor force, and projected increases in employment, sales, government revenues, and improved community services.

There was also several potential adverse conditions listed, and those included the potential for significant impact on community services, housing supply and demand, and government finances, the lack of an adequate labor force, and acquisition of water rights impacts, the development of affected areas.

And then there was one disqualifying condition, and that was the site shall be disqualified if it significantly degrades the quality or the quantity of water from major sources of off-site supply.

As I mentioned, as a result of the Section 175 Report, we modified our Socioeconomic Monitoring Mitigation Plan to change the name of it. It's now the Socioeconomic Plan. And in that plan, we committed to an interactive process with the affected counties. We expanded the technical scope for the plan and established a cooperative process for impact assessment and impact mitigation.

The overall objective of the plan: To identify potential effects of project activities on the socioeconomic characteristics of Nevada communities, counties and the State

of Nevada to consult, to communicate, to coordinate. We went ahead and developed our draft plan, submitted it for comments in April of 1990. The comments were received in August of 1990, and the plan was modified.

As far as implementation of the plan is concerned, it's broken into two major catoks at the characteristics of this study area, and that ties to what we call socioeconomic profiles. That includes the demographics that we've mentioned and the added factors of housing, employment, economics, land use, and we added hotel, gaming and recreation.

And then the characteristics of the Yucca Mountain project, and these are all submitted in reports that are available to anyone who wants them: Quarterly employment data from the Yucca Mountain project, semi-annual procurement reports, and then we do an annual Yucca Mountain project employee survey that can get out more detailed questions than you can pick up from the administrative records above.

John Carlson is really going to talk about the empirical work to date. That gives you the results of the socioeconomic profiles and monitoring, findings to date, and some discussion on modeling.

So on that note--

DR. BREWER: Just a second, Wendy.

At this point, are there any questions from Board

members for Wendy before we move on to the details?

Thank you very much, Wendy.

MS. DIXON: Thank you.

DR. BREWER: John?

MR. CARLSON: The discussion of standard socioeconomic impacts analysis focuses basically on two particular areas. One would be the profiles, which establishes a baseline for community indicators and creates a database from which change can be measured. And secondly, the Socioeconomic Monitoring Program, which as Wendy has indicated, gives us description of project over time.

I think it's important to point out before we get too deep in the presentation that with the exception of the survey, all of the information that we collect through either the profiles effort or the Monitoring Program comes from secondary data; that is, census data, information from employment securities, information from other published reports.

The profiles are broken up into three basic categories. We've got the general baseline characteristics of particular communities, county level profiles, which help us develop indicators of change and subsequently affect our modeling at the county level, and then sub-county activities.

The basic general socioeconomic profiles include the fiscal profiles with a description of the budgetary

process within Clark and Nye Counties. It basically examines local revenues, i.e., taxes, fees for licenses and permits, charges for services and so forth, as well as expenditure patterns.

The service and facilities profile is designed to develop information about the 14 categories that Wendy had alluded to earlier, information on school enrollment, on medical facilities, on police and fire protection, emergency facilities and so forth. It identifies equipment availability. It identifies sources of revenue, sources of expenditures and so forth.

At the county level, we have developed what we refer to as a socioeconomic profile, and basically what this is, is a historical examination of the demographic characteristics for the State of Nevada, Clark County, Lincoln County, Nye County, from the decennial censuses from 1960, 1970 and 1980. The basic information will describe the characteristics of the population, income characteristics, housing values, housing occupancy rates and so forth.

With the release of the 1990 census, we proceeded to develop a more detailed housing characteristic that would give us historical data from 1970, '80 and '90 for the areas of Clark County, Lincoln and Nye Counties, basically focusing on things like housing stock, occupancy, housing values, housing types, single-family, multi-family, apartment

complexes, et cetera.

In addition, as we developed our modeling capabilities in a more detailed fashion, we have prepared what we refer to as an urban economic base profile. Basically what this is, is an analysis of data from the Bureau of Economic Analysis, a Nevada Employment Securities Division, which describes the characteristics of Clark County in terms of population, labor force, employment and earnings by standard industrial classifications.

As we proceeded to go through the entire economic base analysis by the standard industrial classification, SIC, it became abundantly clear that the hotel, gaming and recreation sector, H,G,R, needed to be delved into deeper. H,G,R is a subset of the service sector, and the service sector in Clark County is approximately 47 percent of the employment within Clark County. And of that, H,G,R is approximately 61 percent, or 28 percent of the total.

The H,G,R profile is primarily directed towards developing a better information base from which we can do our modeling, so that it does, in fact, give us some idea about trends, about the taxation and public policy, and the development activities within that particular service sector.

Also, at the sub-county level, in order to be able to do a better job of allocating population and employment to sub-county areas, i.e., census tracks, incorporated areas,

unincorporated places, census-designated places in rural counties, we've developed a more detailed housing component that describes similar characteristics to the county level profile in terms of housing values, housing types, housing occupancy rates, again, based on the 1990 census information. The primary areas of study included Clark, Lincoln and Nye Counties.

The rural employment profile that we describe basically is an examination of those same basic sources, BEA, Bureau of Economic Analysis, and Nevada Employment Securities, in terms of the employment characteristics, again, by standard industrial classification for Lincoln and Nye Counties.

This was an extension of work that had previously been done by UNR, so we piggy-backed on that and were able to develop an analysis from 1970 to 1990.

Finally, in process is the development of what we refer to as a land use profile that would be specific to urban Clark County with Las Vegas Valley and the rural communities.

Within the Las Vegas Valley, we have developed GIS capability, geographic information capability, to provide us flexibility within the valley to allocate land by various geographic characteristics, geopolitical boundaries if you will, census tracks, incorporated areas, the school district

community districts, the water district, and so forth, so that we have the ability to do a more detailed analysis within the urban area.

The profile within southern Nevada is primarily focused on land availability, land ownership and transferability.

The next section of this presentation will focus in on the Socioeconomic Monitoring Program.

We have developed what we refer to as a Quarterly Employment Monitoring Program, which has a database built from June of 1986 to September of '94 on a monthly basis. It encompasses detailed information about the work force associated with the Yucca Mountain projects. There are currently 16 participants that are involved in providing information to us on the employment monitoring database.

There are 11 variables, which are outlined on the next two pages, and briefly, total employment obviously as a head count, employment status, whether you work full time, part time, temporary. We identify now full time equivalent positions, which is measured in a variety of different ways. It can be done in terms of the number of hours worked on an annual basis, on a monthly basis. We have chosen to do it on an eight-hour working day; new hires that come onto the project, people who have not previously worked or been associated with the Yucca Mountain project, transfers from

within an organization. For example, NTS workers that may have been transferred to work on the Yucca Mountain project. Labor organization status pertains to union activities; union, non-union, exempt, non-exempt employees. And the exempt, non-exempt is based on the Fair Labor Standards Act, which basically says that if you're an exempt employee, you're not eligible for overtime pay.

The occupational distribution of the workers, officials and managers, office, clerical, professionals, technicians, craft workers, et cetera.

Also, we examine the residential distribution of the work force within Nevada; in-migration of work force and dependents; a head count of employees in states other than Nevada; and then some information on commuting patterns.

This particular graphic will give you some idea about the growth in employment levels; again, total employment of the Yucca Mountain project from June of 1986 to September of '94.

On-site is defined to be on site, Yucca Mountain primarily. Off-site is anything else. And, obviously, total is the total.

You might notice the spike that appears in the mid-1988 time frame, and that represents a survey that was done of all NTS workers, at which point they had a Yucca Mountain charge number. And so although it's a small number of hours,

it's a fairly large number of people that appear to be associated with the Yucca Mountain project. They were for probably 15 minutes per employee.

This particular graphic is designed to do basically two things. It identifies in the lower left-hand corner the residential distribution of the Yucca Mountain workers as of September, 1994. And you can see from this graph that the lion's share of the people currently reside in Clark County, or about 93.2 percent.

Conversely, on the right-hand side of the page, you'll see the cumulative in-migration; that is, people that have migrated to Nevada to work on the Yucca Mountain project. I need to point out the fact that this is, in fact, only in-migration. It's not a net migration figure because we have yet to find out any way to identify folks once they leave the project in terms of where their residential distribution might occur.

This gives you a total of both workers and total population. Again, the obvious is Clark County with well over 90 percent of the population in-migrating to Clark County.

Over the years, for one reason or the other, we made adjustments to the Socioeconomic Employment Monitoring Program. This particular graph was designed to identify, first of all, in the blue would be Yucca Mountain

participants that were engaged in the program as of May of 1986, but no longer are actively participating in any activities associated with the Yucca Mountain project.

That next color, which I guess is kind of a brown, indicates participants or organizations that have come on to the Yucca Mountain project subsequent to--well, it's approximately 1990-1991 time frame.

The yellowish color are all participants that have been involved in the project since June of 1986. And again, notice the spike, which is again the survey that's popping up in there.

And finally, the greenish color would identify changes that have occurred that we have made to the program as of April of 1993. We added six additional participants for monitoring purposes. We at that point in time requested from the participants to provide us with hours so that we could calculate FTEs, rather than providing them to us, so that we would have some consistency within the program. We're beginning to identify transfers within organizations, and we've also begun to identify subcontractor hours that would be associated with the program.

I've tried to convert this information into something that would relate to what does Yucca Mountain mean in terms of, number one, total employment in Nevada, and number two, population.

The information with regards to the YMP/Nevada would be the total employment associated with the Yucca Mountain project as of July of 1994 relative to total employment in Nevada. And there's a little bit of a disconnect in there because total employment for Nevada is going to be place of work as opposed to place of residence as reported by Nevada Employment Securities.

Nonetheless, you can see that there's a relatively small relationship between Yucca Mountain totals in either of the areas--any of the areas identified, Clark, Nye or Nevada totals relative to total employment.

In terms of population, I've done basically the same thing, following the same methodology that's employed by the State demographer. I would have taken the total employment let's say within Nevada, and multiplied that by the population per household, as indicated by the 1990 census. So that if you take the 1,678 people that are employed in Nevada times a factor of 2.53, then that converts you to a population of 40 to 145.

Again, relative to the total population in Nevada, Clark and Nye and Lincoln Counties, you see it's a relatively small percentage, and less than one in most cases. There's some debate over the population in Nye County, so that could vary by as much as .2 or 3 percent.

So the State demographer I think has a conception

that Nye County is not growing as rapidly as Nye County thinks it is.

These figures, again, are benchmarked to July 1, 1994, and are consistent with those figures generated by the State demographer.

We have also developed what we refer to as a Semi-Annual Procurement Monitoring Program, which has been in place since April of 1992, and up through and including September 30, 1994.

Regarding the procurement monitoring database, there are five key variables that we track and receive information from 12 different participants. We identify the WBS structure, which is the assignment for the work element of this particular project, the amount of the procurement, which is the information--the value that's recorded on the check, the standard industrial classification of the activity, the destination of the payment, that is to where the check once cut is finally submitted to by zip code, and then the location of the vendor, and that frequently can be different than the destination of the payment.

The next couple pie charts will identify for you some information that identifies, first of all, the distribution of the procurement, fiscal year 1994, by WBS. You see the exploratory studies facilities, at 34.4 percent, and site investigations at 21 percent, which are the lion's

share of them, and approximately 6 percent of the time that WBS has not reported. So it does present a fairly comprehensive database.

We've also examined the distribution of YMP procurements by standard industrial classifications. This graphic illustrates the fact that 41.4 percent of all procurements for fiscal year '94 are identified to be services, or the services industries, which is primarily professional services, management and scientific and research activities. And 23.2 percent is involved in the construction activities in and around Yucca Mountain.

This particular graphic gives you an idea of the distribution, the destination of the payment by census region for fiscal year 1994. You can see here that within the Western Region, 37.0 percent of all procurements went to the Western Region, 26 to the Midwest, 26.6 percent, and approximately 10 percent elsewhere. And in this particular situation for fiscal year '94, 25 percent of the time the location is not reported.

An examination of the West indicates that of the $25.2 million that were destined to the Western census region, 10.4 percent of that went to Nevada.

The next slide will illustrate the distribution of those monies within the State of Nevada, so that you can see from here that 90.6 percent of that $10.4 million was

destined for Clark County, $357,000 to Nye County, $16 to Lincoln County, and $624,000 to other counties in Nevada.

Again, a conversion to, well, what does that $10 million mean relative to the gross regional product. The left-hand column identifies for you the total procurements for Nevada, for Clark County and for Nye County, and the middle column gives you information about the component of the gross regional product that's referred to as consumption. Those would be purchases of goods and services within these respective areas. And again, you see the percentages to be relatively small.

Over the last two years, in the July time frame, we have conducted a survey of all Yucca Mountain employees, and again, this was the only component of our monitoring program that would be classified as primary research. The information that we're able to obtain from the survey is, number one, it's current, it comes directly from the employee, and it gets us information that we're not otherwise able to collect from the administrative records.

For example, the actual work location, the mode of transportation, the labor organizational status, that information is not always going to be current or available from administrative records.

The same is also true in terms of the levels of education and the occupational characteristics of the Yucca

Mountain worker, as well as the relationship of their occupation to the degree program that they are pursuing or have completed.

Location of residence by zip code; if you've been associated with the project for any length of time at all, there's a high probability that you have moved and have not updated that information. So this gives us at least a point of reference on an annual basis to where the Yucca Mountain workers reside.

We've also asked specific information about the household characteristics of the Yucca Mountain workers and the related population, things like age and gender, does anyone else in the household work for the Yucca Mountain project, are they employed on any other basis, and so forth, as well as income characteristics. Pretty standard socioeconomic type indicators.

This gives you an idea of the educational distribution of the Yucca Mountain workers per the 1994 survey data. The number on the top of each of the histograms is the absolute value, and then you see the associated percentages.

And you can see from this particular graphic that a fairly high percentage, almost 56--a little slightly over 56 percent of the Yucca Mountain workers either have a bachelor's degree or some graduate degree.

This is a further breakdown of the attributes of the work force in terms of the Yucca Mountain Nevada workers. This is only workers that are residents of Nevada. There are a number of people that work in states other than Nevada, but they would not be included. And this particular distribution, as well as the sample on the previous page, represents roughly 1,300 or so responses to the survey, which is approximately a 66 percent response rate.

But again, this represents the fact, and does in fact correlate to the procurement monitoring where we identified 41 percent of the employment by SIC to be in the services category, and here you see the 44.9 percent, which are those professionals who would be identified in the service category.

Then the next largest distribution would be the office and clerical.

We asked the question in terms of, were you born in Nevada or have you in-migrated, i.e., not born in Nevada. And you can see the relationship between the Yucca Mountain employees, where 16.5 percent of them identify themselves to have been born in Nevada, compared to 17.1 percent of the people responding to the 1990 decennial census, saying they were in fact born in Nevada. So the very statistics are very close in this particular situation.

So, obviously, if you weren't born in Nevada, you

had to in-migrate. So what we've done here is to try to develop, again, a relationship between the Yucca Mountain workers and their dependents and in-migration into Clark County.

The in-migration from Clark County comes from a database developed by the University of Nevada, Las Vegas, Center for Business and Economic Research. What they do basically on a monthly basis is collect information from the Nevada Transportation Department. So as residents move to Clark County, they will turn in their driver's license, and that information is recorded.

You can see in almost all cases, with the exception of 1993, the percentage is less than 1 percent. I'm not sure what happened in 1993, but it was a good year.

This depicts that same information graphically. The Clark County annual in-migration is done based on tens of thousands, and the Yucca Mountain information, which is the larger histogram, is actual numbers. Again, you can see 1993 is a predominantly aggressive year for some particular reason.

We examined the distribution of the YMP in-migrants/hired in Nevada by occupation. There was some interest in understanding how that database would have fallen out.

The others are going to be service-type workers.

Typically, they will be union types, services, laborers and so forth.

You can see there's a very small number of those folks that are actually in-migrated into Nevada. The same will be true of craft workers and the technicians and clerical workers. It's not until you get in the occupational categories of professionals and managers do you see a significant number of in-migrants into Nevada. In fact, only in the category of managers do you see in-migration exceed the hired in Nevada value.

The next graphic simply breaks this down for you in terms of specific numbers. So you can see of the union type categories, crafts, operatives, laborers and service workers, of the 444 people who have in-migrated to Nevada, four would be in those occupations associated to some union activity. And the rest of them fall out. You know, office and clerical, 91 percent were hired in Nevada, and 82 percent of the technicians hired in Nevada, and then office and managers and professionals pretty much fall out 50/50.

And again, working with the information that we collected from the age and gender matrix, there was some interest in what is the relationship between Yucca Mountain school age children, i.e., five to eighteen years of age, and the public school enrollment in these various communities. What I've done here is basically taken the 66 percent

response rate and converted those numbers to be what would represent 100 percent of the Yucca Mountain workers.

Obviously, there's some statistical magic in there, and that may not be an exact representation, but at least it gives you an idea. For example, of the 400 people that said they had children that live in Las Vegas, you convert that by 66 percent, and it gets you a value of 606, which is .5 percent of the total school enrollment in Las Vegas.

And again, you go down the line and with the exception of Indian Springs, which is pretty small numbers, we're looking at numbers less than 1 percent.

The next graph or pie chart will give you a graphic representation of Clark County's students associated to the Yucca Mountain project in relationship to Clark County school district enrollments.

In terms of the modeling work that we have done and are continuing to do research and development on, we break it into two specific categories, as I said earlier, in terms of the profiles. We've got population and employment projections that would be done specific to the counties of Nevada, and we have sub-county allocations, which is small areas.

To develop the population and employment projections at the county level, we have acquired an econometric model that's referred to as Regional Economic

Models, Inc., REMI. This model was used back in the 175 activities back in 1988.

Prior to employing the model--prior to applying the model to the 175 Report, there was an extensive evaluation done of off-the-shelf econometric models that would be up to the task in terms of providing population and employment projections particularly for the duration that was required for the 175 Report.

The REMI model is constructed in such a way that it could, in fact, provide annual estimates of population, employment and gross regional product, income, et cetera, et cetera, on an annual basis through the period of 2060.

So that was the first application of a model in 1988.

Subsequent to that, and with the release of the 1990 census, we have adapted the model demographically to Nevada. We've worked with Clark County, Nye County, the University of Nevada, Las Vegas, the State, to develop parameters that would be specific to fertility, mortality, in-migration, that would be unique and descriptive of the Nevada population.

As the model was prior to this adaptation, it would have represented fertility, mortality and in-migration characteristics relative to the United States. And we decided we didn't think that was appropriate. So we have

generated the necessary statistics and have recalibrated the model to be representative of Nevada.

With regards to the sub-county allocation process, which is currently underdeveloped, we've basically gone to the extent, and this is primarily within the rural counties, of developing what we refer to as a ratio correlation technique. And essentially what that does is identifies the specific characteristics that are indicative of population change as it might relate to county totals; school enrollment, health care statistics where available, housing change where available, and so forth.

Within Clark County, we'll work with the University, Clark County, et cetera, to develop a more vigorous modeling capability to allocate to a variety of different geographies. One of the reasons that we've acquired the GIS technology is to be able to develop these population and employment projections at census tracks, incorporated communities, unincorporated towns, water districts, school districts, et cetera. That work is in progress.

I'll be glad to answer any questions that the Board might have.

DR. BREWER: Are there questions from the members of the Board about the presentation?

Yes, Ed Cording.

DR. CORDING: Ed Cording, Board. I just was looking at this distribution from the survey, and I come up with the service workers, laborers, operators, craft workers, less than 200 total on the project. And I'm not sure if the survey--if there's some bias on the survey because of the people who responded. And I imagine looking at the actual payroll might indicate how close that is. I was just interested in what your thought was on that.

MR. CARLSON: I generally think that those categories are probably under represented in the survey response. All right, to what degree, I could speculate. We could identify specifically how many people from our monitoring reports we have identified with regards to the service industries and give you a much better idea about the actual percentage. But they are, in fact, under represented.

In some cases, it's simply a matter of being able to identify where these people are working from day-to-day, from week-to-week and so forth. And they do migrate around the site.

DR. CORDING: With the mobilization on the drilling and the underground construction, it may be that those records are perhaps more--are becoming more ready available--

MR. CARLSON: Exactly.

DR. CORDING: --or particularly evaluated.

MR. CARLSON: Yeah, a more interesting case is the

security organization. You know, they don't have the same supervisor from week-to-week, from day-to-day. So our only mechanism by which to distribute that survey is through the management chain. And if we can't identify that, then we have a hard time executing the survey to all those folks.

DR. BREWER: Other questions from the Board?

I have a question, as it turns around, and there's fairly classic literature on boom and bust, and I think if you build a repository, you're going to have a boom. It's always important to look at the social pathologies, crime stats and other things. If you don't have the baselines in place, it's going to be real hard to figure out whether you've got--I mean, what's happening.

I didn't notice anywhere in this some indication that you were looking at what's generally called data on social pathology.

MR. CARLSON: That would fall under the classification of the services and facilities. I probably didn't detail that enough to indicate. We talk about police and fire protection, but we need to identify specific utilization rates and so on that would give us a better indication of those kinds of things, where they're available.

DR. BREWER: You know, you're talking about things like child abuse, spouse abuse, criminal stats, drug use, alcoholism, a whole range of things that are well known to be

associated with boom times, and also well known to be associated with the bust that follows because of all the distresses that are put up in families that can't get out in time.

MR. CARLSON: Right.

DR. BREWER: And you need the baselines. You need the baselines to figure out what's going on. I mean, it's pretty straightforward.

MR. CARLSON: That's a good point.

DR. BREWER: Another thing that comes to mind, and this is really as a consequence of looking at oil rig construction in Louisiana primarily, around Morgan City and other places, that the skilled laborer that comes in to actually do the work during the boom is very transient because it's so specialized, and it doesn't stick around. And so you may get a pulse which looks like it's doing good things for the economy, but it's transient pulse, and, in fact, while they may get their paychecks in Morgan City, Louisiana, or in this case, you know, at Yucca Mountain, the money is being spent someplace else.

And again, that is well known in the oil sort of literature, and I wonder whether you've given it much thought here because I can imagine the specialized kinds of talents. I'm looking at according with underground construction, or whatever, would not--and your figures already indicate--would

not be readily available in Nevada. You'd be getting it from somewhere else, and it would go somewhere else when it's finished.

DR. CORDING: There's one comment on that. Of course, there is quite a work force that's been at the test site over the years. So that may be a little different than what we might see in some other areas. So you never seem to know what that is.

DR. BREWER: So you dig the hole in the ground. Then what? Where do they go? I mean, that's the point. It's very specialized, and it's quite transient. It's international work force. It's not localized. And the money doesn't get spent locally, which is really the interesting thing. It looks like you're doing things in terms of the pulse that you give to the economy, but the money goes somewhere else.

Again, it's something that you need to--that's an experience, and it's something that maybe you could learn from.

MR. CARLSON: I'm not sure if there's a secondary data set that would provide you that kind of detail that would also--the issue of doing primary research on that specific work force.

DR. BREWER: Right. That's something you--

MR. CARLSON: That might be the kind of thing that

you could incorporate in an employee survey, for example.

DR. BREWER: Right.

Other questions from the staff? Dan Metlay has got a question.

DR. METLAY: Two related questions here. I think they're related. Dan Metlay, Board staff. This is for Wendy.

In your overheads, you talked about favorable conditions, potentially adverse and disqualifying conditions. You didn't mention the qualifying conditions for socioeconomics, and I'm wondering if you could say something about that.

And what I think is a related question, how is this cooperative process for impact assessment and mitigation with the State and the counties working out?

MS. DIXON: Okay.

DR. METLAY: Did you want the--

MS. DIXON: No, that's okay. I just spoke to them, and I was having the same problem, because it does have the favorable conditions. And I don't know, we have a copy of 960 there. Real quickly, Val, could you pull the verbiage?

Well, there we go. Val, you're gone.

"Impacts can be offset by reasonable mitigation or compensation."

DR. METLAY: Okay. And you talked about this

process of--cooperative process I think was the words that you used with the State and counties with respect to not only assessing the impacts, but mitigating them. And since mitigation is key to the qualifying condition, I'm wondering if you could talk about that process?

MS. DIXON: Okay. I guess I'd like to talk about perhaps in two planes, and then I'd like to turn it over to Mr. Kimble, too, who's been involved with a lot of the meetings that have been taking place.

But there have been meetings set up with the affected counties over a period of time. I think that in this particular program, there is--and especially, obviously, considering the amount of interest that the counties and the State have in socioeconomic arena, and a lot in the line of interfaces, are not only with us sharing our data with the counties and the State, but with the State and the counties sharing data with us, so that transfer of information has been fairly good in both directions.

With respect to specifics on impact and mitigation again, there's been discussions with different members of the counties and some of the working groups that have taken place; in part, to define and make sure that we don't look at something as an impact and try to mitigate it when, in fact, as I mentioned earlier, it's a desirable impact, and there is a lot of desire by some of the counties to have positive

impacts as it relates to procurements. There's been a lot of interest by the counties, as you can imagine, to get as much spent or bought in Nevada as possible. So they've been working very strongly with us to see if there's ways that they can pull more in the line of procurements into their communities; again, to receive a positive impact.

The same thing has happened as related employment. Most certainly, Nevada is interested in hiring in Nevada, and there's been a lot of dialogue along that line.

With respect to impacts that go beyond the demographics, you know, employment and procurements, they've been, as you can see through the visuals, fairly small.

And, Bob, would you have anything more you'd like to add?

This is Mr. Kimble. He works with SAIC. He's part of the M & O, and is heading up a socioeconomic program from our contractor side of the house.

MR. KIMBLE: I guess that means I don't have to give the introduction. Wendy just did.

I would just like to add to that, that over the course of the last few years since the Monitoring Program has really been implemented in its current form, we typically do participate with the affected units of government in their meetings. We certainly send out copies of these monitoring reports to anybody who wants them, but in particular, the

affected units of government. And, in fact, the thrust of that Monitoring Program is to attempt to identify any trends that would indicate impacts in a timely fashion in order to deal with them. And as Wendy indicated, the data to date does not suggest that there have been significant adverse impacts.

Nonetheless, one additional comment there. There have been changes in the Monitoring Program over time, particularly in terms of employment monitoring and in the annual employees' survey to incorporate the desires of those affected units of government, to get data that they find useful, to make sure that their concerns are addressed to the extent that we can, and to develop a database that is both useful for our purposes in terms of monitoring and ultimately development of an Environmental Impact Statement, but also useful for their purposes in terms of also identifying impacts and developing mitigation strategies.

To date, there has been no specific mitigation attempted beyond the modifications to the program to address those affected unit of local government needs.

DR. BREWER: Okay. Thank you very much.

Other questions? If not, thank you all very much.

I would like to invite Mr. McGhee, Mr. Earl McGhee. Would you identify--yes, that should be on. Would you identify yourself and your organization?

MR. MCGHEE: Yeah, I'm Earl McGhee. I live in Amargosa Valley, and I'm just giving my own personal views.

And I would like to ask Wendy, when you speak of socioeconomic impact, how about social hazard impact, and who would be the closest to Yucca Mountain. And if you do know, what is the distance from Yucca Mountain to Highway 95 on a straight line?

MS. DIXON: On a straight line? Ten miles roughly.

MR. MCGHEE: Yeah. If you continue with your proposal to use Yucca Mountain as a permanent storage for nuclear waste, high-level--and that stuff I believe is supposed to last 10,000 years?

MS. DIXON: To be equivalent to what you would find in a natural mine.

MR. MCGHEE: All right. Any of the atmospheric exhaust out of this repository, is that scrubbed?

MS. DIXON: We're not expecting atmospheric--how did you phrase that?

MR. MCGHEE: You're going to maintain a constant environment inside, aren't you?

MS. DIXON: I think that the core of your question is whether or not safety and health issues will be evaluated in all of this, and maybe that's something that I did not emphasize in the presentation this morning.

But when we do our Environmental Impact Statement,

one of the real focuses of that is safety and health issues.

MR. MCGHEE: Well, I have to apologize for my public speaking and asking you questions because I didn't have my mind corrupted with a formal education. I was in the South Pacific.

MR. BARRETT: When you're saying scrubbed, I mean, we filtered any contaminants of that stuff--

MR. MCGHEE: That's right, that's right.

MR. BARRETT: All right. In the mountain itself, down underneath, if we ever emplace material, it would be placed--the material would be inside seal-welded cans. It would be done up in buildings, up on the surface.

MR. MCGHEE: And you're going to--you're going to--

MR. BARRETT: So down underground, it would be sealed. So there are no filters per se, like on the air coming out of the tunnels, out of the ventilation shafts.

If we handle the fuel in hot cells, basically, up in the building, those would have filters on them. You know, multiple stage they're called high efficiency particulate air filters to trap any of the particulate material or any of the contaminants that would be in the air, in the buildings, if we end up with a system like that.

So the answer, the air would, you know, be free of material in it. Okay, or it would have filters--it would have filters.

MR. MCGHEE: Well, sir, I was in heavy construction for 30--well, a little over 30 years. And with our technology that we have now, things that we have created, a monster, why can't we not build a cage for that monster, find a hot area, excavate from an 11-foot base of reinforced concrete and wall it appropriately, align it, and then build a mountain over it, rather than destroy this mountain? Has that alternative plan ever been thought of?

MR. BARRETT: To build a mountain over it?

MR. MCGHEE: Over it. In other words, we want to cage the monster.

MR. BARRETT: That's an analogy we could use, I suppose, but the answer is, no, we did not look at building a mountain over it. You know, when God built a mountain for us, I guess is what basically we're doing.

MR. MCGHEE: Well, I don't think the Almighty built the mountain for us to destroy.

MR. BARRETT: I'm not sure we're destroying it, but--

MR. MCGHEE: Well, all right. The one thing is we could do something like that, get further away from habitat for humanity. And when you check our history, the Chinese built a great wall. The Egyptians built pyramids. And there's no end to Greek and Roman architecture. We built Boulder Dam. We built Grand Coulee, and we have the Sears

Tower, I guess, you can call it an edifice, that we could do that, and it probably would cost no more money than what you're spending on Yucca Mountain. And you would control the subterranean resources at the same time.

I understand Mr. Bradshaw just had a well drilled to check, you know, underneath. You wouldn't have to do that if it was done properly.

MR. BARRETT: Well--

MR. MCGHEE: And we do have the resources.

DR. BREWER: Mr. McGhee, thank you very much, interesting perspective on the mountain.

It's now 2:30, and we are miraculously on schedule. What we're going to do now is take a 15-minute break. If you have some trash now, get rid of it. It will save the job later on. We'll reconvene in 15 minutes in the panel.

(Whereupon, a break was taken.)

DR. BREWER: What we have now is a modified round table, or panel, modified in the sense that we have specifically invited representatives of the respective governments of the counties, of the state, of the Western Shoshone Council, and in between all of this because rural areas are really most important, and the other part of government, Lake Barrett. We've also got a perspective on rural areas and the socioeconomics of it.

Now, here's the format: Each of the five

presenters has been invited to speak no more than 20 minutes, and we'll just take them one-by-one-by-one, and at the conclusion of that, we will open it up for discussions among the members of the panel and also questions from the floor, roughly in that order. We've also got other members who have made presentations during the day, who will free to jump in, and our own TRB Board members are over here.

Now, we just had a discussion about who goes first, and the decision was that we would start with Joe Strolin from the State of Nevada, then we would go to Nye County's representatives, and then to Clark County, and then to the Rural, and then to the Western Shoshone. So that's the order of the presentations.

I'd like now to turn over the panel to George Blankenship and Les Bradshaw--pardon me, Joe Strolin of the State of Nevada. Let me get this straight. The State of Nevada. Joe, please.

MR. STROLIN: Do you want me to talk from here, or does it matter?

DR. BREWER: No, talk from there, that's fine. Wherever you're comfortable.

MR. STROLIN: Doctor, my name is Joe Strolin. I head up the Planning Division for the State of Nevada Agency for Nuclear Projects. This is the division that's responsible for implementing of the socioeconomic impact

assessment work that the State has been doing over the last eight years.

I am the administrator of the agency that oversees the socioeconomic work. I am not a researcher, and so that the presentation or the remarks that I'm going to make today are not going to be made in terms of what the research findings of the State has been with respect to the socioeconomic studies.

What I would offer the Board, and perhaps we can do it at the May meeting that you announced today, that if the Board is interested in hearing from the State socioeconomic research team, that I would be glad to try to arrange that in a similar fashion that the State's technical people have appeared before the Board.

I would request that if we do that, though, we need to set aside enough time to justify the expense and the logistics of bringing the people from around the country out here for a meeting like that. But I would be glad to arrange it. I'm sure the researchers would be happy to do that.

In Dr. Barnard's letter of invitation to us, he asked us to discuss what areas we believe that DOE should examine as part of its socioeconomic program, and I thought that perhaps the best way to do that would be to review a little bit what the State and local governments have had to say about DOE's approach to socioeconomic impact assessment

over the years.

Wendy Dixon did a little bit of reviewing in terms of the types of socioeconomic products that have been produced by DOE over the years. Well, the State and the local governments have had a lot to say about those products as well.

Going back to March, 1995 (sic), Department of Energy did a fairly extensive, or attempted to do a fairly extensive look at socioeconomic impacts as part of its environmental assessment for the Yucca Mountain site. The State has spent considerable time and resources reviewing that document, and sort of summing up the comments that we made, we made a considerable volume of comments on that document, but summing it up with one paragraph that said that "The draft environmental assessment for the Yucca Mountain site is flawed in the number of important respects with respect to its treatment of socioeconomic impacts and issues. The documents presents a best case scenario that minimizes potential impacts to the social and fiscal systems of southern Nevada. It ignores risk, assumes unchanging demographics, and proceeds with the premise that all markets function with perfect information. It uses a model of questionable validity and ignores relative differences between Clark and Nye Counties, and ignores the rest of the state entirely."

Following the State's comments, DOE's response generally was, well, don't worry. We understand that. This is not intended to be a definitive document. We are preparing a Socioeconomic Monitoring and Mitigation Plan in which all of these concerns will be addressed.

Well, in March, 1987, the first draft of the SMMP was released, and the State, after carefully reviewing it, had a number of comments.

The draft Socioeconomic Monitoring and Mitigation Plan we wrote appears to be something of a misnomer, given the fact that it hardly constitutes a plan at all, that it addresses monitoring only selectively and mitigation not at all, and that it fails to provide even a semblance of the structure that is capable of identifying, evaluating and addressing potential site characterization impacts.

The draft plan proceeds from the assumption that site characterization impacts are either non-existent or insignificant. It bases this assumption not on a comprehensive examination of adequate baseline information, but rather on an overly simplistic and incomplete socioeconomic database contained in the environmental assessment. It makes very little sense to develop a plan to monitor and mitigate impacts before a baseline against which potential characterization and changes can be measured and evaluated.

The only way for the Department to know what impacts are occurring at any stage in the process is to establish a comprehensive baseline for the economic, social, environmental and other conditions within local communities affected by the repository.

Following the first draft of this SMMP and our comments, DOE responded not to worry. We'll take your comments into consideration. We will be reissuing another draft of the SMMP, and I think you'll find that your comments have been heard in that draft.

Well, a year later, in March, 1988, DOE did issue another draft to the SMMP, and again, the State reviewed it, and we had this to say: In its current reincarnation, the Socioeconomic Monitoring and Mitigation Plan still fails to provide a structure that is capable of identifying, evaluating, quantifying and addressing potential site characterization impacts. The plan, we think, is crippled from the beginning because it lacks foundation, has little substance, is reflected of a speculative as opposed to a scientific approach to characterization impact identification.

Despite repeated and consistent expressions of concern by the State and affected local governments, DOE persisted in treating site characterization as a phase that is divorced from repository development. The fact that

socioeconomic baseline data has not been generated and that no attempt has been made to understand the very real relationships between site characterization and subsequent construction and operation impacts, renders any attempt at monitoring and mitigation almost irrelevant.

DOE never completed its Socioeconomic Monitoring and Mitigation Plan, in that format at least, because it was sidetracked, as Wendy noted, by the need to complete the Section 175 Report for the Nuclear Waste Policy Amendments Act in 1987. That report was submitted to Congress by the Department of Energy, as Wendy noted, I think in the spring of 1989. And the State, again, reviewed that document and had some additional comments to make, and I'll quote you from those comments.

"In reviewing the DOE report, the State of Nevada and affected local jurisdictions found it to be overall a good starting point for ongoing impact assessment work. However, it is not complete enough nor detailed enough to be used by Congress or DOE as the basis for understanding potential repository impacts or for making mitigation decisions. The Section 175 Report embodies a number of assumptions and limitations that affects its validity as a planning document. Perhaps the most pervasive assumption is that the repository is like any other large industrial project."

Excuse me, I have a very bad cold. I'll try to get through this.

"...that the repository is like any other large industrial project, and that the State and local governments will respond to this project as they might to other project that has the potential to bring jobs and people to an area.

"This assumption is fundamentally flawed, we think. It is unrealistic to assume, as DOE does in the Section 175 Report, that the State and local governments will allocate resources originally intended for supporting desired forms of development to the repository project. The Section 175 Report also stresses the positive aspects of the repository, while avoiding or minimizing areas of potential negative effects. It tends to present an incomplete and perhaps overly-optimistic picture of repository effects, something that is counterproductive in terms of Congress' understanding of the real implications of the project."

Our agency at the time noted that the Section 175 Report represented a positive beginning for impact assessment work, although DOE had been beginning for over four years by that time. We commented, however, that "subsequent socioeconomic analysis must specify in greater detail the areas where undefined impacts might occur, expand the geographic scope of the effort, address transportation impacts along potential high-level waste corridors, and

complete the project description and refine the approach to impact mitigation and address fully the potential impacts on tourism and economic development."

Following the comments on the 175 Report, DOE again indicated that we shouldn't worry, that these comments will be taken into account, that they were preparing a Socioeconomic Plan for the Yucca Mountain project that was intended to improve on and operationalize the Section 175 findings.

In the spring of 1990, the Socioeconomic Plan for Yucca Mountain was released, and once again the State reviewed it very carefully. The State found that, and I quote, "The draft of the Socioeconomic Plan for Yucca Mountain represents a continuation of DOE's avoidance of critical issues associated with impact assessment, monitoring and mitigation, and it leaves unresolved almost all of the concerns that the State and local governments have been raising since 1985. An overriding problem with the draft plan is one that has characterized DOE's attempts at addressing socioeconomic impacts from the beginning, at least as early as the draft environmental assessments.

"The plan intentionally, or otherwise, severely limits the scope of work proposed and seems designed to avoid addressing areas where significant impacts are likely to occur. Instead of laying the framework for comprehensive

baseline information, development and subsequent impact assessment by evaluating the effects of with and without project scenarios against that baseline, the plan contains provisions for developing information on pre-selected areas of investigation, both geographically and with regard to types of information sought.

"It is not that difficult to conclude that DOE is continuing to frame its research efforts in the socioeconomic arena in ways that will only provide information that will support predetermined conclusions, something that DOE has been accused of in the technical studies area."

Following, finally--this is my last comment on the history. Following the commenting on the draft plan, DOE issued a formal response document to all of the comments received, and the State reviewed those documents and found that the comments, the responses were very perfunctory and really didn't address the substance of many of the issues that were raised in those extensive comments.

And the State's final observation was that "Were it not for the long history of DOE continually promising to do better next time, one might be tempted to comment as we did with the 175 Report, that the Socioeconomic Plan is a good beginning, but it needs a great deal of flushing out and expanding to be anything near a comprehensive approach to socioeconomic impact assessment.

"Given the historical context of the latest document, however, if may be that DOE is, in fact, incapable of doing comprehensive socioeconomic impact assessment work, and that such task might best be left to the entities, such as the State and affected counties, most suited to accomplishing it most effectively."

So that was sort of an expression of exacerbation after a long history of back and forth on socioeconomic impact studies between the State and the Department of Energy.

I think that in the ensuing years, we have come to see that there is essentially a fundamental difference in the way that the State, the affected counties and the Department of Energy approach the issue of socioeconomic impact assessment. And in many ways, this derives from their statutory responsibilities from the roles and mandates that each of us operate under in this area.

For example, the State responsibility is derived directly from the Nuclear Waste Policy Act, Section 116 and Section 113. The State has a responsibility under that Act to assess any potential impacts, social--the Act specifically says, "any economic, social, public health and safety or environmental impacts that attend to the repository project." In conjunction with that, the State has a responsibility to prepare an impact assistance request, should the State deem

that to be appropriate for submission to the Secretary of Energy.

The State also has a responsibility, should it determine that it will issue a notice of disapproval, pursuant to Section 114 of the Nuclear Waste Policy Act, if the Yucca Mountain project is recommended, it must prepare a statement of reasons, and socioeconomic impact assessment data would form a part of that statement of reasons. So there's another responsibility that is unique to the State.

And finally, "The State has a responsibility to provide input into DOE's Environmental Impact Statement, National Environmental Policy Act process."

The affected counties' responsibilities are very similar to the State's. They have similar responsibilities under Section 116 of the Nuclear Waste Policy Act to assess any potential impacts. They have a responsibility to provide input into any request for impact assistance and to provide impact into DOE's EIS process.

All of these are fairly broad and wide-ranging responsibilities.

The Department of Energy's responsibilities, as we see it, are considerably different. They revolve principally around that National Environmental Policy Act process, with a secondary role in terms of Section 117 of the Nuclear Waste Policy Act. DOE is charged underneath that to identify and

develop information on significant impacts for EIS analysis, and I'll talk about that in a minute.

They also have responsibility under 117 of the Nuclear Waste Policy Act to respond to the State's request for impact assistance, to be in a position to be able to evaluate it and to deal with the State on that. So they need a certain amount of their own information to do that.

And finally, and perhaps most importantly, they have a responsibility to provide the State and counties with adequate project description information, something that the State and counties require for their own impact assessment activities.

The differences, though, between these responsibilities I think are fundamental. The National Environmental Policy Acts allows considerable implementing agency discretion as to what constitutes significance when examining impacts. It allows the agency essentially, and I think Wendy hit on this a little bit in her presentation, to take a narrower, more legalistic view of impact analysis.

The Nuclear Waste Policy Act, on the other hand, provides a broader mandate for the State and the counties to identify impacts and seek mitigation to assure that State and communities are kept whole with respect to the Repository Program. I think that that was the intent of Congress.

Within these areas of responsibility, these

divergent areas of responsibility, there are some overlaps. I think first and foremost is that the Department of Energy needs to develop adequate description information, and the State and counties need that information in order to carry out their work.

To date, Nye County, Clark County and the State of Nevada have had to invest considerable resources in developing a project description scenario base system to produce the information in order to carry out impact assessment work that we've done.

Jim Williams and George Blankenship and Kurt Shumacher from PIC have a demonstration of the project description system that has been developed out in the other room, and they're going to talk about it a little bit more later on. But I think you'll get an idea of what we have had to go through as a result of a lack of adequate project description information.

What the Department of Energy needs from the states and counties, it appears to us anyway, are essentially two related things. One is guidance in the EIS process in terms of what constitutes significance in terms of impacts. And second, I think the Department of Energy needs to rely to a considerable degree on information that the State and local community governments have developed on local conditions for DOE's use in its EIS analysis.

Let me turn now to the second question that Dr. Barnard asked. He asked that we address any relevant findings from the State's socioeconomic studies that might be of interest to the Board.

I would like, if I could, to pass out to the Board members--because of logistics, I only brought enough copies for Board members and the staff. If anyone else in the audience would like copies of this, I'd be glad to get it to you. Just give our office a call.

This is a summary of the State's socioeconomic studies. It is a summary of a much larger report that was done in 1993. It was published in the National Academy proceedings in November, 1994, under the chairman of our Technical Review Committee's name Gilbert F. White.

It summarizes, I think pretty succinctly, the work that has been done by the State over the last eight years or so with respect to socioeconomic analysis. It talks about the methods and some of the findings and some of the implications of the work that has developed.

So I'll pass that down.

As I've mentioned, we've been involved in attempting to implement a comprehensive Socioeconomic Impact Assessment Program since 1986. These studies grew out of the need essentially to develop what we thought would be a comprehensive understanding of a first of a kind facility on

the State of Nevada and its affected communities.

The organization of the studies recognize the unique nature of the project and the unique ways that the impacts would likely be manifested and experienced.

I have a couple of view graphs here, but it's just inconvenient to be jumping up and down to put them up.

But essentially, the original effort attempted to look at a comprehensive integrated approach to impact assessment that attempted to look at both standard and special effects and to integrate the two in some meaningful way.

Based on what was learned from the studies between 1987 and 1993, and based on an interim report, an impact assessment exercise that we carried out in 1989, the State determined that given the continuing lack of adequate resources for the work, that we really needed to refocus our effort and to attempt to focus more on areas that we thought were more likely to be significantly vulnerable to the repository project, rather than attempting to cover the water front of the State's social and economic fabric.

As a result, the State refocused its efforts in 1993 to concentrate on some more limited areas of what we consider principal vulnerabilities.

DR. BREWER: Mr. Strolin?

MR. STROLIN: Yes?

DR. BREWER: We're running close to the 20 minutes, just to--

MR. STROLIN: Sorry, okay.

DR. BREWER: That's all right.

MR. STROLIN: Let me just jump over to a couple of other things that I wanted to say today, and I'll forget the rest of this.

A couple of observations, one in general as it relates to Dr. Brewer's remarks earlier about the standard and special effects.

One of the things that we've observed is that there really is a myth of the standard and special effects, that these are really--that this is an artifact of the project, the separation of the State studies. And we attempted to do this, separate the State studies into special studies, special effect studies and risk--and standard special effect or risk studies and standard effect studies. And we found that it was an artificial distinction. It was useful for conceptualizing the effort, for planning it, but it was not helpful in understanding the dynamics that were involved.

What we found that the risk impacts of Yucca Mountain are, are a characteristic of the project, as much a characteristic of the project as the number of works, the amount of project-induced population growth, the project-related infrastructure impacts that might occur, that these

risk effects were every much a characteristic of the project, and that they will induce standard economic and social changes or impacts just like other characteristics of the project ripple through the economy or the social structure of an area.

The principal overall finding of the State's work to date is that these effects will, if they occurred, greatly overshadow any effects resulting from the standard employment or population driven impacts that are normally principal drivers of impacts for large projects.

I think you saw with John Carlson's slides that the employment population changes resulting from Yucca Mountain, even at peak employment, are going to be insignificant in relation to the State work force and normal population growth.

The possible exception here is if all or part of the population growth from the project were to occur in small rural communities, such as in Nye or in Indian Springs. Nye County is accounting for this possibility, I think, in their socioeconomic work.

Another possible exception would be if large temporary population growth were to occur in small communities during rail spur construction, and this is certainly a likely possibility given the remoteness of the various rail spur options, and this is also an area that DOE

has not spent any time or effort in terms of characterizing.

The principal impacts to the State of Nevada today have been institutional, social, cultural and political in nature, and generally not economic. An example of the type of significant impacts that have occurred is the Bullfrog County incident that occurred in 1985 when the State Legislature created a special county, carved it out of Nye County in order to be able to better manage and administer the impacts and the project, the Yucca Mountain project. This created considerable conflict with Nye County and the State. It caused financial costs to the State Legislature, to the Executive Branch and to the Judiciary Branch before this whole thing was resolved several years later.

Another example of the conflicts caused by the-- another example of the impacts that have been caused to date are the conflicts caused by the controversy over Yucca Mountain and the nuclear power industry's advertising, organizing and lobbying campaigns in the state since 1990. This has created considerable political turmoil in the state and continues to do so.

Let me just wrap up with a couple observations about the State's experience with impact assessment studies over the years.

One critical and perhaps the critical investment for success that we found in the type of broad and innovated

research that we've tried to do over the last eight years is the development and sustainment of an experienced multi-disciplinary research team that we've put together. We've essentially kept the same group of people, the same research team intact since 1987, with additions and deletions as the different character of the studies warranted.

Another finding is that the integration of the research effort was also important, although certainly that was much more difficult to foster integration than we somewhat naively thought it would be.

And a final observation was the importance of external peer review. We've had a Technical Review Committee that has been on board since the onset of the studies in 1986. This committee has also been maintained relatively intact with very few changes in membership. And they've had an important effect, not only in helping to assure the quality of final work products, but also in helping to stimulate creativity, improving research approaches and methods. There is a real synergism that attends to the interactions between the research team and the Technical Review Committee.

Thank you very much.

DR. BREWER: Thank you, Mr. Strolin.

We now go to Nye County, and I turn it over to Les Bradshaw, who is the head of Nye County's nuclear waste

repository project.

Les?

MR. BRADSHAW: Thank you. I appreciate being here today on behalf of the Nye County Commissioners. We welcome you to Nye County. Mr. Bill Copeland, the newly-elected commissioner whose district encompasses Yucca Mountain is here with us today. We appreciate his attendance.

There are citizens from the county that have been here, and I appreciate your interest in coming up here to meet some of these people that will be living near and about and around the sites. They are real living people. They have families and homes and mortgages and gardens and goats and cows, and we need to look out after their interest, as well as the broader interest of the county as a whole in the state.

It's our intention here today to spend a few minutes with you, not to discuss in great detail all the details of our Socioeconomic Program over the years. I refer you to a handout, which is a long list of technical papers that have been generated by the Nye County Socioeconomic Program. But George will carry forth with an explanation of our view of what the issues are, what a socioeconomic program ought to be addressing, and how those issues can best be addressed, and to some extent, the current status of our efforts to address those issues.

The Yucca Mountain issues, they're a seamless web of interwoven issues, and you cannot hardly separate the technical issues from socioeconomic, from transportation.

As we try to deal with these issues, we find that it is very expensive. We are thankful for the oversight funding that Congress has given us. These funds have allowed Nye County to do some things for the very first time that otherwise it probably would never have been able to afford to do that, is to look at itself, to understand the cultural and social and economic fabric of the county, and to develop a baseline against which to measure the changes brought on by Yucca Mountain.

I'll let George, as the expert, carry on with a more detailed description of our program.

MR. BLANKENSHIP: Thanks, Les. I guess the microphone's working. I can hear myself.

DR. BREWER: It's working fine. It's working just fine.

MR. BLANKENSHIP: I'm going to start with an upside down slide, and then re-orient it for you. I'm going to use both projectors because I'm going to refer to that slide several times.

And I would like to take a moment at the start to speak to Dr. Brewer's definition of standard and risk or stigma impacts. Joe mentioned it in his discussion as well.

It's something that we're uneasy with, and we're a bit responsible. In the early parts of the program and in the early days of the assessment of hazardous and nuclear facilities, people began to distinguish between those impacts that were associated with stigma, and everything else was by and large called standard impacts. And that makes us uneasy because when we discuss the Yucca Mountain project, apart from the risk-related and stigma-related impacts, it's still not a very standard project.

So we're uncomfortable because in some ways that implies that it's very easy once you set aside the question of stigma for a moment to assess all of these other impacts. And one of the focuses of our presentation today will be to discuss some of these other non-standard kinds of impacts that are not stigma or risk-related.

I'd like to take a few moments to set the context for you a little bit about Nye County, which is your host county today. And some of you may or may not have had the opportunity to drive a little bit around Nye County and see it.

It's the third largest county in the continental United States. It has a land area roughly equal to the size of four New England states, that includes Massachusetts, New Jersey, Delaware and Vermont. About 22 percent of the land area is restricted access area. In addition to the Nellis

Air Force Range and the Nevada test site, there are several wilderness areas within the county.

Nye County is growing in population. In 1950 when the Nevada test site was organized, there were about 3,000 people in the county. About half of those were from Beatty, south. At the 1990 census, there were just under 8,000 people. That doubled to almost 18,000 at the 1990 census.

The growth in the county is driven primarily by growth in the town of Pahrump. Pahrump tripled between the 1980 and 1990 census virtually, and our indications are from quarterly monitoring of utility hook-ups, phones and power hook-ups, that Pahrump has almost doubled since the 1990 census. That growth is driven primarily by retirement and by people who locate to Pahrump and commute to the Las Vegas Valley for work. Pahrump offers lower cost land and a rural less complicated lifestyle than the Las Vegas Valley.

Nye County is currently developing a recreation and tourism visitor economy. Our recent estimates are that there may be as many as 8,000 visitors a year. We sit next to several world class tourism attractions, Death Valley and the city of Las Vegas. There are beginning to be some modest kinds of destination attractions, as well as a lot of open country that's appealing to folks.

There's another interesting fact about Nye County in that it contains much of the private land in southwestern

Nevada. These hatch-mark--less than crystal clear slide--but these hatch-mark areas show the private land almost up to where Nevada takes its jog.

These areas down here are Clark County. Land costs have gotten pretty high down there. Clark County is beginning to get some air quality considerations for industries that have those kinds of concerns.

So these areas in Nye County represent private land that's available for development.

This exodus from California has affected Nevada, as well as other states. People who are interested in setting up businesses or residences and serving that metropolitan area in southern California are taking advantage of the ports that might well consider Nye County.

So in the future, and who knows how near future, Nye County might be prime for continued population growth.

Now, I'm going to get a little basic for probably some of the people here, but in understanding the issues associated with the socioeconomic assessment of Yucca Mountain, it helps me to sort of look at a typical socioeconomic impact assessment process, and this process is not different from other forms or disciplines in terms of impact assessment.

We try to get an idea of existing conditions in an area. We try to figure out what those conditions might be

like in the future to do some what we call without project projections. We try to describe the change agent under consideration, which in this case is Yucca Mountain. We try to get a good description of that project in socioeconomic terms to figure out how it will affect the baseline socioeconomic conditions and project those conditions. We contrast the without project and the with project-projections to get an idea of what the impacts would be. And then from that, we attempt to develop community-based impact avoidance management mitigation measures, and all that is recycled back into monitoring.

And when you have a process--or a project that occurs over time, it's good to do this process on a continuous basis and sort of keep up with it.

So with that sort of framework, here are some of the issues that Nye County is considering in the assessment of the Yucca Mountain project:

The time line is, in my experience for this assessment, unprecedented. We folks that do socioeconomic impact assessment, and particularly those that have had to through some regulatory process monitor the project after we've done projections, are pretty humble about our abilities to project far into the future. Five years, you know, if we're lucky, 10, 15, 20 years, and particularly 50 years, it becomes pretty much of a crystal ball exercise.

And to get an idea about that, if you turn around and look backward, in the past, the last five years, and the events that have occurred the last 10 years, the last 20 years, the last 50 years, and the changes that have occurred, the sweeping kind of changes that not many people predict, a good measure of that is population growth in southern Nevada.

Fifty years ago in Clark County, the population was less than Nye County's population is today, it was at the 1990 census. In other words, they had 16,000 and some people in the county that houses Las Vegas and who would have guessed--there's a great scene in the movie "Bugsy" where Bugsy Segal is standing out in the desert looking, and he was probably the only one that guessed that Clark County was going to be now a city of slightly under a million people.

And that's not to make wild projections about Nye County going to that population because we don't have the water--the gambling cat's already out of the bag, and, you know, there are electrical power considerations and others.

But the point here is that it's virtually impossible to project, predict far into the future the range of socioeconomic conditions that might occur with any certainty.

Another problem that you heard Joe talk about is the lack of an integrated and fixed project description, and I won't belabor that point too much. But on a day-to-day

basis, it must be as challenging for the folks in DOE to try to figure out what the project is going to be as it is for us folks that are trying to assess the effects of that project.

When we get to our program description, I'll speak a little bit more about some of the methods that Joe alluded to that we've developed to deal with that.

And with the lack of a fixed project description, there's a lot of other kinds of uncertainty in the program in terms of a wide variety of topics and the way that those topics play themselves out in the community and the political arena.

And so it's trying to project the effects of something that's shifting and changing, and it presents a challenge.

We're also trying to project the effects of this rather long time line project in a time when the standards for local government service delivery are changing at a rapid pace. And perhaps the new Congress will be able to deal with unfunded mandates and perhaps not.

A few years ago in Nye County, you could drive out on the desert and with a piece of paper in your hand and dig a big hole, and that was your landfill. Today, there have to be studies, groundwater studies performed. You have to line the landfill. You have to put in a whole bunch of monitoring wells, and you have to man that landfill.

Today, Nye County's jail is a jail that I've heard came from the brig out of an old turn of the century sailing ship. Well, a few years ago, the ACLU got a hold of that, and now Nye County is in the process of building a multi-million dollar jail that's going to also have a multi-million dollar staffing budget.

These kinds of changes in the requirements are reaching down to these very rural counties who've done just fine, thank you, but now have to change the way they do business. Those kinds of costs need to be considered in the analysis.

I think the last thing, and perhaps one of the most certainly intriguing and important issues for Nye County is how the Yucca Mountain repository fits into the context of this larger Federal nuclear and defense complex in Nye County. You're all aware that the Nevada test site is there. You're all aware that it is the site where most of the--the largest number of nuclear bombs in the world both have been exploded, both underground and at the surface. There are a variety of other activities that have gone on there.

You may not be aware that it is also the home of a low-level radioactive waste disposal site that has been very active in recent years, and it may figure heavily in the disposal of defense waste from all around the country.

The future uses of the site that are discussed, the

large majority of those are sites that are hazardous in nature or deal with radioactive materials or would be considered noxious in most parts of the country.

The Nellis Air Force Range is a facility for training the nation's Air Forces in tactical combat. In addition to that, there are several areas where secret activities goes on. That affects the county in a way that as we were discussing earlier today, you'll be sitting in Tonapah, and all of a sudden, a whole bunch of people show up, and no one knows why. No Environmental Impact Statement is done. No community funds are provided to help the community to deal with the influx of people. And then a few years later, those folks might leave, and there might--the local government systems that have expanded to deal with that influx of people are sort of left sometimes without the population base to fund the cost of them. And--

DR. BREWER: Mr. Blankenship, excuse me. You have about five more minutes so that everyone else has a chance.

MR. BLANKENSHIP: Five more minutes?

DR. BREWER: Yes, please.

MR. BLANKENSHIP: I think I can do it.

Just to talk briefly that this complex--oh, in addition to that, while not part of the Federal complex, there's a recently closed one of the three low-level sites, low-level radioactive sites in the country, and it's still an

operating hazardous waste disposal site.

This Federal complex absorbs about two million acres, or 20 percent of the county's land area. It shapes transportation and commerce, and it also shapes land use off-site. We've had the experience where an industry is applied for the BLM to use land off-site, and it's been protested by the military. We know that adjacent to Yucca Mountain, which one of the reasons it was chosen is it's in a very low populated area, that it's unlikely that the Department of Energy is going to want intensive residential or industrial development on those lands that have been from time to time slated for disposal.

There are a variety of institutional and management practices that the Yucca Mountain project has developed to continue some of the practices at the Nevada test site that have worked against economic benefits in the county. Those have occurred primarily because when the test site started, there was not enough population out here to supply a work force, certainly not to supply the goods and services needed for procurement.

I'd like to spend just a moment or two talking about the program that's been developed to address these issues. We have a program that monitors in very detailed, in electronic format, population, economic factors, local government facilities and services and fiscal conditions. We

have a program of community studies so that we can understand these trends and the factors that drive socioeconomic conditions in Nye County. We have an elaborate system to monitor information from the repository. We worked closely with the Department and their contractors in setting up this program, and we think they did a yeoman's job in overcoming some obstacles to get information. We'd like it to go a bit further, and I think that they probably would, too.

We take that information, plus information that we get from all over OCRWM complex, and put that into an electronic database and use it to calibrate a model that we have operating in the back room that was developed jointly with the State, and we've run some scenarios with Clark County and the State and Nye County, and those are available for you to look at.

All of those run through some economic and demographic local government fiscal projection models that were developed to specifically account for the unique characteristics of this very rural county and some of the revenue bases that occur at the State level.

I'd like to close by providing some recommendations based on the issues that we identified.

We think that the assessment that occurs, whether it's an assessment for the NWPA or assessments for NEPA, I should be pretty honest about our ability to project

socioeconomic conditions in the future, and we should concoct up a series of scenarios and try to say that we can mechanically project conditions in the future.

We think that DOE ought to spend some time with Nye County and the State and the other affected entities to develop some realistic scenarios that we can then test the sensitivities of socioeconomic conditions to those socioeconomic effects.

We think to the extent possible, we should try to figure out what local government standards will be, not only in the far distant future, but in the near distant future, and not assume today's standards.

We think that an assessment should try to investigate the sensitivities in the county, and Joe spoke of those as vulnerabilities, the economic development sensitivities, or the sensitivities that the county might have to locking up more land that's not made available.

And to let you know what that means in dollar terms, the Department of Defense and the Department of Energy both worked on a document called the Special Nevada Report. In that, they said that the gross regional product in Nye County would be up to $180 million higher if the Nevada test site were available for other uses, the natural resources and other kinds of uses that could--and the economic activities associated with them. The gross regional product of Nye

County would be $30 million higher if the land where the Nellis Air Force Range is on were available for other uses.

So that's what we mean in terms of sensitivities and in terms of looking at the cumulative context of adding one more Federal facility, nuclear defense Federal facility, to the complex that already exists in Nye County.

And we think that the report should emphasize the development of mitigation measures to deal with these sensitivities. We think that the assessment should rather than a mechanical sort of cranking out of impacts based on some scenarios about a project that's shifting in a series of--a time line that's long and a socioeconomic context that is also influx.

DR. BREWER: Thank you very much, Mr. Blankenship.

MR. BLANKENSHIP: You bet.

DR. BREWER: We now turn to Clark County and Dennis Bechtel, who is the manager of the Division of Comprehensive Planning for Clark County.

Mr. Bechtel?

MR. BECHTEL: I appreciate the opportunity to meet with you today. As Dr. Brewer indicated, my name is Dennis Bechtel. I'm a coordinator for the Department of Comprehensive Planning, Nuclear Waste Division.

About 1984, I quite innocently went to a meeting, and somebody said, "Hey, there's a meeting on nuclear waste

down at the Aladdin. Why don't you go down and monitor it?"

So I went down, and low and behold, ever since that, I've been involved in this program. But what I had found to be interesting, in 1984, at this three-day conference, right at the end of the conference, there was a session on socioeconomic, and there was very rigorous presentations on site characterization issues, seismicity and volcanism. And right at the tail end, when everybody had just about gone home, they were beginning to talk about socioeconomics.

So in that sense, I think we've really come a long way over the years. We still have a long way to go, as the State and Nye County and you'll probably hear others will say. But nonetheless, I think we've made some progress, and we really welcome the opportunity to share some of our thoughts with the Technical Review Board today.

I also am not a researcher, but what I would like to do is just kind of share some of our--what we're doing with you and some of the concerns of the Clark County Commission.

I'll use the--to set up here.

That's a picture of the Las Vegas Valley. Essentially, Clark County has been in effect--of local government since about 1987. We made a conscious decision early on that we felt that since this was a long-lived

program, that we felt the need to integrate what was being done within Clark County government. I think we felt that, as I'll share with you a little later, that we are kind of the experts of our area. I think we felt that we needed to build a body of expertise within Clark County to be able to look at issues that will affect us over a long period of time.

The one caveat to that is in the area of social cultural. We share with the State the feeling that most of the effects, at least to Clark County, would be in the area of risk or perceived--I hate the term "perceived," because there's more real risk than it is perceived, but in the areas that are a little harder to define.

This, though, is our program. We have a number of our staffers attending today. We have broken our responsibilities down into functional areas. We do have technical staff, but we lean towards more in the socioeconomic transportation arena.

We also--because part of our way to begin to get at impacts is to organize the information, we have a GIS division. We also have a systems engineering support.

One of the things that amazed me when I first came to Clark County, having lived in an urban area in the East, was the fact that, one, how fast the area was growing, but also the fact that there was a lot of data in unorganized

fashion. So part of what we've had to do, with the assistance of our Comprehensive Planning Information Corporation and others, is to begin to organize that information to be able to get at impact. So that's involved a lot of time over the last couple of years.

There's a couple of things I'd like to point out. While we work for Comprehensive--I work for Comprehensive Planning. We're not comprehensive in the sense that we're all--we plan for all of Clark County.

So we've developed a steering committee. It's made up of all the entities incorporated in Clark County, the cities of Las Vegas, North Las Vegas, Henderson, Mesquite and Boulder City. And you heard some testimony earlier on from several of the representatives from the Tribal areas, and I think we share their concern that they are definitely impacted.

In our area, the Moapa Paiutes are right in straight of I-15, and if, in fact, that is a transportation route, if anyone has a strong case to be involved in impact studies, they do.

Anyhow, they--in a small way at least, we've--they are on our steering committee, and Calvin Meyers, who provided some testimony earlier, has attended and worked with us to provide some feeling of impact to their community.

Just a little bit of background on Clark County.

Clark County currently has two-thirds of Nevada's population. We're just about at the one million mark right now. We also include--we generate about 60 percent of the gaming revenue in the state of Nevada.

So as you can see, our concerns leaning towards the potential effects on the economy are very real, we feel, and I'm glad to hear that you're going to have a meeting in May to look at those types of issues because we really have a lot to share with you on that.

As indicated earlier, 90 percent of the DOE workers actually reside in Clark County. Many of those reside in the community of Indian Springs, and a number of them, of course, are in the valley itself. I think we feel that that will probably hold in the future. If you look at the history of the Nevada test site, that's also been the case. More than 90 percent of the workers and their families reside in Clark County.

As noted in the 1986 environmental assessment for Yucca Mountain, I-15, U.S. 93 and 95, Union Pacific Rail, were known as potential transport routes for the shipment of high-level waste, and we have not seen anything to indicate that that is going to change in the future.

Also, Indian Springs in Clark County was noted by the Department of Energy in their 175 Report as being an affected community. So that also provides a link to our

area.

Issues of concern, I'd like to share with you from the Clark County Commission. I think we're all tracking this interim storage issue. The 1998 date is becoming more and more important. The NRC came out with the dialogue earlier last year that named Nevada as a potential site for interim storage. We are also concerned--obviously, you're all aware of last week's proposed legislation by Senator Bennett Johnston that it's pretty blatant in trying to make this happen in Nevada. And, fortunately, it's so blatant, I think it's going to be difficult for that to happen.

But, still, nonetheless, working for a Planning Department, just about everything we do is looking at contingencies, and we're watching that very closely.

If, in fact, the 1998 date happens, another concern is the fact that there's really not a lot of time to do anything other than what's there. We're sort of victims of geography in a lot of ways, and there's not a lot of routing options in Nevada. And if, in fact, rail is the way that things are going to go--well, obviously, there's a rail line in southern Nevada, and that's of concern to us.

Other things; while we're talking about high-level nuclear waste here, that's not the only nuclear waste we have to be concerned about. I'm on a community advisory board for the Nevada test site, and one of the other issues we're

wrestling with right now is the fact that we could be the recipient of thousands, and probably will be the recipient of thousands of shipments of low-level waste.

We're kind of on the scope for the Fernald area, Rocky Flats, and others. So while there would perhaps be a lesser amount of shipments of high-level waste, we need to be concerned about the fact that they are transporting low-level waste through the community right now and are proposing to ship more in the future.

I've been involved in this for quite awhile, but the thing I didn't realize, was that 70 percent of the shipments of low-level waste actually go over Hoover Dam right now, and it just blows my mind that anyone would even consider doing that. But one of the first meetings we had with another branch of DOE was they indicated, well, you know, the shipments have been going on, and you didn't have any problem in the past. Why should you worry about it in the future, essentially is how it was kind of summed up.

So I think we really need to be concerned. While they tell us that this probably won't--there won't be any shipments through Las Vegas, I think we need to be concerned about that, and we're attempting to generate a body of information to prove that that is not a good idea.

The Board had several questions posed to us. First, "What areas do you believe that DOE should examine as

part of its Socioeconomic Analysis Program?"

I think we share with others the fact that, as I indicated before, we are kind of the experts in our area, and DOE should utilize the studies that we're performing locally and the data that we are generating and are studying.

And once again, you know, we are closer to the action in our area, and we need to--they need to kind of accept this.

On the other hand, I must admit that we've had some good meetings with the Department of Energy. John Carlson and others, we've worked with them on trying to develop a standard REMI model for the State, as well as with the State of Nevada. And I think it's--we feel it's important that they've been very cooperative in beginning to generate data on workers, where they live and their expertise. I think that has been very useful to us.

The second question, "What substantive results of your own efforts in this area do you believe the Board should understand?"

Unfortunately, if we would have had this meeting maybe six months down the pike, we would have maybe something more substantive to provide to you in the way of results, but, of course, as things are generating, we will, you know, share that information with the committee.

The other question, which wasn't in our original

letter, but the Board was interested in just questions of process; you know, how we're proceeding with our studies and what we would recommend.

As I indicated, these are kind of the three areas we are keying on; demand on services, transportation, public safety. Other issues that are of concern to us, though, we've had this kind of dichotomy between standard and special effect. A couple items are kind of blur. The distinction is with regard to Nacona v. New Mexico decision on a perceived--the taking of land in the New Mexico area. I don't know if you're familiar. The city of Santa Fe designated some routes around the city, high-level transportation routes around the city, and as a result of that, a landowner made a case that that designation of routing, because people were aware of it and aware of the potential problems with the transport of waste, it actually resulted in a taking of his land. He was awarded some money for that.

So I think while it's often difficult to transfer law from one--this is a New Mexico law--to another state, I think we need to be concerned that this is sort of a perceived risk deal, but there is evidence that that is translated into an effect on somebody's property.

The other thing is that if you live in the Las Vegas Valley, you might want to get your home insurance policy out and just look at what it says about radioactive

waste, kind of negating what your policy is intended to cover. My wife pointed that out to me. Sure, I've been working on the program for five years. But I said, "What is this? What does this mean?" You know, and I think that's another thing that kind of translates into a real potential effect. If there's an accident or something like that, well, maybe your house insurance may not be in effect.

So it's these little subtleties, but I think we need to be really--we are obviously concerned about it.

Let's see, I think I have time here. But just briefly, I don't want to--just to show you a little bit about the--I'm rambling on here--about our process. But George Blankenship described it quite well.

We, also--we don't have a lot of information about the program. There's a lot of uncertainties on how it's going to proceed. So we have joined with Nye County and the State of Nevada to work with PIC to work on this project description system. And, really, if you didn't have a chance to look at that in the back, it's really what we're looking at.

Taking that, we're developing a process by which we can define impact to the county. As I indicated, we're using the REMI model, which provides us a sense of how the area is going to develop in the future. And then we've translated--we've taken that into two other models, PEDAL and SING.

PEDAL is a description of land use, population and economics. SING takes that information and moves it into, what is the effect on government services from changes in land use. And from that, we should be able to get at some sort of a cost of impact.

Then, as I indicated, since we were working with other parties, we will attempt to step that down to actually potential impacts to the individual communities.

I think while the numbers are not a lot, I think the workers in Clark County right now are something like 2,0000. And if you use a multiplier, that could result in maybe six or seven thousand people actually living in Clark County because of the project.

I think we're concerned that--I mean, we don't necessarily know whether in fact there are no impacts or whether there are some impacts. I think that's yet to be determined. I think there are some areas in the county that we feel could be more affected than others, obviously. We're attempting to sort out effects.

The other thing is that the numbers, you have to put the numbers in the context of an area. And when I moved to Nevada, they estimated we have enough water until the year 2026. Up until about two years ago, they were down to the year 2000. And I think you must realize while the numbers may not be great, if you're considering infrastructure and

potential effects, they may--just the old proverbial straw on the camel's back.

So you need to take that into consideration when you look at numbers.

DR. BREWER: Excuse me, Mr. Bechtel.

MR. BECHTEL: Yeah.

DR. BREWER: About five minutes, please.

MR. BECHTEL: Oh, sure. I'll speed up, then, here.

I wanted to kind of close. We are very concerned about the fact that the Indian Springs area might be affected by this project. I've got a little--Indian Springs is there. It's an active community. It's about 45 miles from Yucca Mountain. Well, it's about halfway between Yucca Mountain and the city of Las Vegas. It has in the past been tied into test site activities and activities with the Air Force. It is currently--it's an unincorporated town of Clark County. So it is actually part of Clark County government.

What we felt we needed to do, we felt, obviously, we needed to do an impact study of that area, which we are currently working on. This, by the way, is base case that we produced in 1992, and we're using that as a basis for, you know, trying to define impact.

But what we're attempting to do in looking at this area is use it as kind of a prototype or a pilot study. And the thought was that because Clark County is so big, we can

kind of get our arms around Indian Springs. And we hopefully--because we can look at all effects from that, that we might be able to learn something from that that we can apply to a larger area.

So this is what I had hoped to have completed by the time of this meeting, but, unfortunately, it didn't work out. And as I indicated, the findings and recommendations will provide guidance to us. Obviously, it's a smaller area. We're not going to be able to hit everything, but if we can apply that to a larger area, I think it's important.

The other thing we're looking at is the what we call the Craig Road Corridor Study, and this is actually being funded by the State to the city of North Las Vegas, but we're working with North Las Vegas on this as well. Just the normal planning activities.

But what this is, Craig Road is actually a State road. That is one of the routes that is being used currently for low-level waste shipments, although I think the publicity, I don't think they're doing it quite as much anymore. But just to give you an idea of just how that area --in the last four yours, that red area are parcels that have been developed. And while this is currently--we actually have a videotape of this area of four years ago that will show you what it was like and what it's like today.

So it's remarkable what the changes have been. So

this is kind of a preemptive strike I guess. We're hoping that by some of the stuff we're doing, we can say, hey, big guys, this isn't a good idea to do this.

So while we're looking at defining impacts, we're also looking at attempting to mitigate or preventive future impacts.

That's all I had. And if you all have any questions, I'd be glad too--

DR. BREWER: We can hold the questions until everyone has had a chance.

MR. BECHTEL: Oh, sure, that's fine.

DR. BREWER: And then there will be an opportunity for discussion.

Thank you very much, Mr. Bechtel.

Our next panelist is Mike Baughman, who represents a number of smaller counties that are not physically located adjacent to the site. The counties are Inyo, Esmeralda, Mineral, Churchill, Lander, Eureka, White Pine and Lincoln Counties. Mr. Baughman is the president of Intertech Services.

MR. BAUGHMAN: Thank you, Dr. Brewer, and members of the panel.

And I would clarify for anyone in the audience that I am representing all of these counties today, seven counties. However, I do not do consulting work for all of

those counties. We have done work for several of the counties, and I think it's important just to note that out or point that out.

I would also suggest for those members of the audience that--there's a map of Clark County here. We can't have this here.

A couple of observations: I'm going to work from the left-hand side of the room, your left. We have a Congress that has swung heavily to the right, and I thought a little balance today might be appropriate after you've sat through these as well.

I would note that if anybody goes to sleep during my presentation--I am very convinced that Nye County is serious about tourism developing in their county. If you are caught sleeping, you will be woken, asked to complete a survey on your spending habits last night. We're convinced that you were out partaking in the wildlife and some of the various institutions in the county, and we would like to know how you spent your money. Don't fall asleep.

The topics that I'm going to go through tonight, and you should have handouts, some of you, the types of standard effects, standard socioeconomic impacts, the issues important to standard socioeconomic impact assessment, the overview of rural non-situs county socioeconomic impact assessment. And finally, we'll give you some recommendations

for socioeconomic impact assessment activities.

And I would also note that this map over here, which is very difficult for those of you in the back to read, is really not intended for you to see, but rather to allow your eyes to get adjusted at this late hour.

Okay. We've highlighted the title again of the counties as the rural non-situs counties and their views on standard socioeconomic impacts.

I'd like to really clarify the notion of rural non-situs counties. These are counties, obviously, that do not host the Yucca Mountain repository site and are rural in nature. Obviously, Clark County is a very urban area, although much of the land area in small communities in Clark would be considered rural.

You should not, though, be misled to believe that these other communities or counties do not host certain components or prospectively host certain components of the repository program. Obviously, repository without transportation corridors will be rather non-functioning.

And so we imagine that some of these counties that you're looking at, and you basically have up on the overhead here the various counties that are listed on the cover. You can see these dark lines represent, which you can't distinguish either, rail transportation alternatives identified by the Department of Energy, highway

transportation alternatives identified by the State of Nevada, and/or existing rail and highway infrastructure in the state.

So we're looking at the possibility of obviously new rail infrastructure, or perhaps passing through some of these counties. We may be looking at other kinds of facilities, crew change activities that might occur out there. We may be looking at barrow pits and other kinds of things that are required to support the operations out at Yucca Mountain.

Okay. The types of standard socioeconomic impacts that we'd like you to perhaps consider: The notion of standard and special effects I think as well is a little muddied. We like to think of these as project-induced standard effects and risk-induced standard effects. They all result, or the impacts all result ultimately in some kind of classical standard effect. Changes in employment, changes in income, you know, those kinds of things are really what typically we're concerned about on the standard side, changes in demand for public facilities and services.

There are some that are clearly directly related to the project. I think there are some that are less clearly related to the project and may be more remnants of other kinds of related or maybe unrelated activities. I think of media amplification, for example, which--of risk, which I

know we're not talking about perceived risk, so I'll leave it at that.

But these are the areas we're looking at. We also need to think about the standard effects over different phases of project. Obviously, we have repository characterization, repository construction, operation, closure, decommissioning, transportation system construction, operation and decommissioning. I threw in waste retrieval down here under risk induced standard effects. Obviously, waste retrieval is a project activity and could have project-induced standard effects as well.

Then, also, some of the counties have looked at the notion of thinking about impacts relative to the probability of their occurring and also the degree of consequence that might result as a way to try and prioritize where should we be really focusing our efforts and understanding those impacts and how we might mitigate those.

Okay. And what follows, then, in your handout--and we've basically defined these as high probability/high consequence, high probability/low consequence, low probability/high consequence, and low probability/low consequence.

This next several pages in your handout, then, provides you with some actual thinking that has developed out of the Esmeralda County Repository Program. I would note

that I think that the characterization that you see here is probably quite typical for these rural non-situs counties that are looking largely at transportation, some of these--and off-site related facilities, and also are historically those communities which have been "the down-winders." They have been affected over the years by off-site radiological exposure from weapons tests, and are concerned about the off-site exposure consequences of operations at Yucca Mountain.

I would like to as we move through these--and I'm not going to go through these on great detail. You can look at them, ask me questions if you like. But if we look at just this area here under site characterization, low probability and stigmatization of the local area, which you probably can't read very well--it shows up, good. Low probability of occurrence, and a low degree of consequence during site characterization. Esmeralda County is not the situs county. We would not expect that to be significant.

However, if we move to transportation system construction, the transportation infrastructure, both identified highway routes and prospective rail routes tend to converge in Esmeralda County, and you can see that we would imagine, then, that the stigmatization during construction might again have a low probability of occurring. However, it would probably have a high degree of consequence, and because largely now we're moving the impacts into their area. But we

haven't started shipping anything yet. Okay. We're thinking about shipping. We're preparing ourselves to ship. And so that stigmatization is a concern.

And if you look at some of the other types of impacts, you'll see similar kinds of movements.

When we get to transportation system operations, following the same example. Stigmatization of the local area now is a high probability, high consequence type of effect.

And so what this allows the counties to do, then, those that have considered the impacts in this way, is to begin to think about when should I be worrying about what types of impacts.

And I can suggest to you that the counties--those counties that have gone through this exercise are beginning to use this as a way to prioritize their own impact assessment activities.

Let me jump ahead to another slide now, which is actually Page 9 in your handout.

This starts to get at, then, some of the issues that the rural counties, rural non-situs counties, would believe to be important for consideration during the socioeconomic impact assessment.

The first issue is the significance of impacts. The concept of relative versus absolute extent of the consequence is I think very important. You've seen a lot of

statistics today. It would suggest to us that, you know, perhaps in the metropolitan area of Clark County, the degree of consequence or the absolute number of workers coming into the area may be quite large. The relative degree of impact may be very, very small.

On the other hand, if you look at a perhaps rural area that's confronted with a construction work force from a rail line, the absolute number of workers coming into that community to support that activity may be quite small, but the relative degree of impact could be very high.

And what we're seeing in DOE's program is largely a focus upon the large numbers in the metropolitan area and knowing a lot of those. And we saw today, we have a lot of information about that. We're not so sure that we understand as much about the smaller absolute numbers, but higher relative consequences that might occur in the rural areas. We think some work needs to occur in that area.

This table gives you--well, let me just note, the other two, then, under significance of impact would be the assimilative capacity of the impact receptor. You know, this is the small community confirmed with you all today trying to serve lunch, or trying to deal with sewage outflow, or who knows what. But it's a small community who's perhaps at the margin of design capacity for infrastructure, who is all confronted with a large population influx, and each

additional unit, then, creates a significant, perhaps, degree of consequence for them. And they have the inability to assimilate that. It may be that they may have actual physical constraints, as well as financial constraints.

The degree of existing economic and social diversity; these rural communities in Nevada are not very well economically diversified typically, and they are not typically very socially diversified. We have oftentimes a very homogeneous population, and we have a rather narrow economic base in many cases.

You contrast it with a metropolitan area, such as Las Vegas, and you can bring in a thousand new workers or a hundred new workers from all over different walks of life, and they fit right in. And the economic sectors that they're employed in kind of fit right in.

You come into a rural area, and you impose 50 new workers from outside the area who have a completely different perspective on life, perhaps, and it can have a dramatic change on kind of the social fabric of that community.

And we're concerned about over time how those kinds of things might happen. And someone earlier talked about the boom/bust literature, and I think you will find these kinds of consequences showing up in that literature.

So we need to be worried about the degree of existing economic and social diversity in terms of impacts.

This table just points out I think numerically the relative degree of importance of NTS, and this is total NTS employment versus just Yucca Mountain. But to show the degree of importance of NTS employment to three rural counties, and we have Nye County in here as well, and this was actually taken out of some work for another project. But, and you compare that to Clark County, and again, the absolute numbers are rather large in Clark County, but the relative degree of significance is very small. And you contrast that to the rural areas, where compared to Clark, the absolute numbers are rather small, but the relative degree of influence of NTS is very great.

So if we add workers or take workers away as a result of NTS activities, the real burden of impact is going to fall on some of these rural areas, and we need to be focusing on that if we're going to minimize these impacts.

Okay. Other issues that need to be addressed or that we're concerned about and that the counties are looking at: Distribution equity; the concentration of employment in spending versus, and this should say versus the concentration of risk.

For the past, you know, I don't know, 35, 40 years or so, the concentration of employment in spending relative to the NTS has occurred in the Clark County metropolitan area, the Las Vegas metropolitan area.

The large burden of risk, the concentration of risk, has been to Nye County, obviously, which is the host county for the weapons tests themselves, and for those areas down-wind, and, obviously, they're not just in Nevada, but you have other areas.

DOE has for years bussed workers from southern Nevada up into Nye County to work, which has, I think, exacerbated this. I can tell you that many of the areas in the state, the rural areas, in commenting on DOE's NTS site or EIS, have encouraged the Department of Energy to think about that as we cast the role of NTS for the next 30 years, which is really what the NTS site, what the EIS is all about; we need to think about a different way to manage the distribution the risks and benefits associated with that economic activity, and clearly there are options to do that.

And I would just suggest today for the group that is embarking upon a multi-million dollar effort to build a new NVO center in Las Vegas to serve NTS for the next 30 years, when they could have made a decision to locate that closer to the site, makes a whole lot of sense. And I, as an observer, don't understand other than just simple political kinds of things, which are obviously important, why those kinds of decisions aren't thought out better and aren't made in terms of better distributing benefits and risks.

We will be concerned about that in the counties,

and I can assure you that in terms of risk management, that's an important issue.

The lag between the onset of impact and availability of mitigation; this is really important. As you've seen, and as we understand DOE's Socioeconomic Program, it is largely a monitoring-driven program. Nothing wrong with monitoring impacts. Our concern, though, is, is that it is a largely descriptive type of an activity rather than a prescriptive one--or, I'm sorry, predictive, such that we may have to endure the impact for some unspecified period of time before we have identified that it's occurring, and then, in fact, put it in place under appropriate mitigation measures.

And that lag, particularly in a small economy where they don't have a lot of under-utilized capacity perhaps or capability to manage impact, can be very, very significant. And by the time we get around to mitigating that, we could have actually made some poor decisions locally or reacted based upon our inability to respond and be saddled with the longer term kind of consequences of that.

Somehow we need to figure out how to be much more proactive in terms of estimating impacts and being sure that we've got appropriate mitigation measures in effect or in place prior to that being actually incurred in an area.

Finally, the treatment of uncertainty; I think it's

been touched on before, the degree and timing of employment and spending and the spatial allocation of impacts.

We are here today talking about a program, which as we sit today, is evolving. And much of what we may have talked about today, six months from now may be somewhat irrelevant. We're talking about, perhaps, a whole new program at Yucca Mountain.

So we need to somehow figure out how to tie that down. If we can't tie it down, then I think the Department needs to be much more willing to think about analyzing a variety of possible futures that hopefully encompass some of these or bound some of these possible alternatives.

DR. BREWER: Mr. Baughman?

MR. BAUGHMAN: Yes.

DR. BREWER: Could you reach closure?

MR. BAUGHMAN: Yes.

DR. BREWER: About three more minutes, please.

MR. BAUGHMAN: Okay. The kinds of things that local areas are doing, they are--in most cases are conducting baseline assessments of economic, demographic and fiscal conditions. They are involving characterization, socioeconomic impacts. The matrices that you have in your report suggest some of that work. Finally, they are involved in the development of economic, demographic and fiscal projection capabilities, and there is different levels of

work going on in different counties. They are all moving I think generally in these directions.

The counties are--I think there's an overriding desire to develop economic, demographic, fiscal projection models, which are capable to be used by county staff so that they can do a lot of "what if" kinds of analyses. And then a very important area of work that the counties are doing is impact mitigation.

I will just show you, for example, in terms of results. Here is a slide. These rural counties are using GIS capabilities. This is a slide which shows you radiuses. I believe these are 30-mile radiuses of State Parks located in Lincoln County, and what it does, basically, it's going to show you for along their main line, Union Pacific Rail Line, which segments of the rail line encompass the most parks.

And so if you have an accent potentially in that particular segment, and in the case of this segment right here, you're within 30 miles of all five State Parks. And Lincoln County has the greatest or the largest concentration of State Parks in the state, and there are obviously potential impacts to that.

This is a view graph, which shows you a spreadsheet-based template. This is an economic, demographic model for Lincoln County, Nevada, with an actual scenario that was plugged in. This is a $500,000 loss in tourism

visitation in Lincoln County with the proportion that's spent locally, then cranked through various economic sectors, and we come out the other end with a loss of employment, population and housing.

This is done on a personal computer, very easy to use, okay? And that's the objective of some of these rural programs.

Let me close, then, with some recommendations.

The Department I believe and the rural counties have all reviewed this. They believe it should become proactive rather than reactive. I'm not sure the monitoring approach is going to fit this bill. We would hope that they are developing capabilities to anticipate impacts well in advance so that we can be sure we've got mitigation measures in place.

The DOE, as it's been asserted earlier, should utilize methods and results derived by affected units of local government.

I would note here that the REMI model that's being used by DOE is really inadequate for use in the rural areas. If you crank out a REMI projection for Lincoln County, you'll get a matrix with a lot of zeros on it. It's very insensitive to the rather narrow economic and simple economic basis in these areas.

The DOE analysis should be designed and undertaken

to support decisions regarding appropriate mitigation, rather than simply to comply with regulatory requirements. We are concerned that there is a possibility we will go through socioeconomic impact assessments simply to fill pages in an EIS. And rather, what we want to have done is an assessment that will allow us to be sure that we can manage potential impacts and conceivably manage those prior to their occurring, or be prepared to do that so we can mitigate or minimize them.

It should be motivated by a desire to get to the point of arguing the meaning of results rather than getting stuck on arguing methods. And all of us know that are involved in various kinds of analytical work that if we worry about and get hung up on your approach versus my approach, and never get around to talking about what do these impacts-- what do these numbers mean, is this an important impact, or is it not, we'll never get around to mitigating. And we need to move beyond methods. And it ties back to using local things.

Finally, the DOE must consider contingent possibilities. I've listed some here. If we don't know what the program is going to be like 12 months from now or three years from now, then we ought to kind of imagine what those possibilities are, be sure that our analyses include those kinds of scenarios, such that if they occur, we are better

prepared.

Thank you.

DR. BREWER: Thank you, Mr. Baughman.

Now, we next turn to final panelist, Mr. Ian Zabarte, who represents the Western Shoshone National Council.

I should point out a couple of things, that the viewpoints of several Native American groups are quite different. Mr. Zabarte is not speaking for all Native Americans. I was also reminded by one of the staff that you had actually spoken to the Board before I came on sometime ago when we started our socioeconomic work, probably in '89 or '90, somewhere in that time frame.

So there's a historical reason for having you here, and we welcome you, Mr. Zabarte.

MR. ZABARTE: Thank you. Is this speaker working?

DR. BREWER: Yes. Just get closer to it. That's fine.

MR. ZABARTE: Is that a little better?

DR. BREWER: That's better.

MR. ZABARTE: I had asked one of our spiritual leaders to come here, but he couldn't make it. I thought it would be good for the Board to have a spiritual perspective of what's happening out here.

I don't know if anyone remembers the commercial a

few years back of Iron Eyes Cody sitting on the horse crying, having that despair and grief about what's happening. Well, that's basically how we are out here, the feeling of futility, of having our lives destroyed right before our eyes. And it's projects like this which are doing that.

I recently saw a cartoon about a congressman pointing at some Mexican family saying, "We have to take our country back from these illegal aliens." You know, what's the problem with illegal aliens? You know they--I guess they take up a lot of resources, social welfare programs, and take some of the economic livelihood away from the communities which they go to.

Well, you know, our Council got to thinking, what's the difference in our perspective of those illegal aliens coming from Mexico or Cuba than the way we look at every other American. And we still don't understand what the difference is. Americans are illegal aliens in our country.

The DOE has explained the progress of its Socioeconomic Program, and out of that, there are several inter-related processes that are to be used; consultation, communication, coordination and mitigation.

My office has been funded to participate in the project since 1987, and that funding has allowed us to do a little more than monitor what's been going on at Yucca Mountain and voice our concerns in a non-technical manner.

We have no staff, we have no researchers, we have no funding, but we try to understand the project and find out where we fit into it, and we understand that it is affecting us. There's no doubt that the Western Shoshone people are affected, and there are very few Western Shoshone, or Native Americans for that matter, who understand what their right to participate in the project is or what it should be.

At this point, we're what, about 13 years since this program began? I can't recall, or don't know of any time where the Department of Energy went to an Indian reservation--I'm talking about a DOE official going to an Indian reservation and meeting face-to-face with the Tribal Council or Tribal Chairman of that reservation. And that's--when we define consultation, that's what a Native American's view of what consultation is.

We live in rural areas with high unemployment and limited business opportunities. The travel operations are largely funded by the Bureau of Indian Affairs, and they deal mainly with the distribution of social welfare programs on the reservation. There's no additional money for other situations which might come up that are outside of the reservation's boundaries. I guess we were intended to be put on the reservation and left there to rot and die.

Unfortunately, or fortunately, we're not rotting and dying, and we still have interests that are outside of

the reservation's boundaries.

But let's assume that consultation necessitates the Department of Energy to travel to the reservation to meet face-to-face with the Tribe. That hasn't happened. Because the level of sophistication on most reservations lags behind that of mainstream America, huge amounts of paperwork which end up on the travel chairman's desk don't get addressed. They may not even get opened.

The Tribe doesn't have the funding to hire somebody to monitor the Department of Energy correspondence, and communication necessarily requires that those people receiving the message also possess the same equipment or ability of the transmitter in order to understand the message which is sent.

Before I came to work on this project, I was interested in the cultural resource studies which the Department of Energy was conducting at Yucca Mountain. But I didn't have a full understanding of what was happening. I thought it was dealing with the Nevada test site. Imagine my surprise when I found out that they were dealing with Yucca Mountain. I didn't even know there was a Yucca Mountain project going on. And basically, that is how most of our people felt when they started becoming aware of this project.

The people that were part of the cultural resource study dealing with Yucca Mountain thought it was for the

Nevada test site. We just didn't know. And as things go on, we still don't know.

The work of the Tribal Councils is largely to carry out the social welfare programs and the businesses of the Tribe, if there are any, and I speak mainly of the Western Shoshone communities and the Timbisha Shoshone in California.

The reservation lands are a small portion, like a needle in a haystack in terms of what Western Shoshone original occupancy area was. The Western Shoshone treaty territory covers about 100,000 square miles from Twin Falls, Idaho, into southern California. That's about half the state of Nevada, about five million acres in California.

With that much territory to cover, this is just one of the many issues that we're concerned about. It's certainly a significant one. For the Tribes, even on their small reservations, without any economic base or income, they're concerned about this project, but they're wondering, you know, whether they're going to have the ability or funding to be involved. They're wondering how they can have effective and meaningful participation and receive respect without the capacity or the funding to allow them to effectively communicate their concerns.

They need technical and financial assistance to address their basic concerns. The Department of Energy has been telling us for the last couple of years that, yeah,

they'll make some funding available so that we can have some meaningful participation, and it's just turning out to be a bunch of rhetoric that doesn't go anywhere for us. We waste our time going to meetings with the Department of Energy in Washington and expressing our concern, our despair. You know, I just hate going to gripe sessions, and I hate griping, and that's what it feels like I'm doing all the time.

In the meantime, we're worried about how this project will affect our religion, our beliefs and our values. An anthropologist might say that we're like anybody else, that we go to McDonald's and we shop at Wal-Mart. And I guess we could fit into American Society. We're Americanized. I guess the difference is, is that if you take away the Wal-Mart and the McDonald's, I could live on Yucca Mountain. I can live in this area. Our Tribe will survive in this area. I couldn't say that about Americans.

I'm not suggesting that we return to a romantic time which has passed. I'm saying that we're being taught to take ourselves for granted simply because we don't have the opportunity to live the way we once did. You know, I used to think that many people possess the knowledge that I have about Yucca Mountain, and I guess when I look around at the Tribe, I see that it is there. There's a lot of knowledge there. But then I looked at everyone else, and I assumed

that they had that, too.

I assumed everyone in this room could live out in our country over here, or that they have the detailed information about what's happening in this area, where the springs are, what's the condition of the wildlife. I realize that most of you people don't, and you can't, because you don't have the teachers that have been around living in this area all their lives where the information about the animals is passed on from one generation to another.

You know, I assume that most Americans are religious, since religion is one of the foundations of America. I'm not religious. I don't go to church. I spent five years in a Catholic boarding school, so I know about the book religion, but, you know, I'm not religious in that way. I live a spiritual way of life, and that spiritual way of life is written in the mountains. It's written in the springs. It's written on the backs of the deer and the antelope that we eat, and it's written where our ancestors are buried.

Our belief about what is appropriate, what's an appropriate use, is based upon thousands of years of knowledge and understanding of this country, not some other country someplace else. Who we are is this country. It is this intuition which tells the Tribe that Yucca Mountain is bad. This intuition comes--or this Tribal viewpoint is

derived from a philosophy having historical roots extending back tens of thousands of years. This is a kind of geological perspective, one that regards modern man as infants occupying a short pulse of time in a long span of world history.

The Board asked me what areas do I believe that DOE should examine as part of its Socioeconomic Analysis Program. I think the Department of Energy should develop a Native American component of its socioeconomic work to find out exactly what impacts this project is having on the Native Americans. This project should not continue if it contributes to the destruction of a people. Projects like this and the Nevada test site are destroying our people. And if you ask me, I think that we just can't stand it anymore.

My question of the Department of Energy is, what is the official position of the Tribal Councils which are in Nevada? What is their position? A very simple question. Put it in writing. Tell me what it is. I'd just like to know what it is.

The Board also asked what substantive results of my own efforts in this area do you believe the Board should understand?

I have a paper here which lays out some of the issues which are important to the Western Shoshone, including treaty rights, sovereignty, United States Indian policy.

It's a good reference document, and I offer it to the Board. I only have one copy, since we don't have any funding to make more copies available. I didn't have the funding to get our spiritual leader down here.

I think that we'd like to invite the Board to come to a reservation sometime with the Western Shoshone, the National Council which I represent. We have several reservations which make our National Council. Since you're here, I want to welcome you to Western Shoshone country.

And I can't help but comment about your comment earlier Mr. Barrett about the mountain being created by God for us to waste any way we want. That is a slap in the face to me, and I'm offended by that. And I think most of our people would be offended by that, and I don't know if the council would welcome you to our country.

Thank you.

DR. BREWER: Thank you, Mr. Zabarte. Let me respond to your invitation. We're coming, the panels on performance assessment, environment and public health will be in Las Vegas to look at risk perception on the 18th and 19th of May. If you would work with us, we'll visit whatever reservation you want us to sometime around those dates.

MR. ZABARTE: Okay.

DR. BREWER: All right. At this point, the plan was to open up the panel to any kinds of questions, concerns

and issues and so on to members here in the audience. I have one individual, Charles Malone, from the State of Nevada who has signed up. So, Charlie, would you take the floor, please?

We have between now and 5:30, and then we're going to break, and then the Board will return to this place at 7 o'clock, again, for the purpose of hearing whatever it is the citizens and others who have an interest in this matter hear what you have to say. Charles?

MR. MALONE: Thank you. My name is Charlie Malone, and I'm working with the Nevada State Nuclear Waste Project Office.

I've got a few comments that I'd like to make and to take us back to this morning, some of the early sessions with Wendy Dixon, Ron Green, commenting on the college program at the site and preparations for the EIS and things of that sort, just comments that I think we might want to keep in mind.

The first one has to do with authentication of data results, things of that sort, and professionalism in the ecosystem and the ecosystem program and the environmental program for the Yucca Mountain project.

And we hear comments like, I think Mr. Green said little evidence of impacts have been observed at the site from site characterization, other than direct loss of

habitat. Another comment, DOE is determined that the appropriate information is being collected for assisting impacts from site characterization activities, and a vegetation-ecosystem model developed for thermal loading, ecosystems can be used to identify and evaluate parameters.

And the reason I bring these issues up in the context of authentication and professionalism is that it's fine and appropriate that those kind of comments are made in a hearing like this or a meeting like this today. What I would encourage the DOE to do, and I hope the Board might consider that, too, is to better document their findings. They're way behind on their annual reports or their environmental studies and results. We've heard DOE say for several years that the site characterization studies have caused no impacts that they've been able to determine. Yet, we have not seen the data and the analyses that they've collected and used to draw those kind of conclusions.

In terms of authentication, that's what I'm speaking to, is to get professional papers out, or to get reports out, with standing disciplinary solid reports that put the data and the analyses for peer review groups like State, like my office, to reach our own conclusions about those matters.

And as far as professionalism goes, the staff on the ecosystem environmental program I think need to pay more

attention to presenting the results of their studies and the spending of the funds and so forth for these studies and to professional papers that show the public and show the interested scientific community the kinds of results that they've got. They do some very good work, for example, in reclamation and on desert tortoise studies, and I think perhaps some papers have been presented on the desert tortoise studies at professional meetings, and I applaud that and would like to see and encourage DOE to do more of that.

The second point, I was hoping to hear something said this morning in the context of the EIS, about the changing Federal policies that's been happening in the past couple years on ecosystem-based management. Now, most agencies, and I have written I think all of the agencies that have to do with land management, including DOE, have policies in place, or almost in place, for adopting ecosystem-based management practices. There was a study chaired by the vice president, I can't remember the name of it, but it had to do with this re-inventing the government idea, and out of that came an inter-agency working group in Washington, D. C., to address the issue of ecosystem management and the application of ecosystem-based management to Federal resources and facilities.

Now, when I speak of ecosystems in this context, we're talking about natural resources, as well as facilities

and infrastructure, the NTS for example, the EIS, that is underway there. We've had scoping. We've seen how DOE plans to implement the ecosystem management concept and the EIS implementation plan. We also know that in that program for the NTS EIS, DOE is adopting a resource management concept and going to actually develop a long-term resource management plan similar to what BLM and some of the other agencies have been doing in the past, but not just stopping in natural resources, but building facilities and infrastructure into that managing--together.

Now, the ecosystem-based management concept embraces that, and within the Clinton Administration and the Federal Government, we see developing concepts of sustainability, bio-diversity sustained ability and economics sustained ability, and for those two things to work together.

And knowing that the NTS EIS is moving in that direction, I would have liked to have heard this morning that the Yucca Mountain EIS is doing that. In fact, I would have liked to have heard something about the Yucca Mountain EIS being integrated with the NTS EIS and how the two are going to be managed together. Those are some things we did not hear here.

Now, another thing that we might be concerned about is coordination with the EIS and integrating the Yucca Mountain data into it, and the concept of the resource

management planning.

As you get on into that, one of the things that I really was pleased to hear this morning is the first signal we heard was I think maybe from Wendy Dixon about the 20 to 800 year recovery period for the vegetation. Now, that was a signal to me that they are thinking of ecosystem management, or at least that complimentary concept there of long-term ecosystems and long-term impacts and so forth. And then later on we've heard Ms. Dixon say something about the unique characteristics of this EIS because it had to address things over a thousand year period--thousands of years, and that's true.

So one is encouraged to hear of those long-range concepts. In past years when one would ask, well, how long into the future is EIS going to go, one would be told by DOE that it would stop when the operation of the repository stopped. And then you'd ask a question about, well, what about long-term health effects over 10,000 years and so forth, and the answer would be, that will be addressed in the SAR, the Safety Analysis Report.

I don't think we've heard anything this morning about the Safety Analysis Report, although it might have come up at one point. But we did hear a comment about--let's see, I think Ms. Dixon said, "The EIS will focus on the environmental impacts and will not duplicate the detailed

license application assessment of containment waste isolation."

Well, that's a little bit in conflict, it seems to me, with the EIS covering thousands of years. The EIS does, indeed, need to address a period of at least 10,000 years and what the long range health and environmental consequences of permanent storage of radioactive waste will have. The SAR needs to do that, and the license support documents need to do that.

So there has to be some duplication in my view, or all of these have to be orchestrated in a very interactive and productive manner. These are the kinds of things we will be looking for in the future at scoping hearings and hopefully to hear them discussed in forums such as this.

Thank you.

DR. BREWER: Thank you, Mr. Malone.

Any one of the panel members care to respond to Mr. Malone's statement? Yes, Wendy Dixon?

MS. DIXON: Okay. I'm not sure if I can remember every point that Mr. Malone was referring to, but one issue he brought up was ecosystem policy. The Secretary right now has been working on an ecosystem policy. We have not seen it at this particular point in time. If something comes down from the Secretarial Office that includes a policy that we are not implementing at this point, most certainly we will be

looking at it, and if there's holes there, those holes will be filled in.

And, you know, we have not indicated that our data-gathering effort is complete, and I think there were a number of statements made this morning that there are areas, you know, that we are going to be picking up additional information in. We haven't gone through scoping yet. We're working at looking at data needs as it relates to potential models.

So the whole entire program, or what might actually be the entire program, is not at this point in time complete, but we do feel like we have a good handle on what's going on at that site through our monitoring efforts, and we have good data results from those.

There was a question there as it related to integration with the NTS EIS. We are tuned in and tied into the NTS EIS.

I made a comment in the course of my presentation that other environmental assessments, which certainly include other EIS, and I think I referenced the NTS EIS, as well as the INEL EIS as a foreign research reactor EIS that's out there right now, but one of the things that we will be doing is looking at, and we are doing right now, other existing NEPA documents to understand what they're saying and referencing, and also to, as appropriate, incorporate by

reference work what's already been done that applies to our program, as well as other programs.

There was a comment made on bio-diversity. That will be an issue that will be discussed in our Environmental Impact Statement.

And with respect to the comment that was made on not duplicating the license application, I'd like to clarify what was intended by that statement. What I was trying to be clear about was that there are different drivers for each of the documents or analyses that need to be done; the CEQ regs, the 960 regs, the 60 regs, and they are different, and they lead those analyses in different directions.

What I did not want to indicate was that there wasn't going to be information that will be in the license application that will also be in the Environmental Impact Statement.

So there will be subsets of that data that will be part of the license application that you will also find in the Environmental Impact Statement. So I apologize if that was confusing.

DR. BREWER: Okay. Are there questions from the audience, or a follow-up on this? Yes, Mr. Green?

For the purposes of the record, identify yourself and your organization again.

MR. GREEN: Ron Green with EG & G. I'd just like

to respond to when you're talking about publication and results real quick.

That's a very timely comment. We have presented five professional papers at the Desert Tortoise Council, as you alluded to. We have presented professional papers at reclamation meets on some of the results.

One of the reasons we haven't published and analyzed as much data to date is you can't do much with two to three years of data here, and I think six years of monitoring data, we feel that we finally have got enough data that we can analyze the data. If you remember the precipitation graph that Wendy put on the view graph this morning, we live in a very random environment, or not chaotic, but a very variable environment here, and it takes a number of years before you can get a data set that you can sufficiently analyze. And I think we're at that point.

And we are now in the process of modifying our program. We've got three years of before disturbance data and three years post-disturbance data, and that's what we're going to be moving into this year and the following years, producing reports.

DR. BREWER: Good. Thank you very much.

Any other questions from the audience for our panel?

Would you identify yourself, please?

MS. DEVLON: I'm Sally Devlon from Pahrump, and I want to welcome everybody and thank you all for coming.

But I would be remiss if I didn't castigate the Board a little bit, and I have to get Jeff in there for the State of Nevada. What I'm going to talk about is 160. And our problems there is everybody will be using 160 if anything ever happened to 95, and they are widening it now. Nobody bothers to listen to Pahrump or Nye County because as you know, we have one assemblyman and one State senator representing seven counties and two-thirds of the land mass of Nevada.

But even so, they will not look at our traffic count, our growth in population, our entry to Death Valley and all the rest of it. And that highway will not be four lanes. It will be the same mess as it is in Clark County.

And from the dimensions that I understand, it's only eight to twelve inches on each side to make it four lanes. And I am concerned about hazardous waste, forget about radioactive waste going through there.

And remember what I said, if anything happened to 95, that would be the highway you'd have to use to get over there.

The other thing that I learned, and I was appalled that NDOT and DOT and DOE and DOD and NRC and EPA do not communicate. And I asked some wonderful--you've got some

acronyms? I can give them to you. Believe me, I've read them.

And it is, to me, a really big sad event that you're not communicating on these things, particularly in transportation. I hope everybody while they are in Beatty have the opportunity to see the DOT brilliant computer information, and it will show you exactly the hazards on these two particular roads.

So I hope that the Board will consider this, and maybe you'll talk to one another, and I hope, Jeff, you from the State, will talk to the governor, since we are barely represented. And I think it's rather important that our safety--and especially since that highway is being built now and you're blowing up the mountain.

Think in terms of just this year. Let's not wait until next May.

Thank you.

DR. BREWER: Thank you very much. Anyone care to touch that? Just as I thought.

Anyone else have a comment, question for the assembled panel? Yes, Max. Please identify yourself again.

MR. BLANCHARD: I'm Max Blanchard. These days I represent a concerned citizen looking at the repository from the side of what would I like to see in front of me to convince me that I feel comfortable as a citizen.

And I would like to ask the Board with respect to their intent whether or not they're inclined to pursue what I sense is a potential Catch-22 in the existing law, and it also exists in proposed Senate Bill 495, as they're written.

You may not agree that it's a Catch-22, but I sense that we're going in the direction that it might be in that as I understand the laws, and I'm no attorney, so I don't necessarily them correctly, but as I understand them, there's a situation where at the point in licensing if the repository program gets that far for NRC to grant a license to begin operating, the affected parties in the communities around the repository find themselves in a situation where there's no grant money being provided anymore, and there's no oversight money being provided anymore. But there is a provision in the law that says all that's terminated at this point of licensing, but there is impact assistance.

However, the thing that I think is a Catch-22 that I don't think I really recognized when I was trying to implement the law from a Federal side, is the forecast or the projections on the impacts have to be developed by models that are evolved during the EIS stage. And we've known for quite sometime that making socioeconomic projections over a 10-year period is possible, but it begins to stretch the limits.

And here we're talking about by the documents that

exist in the current program as its evolving, that the repository may be operating for periods as long as 100 years.

Second, there are perturbations on that repository operation for a 100-year period, which could include retrieval for either emergency purposes or retrieval because the country decides it wants to reprocess.

Now, if you throw those two perturbations into a 100-year projection for socioeconomic impacts, it seems to me that the Catch-22 is, given the way the law is set up and the socioeconomic impacts have to evolve in time, that it's a Catch 22. The people can't possibly be right for more than a decade, and there's nothing in there for the local community to look at the longer term or the major perturbations associated with retrieval.

Now, I may be wrong in my reading and understanding of the process, and if you think I'm wrong, then please point out where I am. But if I'm not wrong, then I'm wondering whether or not the Board perceives this as a possible Catch-22. And it's unrealistic to drive a system based on only providing no grant money, or not providing grant money and not providing oversight money to the affected counties and making the projection of a satisfying potential socioeconomic impacts on impacts that are projected at that point in time where the repository license is granted when there's such a long operational life with so many perturbations that could

significantly change the way it would operate.

DR. BREWER: Okay. Let me not try to summarize the comment, but rather try to figure out who should be responding.

Wendy Dixon, would you like to try to answer that?

MS. DIXON: I thought clearly Max asked for the Board.

DR. BREWER: Yeah, I was doing my best not to be so clear. Bill Barnard, why don't you try?

MR. BARNARD: Bill Barnard, Board staff. We haven't directly addressed the issue, Max, but we're probably caught up in the same Catch-22 situation. We're slated to go out of existence one year after the repository starts operating.

MR. BLANCHARD: Well, I realize that, and so it sounds like there could be perceived to be a conflict of interest with respect to the Board issuing some statements with respect to that.

On the other hand, somebody has to, and if there are things that may be unworkable in the structure of the law, but just with respect to common sense projections, somehow it has to get out, and if the affected parties, the counties are screaming it, then it certainly looks like they're very colored and, you know, have only their own self-interest in mind. And another position taken by a third

party, which is an independent oversight Board like yourselves, could help clear the air on this.

DR. BREWER: Good. Thank you very much.

Anyone else care to respond?

Yes, now, Wendy Dixon.

MS. DIXON: Okay.

DR. BREWER: Where were you when we needed you?

MS. DIXON: But I'm not--I'm responding to a piece of Max's question.

DR. BREWER: All right.

MS. DIXON: And I guess this is just for clarification more than anything else.

DR. BREWER: Fine.

MS. DIXON: There is no one that argues with the fact that, and I think I mentioned it in my presentation, trying to deal with an EIS and looking at impacts or issues that go into the future as far as what we're going to be attempting to do, is most certainly a challenge. This will not be the first time it has been done because of what--BIS attempted to do that or has done it already. So there is at least one model out there for us to look to and, you know, get guidance from.

And I guess in the process of doing so, and this is where I have to turn back to some of the comments that were made by some of the county people, the NEPA CEQ regs do give

us some guidelines, and they're definitely challenged by the time frame, but they try to encourage us to stay away from gross speculation. I mean, you can come up with any kind of wild scenario you want to and include it into an analysis, but the CEQ regs basically guide us to deal with things that are reasonably foreseeable, supported by credible scientific evidence, not based on conjecture or speculation.

You know, so to the extent possible, and finally, based on theoretical approaches or research methods generally accepted and assigned to the community, which is where modeling comes in.

So there are some guidelines that are out there that have been provided to us to use. Most certainly, when we get to that point, there's going to be a variation in opinion as to what's reasonably foreseeable, you know, by one entity versus the other. But that's one of the challenges that we'll have to deal with.

The EIS will look at potential impacts that will come up with potential mitigations for those impacts. There's also another commitment in the Act that was referenced by some of the parties here, and that is that the counties and the State have a responsibility to pull together impact requests, too, based on their analyses, which might end up being different than what the EIS has to show.

DR. BREWER: Okay, very good. Are there additional

questions from the audience for the panel? Anyone else?

If not, I will turn the meeting back over to my chairman, John Cantlon, but first, just for the moment, in the interest of closure, to remind everyone that we are reconvening as a Board in this room at 7 o'clock tonight for the purposes of hearing any additional questions or comments.

What I'd like to do right now is to thank everyone for a very interesting, long, diverse day. Thank you very much for the preparation, and thank you very much for the information.

DR. CANTLON: You've said it all, and we're recessed.

(Whereupon, the meeting was in recess, to reconvene at 7:00 p.m., on Tuesday, January 10, 1995.)

E V E N I N G  S E S S I O N

DR. GARRY D. BREWER: It's just about 7:15. Would everyone please find a chair?

This is an opportunity for anyone who wants to, to come and ask questions or make presentations to the Board. We have posted the meeting in several places as lasting between 7:00 and 8:00. If no one is here, we will remain until 8 o'clock because we have to because they may show up at 7:45 or 7:55. So the recorder, Scott Ford, and the Chairman, myself, of the meeting, and any members of the Board who desire, any members of the audience who desire, we will be here until 8 o'clock.

Now, I'm calling the meeting officially to order a little bit late, but here we are. I'm now inviting anyone in the audience who wants to make a statement, ask questions, to participate, please come forward and do so.

No, that's John Cantlon.

(No response.)

All right. For the record, what I propose to do is that we will have our staff, Linda and Helen, watch as people come through the door, and if they want to make a comment, please let me know, and then I will kind of formally reconvene the meeting. But in the meantime, between now and

8 o'clock, feel free to do what you were doing before, which is good conversation with people you want to talk to.

If someone comes in and wants to make a presentation, I will formally reconstitute the meeting, okay? Thank you very much.

(Off the record.)

DR. BREWER: Ladies and gentlemen, we have reached 8:00 p.m. Is there anyone in the hall who would like to make a--please, we are at 8:00 p.m. Is there anyone in the hall who would like to make a statement, except John McKetta?

(No response.)

If not, I declare the meeting officially closed. Thank you all very much for coming.

(Whereupon, the meeting was closed.)