

1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION  
3 Corrected Transcript

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6 PUBLIC MEETING TO DISCUSS  
7 THE SUPPLEMENTAL ENVIRONMENTAL IMPACT  
8 STATEMENT FOR THE LICENSE RENEWAL  
9 OF ARKANSAS NUCLEAR ONE, UNIT 2

10 -----x

11 Thursday, October 21, 2004

12  
13 Nebo Room  
14 Holiday Inn  
15 2407 N. Arkansas Avenue  
16 Russellville, Arkansas

17 The meeting convened at 7:00 p.m.

18 PANEL MEMBERS:

19 ANDY KUGLER, Facilitator

20 PRESENTERS:

21 GREGORY SUBER

22 TOM KENYON

23 DUANE NEITZEL

24  
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P R O C E E D I N G S

1  
2 MR. KUGLER: Good evening, everyone, and thank  
3 you for coming to the NRC's meeting this evening on the  
4 environmental review for Arkansas Nuclear One, Unit 2.

5 My name is Andy Kugler, and I'm a Section Chief  
6 at the Nuclear Regulatory Commission, and I'll be your  
7 facilitator this evening.

8 In that role, I hope to help you have a  
9 meaningful interaction with the staff, and to provide you  
10 with information that you will find useful, and give you  
11 an opportunity to provide us with any information you feel  
12 we may need.

13 The subject tonight, again, is Entergy  
14 Operations Application for License Renewal, for Arkansas  
15 Nuclear One, Unit 2. And in particular, we're going to be  
16 discussing the environmental review that we've performed.

17 In terms of the format, this evening's meeting  
18 will have two parts. In the first part, the NRC staff  
19 will be presenting information, first about the license  
20 renewal process in general, and then in particular about  
21 the environmental review process, and finally discussing  
22 the results of our review, which are preliminary at this  
23 time: our draft report has been issued.

24 As part of the presentation, there will be  
25 opportunities for you to ask questions of the staff.  
26 We'll break at certain points in the presentation and give

1 you that opportunity.

2           The second part of the meeting is going to be  
3 your part of the meeting, where you have the opportunity  
4 to present comments to us or to ask other questions  
5 regarding this review, and to give us any comments on our  
6 conclusions.

7           You can take this opportunity tonight to share  
8 your views on the record, or as we'll discuss later,  
9 you'll have an opportunity to provide your comments in  
10 writing.

11           All the comments that the staff receives, both  
12 tonight and any that we receive in writing, will be  
13 treated in the same way, and they will be considered as we  
14 prepare the final environmental impact statement.

15           There will be a written transcript of tonight's  
16 meeting. We have Penny here, this evening. She will be  
17 recording for us. The transcript will have all the  
18 comments in it, and it will be made available to the  
19 public once we've reviewed it.

20           In terms of the ground rules of the meeting,  
21 they're fairly simple: when we get to the question and  
22 answer portions, if you could just signal to me, and I'll  
23 either bring you this microphone or you can come up to  
24 this other microphone and ask your question of the staff.

25

26           We ask that only one person speak at a time.

1 This will allow us first of all to get a clean transcript,  
2 but also allows the person who is speaking to be heard by  
3 everybody and we all want to respect each person as  
4 they're speaking.

5 Also, one thing I would ask is that if you have  
6 a cell phone or a pager, if you could either turn it off  
7 or mute it, so we're not interrupted during the meeting.

8 During the second part of the meeting when we  
9 have any persons who wish to make comments, first I'll  
10 provide an opportunity for anybody who has signed up to  
11 speak -- pre-registered -- and I don't believe we have any  
12 at this point.

13 Barring that, or in that case, what I will do  
14 is at the end of the presentations, I will give folks an  
15 opportunity, if they've decided they do want to make any  
16 comments, to make comments at that time. If you haven't  
17 pre-registered, that's okay, we're not going to not listen  
18 to you.

19 If you do come up to speak we do ask you to try  
20 to be brief and to the point. In terms of a guideline,  
21 maybe five to seven minutes for comments.

22 If you do have any written remarks to provide,  
23 if you could give us a copy, we can hand it to Penny then,  
24 and it helps us to ensure that we get a good record of  
25 what you were saying. And we would include that as part  
26 of the summary of the meeting.

1           If you do want to provide comments, we'll  
2 probably ask you to come up here to the podium so that  
3 everybody can see you as you're speaking. If you're not  
4 comfortable with that, just let me know and I'll bring you  
5 this microphone, but we do want you to speak into a  
6 microphone, so that we get a transcript.

7           And when you speak, I'll ask you to identify  
8 yourself by name, and if you have an affiliation, provide  
9 your affiliation, as well. And again, that gives us a  
10 better record.

11           Next slide, please?

12           In terms of the agenda, and the presenters  
13 tonight, everyone should have received a printed copy at  
14 the registration desk from Alicia. If you don't have an  
15 agenda, if you could raise your hand, we'll get you one.  
16 Is there anybody who needs an agenda? Okay.

17           So once again, the staff is going to provide a  
18 brief overview of the process. The overall license  
19 renewal process first, and then specifically the  
20 environmental review process, which is the focus of our  
21 meeting tonight.

22           The staff will then present our preliminary  
23 results and conclusions, assessing the impact of an  
24 additional twenty years of operation for this unit,  
25 Arkansas Nuclear One, Unit 2.

26           After that, the staff will give you some

1 information on the schedule for the balance of our review,  
2 and also some information on how you can provide written  
3 comments after the meeting.

4 I'd like now to introduce the NRC speakers to  
5 you. Our first speaker will be Mr. Gregory Suber. Mr.  
6 Suber is the project manager for the safety portion of the  
7 review, and he'll explain more about that when he comes  
8 up.

9 He works for the office of Nuclear Reactor  
10 Regulation at the NRC, and he leads a team of technical  
11 reviewers who are evaluating the effects of aging on  
12 certain components, and also aging management programs  
13 that the applicant either has in place already or will  
14 have in place for license renewal.

15 He'll discuss the overall license renewal  
16 process, and then the safety portion of the review.

17 Mr. Suber did his undergraduate work in  
18 mechanical engineering at Howard University. He also has  
19 a Master's Degree in civil and environmental engineering  
20 from Howard University, and a Master's Degree in  
21 environmental science from Duke University.

22 He has over ten years of experience, including  
23 work at Bechtel, where he was a mechanical design  
24 engineer, and work at the NRC where he's been both an  
25 environmental project manager and now a safety project  
26 manager.

1           After Mr. Suber is done, we'll go to Mr. Thomas  
2 Kenyon. Mr. Kenyon will provide a discussion about the  
3 environmental review process. He is the project manager  
4 for the environmental review, leading a team of experts  
5 who are evaluating the impacts of an additional twenty  
6 years of operation.

7           He has a technical background in nuclear  
8 reactor safety and environmental project management, and  
9 he completed his Bachelor of Science in nuclear  
10 engineering from the University of Michigan.

11           He worked for the Navy at the shipyard in  
12 Norfolk, and at the NRC he's work as a project manager on  
13 a number of projects, such as licensing of new plants back  
14 in the '80s, design certification of new designs, more  
15 recently, license renewal, and for one of the three early  
16 site permits that the staff currently has under review.

17           So you can see he's got a very broad background  
18 in project management.

19           After he's done, we'll have Mr. Duane Neitzel  
20 make a presentation. He'll be talking about the results  
21 of the review of the environmental impacts. He leads the  
22 technical resources that make up most of the environmental  
23 review team, out at Pacific Northwest National Laboratory.

24           He's a staff scientist in the natural resources  
25 division there, and has a technical background in biology.

26           He holds a Bachelor of Science degree in



1 zoology from the University of Washington, and a Master's  
2 of Science in biological sciences from Washington State  
3 University.

4 He's got over 30 years of experience working on  
5 environmental issues.

6 We'll then have a short presentation by Mr.  
7 Kenyon again, talking about one important element of the  
8 environmental review, and he'll then wrap things up and  
9 provide information on how to get more information  
10 regarding the review, and also how to provide comments  
11 after this meeting.

12 I'd like to thank you all for being here this  
13 evening: for taking the time out to come. And with that,  
14 I'd like to turn it over to Mr. Suber, to begin the  
15 staff's presentations.

16 MR. SUBER: Thank you, Andy. Is it on? Now it  
17 is. Thanks a lot for the introduction, Andy, appreciate  
18 it. Good evening and everyone welcome to this meeting.  
19 Glad that you took the time to come out this evening to  
20 participate in our process. We really appreciate that and  
21 we thank you for it.

22 My name is Gregory Suber. I am the NRC Project  
23 Manager for the safety review for the Arkansas Nuclear  
24 One, Unit 2 license renewal program. And on behalf on the  
25 NRC, once again, I'd like to thank you guys for coming out  
26 today and participating in our process.

1 I'd like to take a minute or two to briefly go  
2 over the purpose of this meeting, and to talk about why  
3 we've come here today.

4 First of all, we'd like to give you a brief  
5 overview of the entire license renewal process, which  
6 includes, as Andy has stated before, the safety review  
7 process and then the environmental review process, and the  
8 environmental review process, of course, is the main focus  
9 of today's meeting.

10 We will discuss some of the areas that we have  
11 reviewed and assessed the environmental impacts for. And  
12 we will discuss the results of our review, and we'll also  
13 talk about the schedule for license renewal, and discuss  
14 how you, the public, can participate in our process.

15 At the conclusion of the staff's presentation,  
16 we'll be happy to receive any questions or comments that  
17 you may have today, particularly dealing with the  
18 environmental aspects of our review.

19 But let me first provide you with some general  
20 background information on the entire license renewal  
21 program.

22 The Atomic Energy Act provides for a 40 year  
23 license term, and also allows for license renewal. The 40  
24 year term deals with the current operating license and was  
25 based not on safety issues, but on economic and anti-trust  
26 issues.

1           The current operating term for ANO-2 expires on  
2 July 17, 2018, and if license renewal is granted, that  
3 would be extended, of course, to July 17 of 2038.

4           The environmental review process for ANO-2 is  
5 currently scheduled to be completed in April of 2005, and  
6 at that point, a decision will be made whether or not to  
7 issue a renewed license for the ANO-2 nuclear plant.

8           As part of the NRC's review for the  
9 application, we've prepared an environmental impact  
10 statement which was issued this past August.

11           We've come here to discuss the preliminary  
12 conclusions of that EIS, and to take comments that you may  
13 have on our draft document, which as I stated was issued  
14 in August of this year, to evaluate and maybe modify our  
15 conclusions, based on your comments, and then issue a  
16 final document: the final EIS.

17           Next slide, please.

18           Okay, with that brief introduction, I'm going  
19 to take a few minutes to talk about each portion of the  
20 NRC process, and basically introduce you to the NRC  
21 mission.

22           The NRC mission is three-fold. The first step  
23 of our mission is to ensure adequate protection of public  
24 health and safety.

25           Secondly, we endeavor to protect the  
26 environment, and thirdly we provide for common defense and

1 security.

2           The NRC accomplishes its missions through a  
3 combination of programs and processes, such as  
4 inspections, enforcement actions, assessment of licensee  
5 performance, and evaluating operating experience at  
6 nuclear power plants across the country.

7           The NRC license renewal process is similar to  
8 the original licensing process that it involves, as we  
9 stated before, a safety review and an environmental  
10 review.

11           To briefly explain what we consider in the  
12 safety review, we talk about two safety issues. The first  
13 are what we call current operating issues, and these  
14 current operating issues are handled through what we call  
15 the reactor oversight process.

16           The second part of our safety considerations  
17 are aging management issues, and these aging management  
18 issues are what we deal with in the license renewal  
19 process.

20           The NRC's regulatory oversight under the  
21 current operating basis, deals with those current issues,  
22 and we segregate the two, and restrict the consideration  
23 of license renewal to aging management programs.

24           Because the NRC does not -- deals with the  
25 current operating issues as they occur, we do not postpone  
26 the development and analysis of those issues, such as

1 security and emergency planning, until we enter the  
2 license renewal process.

3 Therefore those two elements of the NRC  
4 oversight are covered under our current operating license.

5 For license renewal, what we do is we focus on  
6 the aging management issues, and aging management  
7 programs, that the licensee has implemented to maintain  
8 the safety of structures and components.

9 We complete our safety review when we issue our  
10 safety evaluation report, which is independently reviewed  
11 by the advisory committee on reactor safeguards, also  
12 known as the ACRS.

13 The ACRS is a group of academic and industry  
14 experts that look at the application and results of our  
15 safety review, which are recorded in the SER, and directly  
16 provides the commission with their findings and  
17 recommendations, independent of the rest of the NRC staff.

18 Now, I'm going to talk about the environmental  
19 review. The environmental review evaluates the impact of  
20 license renewal on a number of areas.

21 To just briefly describe some of these areas,  
22 they include ecology, hydrology, cultural resources, and  
23 socioeconomic issues.

24 Part of the environmental review is the comment  
25 period, and that's the main reason for this meeting today,  
26 to receive comments on the draft environmental impact

1 statement.

2 And Mr. Tom Kenyon will continue to talk more  
3 on that process. Next slide, please.

4 As you can see from this slide, the review  
5 process follows a parallel path, as we've talked about  
6 earlier. The safety review and the environmental review.

7 The upper path describes the safety review,  
8 which involves the NRC's review staff, and the assessment  
9 of technical information that's contained in the ANO-2  
10 license renewal application.

11 We have a team of about 30 NRC technical  
12 experts, along with contractors, back at the NRC  
13 headquarters in Rockville, who are conducting the safety  
14 review. All of whom bring a lot of experience and  
15 knowledge to this review effort.

16 The safety review focuses on the effectiveness  
17 of a proposed aging management program contained in the  
18 license renewal application.

19 The NRC safety reviews -- the NRC staff, excuse  
20 me, reviews these aging management programs to ensure that  
21 they will be adequate throughout the period of extended  
22 operation.

23 Okay, the safety process also involves audits  
24 and on-site inspections. These inspections are conducted  
25 by an inspection team, which pulls resources both from the  
26 NRC staff at headquarters and from the regional offices.

1           The results of these inspections are documented  
2 on a separate inspection report.

3           The results of the safety review will be  
4 documented as we spoke in the SER, which will be issued in  
5 November of this year. At least the draft form will.

6           The lower path shows how we perform the  
7 environmental review, and how that review involves the  
8 scoping activities which are used to develop the draft  
9 supplement to the GEIS, also -- which stands for the  
10 Generic Environmental Impact Statement, which documents  
11 the result of our environmental review.

12           The draft report was published in August of  
13 this year, in comment -- and the comment period is  
14 ongoing, and the final version of the EIS will be issued  
15 after those comments on the draft have been addressed.

16           So as you can see from this slide, the final  
17 agency decision on whether to approve or deny the  
18 application will factor in a number of things.

19           The safety review, which is a result -- it's  
20 going to be the safety evaluation report, which is a  
21 result of a safety review, and the final supplement to the  
22 GEIS, which is the result of the environmental review,  
23 inspection reports, which will be factored in, and the  
24 independent report issued from the ACRS.

25           All of these documents will be used in  
26 consideration of the agency's final decision.

1           The splash marks that you see on the slides,  
2 represent opportunities for public participation.

3           The first opportunity was during the scoping  
4 process that was conducted last winter. During the  
5 scoping process, members of the public can provide their  
6 insights and views on relevant issues that need to be  
7 considered during the environmental review.

8           The next opportunity for input on the  
9 environmental review is now, as we are presenting our  
10 draft EIS.

11           Separately, if a petition had been filed, to  
12 intervene in this process by an individual or group, then  
13 if they had adequate standing -- in other words, if their  
14 request for a hearing is granted by either the atomic  
15 safety licensing board or the NRC Commission, itself, then  
16 a hearing may also have been involved in this process.

17           For the ANO-2 review, we did not receive a  
18 request for hearing, and because there was no request for  
19 hearing, the license renewal process should take 22  
20 months.

21           Okay, that concludes my comments on the review  
22 process, and I'll hand the rest of the presentation over  
23 to Mr. Tom Kenyon.

24           MR. KENYON: Thank you, Greg. As Greg  
25 mentioned, my name is Tom Kenyon and I'm the environmental  
26 project manager for the ANO-2 project.



1 I'm going to spend a few minutes talking about  
2 our overall environmental review process, then we're going  
3 to talk about the specific results of our review of the  
4 ANO-2 environmental impacts, and then finally we're going  
5 to talk about how -- discuss how members of the public can  
6 provide us with your comments.

7 Now, NEPA was -- the National Environmental  
8 Policy Act, or NEPA, was enacted in 1969, and requires all  
9 federal agencies to use a systematic approach to consider  
10 environmental impacts during certain decision-making  
11 proceedings.

12 Now, it's a disclosure tool that involves the  
13 public. It involves a process in which information is  
14 gathered by federal agencies to make informed decisions on  
15 a particular activity, and then as part of that process,  
16 we evaluate it and then we document the results of our  
17 findings, and then we invite the public to evaluate it and  
18 provide us with any comments they might have.

19 Now, the NEPA process for license renewal  
20 results in an environmental impact statement, as Greg has  
21 mentioned earlier.

22 Now, that environmental impact statement, which  
23 we refer to as a EIS, describes the results of the  
24 detailed review that we did to evaluate the impact of any  
25 proposed action that has the potential to significantly  
26 impact the quality of the human environment.

1           Now, in preparing an environmental impact  
2 statement as part of the ANO-2 review, as Greg mentioned,  
3 we conducted the scoping process last winter, where we  
4 invited -- where we had a meeting here, and invited public  
5 comments during that period, and we came out to the site  
6 during the scoping process, and we interviewed federal and  
7 other state and local authorities to get information.

8           We documented that -- we've evaluated that  
9 information and have documented it in the draft SEIS for  
10 which we've issued in August of this year. Next slide.

11           Now, this slide describes the decision standard  
12 for our environmental review. I'm just going to read it.

13           The staff is just trying to determine whether  
14 the adverse environmental impacts of license renewal for  
15 the ANO-2 project are so great that preserving the option  
16 of license renewal for energy planning decision makers  
17 would be unreasonable.

18           Now, that's what it says in the regulations,  
19 but to simplify it, we're really trying to determine  
20 whether or not renewing the ANO-2 license for an  
21 additional 20 years is acceptable from an environmental  
22 standpoint.

23           Now, I want to emphasize that if we were to  
24 decide in the end that license renewal is appropriate from  
25 an environmental perspective, all that means is it will be  
26 okay for the licensee to decide whether or not to operate

1 for an additional 20 years.

2 The NRC doesn't make the decision as to whether  
3 or not it will continue operation. That decision is made  
4 by the licensee in conjunction with state regulators.

5 So it's possible that the licensee could  
6 determine that even after going through this process, they  
7 may determine it's not economically feasible to continue  
8 operations. But that's their choice: we're not the ones  
9 who make that decision.

10 Now, this slide gives a little more detail  
11 about the lower part of the graph that Greg had showed you  
12 earlier about our license renewal process, the  
13 environmental portion.

14 The application was received in October of  
15 2003. We issued a notice of intent to develop an  
16 environmental impact statement and conduct scoping in  
17 December. As I said earlier, we went through the scoping  
18 process, we came out to the site and performed our review,  
19 and we put together a draft supplement to the GEIS or the  
20 environmental impact statement that was issued on August  
21 30, 2004.

22 When we -- now we're currently on a 75 day  
23 comment period, which ends on November 4 -- I'm sorry,  
24 November 24 of this year, and once we've received all the  
25 comments and we've determined whether or not we need to  
26 modify our environmental impact statement, then we're

1 planning on publishing the final environmental impact  
2 statement in April, 2005.

3 So that completes my general overall  
4 presentation. Maybe this is a good time to ask if there  
5 are any questions on just the general process, and then  
6 Duane can go into more detail as to the results of our  
7 review.

8 MR. KUGLER: Okay, thank you, Tom. Are there  
9 any questions concerning either the overall environment or  
10 the overall licensing rule process or the environmental  
11 review process in particular?

12 Seeing none, I guess we'll proceed then.

13 MR. NEITZEL: Thank you, Tom. As Andy said  
14 earlier, I work at the Pacific Northwest National  
15 Laboratory that's in Richland, Washington, and the NRC has  
16 contracted us to provide the expertise necessary to  
17 evaluate the environmental impacts of license renewal at  
18 ANO-2.

19 The PNNL team consists of people and  
20 individuals that are experts in each of these areas that  
21 you see here on this slide. There are atmospheric  
22 scientists, economists, archeologists, terrestrial  
23 ecologists, and the rest of this list.

24 On the next slide.

25 The approach we use has been detailed and  
26 discussed in the draft -- the environmental impact

1 statement, and I'm going to briefly go through this.

2 There are a list of issues that NRC has been  
3 considering for a long time. They considered them in the  
4 generic environmental impact statement, license renewal,  
5 and they've considered this same list each time they go to  
6 a power plant and look at these environmental issues.

7 There's 92 of these issues, and we look at them  
8 each time. They've been put into two different  
9 categories: a Category 1 issue and a Category 2 issue.

10 Category 1 issues are those that the commission  
11 has looked at and said, we can make a generic statement  
12 related to these issues for all power plants, and then  
13 these other issues, of which there's 23, these are more  
14 site specific: we can't make a generic statement, and  
15 you'll have to go out to each site and look at those.

16 Look at the generic ones, and first determine  
17 whether or not there's any new information -- new and  
18 significant information. If there is, you have to look at  
19 this issue on a site-specific basis, or can you still  
20 adopt the generic statement that the commission has  
21 already provided.

22 We analyzed these impacts, at the site,  
23 especially the Category 2 ones, and look and see if there  
24 is any new issue, and carry that down to whether or not we  
25 need further analysis or not, and it's at that point we  
26 take the information that we've gathered for the site

1 about the generic -- about all these issues, and make an  
2 impact statement.

3 The next slide.

4 The impact statements are either small,  
5 moderate, or large. For small impact, the effect -- and  
6 these are very specific definitions that have been  
7 defined. They're used at every site, and we're -- a lot  
8 of work goes into the staff that works on these and within  
9 NRC to make sure we're consistent on this.

10 The small impact, the effect is not detectable,  
11 or it's too small to destabilize, or noticeably alter the  
12 attributes of the particular resource that we're looking,  
13 at whether it be aquatic or terrestrial, air quality,  
14 socioeconomic.

15 And for example, the operation of ANO-2 may  
16 cause loss of adult or juvenile fish at the intake  
17 structure, and if the loss of fish is so small that it  
18 can't be detected in relation to total population in the  
19 river, the impact would be small.

20 But also the next Category of the impact would  
21 be moderate. Here the definition says the effect is  
22 sufficient to alter noticeably but not destabilize  
23 important attributes of the resources.

24 For example, if the losses would cause a  
25 population decline and then stabilize at a lower level,  
26 the impact would be moderate.

1           And for impacts that are considered large, the  
2 effect must be clearly noticeable and sufficient to  
3 destabilize the important attributes of the resource.

4           Again, an example with the fish -- I use fish  
5 for examples because I'm a fisheries biologist. They're  
6 easiest for me to talk about. But, again, this is just an  
7 example if the intake structure would cause fish  
8 populations to decline to the point where it cannot be  
9 stabilized and it continues to decline, then that would be  
10 a large impact.

11           And for each resource we go through and discuss  
12 those.

13           The next slide.

14           We go through a lot of information gathering to  
15 do this. This is the environmental impact statement, but  
16 we get information from the licensee. They prepare a  
17 renewal application, and we get public comments that Tom  
18 and -- talked about. We talk to the staff, the staff that  
19 we've put together goes to the site and does a site audit.

20           They talk to the people that work at the site  
21 and look at -- and talk to the fisheries biologist there,  
22 the air -- the meteorologist, the air quality specialist,  
23 the people that are there for the radiation monitoring,  
24 the people in the community for the social services.

25           People ask about employment, about  
26 transportation, housing, taxes. We gather that kind of

1 information. Talk to the permitting authorities and then  
2 state and local agencies.

3 Other state and federal agencies that have  
4 regulatory issues related to operation of the plant, and  
5 take all that information, and from that is what we  
6 evaluate then to make these impact statements.

7 The impact statement that you'll see -- the  
8 draft impact statement that most of you already have or  
9 that you can get, addresses issues related to the cooling  
10 system, transmission lines, radiological, socioeconomic,  
11 ground water use and quality, threatened and endangered  
12 species, and accidents.

13 And they are in specific chapters of -- or each  
14 section of the EIS.

15 So now I'll go through and give you the  
16 conclusions that at this point are preliminary. We're  
17 waiting for comments before we finalize those impact  
18 statements, but we have made impact statements related to  
19 each of these areas.

20 The first set of issues I'm going to talk to  
21 relate to the cooling system for ANO-2. There are a  
22 number of Category 1 issues, for example scouring,  
23 eutrophication, discharge of chlorine. The Category 1  
24 issues meet all of the conditions for the generic impact  
25 statement, and there was no new information presented  
26 during scoping of the site audit or any phase of the



1 assessment, therefore the NRC staff concludes that there  
2 are no impacts beyond those identified in the generic  
3 impact statement.

4 Issues the team looked at on a site-specific  
5 basis included water use conflict and microbiological  
6 organisms. We found the potential impact in these areas  
7 to be small, and additional mitigation is not warranted.

8 The next area -- then we went and looked at the  
9 transmission lines. Here again there are some Category 1  
10 issues. Some examples are bird collisions, the right-of-  
11 way management plan, the air quality. The Category 1  
12 issues all meet the conditions for the generic impact  
13 statement, and there was no new information presented  
14 during the assessment process, and therefore the NRC staff  
15 concludes that there are no impacts beyond those  
16 identified in the generic impact statement.

17 The issues that we looked at specifically for  
18 the ANO-2 site are the electromagnetic fields, that is the  
19 acute effects from electric shock, and another issue, the  
20 electromagnetic fields' chronic effects related to -- here  
21 again these issues, we found the potential impact in these  
22 areas are small and again no mitigation is warranted.

23 Next.

24 We did look at radiological impact.

25 Radiological impacts are a Category 1 issue, and NRC has  
26 made a generic determination that the impact of

1 radiological release during nuclear power operation during  
2 the 20 year license renewal period are small, but because  
3 those releases are a concern, I'm going to discuss them in  
4 a little more detail here.

5 Nuclear plants are designed to release  
6 radiological effluents into the environment. ANO-2 is no  
7 different than other plants that we've been to and that  
8 we've looked at, where we've done the assessment, and ANO-  
9 2 does release radiological effluents into the  
10 environment.

11 During our visit, we looked at the effluent  
12 release monitoring program. We looked at the  
13 documentation for those programs. We looked at how the  
14 gaseous and liquid effluents were treated and released,  
15 and how -- as well as how solid wastes were treated and  
16 packaged.

17 We looked at how the applicant determines and  
18 demonstrates that they are in compliance with the  
19 regulation for release of these effluents.

20 We also looked at the data from off-site, and  
21 near-site locations, that the applicant monitors for  
22 airborne releases and direct radiation and other  
23 monitoring stations beyond the site boundary, including  
24 where they look at water, milk, fish, food products, where  
25 and how these are sampled and the results of those.

26 We found that the maximum calculated dose for a

1 member of the public are well within the annual limits.  
2 Now, there's a near unanimous consensus within the  
3 scientific community that these limits are protective of  
4 human health, and since the releases from the plant are  
5 not expected to increase on a year-to-year basis during  
6 the 20 year license renewal term, and since we found no  
7 new or significant information that relate to this issue,  
8 we adopted the generic conclusion that the radiological  
9 impact on human health and the environment is small.

10 Socioeconomic impacts. Here again there are  
11 some Category 1 issues, some examples include public  
12 safety, education, aesthetic impacts. The Category 1  
13 issues meet all of the conditions for the generic impact  
14 statement. There was no new or significant information  
15 presented during scoping, the site audit, or any phase of  
16 the assessment, and therefore the NRC staff concluded that  
17 there was no impact beyond those identified in the generic  
18 impact statement.

19 The team looked at these Category 2 issues at  
20 ANO, housing, public services, which is the public  
21 utilities, off-site land use, public services and  
22 transportation. The historic and archeological resources  
23 and the environmental justice issue, which is not a  
24 Category 1 or 2 issue, but it hasn't been categorized yet,  
25 but we did look at that specifically at ANO-2.

26 The issues that the team looked at on a site-

1 specific basis were assessed as small, and again, no  
2 additional, or no mitigation is required there.

3 Groundwater, another one of the issues. There  
4 are some Category 1 issues here. It's groundwater  
5 conflicts with plants that use more than a hundred gallons  
6 per minute, and there's no groundwater use at ANO-2, so  
7 again, that meets all of the conditions and meets the  
8 statement for no impact beyond those identified in the  
9 generic impact statement.

10 The Category 2 issue we looked at was the  
11 groundwater use conflict, especially related to the use --  
12 or specifically related to the use of cooling towers.

13 The team looked at the site specific issues  
14 there, and we found that the potential impacts in this  
15 area were small, and additional mitigation is not  
16 warranted.

17 Threatened, and endangered species. There are  
18 four species, three terrestrial and one aquatic species  
19 listed as threatened, endangered, or candidate species in  
20 this part of Arkansas.

21 We went to the Fish and Wildlife Service, which  
22 is the management agency that keeps track of these birds,  
23 mammals, and fish. There are two birds, a mammal, and a  
24 fish, and asked them about the potential impacts of an  
25 additional 20 years of operation, and we gave them the  
26 following information, that I'll discuss now, for each one

1 of these animals.

2 First, the -- yes, the first one I have here is  
3 the gray bat. It was listed as federally endangered in  
4 1976. Its range includes the area near ANO-2, where it  
5 resides in caves upstream of the lock and dam. However,  
6 these caves are ten miles and further from ANO-2, and no  
7 one habitat is more than two miles from the transmission  
8 right of ways, therefore NRC determined that the proposed  
9 action will have either no effect or not likely adversely  
10 affect Gray Bats.

11 For the Bald Eagle, Arkansas rates in the top  
12 ten states in the number of winter Bald Eagle sightings.  
13 I thought that was an interesting bit of trivia. More  
14 than a thousand Bald Eagles are counted each winter,  
15 nearly triple the 370-something or -60-something that were  
16 reported in 1979, and nests have been reported at several  
17 locations around Lake Dardanelle, but none of these are  
18 within ten miles of ANO-2 or near the transmission line  
19 right-of-ways, and therefore NRC staff has determined that  
20 the proposed action will have either no effect or will not  
21 likely effect adversely Bald Eagles.

22 The next bird on the list is the interior Least  
23 Tern. He is present in the Arkansas and Red Rivers from  
24 April through August, and they are -- they nest in small  
25 colonies on exposed salt flats, reservoir beaches, river  
26 sand bars, along most of the larger rivers.

1           The conditions that they use for nesting  
2 habitat is not found near the ANO-2 site, and the nearest  
3 known or documented sites are 22 and 24 miles up and down  
4 river from the site, and the nesting locations are beyond  
5 the ten mile radius from ANO-2 and its transmission line  
6 right-of-ways, therefore NRC has determined that the  
7 proposed action will either -- will have either no effect  
8 or will not be likely to adversely affect interior Least  
9 Terns.

10           Lastly, we have the Arkansas River Shiner, that  
11 formerly occurred throughout the main stem and major basin  
12 for the Arkansas River. This fish is extremely dependent  
13 on flood flows during the summer to successfully spawn.  
14 Declining stream flows have now restricted its probable  
15 range to a few stream reaches in Kansas, Oklahoma, and  
16 Texas. They are over ten miles from the site. In fact,  
17 it's over 180 miles from the site.

18           The designated critical habitat for the  
19 Arkansas Shiner does not occur in Arkansas, therefore NRC  
20 staff determined that the proposed action will have either  
21 no effect, or will likely -- will not likely affect -- is  
22 not likely to adversely affect the Arkansas River Shiners.  
23 We have sent this information and a biological assessment  
24 to the Fish and Wildlife Service, and they have sent us a  
25 letter back saying they agree with us.

26           Okay, we looked at all that -- those impacts

1 from each one of those different areas, and then we looked  
2 at cumulative impacts of operation of the power plant for  
3 an additional 20 years.

4 Cumulative impacts were those impacts that  
5 might be so minor that when they're considered  
6 individually they're not significant or they're not a  
7 reportable impact, but when you look at these in -- when  
8 you cumulate all these impacts and look at them with other  
9 past, present or foreseeable future actions, regardless of  
10 what agency or what person takes those actions, this  
11 action might cumulate to the point where you do have a  
12 significant impact.

13 So we went through that exercise for each one  
14 of these resource areas, and the operation of the cooling  
15 water system, transmission lines, the release of  
16 radiological materials, the sociological impacts,  
17 groundwater use, all the threatened or endangered species.  
18 These impacts were evaluated to the end of the 20 year  
19 license renewal term, and I'd like to note the  
20 geographical boundary of the analysis, that was dependent  
21 on the resource.

22 The socioeconomic resources included the area  
23 where more workers occur, where taxes are paid, where  
24 roads go for people to come to and from the plants, those  
25 kind of things. For that geographic area, you can imagine  
26 that in your mind.

1           For the cooling water, it was focused on the  
2 reservoir and the river. For the transmission lines you  
3 have different geographical area: you have a line that  
4 runs from the power plant to Mayfield, and that line, so  
5 the temporal component of this analysis was the same. The  
6 geographical component is specific to the resource.

7           These impacts are preliminary determinations,  
8 determinations that's in the draft, is in -- the  
9 cumulative impact resulting from the operation of  
10 ANO-2 during the license renewal period will be small.

11           There's two other areas that are addressed  
12 during the environmental impact assessment for  
13 relicensing. They deal with the uranium fuel cycle and  
14 follow the waste management and decommissioning. These  
15 impacts are looked at in other areas by NRC and all the  
16 issues that are related to relicensing for the uranium  
17 fuel cycle and solid waste management, as well as  
18 decommissioning are considered Category 1 issues.

19           During scoping, audit, and during our  
20 assessment process, there were no new -- there was no  
21 significant information identified and we have accepted  
22 the impact statement conclusion that is in the generic  
23 impact statement.

24           Lastly, we went back and we looked at all of  
25 these resource areas from license renewal relative to  
26 other alternatives. Alternatives to license renewal.



1 First we looked at no action, which is essentially not  
2 renewing the license. What will that mean to fish, to  
3 birds, to the public, to housing, to transportation, to  
4 cultural resources, air quality, water quality,  
5 groundwater use.

6 Went through each one of those things. How  
7 would that relate. All the impacts were related then  
8 they're compared to the no action. We looked at some  
9 alternative energy sources, saying well, if that power's  
10 not available, where might other sources of power, where  
11 might other sources of power come from.

12 New generation from a coal plant or a natural  
13 gas plant or another nuclear plant. Purchasing the power  
14 from outside the ANO-2 area and then other alternatives:  
15 oil, wind, solar, conservation. We looked at those.

16 Then we looked at a combination of these: a  
17 little bit of this, a little bit of that, you know, maybe  
18 some wind, some purchase, some conservation, some other.  
19 So we looked at those in a combination.

20 When you look at those, the environmental  
21 effects of the alternatives, in at least some of the  
22 impact categories reached the moderate or large  
23 significance, so for each alternative that we looked at  
24 had the same types of issues: they were all greater than  
25 the continued -- or the re-licensing or the extending the  
26 license for an additional 20 years for ANO-2.

1           So finally here, I'd like to quickly go back  
2 through the approach again, how we did that, just to kind  
3 of go back through what we did.

4           We looked at these Category 1, Category 2  
5 issues for ANO-2. For the Category 1 was there new and  
6 significant information or could we adopt the statement  
7 that's in the generic impact statement.

8           For the others we looked at -- we performed a  
9 site audit, was there, again, any new issues -- potential  
10 issues, and then completed the analysis.

11           Okay, I believe this is the final slide. A  
12 quick summary the conclusions that are in the draft  
13 environmental statement for the 69 Category 1 issues  
14 presented in the generic EIS that relate to ANO-2, we  
15 found no information that was new and significant, and  
16 therefore we preliminarily adopted the conclusion that the  
17 impact of these issues was small.

18           The team analyzed the remaining Category 2  
19 issues in this, and we found that the environmental  
20 effects resulting from the issues were also small.

21           During our review, we found no new issues that  
22 were not already known, and last, we found that the  
23 environmental effects of alternatives, at least in some of  
24 the categories, reached moderate or large significance.

25           So, Tom? Thank you, and back to you Tom. Or  
26 Andy. Is it Tom or Andy? Tom. Thank you.

1           MR. KENYON: I'm going to discuss one more  
2 issue that we take a look at. We look at the  
3 environmental impact of postulated accidents. In the  
4 generic environmental impact statement, the staff  
5 evaluated two types of accidents, the design-basis  
6 accidents and the severe accidents.

7           Now, design-basis accidents are those accidents  
8 that have been evaluated to ensure that the plant can  
9 respond to a broad spectrum of postulated accidents  
10 without risk to the public.

11           The environmental impacts of design-basis  
12 accidents were evaluated during the initial licensing of  
13 the ANO-2, during which it was demonstrated that the plant  
14 had the ability to withstand these accidents.

15           Because the licensee has continued to  
16 demonstrate acceptable plant performance for design-basis  
17 accidents throughout the life of the plant, the commission  
18 has determined that the environmental impact of design-  
19 basis accidents is small.

20           So neither the licensee, and as a result of our  
21 review, the NRC, is aware of any new and significant  
22 information on the capability of ANO-2 to withstand the  
23 design-basis accidents any differently than had been  
24 determined during the licensing process, and therefore the  
25 staff concludes that there are no impacts related to the  
26 design-basis accidents that are beyond those that are

1 discussed in the generic environmental impact statement.

2 Now, the second category of accidents is severe  
3 accidents, which are by definition, more severe than  
4 design-basis accidents, because they could result in  
5 substantial damage to the reactor core.

6 The commission found in the GEIS that the risk  
7 of a severe accident are considered small for all plants.  
8 But nevertheless, the commission also determined that  
9 alternatives to mitigate such severe accidents must be  
10 considered for any plant for which it hadn't been  
11 considered in the past.

12 ANO fit into that category, and so we were  
13 required to take a look at alternatives for severe  
14 accidents, and we call this severe accident mitigation  
15 alternatives or SAMA, and although we don't like to use  
16 acronyms, this makes my life a lot easier just to call it  
17 a SAMA, so I will.

18 Next slide, please.

19 Now, briefly, the SAMA evaluation is a four  
20 step process. The first step is to characterize the  
21 overall plant risk. And what could be the leading  
22 contributors to that list. This typically involves the  
23 extensive use of the plant specific probabilistic safety  
24 assessment that was done, that we refer to as the PSA.

25 Now, that plant probabilistic safety assessment  
26 is a study that identifies the different combinations of

1 system failures and possible human errors that would be  
2 required to occur and lead you to progress to either core  
3 damage or containment failure.

4 And the second step is to identify what  
5 potential improvements could be implemented to further  
6 reduce the risk of such an accident.

7 This is done by taking a look at the  
8 probabilistic safety assessment. They also look at other  
9 NRC and industry studies, and we're also looked at other  
10 SAMAs that have been done. We've done over 20 SAMA  
11 reviews now. And these were all considered.

12 The third step in the evaluation is to quantify  
13 the risk reduction potential implementation cost. In  
14 other words we kind of do a bounding analysis to come up  
15 with kind of a cost/benefit assessment.

16 And then finally the risk reduction and cost  
17 estimates are used in the final step to determine whether  
18 or not implementation of any of the improvements can be  
19 justified.

20 And to determine whether or not it's justified,  
21 we look at three factors. One is whether or not the  
22 improvement is cost beneficial. The second is whether the  
23 improvement provides a significant reduction in the total  
24 risk, and then the third factor is whether or not the risk  
25 factor is associated with the aging effects during the  
26 period of the extended operation.

1           Now, this slide gives you the preliminary  
2 results of our review, the ANO-2 SAMA review evaluation.

3           Entergy started out with identification of 192  
4 candidate improvements that were based on the  
5 probabilistic safety assessment, the other studies that  
6 have been done, as well as the other SAMAs that have been  
7 looked at.

8           Now, Entergy reduced those to a set of 93  
9 potential SAMAs, based on a multistep screening process,  
10 and basically they've looked at whether or not it was not  
11 applicable to ANO-2 specifically, or that it had already  
12 been addressed in the design of ANO-2.

13           And then Entergy did a more detailed assessment  
14 of the conceptual design, and costs were then estimated  
15 for the remaining of the 93 remaining SAMAs.

16           Now, from this evaluation, Entergy concluded  
17 that there were no cost-beneficial SAMAs.

18           Now, the staff evaluated Entergy's methodology,  
19 and we concluded that their implementation of that  
20 methodology was sound, but there were certain  
21 uncertainties that were involved, and as a result of our  
22 own independent review in considering these uncertainties,  
23 the staff identified four SAMAs that could potentially be  
24 cost-beneficial.

25           Two of the SAMAs involved procedural changes  
26 and two involved diversifying equipment to reduce common

1 cause failure issues.

2 But other -- next slide, please.

3 But as I mentioned earlier, the cost beneficial  
4 consideration is just one of the things that we look at to  
5 determine whether or not an improvement is justified. We  
6 also look at whether the improvement provides a  
7 significant reduction of the total risk, and whether those  
8 SAMAs are related to managing the effects of plant aging.

9 And when we look at those other two factors,  
10 the staff concluded that the additional plant improvements  
11 to further mitigate severe accidents were really not  
12 required as part of the ANO-2 license renewal.

13 Now, this is a overall summary of the entire  
14 review. As Duane had mentioned, the impacts of license  
15 renewal are small, for all the impact areas. For when we  
16 look at relicensing ANO-2. And when we look at the  
17 alternatives to the relicensing, some of the impacts can  
18 range anywhere from small to large.

19 And so it's the staff's preliminary  
20 recommendation that the adverse -- recommendation to the  
21 commission would be that they find that the adverse  
22 environmental impacts of license renewal for ANO-2 are not  
23 so great that preserving the option of license renewal for  
24 energy planning decision-makers would be unreasonable.

25 Now, this slide just recaps some of the key  
26 milestones that are left in the review process. As we've

1 mentioned the draft to the environmental impact statement  
2 was issued in August, we're in the middle of a 75 day  
3 comment period that ends on November 24.

4 All comments that are received by November 24  
5 will be considered, and we may decide as a result of that  
6 review that we may have to modify that draft environmental  
7 impact statement. Once we do that, then we expect to  
8 issue the final environmental impact statement in April of  
9 2005.

10 Now, this identifies me as the point of contact  
11 for the environmental review, and it gives you my phone  
12 number if you have any questions after we leave today, and  
13 want to discuss any other issues that you may think of  
14 after we leave.

15 I also wanted to mention that you can see hard  
16 copies of the documents at the Ross Pendergraft Library at  
17 Arkansas Tech University. They've been gracious enough to  
18 give us a little shelf space to include the application,  
19 they're going to include Greg's SER, as well as include  
20 drafts and our final environmental impact statement.

21 And finally, you can view and download the  
22 documents off of our website at this address.

23 In addition to this, I may have mentioned to  
24 some of you folks, we brought a few extra copies of the  
25 draft environmental impact statement. I don't know -- I  
26 see three of them might be left. We really don't want to



1 take them back with us; if you want extra copies, feel  
2 free to take only the ANO-2 specific information off the  
3 table, and if we run out, we will -- just give us your  
4 name and address and we will be more than happy to send  
5 you an extra copy.

6 And finally, now in addition to providing any  
7 comments you might have during today's transcribed  
8 meeting, these are the ways most people provide us  
9 comments. Either by mail by sending it to the Chief of  
10 the Rules and Directives Branch at that address.

11 Those of you who may be in Rockville can hand  
12 them to us in person. Somebody asked me earlier if that  
13 ever happened, and it hasn't, to my knowledge, but you  
14 just never know. And finally, we've established a special  
15 email address at our website, and you can just send your  
16 comments to the [ANOEIS@nrc.gov](mailto:ANOEIS@nrc.gov).

17 And that really completes our presentation for  
18 now. As I said earlier, all comments that are collected  
19 by November 24 will be considered, and while we develop  
20 the final environmental impact statement, and with that, I  
21 guess we're going to open up the floor to any comments or  
22 questions you might have, and I'll turn it back over to  
23 Andy.

24 MR. KUGLER: Thank you, Tom. Are there any  
25 questions for Tom or for Duane on the results of our  
26 review or on how you can submit comments after this

1 meeting?

2 Does anybody have any questions? Okay, no  
3 questions. Is there anybody who wishes to make any  
4 comments at this point? We didn't have anybody register,  
5 but is there anybody who has decided in the meantime that  
6 they would like to say something?

7 I guess not. Alright, a couple of things  
8 before I turn it back to Tom to close. I did want to  
9 mention that in the package you received when you came in,  
10 there's a meeting feedback form. We'd really appreciate  
11 it if you'd fill that out. You can either fill it out and  
12 drop it off at the back, or you can fill it out and mail  
13 it in. It's pre-paid postage. But if you have any  
14 comments on the way we ran the meeting or how we could do  
15 it better, we would certainly appreciate that, and finally  
16 as Tom mentioned, we do have materials over here --  
17 anything you don't take, we have to carry back, so if  
18 there's anything over there that interests you at all,  
19 please feel free to take it.

20 The only things that are exceptions are a few  
21 that are marked, these copies are documents that we'd  
22 rather you not take, we need to bring those back, but any  
23 other materials you're interested in.

24 And with that, I'll turn things back to Tom,  
25 just for a very brief closing.

26 MR. KENYON: Well, once again I want to thank

1 you all for coming. I understand you've had an arduous  
2 week, some of the folks have been involved in some other  
3 activities, and other people are here, I'm sure, it's  
4 after work, and I appreciate your coming and spending your  
5 time with us. Thank you very much, and if you have any  
6 questions afterwards feel free to stop any one of us and  
7 we're willing to talk to you today.

8 And with that I guess we close the meeting.

9 (Whereupon, at 8:05 p.m., the meeting was  
10 concluded.)

11