UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Title: **DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT - PUBLIC MEETING**

PART II

Location: **Russellville, Arkansas**

Date: **Tuesday, November 14, 2000**

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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DRAFT SUPPLEMENT ENVIRONMENTAL IMPACT STATEMENT

FOR THE ARKANSAS NUCLEAR ONE

LICENSE RENEWAL APPLICATION

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PUBLIC MEETING

Holiday Inn Russellville

Route 7 & I-40

Russellville, Arkansas

Tuesday, November 14, 2000

The above-entitled meeting commenced, pursuant to notice, at 7:00 p.m.

APPEARANCES:

CHIP CAMERON

BARRY ZALCMAN

CHRIS GRIMES

ROBERT PRATO

ANDREW KUGLER

THOMAS KENYON

On Behalf of PNNL:

EVA ECKERT HICKEY

On Behalf of ANO-1:

GARRY YOUNG

P R O C E E D I N G S

MR. CAMERON: Good evening, everybody; it's nice to see some familiar faces back from this afternoon. I'd like to welcome you to the evening session of the NRC meeting on the Draft Environmental Impact Statement on the license renewal application for Arkansas Nuclear One, Unit 1, and I think we're going to be referring to the facility throughout the night as ANO, Unit 1.

MR. GRIMES: ANO-1.

MR. CAMERON: Okay, ANO, Unit 1, or one. My name is Chip Cameron, and I'm the Special Counsel for Public Liaison at the Nuclear Regulatory Commission, and I'm going to be your facilitator for tonight. Before we get started with the NRC's presentations on the Draft Environmental Impact Statement, I'd just like to say three things, cover three items with you.

One is that the objectives, as you'll hear more from my colleagues tonight, the objectives are an effort to inform you about the findings in the Draft Environmental Impact Statement, and also, the status of license renewal at ANO-1. More importantly to hear any comments that you might have about what's in the Draft Environmental Impact Statement, and the NRC will be using those comments in the development of the final Environmental Impact Statement.

Format, we'd encourage you to be interactive with

the NRC staff. We have a number of presentations on various topics, and we'll stop after every so many of those and go out to you to see if there's any questions that you have or comments that you want to make. If you do want to talk tonight, just signal me and I'll bring you this talking stick and just give your name and affiliation, if appropriate, and I don't think we're going to be pressed for time in terms of having too many people who want to say things.

One of the things we like to do at these meetings is make sure that everybody has an opportunity to talk, but I don't think that we'll have to limit anybody to a certain amount of time tonight. And you'll be able to file written comments on the Draft Environmental Impact Statement, but we are here tonight to talk with you in person, and you may hear things tonight that will help you to prepare written comments or to hear what others in the community think about the Draft Environmental Impact Statement.

And I'm going to go over the agenda real quickly for you so you'll have an overview and also to introduce the NRC staff and also the scientists who are helping us with the environmental analysis at ANO-1. And the first person who's going to talk tonight is going to be Barry Zalcman, who is the section chief of the Generic Issues, Environmental, Financial and Rulemaking Branch at the NRC,

and Barry supervises the preparation of environmental impact statements on all the various license renewal applications that are coming into the NRC.

Next we're going to go to Chris Grimes, who's right here, and Chris is the branch chief of the License Renewal and Standardization Branch at the NRC. He's going to talk about what the NRC's mission is. Chris' branch integrates the safety evaluation that's one part of license renewal with the environmental review that comes out of the Generic Issues Branch and also integrates safety or inspection findings with that and makes a recommendation on to the Commission about what should be done with the license renewal application.

We're then going to go to Bob Prato, who's right here. He works for Chris in License Renewal and Standardization Branch, and he is the project manager on the safety evaluation for the ANO-1 license application, license renewal application. We're then going to shift back -- Bob will give you sort of the overview on license renewal, and then we're going to shift back to environmental issues and Mr. Tom Kenyon, who's the environmental project manager in the Generic Issues Branch -- he's the project manager for ANO, Unit 1, preparation of the environmental impact statement -- Tom is going to talk about the environmental review process, give you an overview on that.

And then we're going to get to the specifics of the Draft Environmental Impact Statement, and to present that to you we have Eva Hickey, who is over here on the end, and she's the task leader for the environmental review which is being done by the Pacific Northwest National Lab helping the NRC out on that.

And as part of that environmental review the NRC is also looking at something that's called postulated plant accidents, and we have Andrew Kugler right here from the NRC staff, also from the Generic Issues Branch, who's going to talk about the postulated accidents, and you'll see from the agenda that there's going to be questions and comments interspersed after these presentations.

We'll then come back to Tom Kenyon for a wrap-up, and if anybody has a formal statement that they'd like to read into the record, we'll provide for that at that time. Now I'm going to turn it over to Barry Zalcman to give us an overview. Barry.

MR. ZALCMAN: Thank you, Chip. Welcome. My name is Barry Zalcman; I am the section chief of the Environmental and Rulemaking Section inside the Generic Issues, Environmental, Financial and Rulemaking Branch. It's a big title but there's a number of activities that our staff is involved with. For those of you who are familiar with the utility market and the changes that are occurring

in terms of deregulation, it's our staff that also does the financial qualification reviews and funding insurance reviews as well.

But today we're going to talk about the environmental activities. My section includes environmental specialists; it also includes environmental project managers that participate in a team environment to look at the environmental issues. In addition we have the responsibilities for managing contracts, to gain access to certain technical expertise to round out the capabilities of the staff, and we manage those through contracts with National Laboratories. Pacific Northwest National Laboratories is the principal organization that we use to assist us in this environmental review.

Let me slip through the slides quickly. Both Chris and I are going to be talking at a very high level, and eventually the project managers will talk to you in greater detail on the process and the issues that we focused on in the review.

When we were here in April last we talked to you about the scope of the NRC environmental review associated with the Unit 1 application for Arkansas Nuclear One; that's an application to renew its license. We indicated at that time that there would be an opportunity to engage with you again once the preliminary findings were developed by

the staff, and that's why we're here today, to discuss with you our preliminary results of the environmental review on Entergy's application to renew the operating license for ANO-1.

We plan to put the environmental review into context that will give you an idea of the many activities involved to proceed through toward making a recommendation to the Commission. We'll talk a little about the statutory involvement, the regulatory framework for this action, the purpose of the review, the process we go through in conducting our review, the preliminary results of the review and the schedule that we're working to.

We want you to know that this is your meeting as well; it's an opportunity for you to engage us; it is a meeting for and with the public. That's slightly different than the kinds of other activities where we engage in discourse in conducting our reviews. It will provide you the opportunity to give us input you may have on the preliminary findings today and identify how you can communicate with us again in the future during the public comment period so you can give us any comments on anything you've heard today. Most importantly through this discussion we do want to hear from you.

So let me provide you a little bit of background on this effort. The operating license for Unit 1 -- and

we're only considering Unit 1 at this time -- for Arkansas Nuclear One will currently expire in 2014. As we'll discuss later, the Atomic Energy Act allows a licensee such as Entergy to renew its license. The NRC has established that the renewal of an operating license for a nuclear power plant can be for a period of up to twenty years.

Part of the license renewal process requires that the NRC systematically consider environmental impacts during the decision-making process on an application for renewal, and this review must comply with National Environmental Policy Act as well as NRC's own regulations dealing with environmental protection.

ANO-1 submitted its license application in January of 2000. The NRC environmental staff and its contractors conducted a site audit in April of this year and held two public scoping meetings to identify those environmental issues that needed to be addressed during our review. At that time we were looking for significant issues that you were aware of, members of the public were aware of, to supplement those issues that we already planned to consider in our review.

Thereafter, we had an on-going dialogue with Entergy during the review period to resolve additional questions that we had while conducting out independent assessment. All this culminated at this stage of the

review, October 3rd, as the NRC issued the Draft Supplemental Environmental Impact Statement that describes the results of our review.

We are currently in the middle of a comment period for that document during which we receive comments from members of the public on its contents. Comments on the environmental issues discussed in the report may help the staff evaluate the acceptability of the environmental aspects of the ANO-1 license renewal.

And that brings us to the specifics of why we're here tonight. The purposes of today's meeting are to discuss NRC's mission and how NEPA factors into it, describe the environmental review process, discuss the results of our review, provide the review schedule, receive any comments that you may have today and explain how you can submit comments to us before the end of the comment period.

And with that, I'm going to pass the baton to Chris Grimes, who is the branch chief for License Renewal and Standardization Branch, and it's his branch that integrates -- as Chris -- as Chip indicated before, it's his branch that integrates the environmental, the safety as well as the inspection findings and make a recommendation to the Commission.

MR. GRIMES: I think I'll use the walking stick. I have two electronic devices in my hand; I'm dangerous. I

would like to -- I'd like to begin by, first of all, pointing out that out at the registration table there are some public meeting feedback forms. Since many of you attended the session earlier this afternoon, I'd like to encourage you to take the time to fill out the public meeting feedback forms.

The Nuclear Regulatory Commission is an independent federal agency, but first and foremost, we are public servants. And one thing that's very important is that we've come down here to try and serve the public by sharing our mission, our purpose on how we're conducting our evaluations, how we're trying to fulfill our mission, so we would like feedback from the members of the public to tell us whether or not we're fulfilling your needs.

The NRC's mission is to regulate the nation's civilian use of nuclear materials, and we do so in three ways. The first is to ensure adequate protection of public health and safety. The second is to protect the environment, and the third is to provide -- to promote the common defense and security. This mission and the NRC's authority is derived from the Atomic Energy Act of 1954 as well as amendments to those acts and other legislation that has been passed since related to security, waste and energy policy issues.

The NRC's regulations are issued under Title 10 of

the Code of Federal Regulations, and throughout our presentations this evening you'll hear us refer to that as 10 CFR. The NRC establishes requirements for nuclear power plant design and operation as well as limits for radiological exposure and releases. In order to fulfill that mission we have safety requirements that are codified in the license for each plant; those safety requirements are then inspected and enforced to ensure that the safety is being maintained.

We protect the environment by virtue of radiological limits that are also inspected, and the utility provides monitoring programs. Environmental protection is also provided by the NEPA process, National Environmental Policy Act, which we're going to talk about in some detail this evening.

For commercial power reactors the NRC's regulatory functions include licensing. A nuclear power plant license is based on a set of established requirements to ensure that the design and proposed operation are safe based on radiological safety standards. Those requirements also include provisions for a security program to safeguard safety related equipment and nuclear materials. NRC conducts routine inspections, and we have a resident inspector at each plant site.

To ensure that the design and operation conform to

the license requirements, enforcement actions are taken in the event that those license requirements are not being satisfied. That is a very broad overview of how the NRC operates. But for our specific purpose tonight, I'd now like to turn over the podium to Bob Prato who's going to describe the overall license renewal process. Bob.

MR. PRATO: Good evening. Again, my name is Bob Prato; I am the project manager for the ANO-1 license renewal application safety review. I'm going to be covering -- I'm going to be discussing license renewal in general as well as the license renewal process, and that's a lot of ground to cover so if you have any questions, I would request you please write them down on the slide we're at at the time and I'll be glad to address them after my presentation. At that time I'll also be glad to answer any questions related to the safety review.

The Atomic Energy Act and NRC regulations limit commercial power reactor licenses to forty years but also permits the renewal of such license for an additional twenty year period. The forty year term was originally selected on the basis of economic antitrust considerations, not technical limitations, but once the licensing term was established, the design of several system structures and components were engineered on the basis of an expected forty year service life. The safety requirements for the initial

forty year license are contained in 10 CFR, Part 50.

When the first reactors were constructed, major components were expected to last at least forty years. Operating experience has demonstrated that that expectation was unrealistic with some major components, such as the steam generator and pressurized water reactors. However, research conducted since 1982 and plant operating experience has demonstrated that there are no technical limitations to plant life since major components and structures can be replaced and refurbished, thus the plant life is determined primarily on economic factors.

As a result, the NRC established regulatory requirements in 10 CFR, Part 54, to provide for license renewal. The rule, which was initially issued in 1991 and amended in 1995, provided that the basis on which a plant was originally licensed remains valid after forty years and can be carried over into the twenty year period of extended operation. The rule requires that an applicant demonstrate that applicable aging effects will be adequately managed for a design scope of passive and long-lived systems, structures and components.

The Commission determined that if the aging of active components is adequately managed by existing maintenance and surveillance programs and other aspects of the existing license requirements can continue through the

licensing extension period. The rule also requires that time dependent design analyses be identified and evaluated.

A new license can be granted upon a finding by the Commission that actions have been or will be taken so that there is reasonable assurance that applicable aging effects will be adequately managed for the period of extended operation, and whether or not the adverse environmental impacts of the license renewal are so great that preserving the option for license renewal for energy planning decision makers would be unreasonable.

The United States currently receives about twenty percent of its electricity from the 103 currently operating nuclear power plants. The electricity sector is moving rapidly to a deregulated market in which energy supply sources will be dictated by the cost to the consumer. At the same time there is growing pressure to limit fossil fuel emissions because of continuing concerns for clean air and the potential for changes in global climate.

Deregulation and competition have raised the interest in license renewal to strategic importance because large generating plants become vital economic assets to the plant owners. Operating nuclear power plants are expected to remain competitive after retail electricity restructuring, provided that the cost associated with operating the plant safely in the future can be reasonably

projected.

Some current operating U.S. plants will not apply for license renewal for economic reasons. The NRC established a license renewal requirement so that any current -- any plant that is financially and materially capable of operating safely beyond a current term of its current license should have that opportunity and clearly understand the requirements for which such extended operation as is described in the Generic Environmental Impact Statement for license renewal.

Calvert Cliffs in Maryland was the first plant to apply for license renewal. Their application was submitted in April, 1998, and they received their renewed license in March of 2000. The renewal application for ANO-1 plant was submitted by letter dated January 31, 2000. Although the ANO-1 license does not expire until 2014, the licensee is interested in the license renewal process today to ensure that they clearly understand what requirements will be necessary for an extended license prior to the expiration of the current license for future financial planning.

The license renewal process. The license renewal process consists of parallel safety and environmental reviews which will be documented in a safety evaluation report for the aging management review -- aging management review, excuse me, and a supplement to the Generic

Environmental Impact Statement for the environmental impact review.

The aging management findings in the NRC staff safety evaluation will be verified by NRC inspections. The renewal application and safety evaluation will also be reviewed by the NRC's Advisory Committee on Reactor Safeguards in accordance with the usual practices for issuing licenses.

The NRC plans to complete a safety evaluation report for ANO-1 renewal application which will address the scope of passive systems, structures and components, their applicable aging effects and the aging management program the licensee will rely on to ensure that the plant is safely maintained for the period of extended operation.

The initial report will identify any open items and any confirmatory matter related to the safety review under Part 54 that must be resolved before the Commission can complete its decision on a renewed license. That report will be made available to the public. The NRC licensing process includes a formal process for public involvement through hearings conducted by a panel of advisory law judges known as the Atomic Safety and Licensing Board.

The process consists of a petition to hold hearings on particular issues to be litigated by that board. There were no petitions submitted for ANO renewal

application so there is no hearing planned at this time. Despite the absence of a formal hearing, interested members of the public who are concerned about nuclear safety issues can raise those issues informally during various public meetings that the NRC will hold with Entergy to discuss the safety aspects of the proposed extended plant operation.

Time is usually provided at the conclusion of each meeting for public comment and question. Meetings on particular technical issues are usually held at the NRC headquarters in Rockville, Maryland; however, some technical meetings and meetings to summarize the results of the NRC inspection findings will be held near the plant in a place that's accessible to the public.

The ANO-1 renewal application, safety evaluation report, meeting summaries and other related correspondence are available for public review at the NRC public document room in Rockville, Maryland, or at the NRC electronic public document room at the Website www.NRC.gov -- it's on the board over there. Many of these materials can also be found on the NRC Website under the reactor and licensing renewal icon.

Paper copies of the application, reports and significant correspondence are available to the local residents at the Pendergraft Library at the Arkansas Technical University located at 305 West Q Street in

Russellville.

The Advisory Committee on Reactor Safeguards, or the ACRS, performs an independent review of the renewal application and the safety evaluation and they report their findings and recommendations directly to the Commission. They also hold public meetings that are transcribed. Oral and written statements can be provided during the ACRS meetings in accordance with the instructions described in the notice of their meetings in the Federal Register.

At the end of the process the final safety evaluation report, the final supplement to the environmental impact statement, the results of the inspections and the ACRS recommendations are submitted to the Commission with a staff recommendation. Those documents and any formal Commission meeting to discuss the staff's recommendations are also accessible to the public.

Each Commissioner will vote on the proposed action and a decision is formally sent to the NRC staff for whatever action they conclude is appropriate for the renewal application. The individual Commissioner's vote -- the individual Commissioners' votes and their instructions to the NRC staff are also publicly available.

Throughout the NRC's review of the license renewal application, the NRC continues to conduct regular inspections and amendments to the current license. The

NRC's inspections and plant performance review are currently evolving with the NRC's initiatives to improve the reactor oversight process.

If you are interested in learning more about the new inspection and oversight process, there is information available on the NRC Web page and in NUREG-1649, Revision 1. The normal regulatory process and amendments to the existing license will continue in parallel with the renewal application and address such matters as operating events, spent fuel storage, security and emergency planning.

If there are any questions at this time on license renewal process or on the safety evaluation, I will be glad to take them at this time. Any questions?

MR. CAMERON: Anybody out there have anything to say on this? All right, well, thanks, Bob. And we're going to go from the overview that Bob presented to focus in on the environmental aspects, and Tom Kenyon is going to talk about the National Environmental Policy Act process. Tom.

MR. KENYON: Good evening. My name is Tom Kenyon and I'm the environmental project manager. Just so you can understand the distinction between Bob and myself, Bob directs the review from a safety aspect of renewing the license, and I'm looking at the environmental aspects of the license renewal. I intend to spend the next fifteen minutes or so talking about the process required by the National

Environmental Policy Act, or what we call the NEPA process, and then describe how that process has been incorporated in the NRC regulations and then more specifically how it's being applied to ANO-1.

The NEPA was enacted in 1969 and requires all federal agencies to use a systematic approach to consider the environmental impact of certain decision-making proceedings. It is a disclosure tool that involves the public. It involves a process whereby the information is gathered by federal agencies; we document that -- to make an informed decision. We document that information and then we invite public participation to evaluate it.

Now the NEPA process results in a number of different documents, most chief among them is the environmental impact statement, which we call an EIS, which describes results of rather rigorous review that we do to evaluate the environmental impacts of a proposed action that may significantly affect the quality of the human environment.

Now the NRC has already determined that license renewal is such a major federal action, which is why we're here today. Now this slide describes the objective of the environmental review, but to paraphrase it, we're simply trying to decide whether or not a continued operation of ANO-1 for an additional twenty years is acceptable from an

environmental standpoint.

Now to give you a little bit of history I'd like to spend a few minutes describing how the staff incorporated the NEPA process into the regulatory framework at the NRC and how we perform an environmental review. The NRC's implementing regulations for carrying out the NEPA process are found in 10 CFR, Part 51. The regulation outlines the contents of the environmental impact statement and it also describes the process that we follow in order to meet the requirements of NEPA.

Early on in establishing the license renewal process back in the 1980s and '90s, we recognized that the original environmental impact statements that were developed for when we licensed these plants twenty or more years ago would need to be updated to reflect the additional twenty years or operation. So the NRC undertook a rulemaking effort to modify Part 51 and address a license renewal in that regulation.

As part of the rulemaking effort on Part 51, the staff developed a generic environmental impact statement called the GEIS which took a systematic look at the thousands of hours of operating experience at all of the nuclear power plants to help us identify potential environmental impacts. In addition, the staff uses an Environmental Standard Review Plan for license renewal to

help us give guidance on our review.

There are copies of all these documents in the back for your examination. You can also view these items on our Website.

Now this slide shows a little more detail of the environmental review process that was shown on the earlier chart, and it graphically shows the process that I'm going to talk about for the next few minutes, so you might want to refer back to it from time to time.

Now as far as the NEPA process goes, there are certain steps that we at NRC are required to follow. These steps are consistent with the development of all EISs prepared by federal agencies for any proposed major federal action.

The first step is the issuance of a notice of intent where we notify the public of our intention to develop an environmental impact statement, and for ANO-1 this was issued back in March. Now to prepare for the review the staff assembled a team of NRC staff with backgrounds in the specific scientific and technical disciplines that are required to perform these reviews. In addition, as Mr. Zalcman mentioned earlier, to supplement the technical expertise of the staff we engaged the assistance of the Pacific Northeast National Laboratory to make sure we had a well-rounded knowledge base to perform

this review.

We put together a team of about twenty people to do this review, many of whom are here today to hear what you have to say and to answer any questions you might have.

The next step is the scoping process where we will identify the scope of the environmental impact statement. This occurred for ANO-1 back in April and May during which time we had two public meetings here in this hotel to discuss the scope of the ANO review.

Now our review team also went to ANO-1 site to acquaint ourselves with the area and to discuss the questions that we had developed after taking a look at Entergy's application. As the review progressed, we contacted federal, state and local authorities, and we looked at a number of different items, including, obviously, looking at potential environmental impacts of renewing the license.

We looked at alternatives of renewing the license and what those environmental impacts would be, and then we looked at possible mitigation measures, which are things that could be done to decrease the environmental impact on the license renewal. On October 3rd we issued our Draft Environmental Impact Statement for public comment, and this was Supplement 3 to the GEIS, which I mentioned earlier, and it's a supplement because we rely on part of the findings in

the GEIS for part of our conclusions.

The report is a draft not because it is incomplete but rather because we're at an intermediate stage in our decision-making process. We are in the midst of the second public comment period to allow you and other members of the public to take a look at the results of our review and then to provide us feedback on it.

After we gather your comments and comments from other members of the public, we may decide to change portions of the environmental impact statement, and then after we finish making the changes, we would issue the final environmental impact statement.

Now to give you a general idea of the overall process, let's talk about what we did as part of our review. As I said earlier, we looked at Entergy's application and information that they had provided us. We visited the site; we talked to them about their evaluation process; we reviewed any other comments that we had received during the scoping period. And I want to point out that all the comments that were received were considered. In addition, we contacted federal, state and local authorities as well as local service agencies to obtain information on the unit.

Now the next two slides give you an idea of the kind of things that we look at. I'm not going to talk about them in detail because our next presentation will go more

into detail on the results. The things we looked at include aquatic ecology and the threatened and endangered species; we looked at human health and socioeconomics and a number of other related matters.

Now the regulations identify some issues that the staff doesn't look at during its environmental review, including the need for power and the cost of power, spent fuel disposal, except for transportation in this local area, and how this area is affected by it. In addition, as I mentioned earlier, we do not look at the safety aspects of the review -- my team doesn't look at that; that's being handled by the team Mr. Prato directs.

Now before we go on, I want to open the floor up again to find out if there are any comments or questions that you would like to ask of us before we continue.

Okay, now I'd like to introduce Eva Hickey who is the task leader at Pacific Northwest National Laboratory; she headed up the PNNL review.

MS. HICKEY: Good evening. My name is Eva Hickey and I work for Pacific Northwest National Laboratory in Richland, Washington, and I'm in the Environmental Technology Division.

Today I'd like to talk about the process that we used for evaluating the environmental issues for the ANO-1 license renewal, and then I'll talk a little bit about the report that we developed after the evaluation. We've brought some of our team of environmental scientists with us tonight, so if anybody has any questions, they would be glad to give you some answers.

First, I'd like to tell you a little bit about the report that we use -- the reference document that we use for our evaluation. The generic environmental impact statement that Tom mentioned earlier was published as NUREG-1437, and it was issued in 1996. It forms the basis for the rule revision to 10 CFR, Part 51. The NRC worked with the states, the Council on Environmental Quality, CEQ, and Environmental Protection Agency and a number of other groups and held a series of public workshops to develop the final GEIS.

During that time, NRC did its best to identify what environmental issues needed to be looked at during the license renewal process. The staff identified and categorized environmental impact that was specific to license renewal, and from this they came up with a total of 92 potential environmental impacts, and these are evaluated in the GEIS.

When the staff evaluated the 92 issues, they found

that some of those were generic, that is that you see these at all of the power plants, and it does not matter what type of plant it is or where the plant is located. So NRC wanted to give them special designation, and they're called Category 1 issues, and there are 69 of those Category 1 issues.

As an example of a Category 1 issue, we might talk about offsite radiological consequences. When developing the GEIS, the staff looked to see if offsite doses during the renewal process would exceed current levels that we see during normal operations and, in fact, a look at a historical review showed that public -- doses to the public had been maintained well below regulatory limits and, if fact, they tend to keep going down. The staff could see no reason for these doses to increase during extended operation provided monitoring and control programs continued to be implemented.

Because expected radiological impacts apply to all plants in a similar manner and the significance level of the offsite radiological impact is considered small at all plants, the staff concluded that this item can be addressed in a generic way and, therefore, it's a Category 1 item.

This does not mean that our team did not look at these issues any more. What it meant was that we looked to see if there's any new and significant information that has

come about since the GEIS was issued four years ago. I said before there are 69 of these category issues, and as part of the review, we require the applicant to identify any new and significant information regarding these Category 1 issues.

During the scoping phase of the review we also looked at comments that the members of the public might have had to make regarding these issues. If there was new and significant information revealed by this review, then our environmental team would look at them on a site-specific basis.

That left 23 issues that have been identified as Category 2 issues, and these are issues that the environmental team looked at in a site-specific way.

The review process is designed to help NRC determine whether or not there's any significant new issues that were not identified when the GEIS was published. If there's a significant new issue identified during our current review process, then we would look at it on a plant-specific basis just as if it were a Category 2 issue.

So with regard to Category 1 issues, the team reviewed the information that was provided in the environmental report; we discussed the information with the Entergy staff; we sought public concerns during public scoping meetings that were held last spring and also during the scoping process -- the scoping period, and we looked at

environmental standards and regulations.

We also looked at the 69 Category 1 issues and determined whether there was any new and significant information and, in fact, none was identified. And since we had no new and significant information, we relied upon the conclusions that were provided in the GEIS.

With regard to Category 2 issues, there are 21 issues that fall under this designation. These are issues that are evaluated specifically and in depth at the site, and we did this for ANO, Unit 1. For the 21 issues there are five issues at ANO that are not applicable because they are related to plant design and features that are not characteristic of ANO.

In addition, there were four other issues related to refurbishment, and Entergy has stated that there are no plans for major refurbishment activities and, therefore, these issues were not relevant. That leaves 12 specific issues that we looked at specifically in relation to the ANO license renewal.

Then there are two additional issues that are not categorized; these are environmental justice and chronic exposure to EMF. We did also look at these in a site-specific manner.

Now that I've told you a little bit about the process we use for an evaluation, let me tell you a little

bit about the Draft Supplemental Environmental Impact Statement that was written after we had conducted our review. The organization of the ANO Supplemental Environmental Impact Statement, which I will call SEIS, follows the same organization as the Generic Environmental Impact Statement.

Chapter 1 is an introduction and it briefly describes the NEPA process. Chapter 2 is a description of the Arkansas site and the surrounding environment. I will be going back in a few minutes and talking specifically about some of these issues, but right now, if you will look at what we've got on the screen, you'll see that the issues that we looked at were rather comprehensive.

Chapter 3 discusses refurbishment, and since Entergy stated that any replacement of components related to the operation of the facilities and any additional inspection activities were within the bounds of normal plant component replacement and inspection and, therefore, would not be expected to be outside of the bounds of the final environmental impact statement.

Chapter 4 describes the environmental impacts of operation during license renewal. We specifically looked at Category 1 and Category 2 issues relevant to the plant and the site. We looked at impacts from cooling system, transmission lines, radiological impact, socioeconomic

impact, ground water use and quality and threatened and endangered species.

Chapter 5 discusses the postulated plant accidents and includes a review of severe accident mitigation which Mr. Andrew Kugler will describe in just a few minutes.

Chapter 6 looks at the completed -- looks at the uranium fuel cycle and solid waste management process and looks at the impact to the environment from the uranium fuel cycle. Chapter 7 looks at impacts from decommissioning.

Chapter 8 evaluates alternatives to license renewal and describes methods that can be used to obtain the same amount of power without having to renew the license at ANO. And finally, Chapter 9 is a summary of our conclusions.

Next, I'd like to give you an overview of the contents of the Supplemental Environmental Impact Statement, and so I will spend the rest of my time talking about our findings.

First, let me tell you a little bit about the cooling system at ANO. Unit 1 uses once-through cooling to condense steam during operation. It takes water from the Illinois Bayou on Lake Dardanelle, so for those of you that may not be familiar with the plant, the large cooling tower that you see from a distance is for Unit 2. As I said before, this license renewal is only for Unit 1.

The water is taken into the plant through an intake structure which includes bar grates, traveling screens and four circulating water pumps. After passing through the traveling screens, the water enters circulating pumps. After flowing through the condenser, the water is discharged back to Lake Dardanelle.

Now I'd like to discuss environmental effects from the cooling system used at ANO. In order to determine the effects from continued operation, we looked back at what had happened in the past, over the last twenty years. We reviewed many of the environmental studies that the utility and other organizations conducted over the past twenty years.

First, we looked at entrainment which occurs when platonic larval fish and shellfish existing in the Illinois Bayou are carried with the cooling waters through the intake screens, pumps and condensers; there's a high mortality to these larval fish. ANO conducted monitoring of entrainment for ten years, between 1977 and 1987, to determine if entrainment was impacting the fish population in Lake Dardanelle.

ANO determined that the most prevalent fish entrained were a nonsport fish, and that's the gizzard shad and the threadfin shad, which is the little fellow you see here on the slide. The monitoring performed at ANO

indicated that entrainment does not adversely affect aquatic organisms in Lake Dardanelle. In fact, the Arkansas Game and Fish Commission concluded that entrainment losses have not affected the recreational fishing in Lake Dardanelle.

Now in addition to entrainment we looked at impingement. Impingement is when small fish and shellfish get stuck in the traveling screens located at the intake. These screens are meant to keep out debris from cooling water, but sometimes smaller fish are also caught on them. Studies of impingement show that the major species are also the gizzard shad and the threadfin shad. These shad are nonsport fish, as I said, and they can get to be about ten inches long.

But what was found in the research was that, in fact, it was the cold temperatures in the winter at Lake Dardanelle that would kill the fish rather than the actual impingement, so a lot of times the fish taken in impingement were either dying or they were already dead. So it appears that much of the mortality is not directly related to the plant operation but is the result of the water temperature.

Now other cooling system effects that we looked at were heat shock. As I said, water is taken from Lake Dardanelle and it's used for cooling and then it's returned back to the lake. And when the water is discharged back to the lake, it must meet certain limits that are designated in

the National Pollutant Discharge Elimination System permit. We determined that ANO has a current permit and that they meet the discharge limits; therefore, the impact due to heat shock is considered small.

And in the last Category 2 item related to cooling system effects that we looked at was microbial organisms, specifically thermophilic pathogens, that is pathogens that love the heat, the higher temperatures. ANO took part in a study in 1981 in which it was determined that there's no thermophilic pathogens found in the ANO intake canal or the discharge embayment.

The Arkansas State Board of Health was contacted and they said that they were unaware of any human health exposure problems related to ANO in Lake Dardanelle.

We looked at transmission lines. There's 240 miles connected to the transmission system, and related to transmission lines. We looked at acute electromagnetic fields effects, that is those effects that have immediate impact. And we also looked at chronic effects from extremely low frequency electromagnetic fields exposure. We found that there was no new and significant information related to these and, therefore, the impact is small.

I've talked a bit about radiological impacts already and explained why those are Category 1, so there's no anticipated increase in either public or occupational

radiation doses during license renewal.

At this time I'd like to see if anybody has any questions related to the information I've talked about so far. Okay, if not, I will move on.

Next, one of the larger areas that we looked at is socioeconomic impacts. And there's a variety of these impacts that I'm going to discuss. The first is housing impacts that may result if ANO hired additional employees during the license renewal period. ANO is considered to be in a low population area, and the area does not have any growth control measures; however, in our discussions Entergy stated that they do not plan to have any increased staffing related to licensing renewal activities and, therefore, there is no anticipated change in housing needs for ANO-1 staff.

Our staff also interviewed real estate agent professionals in the area and concluded that the impact on housing during the license renewal period is small. Impact on public utilities was also considered, both for plant demand and plant related population growth. Entergy does not expect plant demand to have direct effect on water, and the water supply systems servicing the towns surrounding ANO are adequate and reliable. And, although not related to the operation at ANO, the city of Russellville is planning on doubling the current water treatment process capabilities.

We looked at offsite land use and determined that there will be no plant related impact. We'd like to point out, however, that continued operation of the plant will provide a significant continuing tax revenue to the county. ANO currently pays about one-third of the Pope County tax revenue.

We also looked at transportation impacts around the area and determined since there will be no increase in employment at the site that this is not an impact.

We looked at historic and archaeological resources related to the continuing operation of ANO. There is currently no plans for future area disturbances. We looked at the site and determined that there are many potential archaeological sites; these are both Native American and Euroamerican, but there are no nationally registered historic places on the site. An extension of the operating term, since there are no plans for future land disturbance for structural modification beyond routine maintenance, indicates that there is a small impact for continued operation.

Finally, in the area of socioeconomic impacts we looked at environmental justice. Environmental justice refers to a federal policy in which federal actions should not result in disproportionately high and adverse impacts on low income or minority populations. Although the impacts

that are identified for ANO-1 license renewal were small, the staff examined geographic distribution of minority and low income populations as were recorded in the 1990 census and supplemented with inquiries to local planning departments and social service agencies in Pope County.

We Found that in general minority populations are small and they're dispersed, and they are typically located in Russellville, Clarksville, Conway and the outskirts of Morrilton. Discussions with social service agencies in Pope County indicated that the Hispanic population has increased significantly in recent years. We identified no specific methods and pathways that would result in disproportionate adverse impact on these populations. And specifically we were looking at pathways related to subsistence agriculture and/or fishing.

Moving on we looked at water use and quality. ANO obtains cooling water from Lake Dardanelle and potable water and makeup water is obtained from the Russellville water treatment plant. The water quality is regulated by the NPDES permit.

We also looked at threatened and endangered species. We consulted with Fish and Wildlife Service and determined that there were no federally protected species on the ANO site or the transmission line rights-of-way. There are two endangered species in the area around the site; the

Gray Bat, which is found downstream, and the Interior Least Tern, which has a breeding ground to the west of the plant. But the staff concluded that the impact from continued operation is small.

We looked at the environmental impacts of the uranium fuel cycle -- these are all Category 1 issues -- and we assumed that the -- we concluded that the impacts were small as represented in the GEIS. We also did the same for decommissioning.

Next let's look at the alternatives to license renewal. This is Chapter 8 of the Supplemental Environmental Impact Statement, and this is another important part of the NEPA process. Because there are many possible energy sources and mixes of energy sources, we limited our analysis to those that have demonstrated capability of a sufficient generating capacity to replace the ANO nuclear plant. The alternatives also included a no action alternative, which would simply mean that NRC would not renew the operating license and that the plant would decommission either at the time the license expired in 2014 or sometime before that.

Two alternatives that we looked at specifically were coal-fired power generation and gas-fired power generation. We looked at the impacts of these alternatives and discussed them in several different ways. First, we

looked at plants located at the ANO site using once-through cooling, like ANO, Unit 1, and we also looked at plants located at ANO but using cooling towers rather than once-through cooling.

We looked at the potential for closing the site and building an alternative energy plant somewhere else on what might be considered a green field site. That's a natural site that may be forested or otherwise has not been disturbed. We looked at the option of building a coal-fired plant or a gas- fired plant and the option of using once-through cooling or cooling towers.

This slide shows you some of the other alternatives that we looked at, but they were not evaluated in depth because they were either considered that they do not have the capability or the generating capacity to replace ANO.

One thing I'd like to point out is that we did look at combining alternatives, for example, using conservation, purchasing power and perhaps providing a new generation source.

The alternative actions, including no action alternative, have environmental impacts that, at least in some impact categories, reach moderate or large significance. And a moderate significance is one that is sufficient to alter noticeably but not destabilize important

attributes of the resource, or a large impact is one that the effect is clearly noticeable and is sufficient to destabilize important attributes of the resource. Rather than going through this entire analysis, I'd ask you to take a look at Chapter 8 in the SEIS.

For most impacts on land use and ecology we found a range of moderate to large, especially for coal-fired generation and gas-fired generation, because additional land would be required for these facilities, land that is currently vegetated. Depending on where the site is located, the impacts on water quality might increase to large, especially if it's located in an area that might require ground water for cooling.

Now finally, I would like to talk about our preliminary conclusion from our environmental analysis. We found that the significance of the environmental effects of license renewal of ANO-1 are small for all of the impact categories that we looked at. By small we mean that the effect is not detectable or it is too small to destabilize or noticeably alter any important attribute of the resource.

And that is the conclusion of my presentation. Are there any questions?

MR. CAMERON: Anybody? Okay, we do have one more presentation, and that's going to be Andy Kugler who's going to talk about postulated plant accidents, and then Tom

Kenyon is going to sum up for us. Andy.

MR. KUGLER: Thank you. As he indicated, my name is Andy Kugler and I'm an environmental project manager working in the same group at Tom Kenyon. Tonight I will be talking briefly about the process we use to evaluate the environmental impacts of accidents. During our review we looked at two different classes of accidents, design basis accidents and severe accidents.

Design basis accidents are accidents that have already been evaluated in the plant design. This is a Category 1 issue, as Eva just described what a Category 1 issue is, and we did not find any new or significant information and, therefore, I don't intend to discuss that issue any further. We accepted the findings in the GEIS for that issue.

Now severe accidents involve one Category 2 issue, and that relates to the potential alternatives to mitigate severe accidents. And as a Category 2 issue, that means we require a plant-specific evaluation of that issue.

By way of an introduction to the issue, severe accidents are those accidents that lead to damage to the core related, in general, to some failure of the core cooling systems. This would involve multiple hardware failures and/or human errors in order to reach that point. These types of accidents are evaluated in the plant-specific

probabilistic safety studies.

There are two types of studies that are performed; there's one for internal events, things like pipe breaks, and then there's a study for external events, which would include things like seismic events. These studies form the basis then for our evaluation of potential alternatives to mitigate severe accidents.

In the generic environmental impact statement we considered severe accidents and the potential risk to the public from severe accidents. We projected the potential releases from the site caused by severe accidents, and we also then estimated the consequences to the public. In looking at that for all of the sites in this country, we concluded that the probability-weighted consequences of severe accidents were small at all sites. Based on that, severe accidents are a Category 1 issue, and we don't look at the severe accidents themselves in our environmental impact statement.

However, in accordance with the NEPA process, we also look at mitigation, and the mitigation of severe accidents is a Category 2 issue requiring the plant-specific evaluation, and that's what I will be speaking about this evening.

Now the purpose of our evaluation is to ensure that plant changes that could reduce the risk related to

severe accident are identified and then assessed to determine whether they should be implemented in the context of license renewal. We considered changes that would either prevent an accident from occurring or that would mitigate the consequences of an accident once it has occurred. And we look for various types of changes; we look for hardware changes, procedural changes, training, anything that could potentially reduce that risk so it's a very broad search.

I'd like now to talk a little bit about the process we went through; it's a fairly complex process, but I just want to give you the basics of what was done. The first step is to identify the sources of risk related to severe accidents, and to do this we rely very heavily on the plant-specific studies for ANO-1 of the risk profile. In addition we look for insights in generic studies that have been performed and in studies that were performed for other plant sites to look for other possible improvements.

Once we identify the sources of the risks, the next step was to identify any changes that could be made to reduce the risk. And again, we relied most heavily on the plant- specific studies to help us identify potential changes. In going through this process over 150 potential changes or improvements were identified.

In our next step we went ahead and eliminated changes that either had already been implemented at ANO-1 or

that were not applicable to ANO-1, keeping in mind we took a very broad approach to identifying potential changes, some of the changes, as it turns out, don't really apply to this plant.

Once we had done that, the remaining potential changes went through a process of developing the potential risk reduction and converting that into a value and developing a cost estimate.

Using that information we could quickly eliminate some of the changes as clearly not being cost beneficial. In other words, the cost far exceeded any benefit. This would include items that had a very low risk reduction -- in other words it didn't reduce the risk very much. At that point in the process we're down to about fifty items that could potentially be cost beneficial, and those items we reviewed in more detail, a more detailed cost estimate and a more detailed risk reduction estimate. And out of that process one item was identified as being cost beneficial; the other items were not cost beneficial.

Finally, looking at that one item, we also had to consider whether the risk reduction was related in any way to the effects of aging for the license renewal period because if it's not related to the aging issue, then it's not something that we're going to consider for license renewal.

The one item that was identified had to do with training for operators in response to specific sequences, what actions they should take, and it is not related to the effects of aging and, therefore, is not related to license renewal. Entergy is evaluating whether to implement that change, and we will look at the action that they decide to take in that regard. And as I indicated, the other potential enhancements all had negative cost benefit values.

So in conclusion, we determined that there were no additional plant changes necessary for ANO-1 during the license renewal period related to severe accident mitigation alternatives, and that concludes my portion of the presentation. Are there any questions?

MR. CAMERON: Okay, well let's -- thank you very much, Andy. Let's move on to Tom for a final wrap-up and then see if there's any statements from the audience and any other questions. Tom.

MR. KENYON: Thank you. And now to summarize, Supplement 3 to the GEIS provides a summary of the status review of ANO-1 and also gives you our preliminary conclusions. I'd just like to remind you that the decision to renew the ANO-1 license lies not only on the results of our environmental review but also on the safety review that's being directed by Mr. Prato.

This brings us to our preliminary conclusions

that, based on the analysis and the findings in the GEIS, Entergy's application and our discussions with the federal, state and local authorities and also the staff's own independent review, we would determine that the adverse effects, environmental impact of license renewal for ANO-1 are not so great that preserving the option of license renewal for energy planning decision makers would be unreasonable. In other words, renewing the license for another twenty years would be acceptable from an environmental standpoint.

Now the period for writing us with your comments ends on January 4th. After the comment period ends, we'll take a look at all the comments and assess them and determine whether or not they're applicable to the environmental review. If appropriate, some of the comments may cause us to modify the Environmental Impact Statement, the final version of Supplement 3, we will -- in Appendix A to the document we will document a summary of what the comments were and how we address them throughout the document and how we disposition them.

Again, as we did with the issues that were raised during the scoping period, issues that do not have a bearing on the decision to renew the license will be referred to the appropriate NRC program manager, such as the Operating Plant Project Manager or the Allegations Coordinator.

Now this slide gives you the current schedule that we're working under. As I said, the comment period ends on January 4th, and we hope to issue the Final Environmental Impact Statement by July of next year.

Now the last two slides give you my phone number and NRC addresses. I am the designated point of contact for the environmental review, and you can contact me at that 800 number. As was mentioned earlier, the Pendergraft Library at Arkansas Tech has been kind enough to allow us to make the application and the Draft Environmental Impact Statement available if you want to go over there and examine the document. In addition, you can view them electronically at the Website, either at that URL... or the documents can be reviewed at the NRC.gov site.

You could provide your comments to the chief of the Rules and Directives Branch, either by mail to that address, in person if you want to come out to Washington, D.C. or by e-mail. And that concludes our formal presentation.

Before we continue, I want to thank you for giving up your evening tonight and coming out to today's meeting. Public participation is an important part of the overall license renewal process because it makes for a better process. After all, you know this area a lot better than we do.

Before we open the floor to any last comments or questions, I would like to remind you -- to ask you to fill out the brief questionnaire that was mentioned earlier; it would help us to improve our future presentations. And if you need a pen or the questionnaires, you can obtain them from the folks in the back. Chip, that ends our formal presentation.

MR. CAMERON: Okay, I think we do have one comment. Garry Young.

MR. YOUNG: Thanks, Chip, and good evening. My name is Garry Young and I'm the Entergy lead for the license renewal project at Arkansas Nuclear One, and I'd like to take this opportunity to thank the NRC staff and their consultants who have worked on the ANO-1 Supplemental Environmental Impact Statement.

The document is both thorough and comprehensive in addressing the environmental topics that are important for consideration to the license renewal of Arkansas Nuclear One, and the range of topics and the level of detail clearly indicate NRC's diligence in preparing this document. It provides an excellent source of information for the public about the environment around Arkansas Nuclear One.

And I, along with many other Entergy employees, live here in Pope County. We enjoy living in this area and sharing the benefits of this community, and that is why we

share an interest with our neighbors in preserving the environment.

As indicated in the summary of the document, the option of license renewal for ANO-1 is reasonable from an environmental impact viewpoint, and this conclusion is consistent with the findings made by Entergy prior to making the decision to seek license renewal.

I would also like to thank the Entergy personnel and the consultants who have supported the licensing renewal activities that are the basis for the document that we're here today to discuss. This includes the employees who have supported the first 25 years of operation and who have maintained a high level of environmental awareness during those 25 years of operation. Without their commitment to continued safe, economic and environmentally friendly operation, we would not be here today seeking license renewal.

And finally, I would like to thank our neighbors in the community who are represented here today. And as I mentioned earlier, we, the Entergy employees that live in the community, appreciate the support of our local community, and we appreciate the opportunity to be your neighbors. We are committed to protecting the health and safety of the residents around Arkansas Nuclear One as well as the environment, and this commitment will continue as

long as we're a part of this community. Thank you.

MR. CAMERON: Thank you, Garry. Anybody else want to make a comment or ask any questions before we finish up this evening? I'd like to thank you all for coming out again tonight and thank Bert for taking our transcript down tonight. And that will be available on the Web; is that correct?

MR. GRIMES: Yes.

MR. CAMERON: And I guess we're going to adjourn now, Bert, so we're off the record.

(Whereupon, at 8:20 p.m., the meeting was adjourned.)