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**NUCLEAR REGULATORY COMMISSION**

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License Renewal Public Meeting  
Evening Session

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NUCLEAR REGULATORY COMMISSION  
LICENSE RENEWAL PROCESS AND ENVIRONMENTAL SCOPING  
FOR PALO VERDE NUCLEAR GENERATING STATION,  
UNITS 1,2, & 3  
LICENSE RENEWAL APPLICATION REVIEW

SESSION 2

ESTRELLA MOUNTAIN COMMUNITY COLLEGE  
300 NORTH DYSART ROAD  
AVONDALE, ARIZONA 85392

JUNE 25, 2009  
7:00 P.M. TO 10:00 P.M.

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## P-R-O-C-E-E-D-I-N-G-S

1  
2 MR. ROBINSON: Okay. We're going to start  
3 here everybody. Thanks for coming out.

4 Welcome to the public meeting of the  
5 Nuclear Regulatory Commission. My name is Jay  
6 Robinson, I'm a senior project manager in the  
7 division of license renewal. And I'm going to act as  
8 the facilitator of today's meeting.

9 This meeting will include discussions on  
10 the license renewal and environmental scoping  
11 processes as they relate to the renewal of the  
12 nuclear power plant operating licenses for Palo Verde  
13 Nuclear Generating Station.

14 Let me go over a couple of ground rules for  
15 the meeting first. Please turn your cell phones,  
16 pagers, and any other noise-making devices you might  
17 have to the vibrate position.

18 If you need to answer a call during the  
19 meeting, that's fine but just please leave the room  
20 and take your call outside of the room. Please  
21 remain silent when anybody else is speaking. If you  
22 need to have a side conversation, once again, please  
23 leave the room.

24 We're going to have speakers today that  
25 include the NRC staff, local officials, and members

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1 of the public.

2 As I said just a few minutes ago, if you do  
3 want to make a comment try to sign the sign-in sheet  
4 here. Right now we have -- ten people only have  
5 signed up to speak. There's ample time for speakers  
6 during the meeting, so please sign up if you want to  
7 speak.

8 And also, there is a question period after  
9 the presentations and I think during the  
10 environmental presentation, you can ask questions  
11 during that as well. Just try to direct them to the  
12 parts of the presentation and not to the comment that  
13 you want to give later, because that's a separate  
14 period.

15 If you're going to speak, please speak  
16 clearly and at a sufficient volume because we are  
17 transcribing the meeting and please state your name  
18 and affiliation at the beginning of your comment. We  
19 do have a mic set up here at the center aisle way and  
20 if you need assistance or need me to bring you the  
21 mic, I can do that, that's not a problem.

22 We will have a transcript of the meeting  
23 that will be posted to our public website and that  
24 will be available a couple of weeks after today.

25 As this is the NRC public meeting, all

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1 questions should be directed to members of the NRC  
2 staff; questions should not be directed at local  
3 officials or utility company personnel. I might  
4 direct any questions that way during the meeting.

5 If you have a question that the NRC staff  
6 cannot answer, please provide me or one of the other  
7 staff members with your contact information so we can  
8 get an answer and get back with you.

9 During the meeting we're going to have a  
10 discussion on the license renewal process from the  
11 NRC safety project manager, Mr. Jonathan Rowley.  
12 We're also going to be discussing the environmental  
13 scoping process; the NRC environmental project  
14 manager is Lisa Regner.

15 And then we're going to have a comment  
16 period where members of the public, local officials,  
17 and utility personnel can make comments. And then  
18 we're going to follow that up with a conclusion.

19 Other members of the NRC staff that we have  
20 here today, Mr. Travis Tate, he's a branch chief in  
21 the division of license renewal.

22 We have Jim Melfi who is a resident  
23 inspector at Palo Verde along with Michelle Catts  
24 who's also a resident inspector.

25 Don Allen for Region IV and Victor Dricks,

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1 also from Region IV. Okay?

2 If no one has any questions at this time  
3 I'd like to introduce Mr. Jonathan Rowley who will  
4 discuss the license renewal process.

5 MR. ROWLEY: Thank you, Jay.

6 Good evening. My name is Jonathan Rowley,  
7 I'm the State project manager within the division of  
8 license renewal, assigned to coordinate this staff  
9 safety review of the Palo Verde Generator license  
10 renewal application. Thank you for joining us this  
11 evening.

12 Tonight we're going to provide an overview  
13 of the license renewal review process. It's two  
14 fold, there's a safety review and an environmental  
15 review. We're here also tonight to get the public  
16 comments and tell you of the numerous ways the public  
17 can participate in both the environmental and then  
18 the safety review processes given.

19 It's important to us that the public gives  
20 us input and we'll start tonight with giving some  
21 environmental inputs.

22 Next slide.

23 Before I get into the discussion of the  
24 license renewal process, I'd like to take a few  
25 minutes to talk about the numerous terms that we use

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1 and what our mission is.

2 The NRC's governing statutes are the Atomic  
3 Energy Act. The Atomic Energy Act was established by  
4 the Energy Reorganization Act of 1974. It authorized  
5 the NRC to grant a 40-year operative license for  
6 nuclear power reactors. This 40-year term is based  
7 on economic considerations and anti-trust factors,  
8 not safety or our technical limitations. The Atomic  
9 Energy Act also allows for license renewal.

10 The National Environmental Policy Act of  
11 1969, NEPA, establishes a national policy for  
12 considering the impact of Federal decisions on the  
13 human environment. And Lisa will discuss that in  
14 greater detail during her part of the presentation.

15 All right. The Agency's mission is  
16 threefold. We're going to ensure the adequate  
17 protection of public health and safety, promote  
18 common defense and security, and protect the  
19 environment.

20 Okay. The Palo Verde licensing application  
21 was received by NRC on December the 15th in 2008. As  
22 you see here, the license for units 1, 2, and 3  
23 expire in 2025, 2026, and 2027 respectively.

24 A licensee can submit an application for  
25 renewal after 20 years of operation and the length of

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1 the license cannot exceed 40 years. So a newer  
2 license is superseding and replaces the original  
3 license. Palo Verde leased all of their departments,  
4 so that's why they decided to apply for a renewal  
5 license.

6 Next slide, please.

7 The first step, once we receive a license  
8 is to determine if the application is sufficient for  
9 us to begin our review. We want to take a look at  
10 the contents of the application in the areas of  
11 technical information, technical specifications, and  
12 environmental report to see if there's enough  
13 information in that document for us to at least start  
14 our review.

15 If there is enough information that we can  
16 start the docket, the application, and that starts  
17 our official review and that starts the window in  
18 which the public can start giving us feedback and  
19 participating.

20 Next slide, please.

21 I'd like to mention a few very important  
22 areas of NRC oversight that routinely come up in  
23 license renewal but things we don't particularly take  
24 care of in license renewal.

25 The first one is the current safety

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1 performance. These are things that the plant or NRC  
2 looks at on a day-to-day basis, so we don't review  
3 this again in license renewal. Also, we do the same  
4 for emergency planning and security.

5 As I said, these are day-to-day issues that  
6 are currently being looked at; we aren't going to  
7 wait until 2025, 2026, 2027 to look at these things.  
8 We look at them today and they're handled by other  
9 aspects of the NRC.

10 Next slide.

11 Okay. The license renewal process. What I  
12 have on the screen now is a flowchart of the license  
13 renewal process simplified. As you see there's two  
14 independent paths of safety review and environmental  
15 review. They're done in parallel, simultaneously.

16 The safety review is looked at by our  
17 Advisory Committee on Reactor Safeguards or ACRS.  
18 They perform an independent review of the safety  
19 review and they'll feed that decision to our  
20 Commission, and the Commission takes that into  
21 consideration for their decision.

22 From the safety side of things you can --  
23 if an interested party has a -- submits a contention  
24 or constraint and they are granted a hearing, then  
25 the Licensing Board will conduct hearings on those

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1 issues and the rulings or the findings of the Atomic  
2 Safety and Licensing Board will be fed to the NRC --  
3 to our Commission and that will be also a part of the  
4 decision making process.

5 On the environmental review. We have  
6 similar independent reviews of consultations and  
7 comments that are taken from State, local, and tribal  
8 officials.

9 And something else interesting, the EPA  
10 looks at what we do and those comments are fed into  
11 our EIS or department impact statement and those  
12 things are looked at by our Commission.

13 Next Slide, please.

14 A typical license renewal schedule takes 22  
15 months, that's of which we try to do. If a hearing  
16 is granted you add time to go through the hearing  
17 process. As of this moment, Palo Verde is scheduled  
18 -- we plan to complete that April of 2011, if no  
19 hearing is granted.

20 Any questions so far?

21 There are two technical principles that  
22 guide what we do for license renewal. The first one  
23 is that ongoing regulatory process is adequate to  
24 ensure the safety goal and operating plans.

25 The second is that the current plant-

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1 specific licensing basis is maintained during the  
2 renewal term to the same extent as it is during the  
3 original licensing term.

4 In other words, what is being done today  
5 will be done tomorrow, 20 years from now and we might  
6 add a few additional conditions to their operating  
7 license to Federally manage the aging of plant  
8 components, so.

9 Our focus during our safety review is to  
10 look at the safety related systems, structures, and  
11 components and the non-safety systems, structures,  
12 and components, which if they fail could affect  
13 safety-related systems, structures, and components.

14 And those systems, structures, and  
15 components are relied on into compliance with fire  
16 regulations received, fire protection, environmental  
17 qualification, pressurized thermal shock, anticipated  
18 transients without scram, and station blackout. We  
19 were looking to determine if the end effects in those  
20 areas will be adequately managed.

21 Next slide.

22 Okay. How do we do our review? Well, our  
23 technical staff at headquarters will look at and  
24 review the application and any supporting  
25 documentation that the applicant has provided.

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1           We are going to try to determine if the  
2 applicant's methodology to identify the systems,  
3 structures, and components within the scope of  
4 license renewals is subject to an aging management  
5 review.

6           We're going to try to determine if that  
7 methodology is properly implemented and we're going  
8 try to determine, with reasonable assurance, that the  
9 effects of aging of certain systems, structures,  
10 components will be adequately managed and monitored  
11 by existing programs or surveillance activities.

12           We also will come to the site and look at  
13 the technical basis and do an audit to confirm that  
14 the applicant's aging management programs and  
15 activities are as they described in their  
16 application. Staff documents this in a staff safety  
17 evaluation report, which will be made available to  
18 the public.

19           We have a team of inspectors that come from  
20 our regional office and they will lay their eyes on  
21 the plant to see if the aging management programs are  
22 being implemented, modified, and the plant is  
23 consistent with the license renewal application. So  
24 it's two prongs; we have our paper review and hands-  
25 on review.

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1           Okay, both of those aspects are looked at  
2 by our Advisory Committee on Reactor Safeguards and,  
3 once again, that group will give their decision to  
4 the Commission and that feeds into our decision  
5 making process.

6           Next slide.

7           There are several opportunities for the  
8 public to get involved on the safety side. The first  
9 one is coming up fast as the deadline -- well the  
10 filing of hearings on requests and petitions to  
11 intervene, the deadline for that is July 15th of  
12 2009. So that's within the next few weeks.

13           There's -- also when we do have our  
14 Advisory Committee on Reactor Safeguards meeting,  
15 which are tentatively dated for September 2010 and  
16 February 2011, you can come to Rockville and  
17 participate or you can arrange to call in and be  
18 heard via teleconference.

19           That concludes the quick overview of the  
20 safety side of the license renewal process. Are  
21 there any questions?

22           If not, I would like to bring Lisa up and  
23 she will discuss the environmental portion.

24           MS. REGNER: Good evening. I think I'll  
25 try this.

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1 Can you hear me? Can you hear me now?

2 MR. ROBINSON: If you can move it closer to  
3 you. You're fine, (indiscernible -- off mic).

4 MS. REGNER: How about now? I can hear me.  
5 Okay.

6 It's my pleasure to be here tonight. My  
7 name is Lisa Regner; I am one of the project managers  
8 with the Palo Verde license renewal review.

9 My focus is going to be on the environment  
10 for the Palo Verde license renewal review. I'd like  
11 to explain to you briefly about this separate but  
12 equally important review.

13 This review is performed in accordance with  
14 the National Environmental Policy Act of 1969, as  
15 Jonathan said; we refer to it as NEPA. NEPA  
16 established a policy -- a national policy for  
17 considering environmental effects -- impacts and  
18 provides the basic architecture for each Federal  
19 environmental review.

20 All Federal agencies must follow a  
21 systematic approach in evaluating potential impacts  
22 and also to assess alternatives to those actions. By  
23 law, the NEPA process involves public participation  
24 and public disclosure.

25 NEPA established the United States Council

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1 on Environmental Quality within the Executive  
2 Office of the President and the Council on  
3 Environmental Quality establishes the policy for  
4 implementation of NEPA.

5 The NRC's environmental regulations  
6 contained in Title 10 to the Code of Federal  
7 Regulations Part 51 are largely based on the Council  
8 for Environmental Qualities' standards and policies.

9 Our environmental review is to consider the  
10 impact of license renewal and any mitigation for  
11 those impacts that we consider to be significant. We  
12 also consider the impacts of alternatives to the  
13 license renewal. That includes the alternative of no  
14 action; not issuing a renewed license.

15 The staff documents its environmental  
16 review in an environmental impact statement and we  
17 make that publically available. And if anyone is  
18 interested in receiving a hard copy of that, I'd be  
19 happy to take your name and address and mail a hard  
20 copy to you.

21 Ultimately, the purpose of the staff's  
22 environmental review is to determine whether the  
23 environmental impacts of license renewal are  
24 reasonable.

25 In combination with the other reviews that

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1 Jonathan mentioned: the safety review, the  
2 inspections, and the Advisory Committee on Reactor  
3 Safeguards' independent review; we make a  
4 recommendation to the Commission, our governing body,  
5 whether to renew the license or not. The ultimate  
6 decision rests with them or they can delegate that to  
7 staff as well.

8 For a license renewal review the NRC  
9 environmental staff looks at a wide range of impacts;  
10 additionally consult with Federal, State and local  
11 officials, we also consult with leaders of Indian  
12 nations or -- yeah. We gather pertinent information  
13 from these sources and ensure it's considered in our  
14 analysis.

15 Some of the agencies that we consult with  
16 are the Environmental Protection Agency, they take a  
17 look at our environmental review and actually provide  
18 a rating.

19 We also consult with the U.S. Fish and  
20 Wildlife Service, Arizona's own State -- Arizona  
21 State Game and Fish Department, the State Historic  
22 Preservation Office, and the State Bureau of  
23 Radiation Protection. Those are just some of the  
24 examples.

25 Just so you know, and it's listed here on

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1 this slide, since Palo Verde is quite a ways from  
2 the ocean, we actually don't consult with NOAA for  
3 this review, that's the National Oceanic and  
4 Atmospheric Administration; but for many of our  
5 plants we do.

6 The environmental review begins with the  
7 scoping process, which is an assessment of the  
8 specific impacts and significant issues that the  
9 staff should consider in preparing the Palo Verde  
10 environmental impact statement.

11 Currently, this is where we are in the  
12 process and it's an important part of this meeting.  
13 Information will be gathered from you today and in  
14 the next few weeks will be considered and included in  
15 the Palo Verde EIS.

16 We've recognized that some impacts are  
17 similar if not identical at all plants. So to  
18 improve efficiency the staff developed a generic  
19 environmental impact statement for nuclear power  
20 plants; we call that the GEIS. Okay? And that  
21 addresses a number of impacts common to all nuclear  
22 power plants. The website above will take you  
23 directly to our GEIS online.

24 And all of our guidance documents are  
25 online on the license renewal website, which

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1 unfortunately we didn't include in this document  
2 but my e-mail address is included, so -- and phone  
3 number, so if you have any questions, need more  
4 information please feel free to contact me.

5 Staff supplements that generic EIS with a  
6 site specific EIS in which we address the issues that  
7 are specific to a particular plant; in this case Palo  
8 Verde.

9 The staff also reexamines the conclusions  
10 reached in the GEIS to determine if there is any new  
11 and significant information that would change the  
12 conclusions that we've reached in the GEIS.

13 The scoping period started on May 26th of  
14 this year, when the notice of intent to prepare an  
15 EIS and conduct scoping was published in the Federal  
16 Register. The NRC will accept comments on the scope  
17 of the environmental review until July 27th.

18 In general, we are looking for information  
19 about the environmental impacts from continued  
20 operation of Palo Verde.

21 You can assist us in that process by  
22 telling us, for example, what aspects of your local  
23 community we should focus on. What local and  
24 environmental, social, and economic issues the NRC  
25 should examine, and what reasonable alternatives are

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1 most appropriate for this region.

2           These are just some of the examples of the  
3 input that are most helpful to us and they represent  
4 the kinds of information we seek through the  
5 environmental scoping process. We don't know your  
6 community -- we, at headquarters, don't know your  
7 community like you do.

8           The Region IV staff that lives here with  
9 you in your community, they know and can help us in  
10 our review and we are very appreciative of them  
11 taking time to come to our meeting.

12           But we at headquarters aren't as familiar  
13 with your community as you are, so we do welcome your  
14 input. And it ensures that we conduct a thorough  
15 review.

16           So I've said several times, public comments  
17 are an important part of the environmental review  
18 process; we do welcome your comments. So what do we  
19 do with your comments?

20           All of your comments to us, whether  
21 verbally tonight or written to us in a letter or e-  
22 mail are addressed; we address every one. We respond  
23 to each comment as part of a supplemental or a plan  
24 specific environmental impact statement, the SEIS.

25           The SEIS is one of the factors as well as

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1 several others shown here that influences the  
2 Commission's decision to renew the license or not.  
3 So you can see in blue, those comments are entered  
4 into the SEIS, which is one of the factors that  
5 ultimately determine the Commission's decision.

6 Feel free to ask any questions at any time.

7 So how do you submit comments? Obviously,  
8 verbally tonight. We are transcribing this evening  
9 so we get every word right and you're welcome to  
10 submit your verbal comments tonight.

11 You can also submit written comments to our  
12 Chief of Rulemaking and Directives branch, the  
13 address shown here; this is in your handout.

14 You can also submit comments by email at  
15 this address on the slide as well. If you have any  
16 problems submitting comments to this email site  
17 there's another slide that includes my email address,  
18 Jonathan's as well, you can also submit those  
19 directly to us; we'll be happy to take those and  
20 forward those so that they become official Agency  
21 records. And there's another slide with our  
22 information, again, in your handout.

23 As I mentioned, you can also come visit us  
24 in Rockville. You can submit comments in person if  
25 you'd like to come to Rockville, we would certainly

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1 welcome you. Please give us a call so that we can  
2 make arrangements for you to come to headquarters in  
3 Rockville; it is a bit cooler.

4 As I mentioned the deadline for comments is  
5 in just a few weeks, that's July 27th.

6 So here's a reiteration of some of the  
7 environmental review milestones. The two highlighted  
8 in yellow are those that are fairly quickly  
9 approaching, those are the primary -- the first  
10 opportunities for you, the public, to help us and  
11 participate in our review.

12 First, the hearing opportunity closes as  
13 Jonathan mentioned. I did want to mention that  
14 that's not just safety concerns, you can also submit  
15 environmental contentions as well. And those  
16 environmental contentions have to be submitted by  
17 July 15th.

18 Now if you'd like to comment on the  
19 environmental review so that your comments are  
20 included in the EIS, that date is July 27th.

21 While this slide lists the milestones for  
22 the environmental review and opportunities for public  
23 involvement, safety review has its own schedule and  
24 opportunities for public involvement.

25 There is a license renewal website

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1 specifically for Palo Verde and our schedule is  
2 published on that website.

3 And again if you want to email me, I'll be  
4 happy to email that website to you. But if you go to  
5 the NRC's public website, there's a link to license  
6 renewal and all the supporting documentation, all the  
7 licenses that we have issued in the past, and all  
8 those that are currently under review; there's a  
9 great deal of information.

10 Jonathan and I are the primary points  
11 of contact within the NRC for the license renewal  
12 issues for Palo Verde. We are the project managers  
13 and our contact information is shown here. Feel free  
14 to call us if you have questions.

15 Okay. So where can you get your hands on a  
16 hard copy of this document? Right now we have the  
17 most current and up-to-date information, Jonathan and  
18 I just dropped off at these two public libraries;  
19 right at your public library. The Palo Verde license  
20 renewal application is there, you just have to ask  
21 one of the librarians and you can look through that.

22 If you -- excuse me, as I said, it's also  
23 on our website; the web site at the bottom of the  
24 page. That's another place if you don't mind looking  
25 at an electronic version.

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1 I also did bring a few CDs, if you would  
2 like to take a CD that has the license renewal  
3 application and the environmental -- well, the entire  
4 license renewal application includes the  
5 environmental review, but if you do look on that disk  
6 it's a separate document.

7 Okay. Any questions?

8 We already talked about the fact that if  
9 you want me to mail you your own copy of the draft  
10 DIS I'd be happy to do that and this concludes my  
11 presentation.

12 Does anybody have any questions? Thank  
13 you.

14 MR. ROBINSON: Okay. So if there are no  
15 questions at this time on either of the two  
16 presentations, we'll move on to the comment period.  
17 First, we have Stephen Brittle, are you here? Okay,  
18 fine.

19 What about James Brown? Is James Brown  
20 here? Okay. Nobody was found.

21 How about Jackie Meck? Is that correct?  
22 Or Jackie Meek; somebody signed their names over  
23 here.

24 UNIDENTIFIED SPEAKER: He's on his way.

25 MR. ROBINSON: Okay.

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1 UNIDENTIFIED SPEAKER: Mr. Brittle is  
2 here.

3 MS. REGNER: Is Mr. Brittle here?

4 MR. ROBINSON: So you can come up Mr.  
5 Brittle. Darah Mann?

6 MS. DARAH MANN: Darah.

7 MR. ROBINSON: Okay. So Darah Mann you'll  
8 be after Mr. Brittle. Okay? Go ahead.

9 MR. BRITTLE: Is this on? Okay, good.

10 My name is Stephen Brittle, I'm the  
11 president of Don't Waste Arizona, a nonprofit  
12 environmental organization, 501(c)(3)(7) here in  
13 Arizona. On behalf of the organization and its  
14 effect of their concerns are these comments on the  
15 record:

16 Thank you for the opportunity to submit  
17 concerns and questions about the wisdom of renewing  
18 the license of an aging, severely-troubled, nuclear  
19 power plant complex that has caused significant  
20 economic hardship for a financially troubled company  
21 that just asked for a rate increase to forestall an  
22 even worse credit rating.

23 The first concern I have is that in April,  
24 there was a meeting and you let them off the hook for  
25 their closer scrutiny. I was frankly disappointed

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1 that NRC representatives seemed unaware of the  
2 plume of tritium under the nuclear plant; something I  
3 found out about by looking through the facility's  
4 file at the Arizona Department of Environmental  
5 Quality. And the fact that they didn't seem to know  
6 how it raised real questions about NRC's oversight.

7 I understand that the plume was caused by  
8 the monsoon rains knocking the normal radioactive air  
9 emissions from Palo Verde onto the roof of the  
10 facility that then drained into an unpaved area where  
11 it soaked into the ground. Levels of tritium in the  
12 ground seemed likely to increase.

13 I remind everyone that the National Academy  
14 of Sciences agrees there is no safe dose. According  
15 to the National Academy of Sciences in 2005, there is  
16 no threshold dose below which ionizing radiation is  
17 safe.

18 And years before that, it stated there is  
19 no safer level of exposure, there is no dose of  
20 ionizing radiation so low that the risk of a  
21 malignancy is zero; that's from Dr. Karl Morgan, the  
22 father of health physics.

23 Historically, the significance of internal  
24 dosage from fission products has not been  
25 appreciated. There is something that is called

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1 "Reference Man" and these standards ignore those  
2 most at risk. Women are 52 percent more likely to  
3 get cancer from the same amount of radiation dose  
4 compared to men. Children are at greater risk, of  
5 course, than adults.

6 A female infant has about a seven times  
7 greater chance of getting cancer than a 30-year old  
8 male with the same radiation exposure. Pregnant  
9 women and the developing fetus are particularly  
10 vulnerable to radiation exposure; however, non-cancer  
11 reproductive effects are not part of the U.S.  
12 Regulatory framework for radiation protection.

13 U.S. Radiation exposure regulations and  
14 compliance methods often fail women, children, and  
15 other more radiosensitive groups because they are  
16 based on the reference man; a hypothetical 20 to 30  
17 year old caucasian male.

18 At least three federal agencies, the  
19 Environmental Protection Agency, the NRC, and the  
20 Department of Energy, still use reference man in  
21 radiation dose regulations and compliance assessment  
22 including the Clean Air Act and safe drinking water  
23 rules despite evidence that the standard is not  
24 adequate to protect many groups.

25 In both France and the U.S., for nearly 30

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1 years after the first reactors went on line, no  
2 studies of cancer near reactors were done. Neither  
3 utilities nor the NRC conducts health studies;  
4 neither monitor local cancer rates near reactors, yet  
5 both strongly criticize any studies that suggest  
6 harm. One is left wondering who to trust.

7 Look at the French. Official French  
8 statistics, among 39 European nations the 2006 cancer  
9 incidence rate is the third highest for men and 13th  
10 highest for women. The incidence rates rose 39  
11 percent from 1980 to 2005 compared to 10 percent in  
12 the United States.

13 Perhaps most telling, the thyroid cancer  
14 rate in France rose a staggering 433 percent for  
15 males and 186 percent for females, far more than in  
16 the U.S. A clue and indicator, if not a smoking gun.

17 Doctors know of no other clear cut cause of  
18 thyroid cancer other than radiation exposure. The  
19 thyroid cancer rates in the four counties closest to  
20 Indian Point, for example, are nearly double the U.S.  
21 average, and that childhood cancer in these counties  
22 is also above the national rate.

23 Something called the Mother's Milk Project,  
24 also this year; of 30 milk samples from breastfeeding  
25 mothers and goats within 50 miles of Indian Point,

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1 nearly all revealed levels of strontium-90 with the  
2 highest results occurring closest to the Indian Point  
3 reactors.

4 Of great concern, the presence of both  
5 strontium-90 and a related fission product strontium-  
6 89, which has a short half life. It's presence  
7 provides strong evidence radioactivity was recently  
8 produced from a nearby source.

9 The second large issue, Arizona's nuclear  
10 dump. With Yucca Mountain apparently out of the  
11 picture, Palo Verde is really a huge defacto nuclear  
12 waste dump.

13 And in 20 more years increases its waste on  
14 site by 50 percent even if they're in dry casks,  
15 while continuing the added risk of cooling pools for  
16 a total of 60 years.

17 The question is, can this facility handle  
18 this securely and reliably?

19 If we want a dump at this site, off-site  
20 from Palo Verde for the dump, it raises other  
21 questions. If a waste disposal site actually becomes  
22 available, will that put shipments of highly  
23 radioactive wastes on the Interstate 10 near the  
24 facility? And what are the potential impacts to  
25 transportation and other economic costs associated

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1 with such a contingency?

2 As a person with over a decade of emergency  
3 planning experience, I'm aware of the many disaster  
4 drills at Palo Verde, but I don't believe there has  
5 ever been an exercise or plan involving a worst case  
6 scenario of a spill of nuclear waste from Palo Verde  
7 or a terror attack on a shipment that causes the  
8 release of nuclear waste into the environment.

9 I did see information about a worst case  
10 scenario of a nuclear waste spill along Interstate  
11 40. I attended that State Emergency Response  
12 Initiative where we discussed it.

13 According to their estimates it would take  
14 about 15 months to decontaminate to safe levels.  
15 Further, if the roads to or from Palo Verde are  
16 closed for an extended period of time due to a  
17 radioactive spill; would that give terrorists an  
18 advantage? Would such a scenario impede response  
19 and/or defense?

20 Next issue, population growth and  
21 contingency issues. There are plans for a large  
22 development near Palo Verde bringing in at this point  
23 about 140 thousand people. The current contingency  
24 plan is to evacuate within a ten mile radius and then  
25 wait for federal assistance. A footnote, we might

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1 want to ask the people of New Orleans what they  
2 think about the folly of that plan.

3 To move such a large population away from  
4 the ten mile radius in a timely manner, when time  
5 would be so much of the essence in a situation like  
6 that, would require enormous resources including  
7 legions of buses that would in themselves become  
8 contaminated during the evacuation and would need, of  
9 course, much more detailed decontamination afterwards  
10 if they were ever going to be put back into service.  
11 It's doubtful that anyone would ever want to ride  
12 them nonetheless.

13 It's also doubtful that buses pulled from  
14 normal service for such an evaluation would be able  
15 to arrive here in a timely manner. I don't think  
16 there are enough buses in the Phoenix metro area that  
17 could move those -- that could move that number of  
18 people and of course it's easily more than an hour  
19 away. Again, time is of the essence.

20 It would seem to me that in order to be  
21 properly prepared the requisite number of buses would  
22 have to be ready and in the immediate vicinity of  
23 Palo Verde. Where will they be stored? Who will  
24 maintain them? Who will be ready to drive them in  
25 the case of something happening?

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1           The next issue I call "Trust Us." The  
2 Palo Verde reactors are only now, after an  
3 unprecedented length of time, being moved off of the  
4 multiple repetitive degraded corner stone column, an  
5 extreme level of NRC oversight. Can these people  
6 really be trusted?

7           The NRC decided for years that the culture  
8 of management at Palo Verde was such a huge problem  
9 that it closely scrutinized the plant and was on the  
10 brink of closing the facility.

11           Suddenly, after five years the NRC decided  
12 everything is suddenly okay. That sounds much more  
13 like a political decision than something that's  
14 reality based. And we are left wondering if Palo  
15 Verde operators might have just straightened up their  
16 act just long enough to get their license reviewed  
17 with plans to backslide or did they really, finally  
18 get their act together?

19           What assurances do we have that future  
20 violations and noncompliance will be detected and  
21 dealt with early enough? The nuclear industry is  
22 admittedly only one big accident away from a total  
23 collapse. So this makes us wonder, is it time to  
24 double down at this facility?

25           The next issue is what they call the

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1 "Bathtub Curve." Complex engineering projects have  
2 most problems at the beginning and the ends of their  
3 lifecycle.

4 The bathtub curve is widely used in  
5 reliability engineering, although the general concept  
6 is also applicable to humans, it describes a  
7 particular form of the hazard function, which  
8 comprises three parts:

9 The first part is a decreasing failure  
10 rate, known as early failures. The second part is a  
11 constant failure rate, known as random failures. And  
12 the third part is an increasing failure rate, known  
13 as wear-out failures. The name is derived from the  
14 cross-sectional shape of the eponymous device.

15 The bathtub curve is generated by mapping  
16 the rate of early infant mortality failures. When  
17 first introduced the rate of random failures with  
18 constant failure rate during its useful life, and  
19 finally the rate of wear-out failures as the product  
20 exceeds its design.

21 It is especially concerning as there are  
22 plant aging and radiation embrittlement issues for  
23 reactors and their associated equipment. My bet is  
24 that nobody really knows a lot of what will be  
25 happening to the metals after 30 to 40 to 60 years of

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1 radioactive bombardment.

2           Considering the previous and serious  
3 problems at Palo Verde already with leaking pipes and  
4 all the other issues there, will NRC require and  
5 monitor the requisite inspections to prevent another  
6 problem and outage?

7           The next issue I call "New Crew." As  
8 reactors get older the crews that run them didn't  
9 build them and likely haven't looked at the original  
10 plans even once in their lives. How good is the  
11 institutional memory of Palo Verde, given that  
12 they've had such significant problems in the past?

13           We'll have a new generation of employees.  
14 What training programs will be in place to assure  
15 that this doesn't cause problems? There is already a  
16 critical shortage of trained workers for the nuclear  
17 technology.

18           Another issue I call "Water." With global  
19 warming projections indicating a hotter, drier  
20 southwest, we must be reminded that the vast majority  
21 of wastewater from the Phoenix metro area, mainly the  
22 discharge from the 91st Avenue Wastewater Treatment  
23 Plant in west Phoenix, goes to cool Palo Verde.

24           With hotter temperatures expected, even  
25 more water will be needed and nuclear power already

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1 uses more power per megawatt of power generated  
2 than any other form of electrical power generation.

3 Is this sustainable? Is this water supply  
4 for Palo Verde really reliable and sufficient? Is  
5 this projected Palo Verde water usage a severe  
6 economic disincentive to overall economic growth and  
7 even population growth in this part of Arizona? Are  
8 the water needs of Palo Verde a type of opportunity  
9 cost and opportunity loss brought about by a lack of  
10 affordable water for industrial and residential uses?

11 Next topic, carbon impacts. If uranium  
12 demand rises as projected, the carbon cost of  
13 developing less rich ores nullifies any presumed  
14 carbon savings from keeping their reactors online.

15 Isn't it likely that the true life  
16 lifecycle carbon emissions of nuclear power  
17 generation will be officially recognized by the EPA  
18 and the U.S. Congress, and carbon cap and trade or  
19 carbon tax strategies will make nuclear power even  
20 more unprofitable?

21 Nuclear power is not at all free from  
22 carbon emissions. A number of recent studies have  
23 found out that when mining, processing, and extensive  
24 transportation of uranium in order to make nuclear  
25 fuel is considered, the release of carbon dioxide as

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1 a result of making electricity from uranium is  
2 comparable to converting natural gas into electric  
3 power.

4 Additional energy required for  
5 decommissioning and disposition of the wastes  
6 generated increases this carbon dioxide output  
7 substantially. And wasn't it unrealistic, if not the  
8 height of arrogance, for a species that has only a  
9 few thousand years of recorded history to plan on  
10 safely managing radioactive waste for a minimum of  
11 100 thousand years?

12 Thank you.

13 MS. REGNER: Mr. Brittle. Mr. Brittle.

14 MR. ROBINSON: Mr. Brittle.

15 MR. BRITTLE: Yeah.

16 MS. REGNER: Would you mind taking a seat?

17 (Accepted a copy of Mr. Brittle's speech.)

18 MR. BRITTLE: Yes that'll work.

19 MS. REGNER: Thank you sir.

20 MR. ROBINSON: Okay. Thank you. Next we  
21 have Darah Mann followed by Sharolyn Hohmu, is that  
22 correct? Sharolyn?

23 MS. HOHMU: Hohmu.

24 MR. ROBINSON: Okay. Would you like me to  
25 bring the mic back to you when you're ready?

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1 MS. HOHMU: I'm okay.

2 MR. ROBINSON: Okay.

3 MS. MANN: Good evening. My name is Darah  
4 Mann and I'm the director of marketing and  
5 communications for WESTMARC.

6 WESTMARC is an acronym for Western Maricopa  
7 Coalition, which is a broad-based coalition of the 15  
8 communities in western Maricopa County which  
9 represent more than 35 percent of the county's  
10 population.

11 Our membership consists of business,  
12 industry, government, education, human services,  
13 arts, and cultural organizations, chambers of  
14 commerce, and community leaders. Thank you for the  
15 opportunity to participate this evening.

16 WESTMARC would like to publically recognize  
17 the multiple significant areas of impact that Palo  
18 Verde has on our State.

19 On our economy, by providing thousands of  
20 well paying jobs, by generating low-cost electricity,  
21 and by their status of being Arizona's largest  
22 taxpayer.

23 On our environment, by generating clean  
24 energy for a metropolitan area that struggles to meet  
25 air quality standards.

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1           On our quality of life, by powering an  
2           unprecedented period of growth, by committing to safe  
3           and efficient operations.

4           Arizonans and others throughout the  
5           southwest would not enjoy such a high quality of life  
6           without the reliable electricity Palo Verde provides  
7           to power our businesses, our homes, and especially  
8           our air conditioners.

9           On behalf of WESTMARC, thank you for  
10          allowing me to express our continued appreciation for  
11          the valued contributions Palo Verde continues to  
12          provide our community.

13          MR. ROBINSON: Thank you.

14          (Accepted a copy of Ms. Mann's speech.)

15          So we have Sharolyn followed by Adolfo  
16          Gomez.

17          MR. GAMEZ: Gamez.

18          MR. ROBINSON: Gamez? Okay.

19          MS. HOHMU: It's my new toy (referring to  
20          wheel chair). Thank you for letting me speak  
21          tonight. I find Palo Verde especially poignant for  
22          me. I came to Goodyear in 1980, when we were in the  
23          throes of building Palo Verde and saw the economic  
24          contribution that just the building of the plant  
25          created.

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1 I've subsequently moved to a position  
2 with the Southwest Valley Chamber of Commerce. The  
3 Southwest Valley Chamber of Commerce is an  
4 organization that focuses on the business communities  
5 of Avondale, Goodyear, Litchfield Park, and  
6 Tolleson. We're a family proximately invested in the  
7 organization representing about 15 thousand  
8 employees.

9 I've been with the Chamber since 1984, so I  
10 indeed have had the opportunity to see the results of  
11 the operation of the plant.

12 And for those of you who have not been  
13 here, did not see the tremendous growth, you have to  
14 realize, I too, since 1984 did not expect to have the  
15 thousands of buildings and people living not in just  
16 this area, which of course Palo Verde supplies the  
17 perfect stage, but we need the energy, obviously  
18 (indiscernible).

19 It is only when operations such as the  
20 power plant that we can supply our needs, especially  
21 in our peak season which you have the pleasure of  
22 joining us in.

23 I want to also recognize the Arizona Public  
24 Services for their responsible agent managing with  
25 this particular plant. Their 25 hundred employees do

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1 make a significant impact economically. But I  
2 think more importantly is the contribution that the  
3 energy makes to the economic growth of our area.  
4 Without energy we could not continue our growth.

5 So I thank you very much for allowing me to  
6 address the issues and I thank you for being in our  
7 community tonight so that we can.

8 MR. ROBINSON: Thank you, sir. I  
9 appreciate that, that's fine.

10 MR. GAMEZ: Good evening. Welcome to the  
11 west valley. My name is Adolfo Gamez, I'm the Mayor  
12 of the city of Tolleson.

13 And for the record, the city of Tolleson  
14 supports the license renewal of Palo Verde and we're  
15 a member of WESTMARC, and so the statements that they  
16 made on behalf of WESTMARC we echo.

17 Thank you.

18 MR. ROBINSON: Thank you. Next I have John  
19 Findley. And then after John will be Glenn Hamer.

20 MR. FINDLEY: My name is John Findley. I'm  
21 here tonight representing myself as a member of the  
22 public.

23 I want to thank the NRC for coming to  
24 Arizona from their home in Rockville, which we know  
25 is next to paradise.

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1           And I just wish at this point to express  
2 my concern about some of the issues that have been  
3 brought up tonight and express my hopes that the NRC  
4 will examine this in a thorough and extensive process  
5 that you have set out in the table that you laid out.

6           Concerns involve the uneven performance of  
7 Palo Verde in the past, along with the uncertain  
8 future of long-term storage for nuclear waste; I  
9 think that's a really important issue that has to be  
10 taken into consideration. And probably most of all  
11 and as has been pointed out, the aging infrastructure  
12 that we're dealing with.

13           The implications of this are basically  
14 unknown. We've had incidents in the past in other  
15 locations where corrosion and the effects of  
16 radiation on the physical infrastructure have gone  
17 unnoticed in spite of continued surveillance and this  
18 has to be something that is taken into consideration.

19           The additional implications. Again,  
20 looking at the history of power plants in general  
21 over the last 20 years as the effects of climate  
22 change, which are going to be particularly pronounced  
23 here in the southwest. The cooling requirements and  
24 the weather requirements for any kind of power  
25 generation must be taken into consideration.

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1           Again, thank you for this opportunity and  
2 I will be submitting written copies of comments at a  
3 later date.

4           Thank you.

5           MR. ROBINSON: Thank you. Glenn followed  
6 by Felipe Zubia.

7           MR. HAMER: Good evening. My name is Glenn  
8 Hamer, I'm the president and CEO of the Arizona  
9 Chamber of Commerce and Industry. We're a statewide  
10 advocacy organization representing hundreds of  
11 companies across Arizona who employ about 250  
12 thousand Arizonans.

13           We're also served as the home to the  
14 Arizona Manufacturer's Council, which is -- we are  
15 the statewide affiliate for manufacturers for the  
16 National Association of Manufacturers.

17           I just wanted to say that we strongly  
18 support this application. Nuclear power, in fact, in  
19 our 2009 business agenda we've identified nuclear  
20 power generation as a key goal. In fact, we've  
21 talked about the importance of removing obstacles to  
22 expanding nuclear power generation.

23           We strongly believe, for the State's  
24 economic health, that nuclear power must continue to  
25 play a major role in Arizona's energy net. That

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1 becomes all the more important given a number of  
2 the proposals closer to your home in Washington DC  
3 concerning climate change. It's unimaginable for us  
4 to think of a world where we didn't have a -- the  
5 very important State asset of Palo Verde.

6 Again, the Arizona Chamber of Commerce and  
7 Industry, we strongly support continuation and this  
8 application and it's absolutely vital to the state's  
9 economic health.

10 Thank you for the chance to speak this  
11 evening.

12 MR. ROBINSON: Thank you.

13 Felipe, and then following we have Armando  
14 Contreras.

15 MR. ZUBIA: Good evening, Felipe Zubia.  
16 For the record, I'm here representing DMB Associates,  
17 developer and master plan developer for a community  
18 called Verrado, which is about 30 miles east of the  
19 facility.

20 And a little bit of history here. About  
21 ten years ago we embarked on the investment of this  
22 community, which is about 10 thousand acres, over  
23 3000 homes.

24 And at the time, the property was being  
25 used as a Caterpillar proving ground, of course an

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1 appropriate use for the area at the time. However,  
2 we saw the area as much more than that, in fact  
3 partnered with Caterpillar to bring a master planned  
4 community that really is unrivaled in the west valley  
5 and frankly I'd put it up against any other community  
6 here in the State.

7 With that in mind, as we went through that  
8 process we reached out to all of our constituents in  
9 the area. Not only the Town of Buckeye and the  
10 surrounding communities but Luke Air force Base as  
11 well as Palo Verde.

12 At the time, we certainly wanted to assure  
13 all of our partners and constituents that we would be  
14 good neighbors; and in doing so, we received  
15 recommendations of support. We believe that we've  
16 upheld our commitment to be good neighbors. And in  
17 that same regard, we're here today to support APS,  
18 Pinnacle West, and the extension of the Palo Verde  
19 licensing process.

20 They have been tremendously good  
21 neighbors. They have been a foundation of support  
22 and economic support for the area. And most  
23 importantly, they've been very responsive and  
24 reliable managers of the facility.

25 In fact, as the master plan developer of

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1 the community, we have a substantial investment not  
2 only in the built environment but in the cultural  
3 environment, and the natural environment that we have  
4 built up out there.

5 And we too hope that you look at the  
6 application very closely. We have a lot of people  
7 out there that certainly want to make sure that the  
8 process is done right.

9 But with that in mind we think that you'll  
10 find up and down the line from Palo Verde managers to  
11 APS to Pinnacle West; that you'll have responsive,  
12 reliable, and responsible management of the facility.  
13 So we look forward to the renewal process and the  
14 successful completion.

15 Thank you, very much.

16 MR. ROBINSON: Thank you. Armando.

17 MR. CONTRERAS: Good evening. Thank you  
18 for the opportunity to say a few words. Armando  
19 Contreras, the new president and CEO of the Arizona  
20 Hispanic Chamber of Commerce. The Chamber of  
21 Commerce certainly encourage and supports the  
22 relicensing process.

23 We -- here in the State, there are  
24 approximately 35 thousand Hispanic owned businesses  
25 just in Phoenix. We're encouraged with the continued

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1 development and safety that Palo Verde has offered  
2 to the community.

3 And we're also encouraged at the  
4 participation and embracement of the Hispanic  
5 minority women business and economic development  
6 that's been going on here. That has been really  
7 supported by Palo Verde and we want to continue that  
8 partnership and we hope that you continue towards  
9 these procuring opportunities that are out there for  
10 Hispanic businesses and all minority businesses in  
11 the State of Arizona.

12 Thank you, very much.

13 MR. ROBINSON: Okay. Thank you. Is there  
14 anyone else who would like to make a comment? We're  
15 also looking for James Brown or Jackie Meck?

16 Okay. Anybody else with any comments or  
17 questions?

18 UNIDENTIFIED SPEAKER: Mr. Rowley, did the  
19 person you had spoken to me about make it?

20 MR. ROWLEY: Yes.

21 UNIDENTIFIED SPEAKER: Okay.

22 MR. ROBINSON: Okay. So we'll move to the  
23 next portion of the meeting, which is the conclusion.

24 Again, we'd like to thank everybody for  
25 coming to the meeting.

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1           Okay. Does anyone know if Jackie Meck is  
2 on his way, coming? Because we do have time, we can  
3 wait. Anybody? Anyone?

4           UNIDENTIFIED SPEAKER: I can find out.

5           MR. ROBINSON: You're going to find out?  
6 Okay.

7           We'll just wait for a few minutes.

8 (Ms. Regner suggested continuing with the closing.)

9           Okay. I'll do that.

10          Public participation is important to the  
11 NRC. I'm going to go over the deadline again.

12          Following the hearing request, the  
13 petitions for a hearing request for intervention is  
14 July 15th. The environmental scoping period ends on  
15 July 27th.

16          In the back of the room, we have some  
17 public meeting feedback forms. If you wish to write  
18 a comment or have a suggestion, please fill out the  
19 form and give it to one of the NRC staff members or  
20 drop it in a mailbox; the postage is prepaid so it  
21 will get to us. There are brochures still left over  
22 on the side if you want to pick up any of those.

23          And I don't think you want to hear me talk  
24 any longer so just give us a few minutes and we'll  
25 see if we can get in touch with this last speaker.

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1 And then if not, we'll conclude the meeting.

2 Oh, and we will be available at the end of  
3 the meeting if you want to discuss anything with any  
4 of the staff members.

5 Okay. So I guess we're not going to have  
6 that speaker. So if no one has any other questions  
7 we will conclude the meeting.

8 Thank you for coming.

9 (Proceeding Concluded)

10 (Proceeding Reconvened)

11 MR. ROBINSON: We don't normally do this  
12 but the last speaker showed up and since this is the  
13 time to talk to the public, we'd like to be able have  
14 him since he came out and speak. So if you'd like to  
15 stay that would be great.

16 You can come on up.

17 MR. MECK: Thank you. I apologize for  
18 being late, but I had another meeting that ended just  
19 now. My name is Jackie Meck and I reside at 225012  
20 West Walcott, Buckeye, Arizona.

21 Nuclear Regulatory Commission Members,  
22 thank you for allowing me to speak on behalf of the  
23 Palo Verde Nuclear Power Plant.

24 I am the Mayor of the Town of Buckeye with  
25 a population of around 45 thousand. We are located

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1 approximately 20 miles east of the power plant.

2 In the 1970's I was on the Town Council for  
3 a period of nine years. The final three years, as  
4 Mayor, the Arizona Public Service managing partner of  
5 Palo Verde asked me, among others, to be on a  
6 community advisory committee. The committee  
7 functioned for approximately 10 to 12 years as I  
8 recall.

9 During that time, we as committee members,  
10 were updated regularly as to the ongoing construction  
11 and any problems that would arise from traffic, dust,  
12 or equipment. We were always kept up to date and  
13 made aware of any and all situations.

14 Since the beginning, they have provided  
15 funding for various community clubs, charities, and  
16 activities.

17 Currently, as a member of the large area  
18 fund committee, which was funded by Arizona Public  
19 Service Palo Verde, the committee meets annually and  
20 it supports funding various groups such as schools  
21 and other opportunities to better our community.  
22 They have been partners and excellent neighbors to  
23 the Town of Buckeye for the past 30 years.

24 In closing, they are committed to the  
25 community, not only with contributions in real

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1 dollars, but in employee volunteer service. They  
2 operate the plan efficiently, faithfully and continue  
3 to help Arizonans in inexpensive power.

4 Palo Verde is Arizona's largest tax payer  
5 and a major employer. I would support them anywhere,  
6 anytime, especially at this point in time to continue  
7 their development of the next phase of the Palo Verde  
8 Nuclear Power Plant.

9 Thank you for allowing me to speak. And  
10 again I apologize for being late to my appointment.  
11 Thank you.

12 MR. ROBINSON: Thank you very much. Thanks  
13 everybody for understanding this.

14 And with that, we'll conclude the meeting  
15 again, until next time. Thank you.

16 (Proceedings Concluded at 8:11 p.m.)  
17  
18  
19  
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25

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CERTIFICATE

This is to certify that the attached proceedings  
before the United States Nuclear Regulatory Commission  
in the matter of: Palo Verde Nuclear Station

Name of Proceeding: License Renewal Public  
Meeting, Evening Session

Docket Number: (n/a)

Location: Tonopah, Arizona

were held as herein appears, and that this is the  
original transcript thereof for the file of the United  
States Nuclear Regulatory Commission taken by me and,  
thereafter reduced to typewriting by me or under the  
direction of the court reporting company, and that the  
transcript is a true and accurate record of the  
foregoing proceedings.

  
Deborah Gonzalez  
Official Reporter  
Neal R. Gross & Co., Inc.



6205 South 12th Street - Phoenix, Arizona 85040  
(602) 268-6110 Fax (602) 268-0915

Thank you for the opportunity to ask questions about the wisdom of renewing the license of an aging, severely-troubled, nuclear power plant complex that has caused significant economic hardship for a financially troubled company that just asked for a rate increase to forestall an even worse credit rating..

**1. Existing Contamination:** I was disappointed when NRC representatives seemed unaware of the plume of tritium under the nuclear plant, something I found looking through the facility's file at the Arizona Department of Environmental Quality. It raises questions about NRC's oversight. The plume was caused by monsoon rains knocking the "normal" radioactive air emissions from Palo Verde onto the roof of the facility and draining onto an unpaved area where it soaked into the ground.

The levels of tritium in the ground water seem likely to increase. I remind everyone that the National Academy of Sciences agrees - there is no safe dose. According to the National Academy of Sciences in 2005, there is "no threshold dose" below which ionizing radiation is safe.

And years before that, "There is no safe level of exposure and there is no dose of (ionizing) radiation so low that the risk of a malignancy is zero."--Dr. Karl Morgan, the father of Health Physics.

Historically the significance of internal dosage from fission products has not been appreciated.

Standards for Reference Man ignore those most at risk:

Women are 52 percent more likely to get cancer from the same amount of radiation dose compared to men. Children are at greater risk than adults. A female infant has about a seven times greater chance of getting cancer than a 30-year old male for the same radiation exposure. Pregnant women and the developing fetus are particularly vulnerable to radiation exposure; however, non-cancer reproductive effects are not part of the U.S. regulatory framework for radiation protection.

U.S. radiation exposure regulations and compliance methods often fail women, children and other more radiosensitive groups because they are based on "Reference Man," a hypothetical 20 to 30 year old Caucasian male. At least three federal agencies -- the

Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC) and Department of Energy (DOE) -- still use Reference Man in radiation dose regulations and compliance assessment, including the Clean Air Act and safe drinking water rules, despite evidence that the standard is not adequate to protect many groups.

#### Don't Look Don't Find

In both France and US, for nearly 30 years after the first reactors went on-line, no studies of cancer near reactors were done. Neither utilities nor the NRC conducts health studies; neither monitor local cancer rates near reactors, yet both strongly criticize any studies that suggest harm.

#### Who to trust?

How about the French?

Official French statistics:

among 39 European nations, 2006 cancer incidence rate is 3rd highest for men and 13th highest for women.

Incidence rate rose 39% from 1980-2005, compared to 10% in U.S.

Perhaps most telling:

thyroid cancer rate in France rose a staggering 433% for males and 186% for females far more than U.S. increases.

A clue, an indicator, if not smoking gun: Doctors know of no other clear-cut cause of thyroid cancer, other than radiation exposure.

Thyroid cancer rates in the four counties closest to Indian Point are nearly double the U.S. average, and that childhood cancer in these counties is also above the national rate.

Mothers Milk Project also this year:

Of 30 milk samples from breastfeeding mothers and goats within 50 miles of Indian Point, nearly all reveal levels of strontium-90 with the highest results occurring closest to Indian Point reactors

Of great concern the presence both of strontium-90 and a related fission product strontium-89. has a short half life, its presence provides strong evidence radioactivity was recently produced from a nearby source.

**2. Arizona's Nuclear Dump:** With Yucca Mountain out of the picture, Palo Verde is really a huge defacto nuclear waste dump, and 20 more years increases waste on site by 50% (even if in dry casks), while continuing the added risk of cooling pools for a total of 60 years. Can the facility handle this securely and reliably?

**3. Shipping to Off-Site Dump?** If a waste disposal site actually becomes available, will that put shipments of highly radioactive wastes on the Interstate 10 near the facility? And what are the potential impacts to transportation and other economic costs associated with such a contingency? As a person with over a decade of emergency planning experience, I am aware of the many disaster drills at Palo Verde, but I don't believe there has been an

exercise or a plan involving a worst case scenario of a spill of nuclear wastes from Palo Verde or terrorist attack on a shipment that causes the release of nuclear wastes into the environment. I did see information about a worst case scenario of a nuclear waste spill along Interstate 40, which would take about 156 months to decontaminate to "safe" levels. Further, if the roads to or from Palo Verde are closed for an extended period due to a radioactive spill, would that give terrorists an advantage? Would such a scenario impede response and/or defense?

**4. Population Growth and Contingency Issues:** There are plans for a large development near Palo Verde, bringing in about 140,000 people. The current contingency plan is to evacuate people within a ten mile radius and then wait for federal assistance. (We might want to ask the people of New Orleans what they think about the folly of such a plan...) To move such a large population away from the ten mile radius in a timely manner, when time is so much of the essence, would require enormous resources, including legions of buses that would become contaminated during the evacuation and that would need detailed decontamination afterwards. It is doubtful that buses pulled from normal service for such an evacuation would ever be accepted back to regular duty. The amount of buses needed for such a task is not currently even available today in the Phoenix metro area. In order to be properly prepared, these buses would have to be ready and in the immediate vicinity of Palo Verde. Where will they be stored, and who will maintain them?

**5. Trust Us (!)** The PV reactors are only now, after an unprecedented length of time, being moved off of the "multiple, repetitive degraded Cornerstone" column, an extreme level of NRC oversight. ([http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/actionmatrix\\_summary.html](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/actionmatrix_summary.html))

But can these people really be trusted? The NRC decided for years that the culture of management at Palo Verde was such a huge problem that it closely scrutinized the plant, and was on the brink of closing the facility. Suddenly, after five years, the NRC decides everything is ok – sounds more like a political decision that reality-based – and we are left wondering if the Palo Verde operators straightened up their act just long enough to get their license renewed with plans to backslide – or did they really, finally, get their act together? What assurances do we have that future violations and noncompliance will be detected and dealt with early enough?

The nuclear industry is admittedly only one big accident away from collapse - is this really the time to "double-down" at this facility?

**6. Bathtub Curve:** At this point, I need to mention the "bathtub curve" - how complex engineering projects have most problems at beginning and end of life-cycle. The **bathtub curve** is widely used in reliability engineering, although the general concept is also applicable to humans. It describes a particular form of the hazard function which comprises three parts:

- The first part is a decreasing failure rate, known as early failures.
- The second part is a constant failure rate, known as random failures.

- The third part is an increasing failure rate, known as wear-out failures.

The name is derived from the cross-sectional shape of the eponymous device.

The bathtub curve is generated by mapping the rate of early "infant mortality" failures when first introduced, the rate of random failures with constant failure rate during its "useful life", and finally the rate of "wear out" failures as the product exceeds its design lifetime.

In less technical terms, in the early life of a product adhering to the bathtub curve, the failure rate is high but rapidly decreasing as defective products are identified and discarded, and early sources of potential failure such as handling and installation error are surmounted. In the mid-life of a product—generally, once it reaches consumers—the failure rate is low and constant. In the late life of the product, the failure rate increases, as age and wear take their toll on the product.

The bathtub curve is often modeled by a piecewise set of three hazard functions,

$$y(t) = \begin{cases} c_0 - c_1 t + \lambda, & 0 \leq t \leq c_0/c_1 \\ \lambda, & c_0/c_1 < t \leq t_0 \\ c_2(t - t_0) + \lambda, & t_0 < t. \end{cases}$$

This is especially concerning as there are plant aging and radiation embrittlement issues for reactors and their associated equipment. My bet is that nobody knows a lot of what will be happening to the metals after 30 years of radioactive bombardment.

Considering the serious problems at Palo Verde already with leaking pipes and all, will NRC require and monitor the requisite inspections to prevent another problem and outage?

**7. New Crew** As reactors are getting older, the crews that run them didn't build them and likely haven't looked at the original plans even once in their lives. How good is the institutional memory at PV, given they have had such significant problems in the past? What training programs will be in place to assure this doesn't cause problems? There is already a shortage of trained workers for this technology.

**8. Water:** With global warming projections indicating a hotter, drier Southwest, we must be reminded that the vast majority of wastewater from the Phoenix metro area, mainly the discharge from the 91<sup>st</sup> Avenue Wastewater Treatment plant, goes to cool Palo Verde. With hotter temperatures expected, even more water will be needed. And nuclear power uses more water per Megawatt of power for electrical power generation than any other form of electrical power generation.

Is this sustainable?

Is this water supply for Palo Verde reliable and sufficient?

Is this projected Palo Verde water usage a severe economic disincentive to overall economic growth and even population growth in this part of Arizona? Are the water needs of Palo Verde a type of opportunity cost and opportunity loss brought about by a lack of affordable water for industrial and residential uses?

#### **9. Carbon impacts:**

If uranium demand rises as projected, the carbon cost of developing less rich ores nullifies any presumed carbon saving from keeping this reactor on-line. Isn't it likely that the true life cycle carbon emissions of nuclear power generation will be officially recognized by EPA and the Congress, and carbon cap and trade or carbon tax strategies will make nuclear power even more unprofitable?

Nuclear power is not at all free from carbon emissions. A number of recent studies have found that when mining, processing, and extensive transportation of uranium in order to make nuclear fuel is considered, the release of carbon dioxide (CO<sub>2</sub>) as the result of making electricity from uranium is comparable to burning natural gas to make electric power. Additional energy required for decommissioning and disposition of the wastes generated increases this CO<sub>2</sub> output substantially. And wasn't it unrealistic, if not the height of arrogance, for a species that has only a few thousand years of recorded history to plan on safely managing radioactive waste for a minimum of 100,000 years?

Thank you.

Stephen M. Brittle  
President  
Don't Waste Arizona, Inc.  
6205 South 12<sup>th</sup> Street  
Phoenix, AZ 85042

Good evening (Name of reps or the body if available). My name is Darah Mann and I'm the Director of Marketing and Communications for WESTMARC.

WESTMARC, an acronym for Western Maricopa Coalition, is a broad-based coalition of the 15 communities in western Maricopa County which represent more than 35% of the county's population. Our membership consists of business and industry, government, education, human services, arts and cultural organizations, chambers of commerce and community leaders.

Thank you for the opportunity to participate this evening. WESTMARC would like to publicly recognize the multiple, significant areas of impact that Palo Verde has on our state.

On our economy:

- By providing thousands of well-paying jobs;
- By generating low-cost electricity; and,
- By their status of being Arizona's largest taxpayer

On our environment:

- By generating clean energy for a metropolitan area that struggles to meet air quality standards

On our quality of life:

- By powering an unprecedented period of growth
- By committing to safe and efficient operations
- Arizonans, and others throughout the Southwest, would not enjoy such a high quality of life without the reliable electricity Palo Verde provides to power our businesses, our homes, and especially our air conditioners.

On behalf of WESTMARC thank you for allow me to express our continued appreciation for the valuable contributions Palo Verde continues to provide our communities.

June 25, 2009

NUCLEAR REGULATORY COMMISSION MEMBERS.

THANK YOU FOR ALLOWING ME TO SPEAK ON BEHALF OF THE PALO VERDE NUCLEAR POWER PLANT. I AM THE MAYOR OF THE TOWN OF BUCKEYE, WITH A POPULATION OF AROUND 45,000. WE ARE LOCATED APPROXIMATELY TWENTY MILES EAST OF THE PLANT.

IN THE 1970'S I WAS ON THE TOWN COUNCIL FOR A PERIOD OF NINE YEARS, THE FINAL THREE YEARS AS MAYOR. ARIZONA PUBLIC SERVICE, MANAGING PARTNER OF PALO VERDE, ASKED ME, AMONG OTHERS, TO BE ON A COMMUNITY ADVISORY COMMITTEE.

THE COMMITTEE FUNCTIONED FOR APPROXIMATELY TEN TO TWELVE YEARS AS I RECALL. DURING THAT TIME WE AS COMMITTEE MEMBERS WERE UPDATED REGULARLY AS TO THE ONGOING CONSTRUCTION AND ANY PROBLEMS THAT WOULD ARISE FROM TRAFFIC, DUST OR EQUIPMENT.

WE WERE ALWAYS KEPT UP TO DATE AND MADE AWARE OF ANY AND ALL SITUATIONS.

SINCE THE BEGINNING THEY HAVE PROVIDED FUNDING FOR VARIOUS COMMUNITY CLUBS, CHARITIES AND ACTIVITIES. CURRENTLY, AS A MEMBER OF A LARGE AREA FUND COMMITTEE WHICH WAS FUNDED BY ARIZONA PUBLIC SERVICE, THE COMMITTEE MEETS ANNUALLY AND DISBURSES FUNDING TO VARIOUS GROUPS SUCH AS SCHOOLS AND OTHER OPPORTUNITIES TO BETTER OUR COMMUNITY. THEY HAVE BEEN PARTNERS AND EXCELLENT NEIGHBORS TO THE TOWN OF BUCKEYE FOR THE PAST THIRTY YEARS. IN CLOSING THEY ARE COMMITTED TO THE COMMUNITIES NOT ONLY AS TO CONTRIBUTIONS IN REAL DOLLARS BUT IN EMPLOYEE VOLUNTEER SERVICE. THEY OPERATE THE PLANT SAFELY, EFFICIENTLY AND CONTINUE TO HELP KEEP ARIZONA IN INEXPENSIVE POWER. PALO VERDE IS ARIZONA'S LARGEST TAXPAYER AND A MAJOR EMPLOYER. THANK YOU FOR ALLOWING ME TO SPEAK.

JACKIE A. MECK, MAYOR