

UNITED STATES NUCLEAR REGULATORY COMMISSION ADVISORY COMMITTEE ON REACTOR SAFEGUARDS WASHINGTON, DC 20555 - 0001

March 29, 2012

MEMORANDUM TO:	ACRS Members
FROM:	Kent Howard, Senior Staff Engineer / RA / Technical Support Branch, ACRS
SUBJECT:	CERTIFICATION OF THE MINUTES OF THE MEETING OF THE SUBCOMMITTEE ON COLUMBIA GENERATING STATION ON OCTOBER 19, 2011

The minutes of the subject meeting have been certified as the official record of the proceedings for that meeting. A copy of the certified minutes is attached.

Attachment: As stated cc via e-mail: ACRS Staff Engineers



UNITED STATES NUCLEAR REGULATORY COMMISSION ADVISORY COMMITTEE ON REACTOR SAFEGUARDS WASHINGTON, D. C. 20555

December 1, 2011

MEMORANDUM TO: Kent Howard, Senior Staff Engineer Technical Support Branch, ACRS

FROM: John D. Sieber, Chairman Plant License Renewal Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE MEETING OF THE SUBCOMMITTEE ON COLUMBIA GENERATING STATION ON OCTOBER 19, 2011

I hereby certify, to the best of my knowledge and belief, that the Minutes of the subject meeting held on October 19, 2011, are an accurate record of the proceedings for that meeting.

/RA/ 12/01/11

John D. Sieber, Chairman Date Plant License Renewal Subcommittee

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS MINUTES OF ACRS COLUMBIA GENERATING STATION SUBCOMMITTEE MEETING OCTOBER 19, 2011

The ACRS Columbia Generating Station Subcommittee held a meeting on October 19, 2011 in Room T2B3, 11545 Rockville Pike, Rockville, Maryland. The meeting convened at 8:26 a.m. and adjourned at 11:55 a.m. The entire meeting was open to the public. Kent L. Howard, Sr. was the Designated Federal Official for the meeting.

ATTENDEES

ACRS MEMBERS/CONSULTANTS

John Sieber, Chairman John Stetkar, Member William Shack, Member Gordon Skillman, Member John J. Barton, Consultant

NRC Staff

Arthur Cunanan, NRR Gregory Pick, Region IV Melanie Galloway, NRR William Holston, NRR Michelle Kichline, NRR Angela Buford, NRR Bill Rogers, NRR Raj Auluck, NRR Mark Delligatti, NRR Don Brittner, NRR Roger Kahkian, NRR Christopher Sydnor, NRR Ching Ng, NRR James Gavula, NRR Stacie Sakai, NRR Ata Istar, NRR Allen Hiser, NRR Rui Li, NRR Duc Nguyen, NRR Jeff Poehler, NRR Matt Homiack, NRR Daniel Doyle, NRR Bart Fu, NRR Andrew Prinaris, NRR

Albert Wong, NRR John Daily, NRR Carmen Fells, NRR Seung Kee Min, NRR Abdul Sheilh, NRR Cliff Doutt, NRR Ed Smith, NRR Brian Harris, NRR William Gardner, NRR

OTHER ATTENDEES

Steve Gosselin, Lucius Pitkin, Inc. Abbas Mostala, Energy Northwest Bruce Mackissock, Energy Northwest Scott Wood, Energy Northwest John R. Lasalle, Energy Northwest Carolyn Beaudry, Energy Northwest Dale Atkinson, Energy Northwest Mot Hedges, Energy Northwest Brian Adami, Energy Northwest David Lee, AREVA Kevin Hlavaty, DTE Energy Ron Finnin, AREVA Steve Rochter, Energy Northwest Jack Cole, Becht Engineering John Bekholzi, Energy Northwest John Twomey, Energy Northwest James Hamlen, AREVA Doug Ramey, Becht Engineering John Sisk, Energy Northwest Michael Carter, AREVA Linda Bugoci, DTE Energy Massoud Tafazzoli, AREVA Sing Chu, AREVA David Swank, Energy Northwest James Tansy, Energy Northwest Robert Nielson, Energy Northwest Don Gregoire, Energy Northwest Cliff Custer, FENOC Mike Gallagher, Exelon Fred Polaski, Polaski Consulting LLC Rick Cliché, NEXTERA Sarah Kovaleski, Ameren Missouri

SUMMARY

The purpose of the meeting is was to review the license renewal application (LRA) for the Columbia Generating Station (Columbia) and the draft Safety Evaluation Report (SER) with open items. The meeting transcripts are attached and contain an accurate description of each matter discussed during the meeting. The presentation slides and handouts used during the meeting are attached to these transcripts.

The following table lists the significant issues that were discussed during the meeting with the corresponding pages in the transcript.

SIGNIFICANT ISSUES		
Issue	Reference Pages in Transcript	
Chairman Jack Sieber opened the Columbia Plant License Renewal Subcommittee meeting	5-8	
Melanie Galloway (Acting Director, Division of License renewal) noted the seven month delay in the review stemming from challenges in responding to Requests for Additional Information (RAI). A further delay in the schedule due to outstanding RAIs is anticipated.	9-10	
Columbia Generating Station (Columbia/applicant) License Renewal Application presented by Energy Northwest	14-99	
Chairman Sieber inquired about the uniqueness of the containment at Columbia being constructed of steel. The applicant explained that it is an over-under containment with a 360° circumferential sand pocket region that creates 300 linear feet of sand pocket area. The steel containment is free standing (sitting on skirts and the skirts sit on the foundation mat).	23-25	
Chairman Sieber inquired about verifying the integrity of the steel portion of the containment in the sand bed area other than a leak test. Energy Northwest stated that there are eight drain pipes coming off the sand bed region and the lines are checked weekly. The applicant also stated that there is a commitment to verify that the drain lines are still free flowing by 2015.	26	
The applicant stated that they have a commitment prior to the period of extended operation to inspect the gap area of the containment vessel	29	
The debris found in the downcombers is from maintenance during the outages. The downcombers also have a cover plate installed. During outages, divers perform a clean out.	34	
Three of the downcomber pipes are capped in the drywell region, and ninety-nine are left for venting steam. The pipes are capped due to the	40	

local water jet loads being excessive during assessment of the wet well piping hydrodynamic loads.	
Columbia recently performed 20 th refueling outage. The main condenser, main generator rotor, and bolted connections within the non-segregated buses (replaced with welded in fusible links) were replaced during the outage.	41
Consultant Barton inquired about the need for a fourth diesel. The applicant responded that they went from a seventy-two hour LCO to a fourteen day LCO, so they purchased a fourth 480V diesel. It is basically a risk mitigation device.	46
Member Shack inquired about the applicant stating that they never found an SCC crack in their piping during a twenty year span (1984-2004) without hydrogen water chemistry. Consultant Barton also expressed a similar concern. The applicant stated that they had an issue of copper in their system that acts to poison their normal water chemistry. The applicant stated that they still have copper in the Reactor Cooling System. The applicant stated that replacing the Main Condenser removed the admirality brass and muntz metal condenser and installed titanium. To get the electrochemical potential, there was the need to use a noble metals coating that took a while to develop. Once that was developed, they installed hydrogen injection.	47-50
Melanie Galloway of DLR stated that the Limerick application will be the first LRA to be fully Gall Rev.2 compliant.	59
There are fifty-five Aging Management Programs (AMP), thirty-five existing, twenty new.	60
The applicant stated that there were plans to complete the majority of the new programs within a few years, taking into consideration operating experience and to ensure that they are creating programs that are effective at addressing aging management.	60-61
There are seventy-one commitments.	62
There are six open items.	63
The applicant explained the Memorandum of Understanding between Bonneville Power Authority and the Columbia Generating Station concerning maintenance and testing of the switchyard.	69-71
The applicant stated, in summary, that of the six remaining open items, they have already provided responses two responses, and the remaining four were close to being submitted to the staff.	78-79
Columbia Generating Station (Columbia/applicant) License Renewal Application presented by Division of License Renewal (DLR).	102-144

Chairman Sieber inquired about the environmental report, and whether the effects of a dam failure affect the water supply to the plant in case of an accident condition. The staff stated that an analysis had been conducted and it is presented in the Columbia UFSAR.	105
The applicant submitted a four-hundred forty page supplement to the LRA on July 16, 2010. Three new systems were added to the scope of license renewal (heating steam, heating steam condensate, and heating steam vents).	106
DLR staff issued over two-hundred thirty Requests for Additional Information during the review.	106
Greg Pick, Senior Regional Inspector in Region IV, presented the results of the regional inspection. The team reviewed thirty-four of the fifty-five Aging Management Programs (AMPs). Of those thirty-four programs, they reviewed fourteen of the new AMPs, and thirty-five of the existing AMPs.	107
The inspection team believed the One-Time Inspection programs were inadequate because they did not verify the absence of aging effects in Structures, Systems, and Components (SSCs) being monitored by the existing One-Time Inspection programs. The applicant revised their use of eleven One-Time Inspection programs and identified six that should be characterized as Plant-Specific programs and initiated actions to develop AMPs for each.	108
The applicant initiated a corrective action program to ensure that their Structure Monitoring Program is amended to ensure effective trending of defects during their five year inspections. The applicant also agreed to adopt the sample selection criteria identified in GALL Rev. 2 for their Chemistry Program.	109
The applicant will have to replace the remaining post-anode strings protecting their in-scope Service Water Piping.	110
The applicant stated that they used the Karl Fischer Test Method in their Lube Oil Analysis Program. The Regional Inspection team discovered that the applicant <u>did not</u> use the Karl Fischer Test Method because it created false positives. The applicant utilized a different program. The applicant committed to change their AMP to accurately reflect the water content test being used.	110-111
The Regional Inspection Team also discovered that several of the System Engineers were not comfortable with their training related to identifying aging effects on the SSCs they were assigned to inspect.	111
The Regional Inspection Team stated that the applicant did make changes to the AMP related to specific documentation of structural indication. The team identified a crack on the interior and exterior of the reactor building and questioned whether it was a through-wall crack. A review of photographs and independent review of the applicant's evaluation, the team concluded that the applicant took appropriate actions to evaluate the design capability to withstand the design-basis earthquake and to assess the impact of aging effects. Mr. Pick stated that the team did not believe it was a through-wall crack, but a cold joint crack.	113-114
The NRC staff reviewed fifty-five AMPs. The staff also reviewed over five-thousand AMP line items.	117

Matt Homiack, of the NRC staff, discussed the open item related to Operating Experience.	123-127
The staff discussed an open item related to High Voltage Porcelain Insulators.	129-130
The staff discussed an open item related to Metal Fatigue.	130-137
The applicant submitted a LRA Supplement to include a commitment to install core plate wedges at least two years prior to the beginning of the period of extended operation (PEO), or submit a plant-specific Time Limited Aging Analysis (TLAA) addressing the relaxation of the core plate rim hold-down bolts to the NRC for review and approval at least two years prior to PEO.	137-142
The staff discussed an open item related to Upper-Shelf Energy.	142-144
The staff discussed an open item related to the applicant's analysis for the cranes. The applicant stated that the analysis for the cranes does not meet the definition of a TLAAA. The staff believes that the analysis for the cranes meet the definition of a TLAA because of the design limit on the number of cycles specified in the Crane manufactures Association of America, CMAA 70 specifications, which involves a time limited assumption. The applicant has submitted a response and the NRC staff is currently evaluating the response.	144
Chairman Sieber adjourned the meeting at 11:55 a.m.	159

Action Items	
Action Items	Reference Pages in Transcript
Is the water supply line from the Columbia River screenhouse to the plant in scope or not?	19
Chairman Sieber requests whether applicant has had any evidence of microbiologically induced corrosion (MIC) in their systems.	41-42
Member Stetkar requests additional information from the applicant on the cause(s) and extent of damage from metal enclosed bus duct failure and possible impact(s) on other systems (spatially). Member Stetkar also requests definition of a "fail-safe" cable. Has analysis been performed on all three potential failure modes and its effect as for as spurious operations, failure to operate when required, etc.?	43, 45, 92
Chairman Sieber requested the applicant's plans for replacing the remaining copper in their systems that affect hydrogen chemistry.	48

Why the TSW supply line isn't considered in-scope?	102
James Gavula, per question from Member Stetkar, agreed to re-evaluate	
specific portions of the Open Cycle Cooling Water Program for internal	120
inspections.	
The staff is addressing the possibility of expanded inspections to address	
committee member questions concerning applicant readiness for an	150 156
extended license due to a number of weaknesses and problems discovered	152-150
during the review and subsequent inspections.	

Documents Provided to the Subcommittee

None

Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards Subcommittee on Plant License Renewal

Docket Number: (n/a)

Location: Rockville, Maryland

Date: Wednesday, October 19, 2011

Work Order No.:

NRC-1216

Pages 1-159

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1	UNITED STATES OF AMERICA
2	NUCLEAR REGULATORY COMMISSION
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4	ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
5	(ACRS)
б	+ + + + +
7	SUBCOMMITTEE ON PLANT LICENSE RENEWAL
8	+ + + + +
9	WEDNESDAY
10	OCTOBER 19, 2011
11	+ + + +
12	ROCKVILLE, MARYLAND
13	+ + + + +
14	The Subcommittee met at the Nuclear
15	Regulatory Commission, Two White Flint North, Room
16	T2B3, 11545 Rockville Pike, at 8:30 a.m., John Sieber,
17	Chairman, presiding.
18	SUBCOMMITTEE MEMBERS PRESENT:
19	JOHN D. SIEBER, Chairman
20	WILLIAM J. SHACK
21	GORDON R. SKILLMAN
22	JOHN W. STETKAR
23	
24	CONSULTANTS TO THE SUBCOMMITTEE PRESENT:
25	JOHN J. BARTON
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2	NRC STAFF PRESENT:	
3	KENT L. HOWARD, SR., Designated Federal	
4	Official	
5	GREGORY PICK *	
6	MELANIE GALLOWAY	
7	ARTHUR CUNANAN	
8	BILL HOLSTON	
9	JIM GAVULA *	
10	MICHELLE KICHLINE	
11	MATT HOMIACK	
12	ALLEN HISER	
13	CHING NG	
14	CHRIS SYDNOR	
15	JEFF POEHLER	
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2	ALSO PRESENT:	
3	DALE ATKINSON	
4	DAVID SWANK	
5	JOHN TWOMEY	
6	MOT HEDGES	
7	DONALD GREGOIRE	
8	SCOTT WOOD	
9	ABBAS MOSTALA	
10	STEVE RICHTER	
11	DAVID LEE	
12	BRIAN ADAMI	
13	JOHN SISK	
14	JOHN LASALLE	
15	CAROLYN BEAUDRY	
16	JIM HAMLEN	
17	JACK COLE	
18	* Present via telephone	
19		
20		
21		
22		
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26	NEAL R. GROSS	
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1	P-R-O-C-E-E-D-I-N-G-S
2	8:26 a.m.
3	CHAIR SIEBER: The meeting will now come
4	to order. This is a meeting of the Plant License
5	Renewal Subcommittee. My name is John Sieber,
6	Chairman of this subcommittee meeting.
7	ACRS members in attendance are, John
8	Stetkar, Bill Shack, Gordon Skillman, and also with us
9	is John Barton, a former ACRS member and currently an
10	ACRS consultant.
11	Kent Howard of the ACRS staff is the
12	Designated Federal Official for this meeting. The
13	subcommittee will review the license renewal
14	application for the Columbia Generating Station and
15	the associated Safety Evaluation Report with Open
16	Items.
17	I note that there are six open items
18	currently on the report that I have, which is about
19	the maximum for a subcommittee meeting, so prior to
20	the full committee meeting we expect all those open
21	items to be resolved.
22	We will hear presentations from NRC staff,
23	Energy Northwest representatives and other interested
24	persons regarding this matter. I would like to add
25	that the Region IV inspector, Mr. Gregory Pick, is
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1	also participating in this meeting via bridge line.
2	Mr. Pick, if you are on the bridge line
3	could you please acknowledge?
4	MR. PICK: I'm on the bridge.
5	CHAIR SIEBER: Okay, thank you. And I'll
6	leave the bridge line open during this meeting for
7	your participation, and I note that you are scheduled
8	at 10:15 or thereabouts to make a presentation.
9	We have not received written comments or
10	requests for time to make oral statements from members
11	of the public regarding today's meeting. The entire
12	meeting will be open to public attendance.
13	The subcommittee will gather information,
14	analyze relevant issues and facts and formulate
15	proposed positions and actions as appropriate for
16	deliberation by the full committee.
17	The rules for participation in today's
18	meeting have been announced and part of the notice of
19	this meeting, previously published in the Federal
20	Register.
21	A transcript of this meeting is being kept
22	and will be made available as stated in the Federal
23	Register notice. Therefore, we request that
24	participants in this meeting use microphones located
25	throughout the meeting room when addressing the
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subcommittee.

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The participants should first identify themselves and speak with sufficient clarity and volume so that they may be readily heard.

Now I would point out that the Plant Operations and Fire Protection Subcommittee did visit the Columbia Generating Station in, I think it was July of 2010, and we had eight members of the ACRS with us at that time.

10 So we have some familiarity not only with 11 the Generating Station but also its operating organization in the surrounding site and environment 12 including Hanford 13 the DOE activities the at 14Reservation.

15 That was an important and worthwhile visit 16 for us to make to your plant. It gives us a better 17 background and understanding of the condition of the 18 plant, the competence and the willingness of the site 19 personnel to properly manage the plant, and also the environmental impacts that may be caused either by the 20 21 plant or by DOE activities which is in the surrounding 22 area.

And I note that DOE has done a lot of remediation work in that area and that continues on, and there's no evidence that I can recall of any

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environmental impact other than as is stated in the 1 2 environmental report into the Generating Station on 3 that site. 4 We will now proceed with the meeting and I 5 call upon Melanie Galloway to begin. Melanie? MS. GALLOWAY: Thank you, Mr. Sieber. 6 My 7 name is Melanie Galloway. I'm the Acting Director of 8 the Division of License Renewal. Brian Holian, who is 9 the director who would normally be here, is currently taking an assignment as the Acting Office Director of 10 11 our Office of Research. 12 So while I'm assuming the role of director, Mark Delligatti, to my right, has stepped in 13 14to fill my position as the Acting Deputy Director of 15 the Division of License Renewal. Mark comes to us from the Office of 16 17 Federal and State Materials and Environmental 18 Management Program and we're glad to have him. To my left is Dennis Morey, who is the 19 responsible Branch Chief for the project management of 20 21 the Columbia License Renewal Application. In 22 addition, we have a number of staff here to support 23 this discussion today. We have our three technical branch chiefs 24 25 from the Division, Dave Pelton, Bo Pham and Raj NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

9 Auluck. In addition, they each have staff as well to 1 2 support any line of question that may come up. 3 In addition, besides Greg Pick, who Mr. 4 Sieber indicated is on the phone, he will be 5 discussing the regional inspection. He's a very experienced inspector five 71002 6 having led 7 inspections already, the most recent being the 8 Columbia. 9 In addition, on the phone we have Jim 10 Gavula, a member of Dave Pelton's staff located in our 11 Region III office. And also have Dan Knotts, a very experienced consultant of ours in Oak Ridge in the 12 concrete and concrete degradation area. 13 14 As we normally do, I'd like to give a 15 little bit of context to the Columbia review. As the 16 ACRS is aware, we've experienced a seven-month delay 17 in the schedule associated with our review. 18 And the challenges that resulted in that 19 applicants delay have to do with the needing additional time than what we normally allow in our 20 21 schedule to respond to RAIs. In addition, we have ten rounds of follow-22 23 up RAIs, so these two items contributed to our need to extend that schedule. 24 25 Now to the applicant's credit, in December NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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of 2010, they did re-look at the way they were responding to our RAIs and improved it. So that resulted in us not having to take at this point in time further delays in the schedule, so we appreciate that.

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But it is important to note that we have a 6 7 February 2012 due date right now for the issuance of 8 our final safety evaluation, but given the RAIs that 9 are outstanding, the open items that we have and the fact that there is significant work yet to be done on 10 11 the part of the applicant as well as reviewed by the staff, there is a likelihood that we will have to 12 consider a further schedule delay, because it will be 13 14 extremely ambitious at this point for us to be able to 15 meet that February 2012 date with the outstanding work yet to be done. 16

17 I've mentioned, there are six open As items. The committee will be familiar with one of 18 The metal fatigue issue has already been talked 19 them. about on Salem-Hope Creek. 20

21 But the other five issues are unique to 22 Columbia, and so that will be an opportunity for us 23 all to engage in some new items that are coming up for us in the license renewal arena. 24

There is one particular open item that I

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11 do want to discuss and it's the operating experience 1 2 This is area that has been open item. an of 3 increasing importance and emphasis to the agency, and 4 it's important to put it in context. 5 We have reviewed and renewed a large 6 number of licenses as part of our license renewal 7 program. However, there's only nine plants right now 8 that are in a period of extended operation. 9 So there is not that much experience in 10 transitioning and implementing all the Aqinq 11 Management Programs that go into an approved license 12 renewal. And as a result of that the staff has done 13 14a lot of work in capturing operating experience in a 15 number of documents. The most recent one being GALL, 16 Rev 2. Most of the updates to that document had to do 17 with changes and improvements and understandings in 18 operating experience. 19 In addition, we put out Information 20 Notices and we put out ISGs, all of which has 21 connection on operating experience. 22 While the staff is doing a lot of work in 23 this expectation regard, we do have an that 24 applicants, as they go into their period of extended 25 operation will do likewise, independent work to ensure NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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that they are understanding operating experience at their site and in the industry to ensure that their Aging Management Programs will remain effective over that period of extended operation.

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5 Based on some recent observations that 6 we've had, we've found that there might be some 7 challenges for applicants as they go into this period 8 of extended operation to ensure that their Aging 9 Management Programs are maintained up-to-date in light 10 of operating experience.

In particular, we see changes and turnover of staff, we see training opportunities that need to be met, but perhaps most important we see program updates.

15 The idea that applicants as they go into the PEO need to understand what changes and what 16 17 thresholds need to be met in order for those changes of both in terms thresholds of what 18 to occur information along the lines of operating experience 19 that need to be shared with the industry, and what 20 21 thresholds need to be met so that they can update 22 their Aging Management Programs effectively all the 23 time. 24 10 CFR 54 requires that applicants as part

25 of their application are able to demonstrate the

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effectiveness of their Aging Management Programs over time, and for the staff that includes operating experience.

So as a result of our emphasis in this area and the understandings that we have gained, we're putting increasing expectations on what applicants need to include in their application to demonstrate that they are going to be in a position to manage their programs over time, and that includes a key component of operating experience.

So we'll get into a little bit more detail with the applicant and the staff in discussing this open item, but that gives you a little bit of background as to how we have come up to this point.

I should note as well that we've also recently put out an Interim Staff Guidance document for comment.

18 We had a public meeting last week with the 19 industry and stakeholders, which was a very good discussion, that is going to allow all of us to get 20 21 better alignment. The NRC has put out better guidance in this regard that clearly indicates what we've 22 23 expected all along, but more appropriately states and makes sure that everyone else understands what our 24 25 expectations are regarding operating experience in the

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1	period of extended operation.
2	At this point that concludes my opening
3	remarks and I'll turn it over to Dale Atkinson, the
4	applicant.
5	MR. ATKINSON: Thank you very much. I'm
6	Dale Atkinson, vice president of Employee Development
7	and Corporate Services for Energy Northwest.
8	Mr. Chairman and distinguished members of
9	the ACRS, we thank you for the opportunity to come
10	here and talk to and to bring our team from Energy
11	Northwest to present the License Renewal Application
12	for Columbia Generating Station.
13	I would like to say just a little bit
14	about the team I've got up here at the front. Again,
15	my name's Dale Atkinson. I've been at Energy
16	Northwest for over 22 years.
17	Represented here amongst the five of us is
18	in excess of 100 years of operating experience at
19	Columbia Generating Station alone, and thus the gray
20	hair and other challenges here.
21	But beyond that I've held a number of
22	positions at Energy Northwest including Chief Nuclear
23	Officer. When I return tonight, starting tomorrow
24	I'll be Acting Chief Nuclear Officer again and then
25	over the weekend Chief Executive Officer for a little
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And that's how it works in an organization of 1,200 and some odd people. For myself personally, besides the period at Oregon State, I do have experience starting up other nuclear reactors for General Electric Company.

Ι presently chair the Operations Subcommittee at the Cooper Nuclear Station. I also chair the Advisory Committee on Nuclear Engineering 10 and Radiation Health Physics at Oregon State 11 University.

I would like to take a moment to introduce 12 To my immediate left is Dave Swank. 13 my team here. 14Dave is our Engineering General Manager. To his left 15 is Don Gregoire, Manager of Regulatory Affairs.

To Don's left is John Twomey. John is the 16 17 incoming License Renewal Project Manager and he is 18 taking the reins in that regard from the gentleman to 19 his left, Abbas Mostala, who has followed this project and provided the leadership on it to date, so thank 20 21 you, Abbas.

22 We also have quite a number of staff 23 throughout the room to provide the backup support should we need some detailed discussion on a topic 24 25 that we at the front table might not have the level of

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detail that becomes necessary.

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Mr. Chairman, we do have an agenda that includes discussion about Energy Northwest and an overview of Columbia Generating Station, and I do understand that several of you have been to the site and seen it.

So we'll move through that part expeditiously except as individuals need some specific questions answered, provide you a plant status and an indication of some of the major improvements.

11 Т think you'll of see а pattern significant investment in Columbia Generating Station. 12 We will of course talk about the License Renewal 13 14Application, the open items on the Safety Evaluation 15 Report, and then I'll provide some concluding remarks.

So just quickly, Energy Northwest itself, we are a public agency. We have been providing public power in the Northwest since 1957. Our largest generating facility is Columbia Generating Station, but in addition to that we do have hydroelectric, solar and wind projects.

For those of you that visited the site, you may have seen the solar project adjacent to Columbia Generating Station. The entire output of Columbia Generating Station is provided to the

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Bonneville Power Administration for distribution in the Northwest.

On the grid it is provided at cost, and between Bonneville and rate payers of the Northwest there is quite a dependence on the safe, efficient and reliable operation of Columbia Generating Station.

7 A little bit more about Energy Northwest, 8 we are a joint operating agency and that means that we 9 were authorized by the State of Washington to provide 10 energy and energy services at cost to rate payers of 11 the Northwest.

We have a membership that's comprised of 28 municipalities or/and public utility districts from across the state of Washington. For those of you that visited the site you'll recognize the next picture. It is an overhead view.

17 It is not as flat as that picture looks. 18 We are located in Eastern Washington and in an area of 19 the state that is surrounded by a lot of hydroelectric 20 facilities or a lot of dams on the river.

You see Columbia Generating Station in the foreground with the six forced draft cooling towers to the immediate right there, the two ultimate heat sink cooling ponds right above that with the spray rings in operation.

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18 If you go to the top of the picture that 2 is the Columbia River, an enviable source of cooling 3 water, very clean and cold with the high volumes. 4 We're lucky to have that. 5 CONSULTANT BARTON: What are the two ponds to the right? 6 7 MR. ATKINSON: On the far right there, 8 those are sewage treatment ponds. 9 CONSULTANT BARTON: Okay. 10 CHAIR SIEBER: Maybe since we have this 11 picture this is a good time to ask questions about the general layout. But what's the ultimate heat sink for 12 Columbia Generating Station? 13 14 MR. ATKINSON: Well, we -- do you want to 15 answer that? MR. SWANK: Sure. It's the two spray 16 17 So we have 30-day volume in the ponds and then ponds. 18 we have capability to make up. We could bring in We have capability to make up from the river 19 trucks. as well. 20 CHAIR SIEBER: Okay, but now the river's 21 three and a half miles from the site? 22 23 MR. SWANK: That's correct. 24 CHAIR SIEBER: And you have a screenhouse 25 on the river? NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

19 MR. ATKINSON: That's correct. But do you consider the 2 CHAIR SIEBER: 3 lines, the water line between the Columbia River 4 screenhouse and the plant site as safety related, 5 important to safety or just another water line in the 6 ground? 7 MR. SWANK: It is not safety related. 8 It's certainly beneficial to us to have it, although 9 like I say, we have the capability to bring the water 10 in by trucks if we need to. 11 CONSULTANT BARTON: Is it in-scope to 12 license renewal? Is it in-scope? Is that an Aging Management Program or inspection program that piping 13 14that Jack just asked about? 15 MR. TWOMEY: Yes, it is. And okay, then you will 16 CHAIR SIEBER: explain a little bit what your Aging 17 later on 18 Management Program is for that line? 19 MR. TWOMEY: Okay. CHAIR SIEBER: Okay, I would appreciate 20 21 that. MR. TWOMEY: We will make sure we do that. 22 CHAIR SIEBER: 23 Now the EPZ, through this 24 50-mile EPZ includes a water plan for the reservation 25 but it also includes the Tri-Cities area? NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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MR. TWOMEY: That's correct.

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CHAIR SIEBER: And seemed to me the population is over a million people in that 50-mile zone, something like that including Indian reservation to the southwest, which grows a lot of fruits and vegetables.

When you have discharges from your plant do you discharge to the Columbia River?

9 MR. ATKINSON: Through our permit it'd be 10 discharged into the Columbia River. In practice, what 11 we have done for over ten years is only the blowdown 12 flow that's required to maintain the salt concentration in the forced draft cooling towers at 13 14 acceptable levels.

So we actually have not had a need to do a discharge, but we are permitted to discharge to the Columbia River within our operating license.

18 CHAIR SIEBER: And you have no real 19 commercial vegetation, you know, farms or so forth 20 basically -- well, there's a few, but not very much 21 within the ten-mile EPZ? It's mostly desert as we 22 can, there is semi-desert?

23 MR. ATKINSON: That's generally true, but 24 we do have some. If you'd like a description we have 25 an individual here that can cover the specifics.

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21 CHAIR SIEBER: Yes, and I have read the 2 environmental report and it's all in there. 3 MR. SWANK: You can actually see some of the orchards in the top part of the picture, you know, 4 5 right across the river, on the other side of the 6 river. 7 CHAIR SIEBER: Right, it's on the other side of the river. In fact, that's rising ground on 8 the other side of the river. 9 10 MR. SWANK: Very much so. 11 CHAIR SIEBER: Okay. Okay, thank you. 12 ATKINSON: All right, and just to MR. point out as I said, this does look flat from that 13 14aspect, but the plant itself is 88 feet above the 15 level of the river. The next slide is intended to show the 16 17 of the land we actually lease from layout the 18 Department of Energy. And essentially what we lease are 1,100 19 acres from the Department of Energy, includes an area 20 21 roughly 2,000 meters in diameter that surrounds the 22 plant and a corridor down to the Columbia River that 23 includes the piping that was just discussed and the 24 river water pumphouse. 25 We do maintain authorities as required for NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

management of an exclusion area, and we have a Memorandum of Understanding and lease agreements that I've reviewed that provide pretty good controls on what happens within that.

I think one thing to note, in fact, if we go back to that previous slide, Abbas, one thing to note on there that you brought up, Mr. Chairman, is that on the bottom you'll see that square of land.

9 That is the closest area to be remediated 10 by the Department of Energy and those surveying 11 activities have commenced there.

12 CHAIR SIEBER: Yes, we spent quite a bit 13 of time during our visit going to the DOE sites. Not 14 only this one but there's others --

MR. ATKINSON: Right, they're very similarto that.

17 CHAIR SIEBER: -- others in the area that
18 have more activity than this one appears to have.

MR. ATKINSON: Okay, Abbas, on Slide 9.
So this is an indication of the plant history, just a
very, very high level. Construction permit was
granted in 1973, operating license in 1983.

We have done a five percent uprate of the plant in 1995. The original plant was licensed to 3,323 megawatts-thermal, power uprate took us to 3,486

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1 megawatts-thermal. We are not planning any further
2 uprate at this time.
3 The general description of the facility is
4 a General Electric BWR-5 with a Mark II containment.
5 As I pointed out on the picture, we do have a plant
6 circulated water system that utilizes six forced draft

cooling towers and the ultimate heat sink does have makeup water available from the Columbia River.

9 CHAIR SIEBER: Okay, your fire protection 10 water also comes from the site ponds?

MR. SWANK: Actually a combination.

12 CHAIR SIEBER: You can go from the river 13 but --

MR. SWANK: Well, we actually have a bladder tank in addition to the circulating water basin so we're able to draw, different pumps draw off of those two sources.

18 CHAIR SIEBER: Okay, are you going into 19 any detail on the containment structure? As I see it 20 this containment is unique in the industry. It is a 21 steel containment as opposed to other Mark IIs, and 22 there aren't very many Mark II containments.

23I presume you were going to the24containment.

MR. ATKINSON: Okay, we will have a

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1	discussion on the containment in just a minute here
2	then. I don't think you'll find it particularly
3	unique for a Mark II, but we'll go into the specifics
4	of it here in just a moment. We'll do that.
5	Why don't we go ahead and jump into that
6	discussion here for just a minute? John, if you'll go
7	ahead and commence that with Slide 87, please.
8	MR. TWOMEY: I'm John Twomey. I've also
9	been the civil lead on the project since its
10	inception. Columbia, as this pulls up the slide, is a
11	Mark II free-standing metal containment.
12	This is the picture of it. It is a over-
13	under, which means we have a drywell-wetwell separated
14	by reinforced concrete floor. We have a five-foot
15	thick approximately, bioshield wall, reinforced
16	concrete wall around it and then we have the reactor
17	building proper.
18	And I do note, highlighted, we do have a
19	sand pocket region that is at that elevation. It's a
20	fully 360-degree circumferential which creates about
21	300 linear feet of sand pocket area. Next slide.
22	CHAIR SIEBER: Do you have any access
23	well, the containment is basically all steel in this.
24	It's free standing except it sits on the sandpile, is
25	that correct?
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25 MR. TWOMEY: No, it's free standing. As 2 you can see on the bottom there's an inner and outer 3 skirt on the drawing, so it physically sits on the skirts and the skirts sit on the foundation mat, and 4 5 then we poured the concrete, both the concrete up 6 underneath it and up the sides. 7 CHAIR SIEBER: Okay, so it does not sit on 8 sand? 9 MR. TWOMEY: No, there -- next detail. So 10 as we were constructing it we added this, first we had 11 to pour the concrete underneath and come up the sides. 12 We added this sand pocket region. 13 CHAIR SIEBER: Okay. 14 MR. TWOMEY: As you can see, the metal 15 containment vessel, it starts to transition from vertical underneath into the ellipsoidal head. 16 So 17 that helped us pour the concrete around it, and as I 18 said that is full 360 degrees. 19 CHAIR SIEBER: And my question is, inside the containment you also had concrete? 20 21 MR. TWOMEY: That's correct. 22 CHAIR SIEBER: So you have the bottom of 23 containment vessel sandwiched in the between а 24 concrete mass above it and concrete on the sides and 25 sand at the bottom? NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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1	MR. TWOMEY: That's correct.
2	CHAIR SIEBER: How do you know the
3	integrity of the steel portion of the containment in
4	that area other than a leak test?
5	MR. TWOMEY: What we've done is, since in
6	1983 as you can see there's a drain pipe. There
7	are eight of those coming off the sand pocket region.
8	We verified we had a free drain flow path
9	through the pipe, and at that time we instituted a
10	weekly check of the drain lines and that is, which
11	slide is that that shows a picture of it, 91.
12	What we've got here is the drain lines
13	from the sand pocket region are accessible at one of
14	our elevations here. We have our equipment operators,
15	at that time they're going out weekly to do a water
16	check.
17	So basically what we're validating is that
18	we've got no water in that sand pocket region which
19	would then minimize any corrosion.
20	CHAIR SIEBER: How do you determine the
21	drain line is not flushed?
22	MR. TWOMEY: We verified that back in '83
23	and again in '87, 1987. We've made a commitment to go
24	back out by 2015 and verify that they are still free,
25	that the drain lines are still a free flow path.
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1	CHAIR SIEBER: Okay.
2	CONSULTANT BARTON: You may not be seeing
3	what has come out of your drain pipe. However, if
4	you've got a slight leakage up above that saturates
5	the sand, how do you know you don't have wet sand
6	sitting against the steel containment?
7	MR. TWOMEY: We have them pull a sand
8	sample out of it.
9	CONSULTANT BARTON: You have not
10	MR. TWOMEY: Not recently. We did it in
11	1987 and it was about two percent moisture.
12	MR. ATKINSON: John, why don't you show
13	Slide 90 and the likely source of any water in
14	leakage?
15	MR. TWOMEY: This is the very top of the
16	containment. And what this is showing is we have a
17	refueling bellows seal so when we flood up
18	CONSULTANT BARTON: Which is a lot of
19	plants do have leaks there.
20	MR. TWOMEY: Right. What isn't shown on
21	this is we have six drain lines all through the plant
22	and it's to do just right across here. So if the
23	bellows seal would leak the water would splash, come
24	down to here.
25	And we have six drain lines, they feed
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1	into a common header and we have leak detection at
2	that common header. We have a flow indicating switch
3	that alarms in our control room over, at a flow of one
4	gallon per minute or more.
5	CONSULTANT BARTON: How much?
6	MR. TWOMEY: One gallon per minute or
7	more.
8	CONSULTANT BARTON: So it'll pick up one
9	gallon a minute or more of leakage?
10	MR. TWOMEY: That's correct, and we
11	calibrate that every six years. And I've checked,
12	I've gone back to 1991 because that's what we have in
13	our computer database, so it's readily available, and
14	that alarm has not come in.
15	MEMBER SHACK: There is a filler in that
16	gap?
17	MR. TWOMEY: Yes, there is, polyurethane.
18	MEMBER SHACK: What is it, polyurethane?
19	MR. TWOMEY: It's polyurethane foam. It's
20	sheet foam. It was placed in there as a spacer
21	between the concrete and the metal containment. We
22	didn't want the concrete poured up against the metal
23	containment.
24	And it's primary function is for thermal,
25	thermal growth of the primary container.
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29 CONSULTANT BARTON: Now you never had an 2 opportunity to go look in that gap area, have you? 3 MR. TWOMEY: Not yet. We have made a 4 commitment prior to the period of extended operation, 5 yes. Just below here, about ten feet below that we 6 have these eight inspection ports. 7 CONSULTANT BARTON: That's one of them 8 right there? That's one of the eight. 9 MR. TWOMEY: We 10 will physically remove that. We can get in behind 11 there, as well as when we pull out the inspection 12 quarter port off the backside that is also carbon 13 steel and has been exposed to the same environment as 14the primary containment vessel and we will do 15 inspections on that. We've made the commitments to do that both 16 17 in the fourth interval, ISI interval, which is the ten years prior to the period of extended operation, and 18 then again at no more than -- including the ten-year 19 period of extended operation adjustable based on what 20 21 we find. 22 MEMBER SHACK: And the coating on the outside of that vessel is? 23 24 MR. TWOMEY: I'm not sure what the coating 25 is although we do inspect it. We do have a coatings NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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30 program. But we inspect all the coatings. 1 MEMBER SHACK: But you haven't looked at 2 the coating on the outside? 3 4 MR. TWOMEY: There is no coating on the, 5 it's only on the backside. MEMBER SHACK: So it's bare steel. 6 7 MR. TWOMEY: It's bare carbon steel, 8 that's correct. 9 MEMBER SHACK: Just another curious thing. 10 In the suppression pool then you have the layer of 11 reinforced concrete at the bottom. 12 MR. TWOMEY: That's correct. MEMBER SHACK: So this thing is exposed to 13 14the water now. What kind of chemistries do you get in 15 that pool, or how do you control that chemistry in the 16 pool? 17 CHAIR SIEBER: You're talking about the suppression pool? 18 19 MEMBER SHACK: Yes. MR. TWOMEY: Yes, I'll ask Mot Hedges to 20 21 come up and talk about that. 22 MR. HEDGES: Mot Hedges, plant chemistry. 23 The suppression pool is demineralized water and it is 24 periodically run through a filter and demineralizer to 25 maintain purity, and it's essentially to demineralize NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

31 water. We have --1 MEMBER SHACK: Does it become alkaline 2 3 from the concrete? 4 MR. HEDGES: No. MEMBER SHACK: Just too much of it. Well, 5 the concrete is coated. 6 MR. TWOMEY: That's correct. The concrete 7 8 in the suppression pool is coated, that's correct. 9 And that is underneath our --10 MEMBER SHACK: And it's coated with what? 11 MR. TWOMEY: I'll have to get you the --12 MEMBER SHACK: Assuming it's an epoxy-like coating? 13 14 MR. TWOMEY: It's an epoxy coating, right. 15 that falls underneath our Class 1 coatings And And we go in every outage and check the 16 program. 17 coatings with the diagram. 18 MEMBER SKILLMAN: This is Dick Skillman. 19 MR. TWOMEY: Yes. 20 MEMBER SKILLMAN: Are the water chemistry 21 conditions for the suppression pool water governed by 22 your tech specs? 23 Again, Mot? MR. TWOMEY: 24 MEMBER SKILLMAN: The question is, are the 25 water chemistry requirements for the suppression pool NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	water governed by your tech specs?
2	MR. HEDGES: Mot Hedges, plant chemistry.
3	No, they're not. We have limits in our plant
4	procedure site water chemistry too that cover those
5	but they are not in tech specs.
6	MEMBER SKILLMAN: Thank you.
7	CHAIR SIEBER: Okay, now it looks to me as
8	though the geometry of the suppression pool area
9	including the containment wall on the inside is I
10	think highly congested.
11	Have you ever during any outage been able
12	to drain down this suppression pool, and do you, any
13	kind of examination on the containment metal itself
14	from the inside to determine whether it has flaws or
15	corrosion or anything of that nature?
16	MR. TWOMEY: We have not drained down the
17	suppression pool at any time. We do go in and use
18	divers to do inspections of the suppression pool side
19	of the containment.
20	CHAIR SIEBER: Okay, and what kind of
21	inspection do they do?
22	MR. TWOMEY: It's under our ISI program.
23	CHAIR SIEBER: Yes, but
24	MR. SWANK: It's a visual inspection.
25	CHAIR SIEBER: Is it ultrasonic?
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1	MR. TWOMEY: No, it's a visual inspection.
2	CHAIR SIEBER: A visual inspection.
3	MR. SWANK: In fact, this outage we did a
4	cleaning of the suppression pool to remove any, I'll
5	call it, typically what we find is rust products. So
6	we clean to keep our suction strainers in good health
7	and then did the inspection.
8	CONSULTANT BARTON: Do they also inspect
9	the downcomer pipes that go into the suppression pool?
10	Are they looked at?
11	MR. SWANK: Interior or exterior?
12	CONSULTANT BARTON: The exterior of those,
13	aren't they exposed to the water in the suppression
14	pool?
15	MR. SWANK: Yes, they are.
16	CHAIR SIEBER: Yes, on both sides.
17	MR. TWOMEY: Mot?
18	MR. HEDGES: Mot Hedges, plant chemistry.
19	I'm also one of the drywell coordinators, and the
20	divers do go up into each one of the downcomers and do
21	inspections inside and outside.
22	CONSULTANT BARTON: And what do you find?
23	MR. HEDGES: They have found, you mean
24	like debris floating in there? Yes, they have found
25	some debris in there and removed that.
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CHAIR SIEBER: Could you tell us what the 2 debris is? 3 MR. HEDGES: It's usually debris that 4 falls in there from maintenances during the outage. 5 So they go in and do a final cleanup, closeout, what we call a foreign material inspection. 6 7 CONSULTANT BARTON: So you don't cover 8 those during an outage to prevent stuff from going 9 down into the suppression pool? 10 MR. HEDGES: Some of them are covered. We 11 can't really get to all of them. Some of them are in 12 pretty dose rate areas. I think for clarity, they're 13 MR. SWANK: 14all covered but there's obviously a path for steam to 15 get through as well. MR. TWOMEY: Right. 16 As you can see the 17 top of the downcomers are in our drywell and they will 18 have a cover plate on them. 19 MR. SWANK: They have a metal cover 20 plates. MR. TWOMEY: With a vertical, what we call 21 22 jet deflectors. So for steam, you know, if you get a 23 loss of coolant accident you flow down. But that 24 would, as Mot said, provide a foreign material. 25 While we're doing activities in there we NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

35 might drop something down, so the divers do 1 а cleanout. 2 3 CHAIR SIEBER: What's the inside diameter 4 approximately of the downcomers? 5 MR. TWOMEY: We have a 24-inch and 28-inch opening for the downcomers. 6 7 CHAIR SIEBER: So it takes a skinny guy to 8 do the inspection, and it is a visual? 9 MR. TWOMEY: That's correct. 10 CHAIR SIEBER: And it's underwater. 11 MR. TWOMEY: That's correct. 12 CHAIR SIEBER: In a 24-inch space. 13 MR. TWOMEY: That's correct. 14 CONSULTANT BARTON: You've got several of 15 those capped. What's the reason for some of those being capped, downcomers? 16 17 MR. SWANK: Completely capped? 18 CONSULTANT BARTON: I read in your application I believe that three of your downcomer 19 20 pipes have been capped. 21 SWANK: We'll have to get you an MR. 22 answer. 23 CONSULTANT BARTON: I read it somewhere. Now a 24-inch, I 24 CHAIR SIEBER: Okay. 25 don't think a person could actually enter a pipe like NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	that really? I couldn't, and I'm skinny.
2	MR. TWOMEY: Twenty-four inch pipe
3	CHAIR SIEBER: And so any inspection you
4	do either has to be with instruments that are on
5	extended tubes, or it's just at the areas of
6	accessibility by the inspector even if it's an
7	underwater inspection?
8	MR. TWOMEY: The divers have been able to
9	get up in there though. Again, they're not using
10	tanks, I mean they're hooked up on air. I don't know
11	if that helps somebody but I understand
12	CHAIR SIEBER: I know how big a 24-inch
13	hole is and it's ten inches smaller than my waist.
14	CONSULTANT BARTON: Can I get you to kind
15	of answer that, because I did read I believe in your
16	applications that three of the 102 downcomer pipes
17	between the drywell and suppression pool have been
18	capped.
19	MR. GREGOIRE: That is correct. I just
20	MR. TWOMEY: I can tell you right.
21	MR. SWANK: We'll get you an answer on why
22	they were capped. I think it's from initial
23	construction but I'm not sure.
24	CONSULTANT BARTON: Well, you can get back
25	to me, okay.
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37 MEMBER SHACK: And the coating you 2 inspected with divers, each outage the coating on the 3 suppression pool? 4 MR. TWOMEY: That's correct. 5 MEMBER STETKAR: Have you had any indications of surface corrosion, coating failures? 6 7 I'm assuming that the answer to that is yes, because 8 any is an incomprehensible word. Well, 9 TWOMEY: we did have MR. one 10 coating, I guess we'll call it a failure indication. 11 The way our coatings program is set up, the coatings engineer is notified and he makes the determination 12 whether we need to do the fix immediately or we can 13 14wait until the next outage. 15 They repaired that which now put that into It was about a 16 them going back to the next outage. 17 half-inch like crack in the coating. They went back, 18 repaired that. Repaired it, went back the following 19 outage and could not find it, so the fix had worked. 20 I mean yes, we have. 21 MEMBER STETKAR: And about what fraction of the whole surface do you typically inspect in an 22 23 outage? MR. TWOMEY: Don't know the answer. 24 25 MEMBER STETKAR: What I'm looking for is NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

whether you actually have indications and whether you 1 2 have any trending. For example, if you found them do you keep any trending data of increasing corrosion 3 4 rates or increasing failure rates or anything like 5 that? Because I'm trying to get a handle on, you 6 7 know, what fraction do you inspect and what frequency 8 do you go back and do inspections in same areas that 9 you've found the indications? 10 MR. TWOMEY: Okay, we'll have to get you 11 the percentage of what they do each outage, and I do 12 know that if they find anything then they have to go 13 back. 14 MEMBER STETKAR: Well, you said that the 15 one that you did find was repaired and then the one that you recall --16 17 Right, and when they had to MR. TWOMEY: go back the next year to do the follow-up they could 18 not find it. 19 20 Mot, was there anything else you could add 21 to that? 22 CHAIR SIEBER: Now the containment volume 23 is about the same as a Mark I containment is, roughly. 24 On the other hand, the layouts of this design is such 25 that you don't have the expansions and contractions NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

during an accident condition that you have between the 1 2 suppression pool and the remainder of containments 3 since it's all in one vessel. 4 You have an inert atmosphere during the 5 operation? 6 MR. TWOMEY: Yes, we do. MR. SWANK: Yes, we do. 8 CHAIR SIEBER: And because of that you 9 monitor containment leak rate? Ι take it your 10 containments have a slightly positive pressure during 11 normal plant operation? 12 MR. SWANK: That's correct. 13 CHAIR SIEBER: Okay, so you monitor the 14leak rate and the amount that you might have to add. 15 Have you had any significant positive in-flows to 16 maintain containment atmosphere а within 17 specifications during normal operation? 18 No, we haven't seen any real MR. SWANK: change in the makeup rate that's required. 19 20 CHAIR SIEBER: Okay, thank you. MR. ATKINSON: I understand we'll follow 21 22 up on some coatings discussion at the -- hey, Scott, 23 let's follow up at the end on that. Take a look at 24 it. 25 Any other questions on CHAIR SIEBER: NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	containment?
2	MEMBER SHACK: Except for the coatings on
3	the suppression pool.
4	MR. ATKINSON: And in my understanding you
5	want to understand the inspection frequency
6	MEMBER SHACK: Well, yes, just what the
7	coating system is. Is it epoxy coat? You have epoxy
8	on the concrete, what do have on the steel?
9	MR. TWOMEY: Okay.
10	(Off microphone comments.)
11	MR. ATKINSON: Okay, we have a response
12	for the explanation of the three capped downcomers for
13	you, sir.
14	MR. WOOD: Scott Wood, Columbia Generating
15	Station. Originally there were 102 downcomer pipes,
16	and during the assessment of the wetwell piping
17	hydrodynamic loads it was found that the local water
18	jet loads on the three containment vessel penetrations
19	and their supports were excessive.
20	So to eliminate these loads, three of the
21	downcomers were capped in the drywell region and that
22	leaves 99 for venting steam.
23	CONSULTANT BARTON: Thank you.
24	MR. ATKINSON: Thank you, Scott.
25	CHAIR SIEBER: Any other questions about
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1	the containment structure at this point? If not,
2	maybe we can get back on the plan.
3	MR. ATKINSON: Thank you, Mr. Chairman.
4	I'd like to turn the presentation over then to Dave
5	Swank. Dave?
6	MR. SWANK: Thanks, Dale. We recently
7	completed our 20th refueling outage for Columbia and
8	we've done a number of major modifications during this
9	outage. We replaced our main condenser.
10	So previously we had an admiralty brass
11	condenser, we replaced that with a titanium condenser
12	for reliability reasons. That also eliminated the
13	copper source for potential fuel crudding buildup.
14	We also replaced our main generator rotor.
15	So we have had two shorted turns on our main
16	generator rotor. We've procured a new rotor and
17	installed that this outage.
18	Finally we replaced the bolted connections
19	within our non-segregated buses, so we went to a
20	welded in flexible link connection similar to what we
21	have on our isophase bus.
22	All three of these, we started up last
23	month and to date all three have been performing very
24	well for us.
25	CHAIR SIEBER: Did you have evidence of
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1	microbiologically induced corrosion in your condenser?
2	MR. SWANK: In our condenser?
3	CONSULTANT BARTON: Did you have MIC in
4	your condenser before you changed it?
5	MR. HEDGES: Mot Hedges, plant chemistry.
6	There was no MIC of any significance.
7	CHAIR SIEBER: Do you have evidence of MIC
8	attack anyplace in your chamber or piping that you
9	know of and when, how do you control that stuff? It's
10	got to be enormous.
11	MR. HEDGES: I believe there is some.
12	I'll have to get back to you on the extent. What we
13	do is in the circulating water and the plant service
14	water, our raw water systems, we routinely halogenate
15	with a combination of chlorine and bromine.
16	CHAIR SIEBER: Do you use gaseous
17	chlorine?
18	MR. HEDGES: No, we use sodium
19	hypochlorite and sodium bromite.
20	CHAIR SIEBER: Okay, thank you.
21	MEMBER STETKAR: I don't know, I'm trying
22	to keep you on track here but you'll learn when you
23	deal with us that's impossible.
24	Is it better to ask about scoping of
25	things when you get to the scoping discussion, what's
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43 in-scope what's out of scope? 1 And let me finish sort of the general, or 2 3 should I ask you -- you mentioned non-segregated bus 4 ducts and I had a question about the scoping of those 5 things. Should I wait? 6 MR. SWANK: No, I think now is a good 7 time. 8 MEMBER STETKAR: I know some of the bus 9 ducts are in-scope and some of them are not in-scope. 10 I didn't have an electrical drawing so I can't point 11 to specific buses, but I also know in your operating 12 experience you cited a, I guess an arc over-fault that 13 you had. I don't know what the year is. 14MR. SWANK: 2009. 15 MEMBER STETKAR: Thanks. In August to be exact. 16 MR. SWANK: 17 Probably know the date MEMBER STETKAR: and the minute. 18 I do actually know it. 19 MR. SWANK: 20 MEMBER STETKAR: They're pretty exciting. 21 And that was in an out of scope bus duct, is that 22 correct? 23 MR. TWOMEY: That's correct. 24 MR. SWANK: That's correct. Yes, that was 25 a 6.9 kV bus for a reactor recirculation auger. NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

MEMBER STETKAR: Did that fault cause any external effects? Did you have a fire or did you have any damage external to the bus duct when that fault occurred? MR. SWANK: Do we have pictures? PARTICIPANT: Yes, we do, unfortunately. MR. ATKINSON: I guess the short answer to that is yes. You know, typical failure of one of these buses is fairly catastrophic. It creates a plasma and so anything in the immediate vicinity tends to have some burn damage to it. CHAIR SIEBER: I think you showed us that area when we were on the plant -MR. ATKINSON: Right. On the tour we took you up there and showed you where that --ATKINSON: And the center of MR. the picture there's a better shot. That's where the bus used to be inside the bus duct. That wasn't insignificant CHAIR SIEBER: as I recall. MEMBER STETKAR: That's usually what they look like. The question I had is, is that bus routed through a room that contains any in-scope cables or electrical switch gear? MR. SWANK: Yes.

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45 MEMBER STETKAR: Okay, then why isn't that 1 2 bus in-scope for license renewal, because obviously 3 damage to that bus could affect safety related in-4 scope cables or switch gear? 5 MR. ATKINSON: It looks like we're going to have to do a little homework on that one and get 6 7 back to you. While we do the homework though, would 8 you please advance to Slide 48? 9 MR. MOSTALA: Which one? Forty-eight, the next one. 10 MR. ATKINSON: 11 So that's what it looks like now, so those are the, well, the flexible connections that differentiate from 12 the bolted connections that were subject to 13 the 14 problem that we experienced previously. 15 So what you can see from that it's a very durable connection that's actually got 16 increased 17 material, the increased thickness for improved margin 18 as well. 19 CHAIR SIEBER: Perhaps my memory is 20 faulty, but I recall that area in the plant as being 21 labyrinth with crossing corridor-like sort of a 22 structures? 23 MR. SWANK: Actually it's fairly wide open 24 there. There's --25 Well, in the back end it CHAIR SIEBER: NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	is, yes.
2	MR. SWANK: Yes, this actually happened
3	right almost directly above switch gear. It's a
4	fairly wide open area at that particular location.
5	CHAIR SIEBER: Okay.
6	MR. ATKINSON: So we'll get back to you on
7	that scoping question.
8	MEMBER STETKAR: Sorry to interrupt, now
9	you can go back there.
10	MR. SWANK: Sure. Okay, we're back to
11	Slide 13.
12	CHAIR SIEBER: Yes, I think you're on 13.
13	MR. SWANK: We'll talk about some of the
14	other major improvements that we made to the facility.
15	I won't go through all of them, but I'd certainly be
16	happy to answer the questions you have on any of them.
17	CONSULTANT BARTON: The only question I
18	have is why the fourth diesel?
19	MR. SWANK: We went from a 72-hour LCO for
20	our diesel generators, limiting condition for
21	operation, to a 14-day limiting condition for
22	operation, so as part of that we installed or
23	purchased a fourth, this is a 480-volt diesel.
24	And so that allows us to connect and
25	charge the batteries on either Division 1 or Division
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1	2, and so it's basically a risk mitigation device.
2	MEMBER SHACK: Just on your hydrogen water
3	chemistry, as I was reading your operating experience
4	it appears that you have never found an SCC crack in
5	your piping? Is that correct?
6	MR. SWANK: I'm going to turn to Steve
7	Richter for
8	MR. RICHTER: Steve Richter, Code
9	Programs. Not in our piping, no. We've seen some on
10	our vessel internals.
11	MEMBER SHACK: Right, but not on your
12	piping. So you went from '84 to 2004 without hydrogen
13	water chemistry and no crack?
14	MR. RICHTER: Correct.
15	CONSULTANT BARTON: Why did it take you 20
16	years to get there, 20 years before you implemented
17	it? Why did it take you 20 years to implement
18	hydrogen water chemistry when it's been around for a
19	long time?
20	MR. RICHTER: Well, it hasn't been around
21	we were keeping with the industry, but we did have
22	the issue of copper in our system. The copper acts to
23	poison our normal chemistry so, you know, we didn't
24	noble metal comes through in 2001, which created the
25	hydrogen water chemistry.
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48 CHAIR SIEBER: Do you have any copper anyplace in the heat exchangers? 2 3 MR. RICHTER: We do have other heat 4 exchangers that have copper, or 9:16:25, yes. 5 CHAIR SIEBER: Do you have any long term plans to replace those? 6 7 MR. RICHTER: No, not that I know of. Ι 8 can get back to you on the system expert on that. Do 9 we have anything else in our communicating with the 10 reactor vessel, is that your question? Or just how 11 the plant --12 CHAIR SIEBER: Right. No, I don't believe we have 13 MR. RICHTER: 14 any in our reactor cooling systems. 15 CHAIR SIEBER: Okay. MR. RICHTER: That we communicate there. 16 17 Yes, we mentioned earlier MR. ATKINSON: the discussion about replacing the main condenser, so 18 Dave has some information on that. 19 20 But basically that removed that admiralty 21 brass and Muntz metal condenser and installed titanium 22 that if you recall the previous solution for getting 23 hydrogen effectively implemented with --24 CONSULTANT BARTON: Got you. 25 MR. ATKINSON: То get the ECP, NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

49 electrochemical potential where you need it was to, 1 2 the solution for our a plant like ours was to use a metals coating that 3 noble took awhile to get 4 developed. 5 And once that got developed and we got a hydrogen injection methodology available we installed 6 7 it. 8 CONSULTANT BARTON: Got you, thank you. Thanks for mentioning that 9 CHAIR SIEBER: 10 aqain. The first time around I was going to ask a question but now I will since I didn't before. 11 12 Generally speaking, when you replace admiralty metal with titanium there is a difference in 13 14strength of the tubes. 15 And the spacing between various plates within the condenser is if it's built for admiralty 16 17 metal, generally speaking, to avoid tube vibration you 18 have to change the distance between these plates. Did you do that? 19 20 MR. ATKINSON: We did a lot more. 21 MR. SWANK: actually didn't Yes, we 22 replace the tubes, we replaced the modules. So we had 12 modules double stacked, three I'll call them 23 24 trains. We pulled everything out and put all new in. 25 Okay. So the actual tube CHAIR SIEBER: NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1	support plates were designed for titanium tubes as
2	opposed to a re-tubing job?
3	MR. SWANK: That's correct.
4	CHAIR SIEBER: Well, it's good that you
5	did that because I know personally that doing it the
6	other way is not a good way to do it.
7	MR. ATKINSON: Our condenser replacement
8	project was a very large scope project that replaced
9	all material from one water box at one end, the inlet,
10	to and including the water box at the other end. So
11	everything in between was removed.
12	All that remained from the prior
13	installation was essentially the shell which we
14	stiffened.
15	So once we installed all the modules and
16	basically all the metal that forms the ends of the
17	condenser including the intermediate water boxes, we
18	actually had constructed new water boxes and welded
19	those on the end as well. So that entire scope of
20	work is brand new.
21	CHAIR SIEBER: One more quick question.
22	There is a number of lines that go into the condenser
23	hot well, for example, heat pump recirculation lines
24	and so forth.
25	Generally speaking, if they impinge on
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51 titanium tubes the failure rate is higher than it 1 2 would be with admiralty, and they put baffles in 3 there. When you replaced all the modules did you 4 replace the baffles? 5 MR. SWANK: Actually we moved the pipes down below so that they wouldn't impinge on the tubes. 6 7 CHAIR SIEBER: So you go directly to the hot well and not into the tube bundles? 8 9 MR. SWANK: Right. So we actually moved 10 16 large lines down below the water level. 11 CHAIR SIEBER: Okay, that was a good idea. 12 Okay, thank you. MR. SWANK: Okay, in 2007 we replaced the 13 14 final stage of feedwater heating. We had seen stress 15 corrosion cracking on the tubes and as a preemptive measure replaced the heaters themselves. 16 17 In 2007, we also replaced the turbine 18 digital electrohydraulic control systems our or control systems main turbine and replaced it with a 19 triple-redundant computer system to give us better 20 21 reliability. Next slide, please. 22 In 2001, we went from a 12-month operating 23 cycle to a 24-month operating cycle. So we're, I'd 24 say we're somewhat unique being in the Pacific 25 Northwest in the spring when the water flows off the NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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mountains we would in many cases be asked to either down-power or to shut down.

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We're still occasionally asked to downpower but the grid system has changed, been a massive change to the point where we're rarely asked now to shut down.

But what this did was it gave us the 8 opportunity to only do the thermal cycle of the plant once every 24 months versus once every 12 months. And then finally in 1992, we replaced our low pressure 10 11 rotors.

12 the original Westinghouse So have we 13 Industry experience had found rotors. some 14 significant problems with that. We went to the 15 monobloc design and replaced all those rotors.

16 CHAIR SIEBER: And the original were not 17 monobloc? 18 MR. SWANK: That's correct.

CHAIR SIEBER: Okay.

20 MR. SWANK: Okay, and with that I'll turn 21 it over to Don Gregoire.

22 MR. GREGOIRE: Good morning. I'd like to 23 just briefly talk about our process, the license 24 renewal process. We initially formed our project 25 plans in 2006, pulled our team together in 2007.

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1	We had a specific in-house staff
2	overseeing this project. In 2009, we made sure that
3	our application had some external independent peer
4	reviews and then we submitted in January 2010.
5	Our license renewal team has been actively
6	engaged with the NEI License Renewal Task Force and
7	their working groups. We've participated in audits
8	and inspections at other facilities as well as
9	performed peer reviews for other facilities.
10	With regard to the next slide, please -
11	- our scoping and screening, we utilized the guidance
12	in NEI 95-10 and identified the in-scope structure,
13	systems and components.
14	We identified our (a)(1), (2) and (3) in-
15	scope components, mechanical components with
16	mechanical boundary drawings. Next slide.
17	MEMBER STETKAR: Don, before you get a
18	change there, I dug into a few of the scoping and
19	screening decisions just to see if I could understand
20	what was done. A couple questions.
21	I know that there was an RAI about the
22	fire protection system in the turbine building which
23	there was a question. And I know that the resolution
24	of that RAI was to include the fire protection in the
25	turbine building as in-scope.
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I had a question about fire protection for 1 2 the outdoor transformers. Is that also in-scope? 3 MR. GREGOIRE: Scott Wood, could you speak 4 to that, Scott? 5 MR. WOOD: Scott Wood, Columbia Generating 6 Station. Yes, the --7 MEMBER STETKAR: It is, okay, thanks. Yes 8 is good. We're short on time. I'll skip the other 9 one because it's kind of detailed. Another question I 10 had was your, I think it's called plant service water, 11 TSW. MR. ATKINSON: Turbine service water. 12 Turbine service water. 13 MEMBER STETKAR: 14Okay, turbine service water, right. Parts of it are 15 in-scope, the stuff that's in the reactor building are 16 in-scope. 17 But the piping as I understand it from the 18 pumps into the plant is not in-scope. Why is that? a normal cooling supply for reactor closed 19 It's 20 cooling water, is that correct? 21 MR. SWANK: That is correct. 22 MEMBER STETKAR: Okay. Why isn't the 23 supply pipe from the pumps, you know, up to the RCC heat -- I know the piping right around the RCC heat 24 25 exchangers is, but --NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	MR. LEE: My name is David Lee, Energy
2	Northwest License Renewal Team. The plant service
3	water is in-scope for (a)(2) functional. It provides
4	the feed and bleed path during a loss or tornado
5	event.
6	MEMBER STETKAR: And it is in-scope all
7	the way from the pumps?
8	MR. LEE: From the pumps
9	MEMBER STETKAR: It is? Okay, because the
10	drawing, you know, we see things betwixt and between.
11	The drawings I had didn't show it in-scope from the
12	pumps until you got to the reactor building.
13	MR. LEE: It includes the pumps.
14	MEMBER STETKAR: Thank you.
15	CONSULTANT BARTON: Do you have anything
16	else, John? Do you have anything else right now?
17	MEMBER STETKAR: No, not on scoping.
18	CONSULTANT BARTON: I'd like to ask you on
19	like the fire protection. I noticed your components
20	in the fire protection that are in-scope does not
21	include either jockey pump, but for aging management -
22	- I'm sorry.
23	The jockey pumps are not included in your
24	Aging Management Program. Is there any reason for
25	that? Your fire protection pumps are, but then you've
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1	got two jockey pumps that I could not find were in the
2	Aging Management Program.
3	MR. WOOD: Scott Wood, Energy Northwest.
4	The jockey pumps are not required to perform a
5	function of putting out the fire, they only are a
6	convenience to keep from cycling water
7	CHAIR SIEBER: Keep the pressure on.
8	MR. WOOD: So they just maintain pressure.
9	CONSULTANT BARTON: Also the system
10	contains several tanks, and I couldn't find those
11	listed as having Aging Management Programs.
12	MR. GREGOIRE: You're talking about the
13	fire protection bladder tank?
14	CONSULTANT BARTON: Well, I didn't write
15	down which one that is, but you've got Tank 3.7 or
16	1.10, FP-TK-110 and FP-TK-110 is not in-scope. Is
17	that the bladder tank?
18	MR. GREGOIRE: FP-TK-110 is the bladder
19	tank.
20	CONSULTANT BARTON: Okay.
21	MR. GREGOIRE: And it's within the scope
22	of license renewal. MR. WOOD: Excuse me,
23	sir, I have a correction to make. Scott Wood, Energy
24	Northwest. We did later put the jockey pumps in-scope
25	of license renewal. I spoke in error.
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1	CONSULTANT BARTON: Thank you.
2	MR. TWOMEY: No, the bladder tank for FP-
3	TK-110, it is in-scope but it screens out because we
4	replace it.
5	CONSULTANT BARTON: Oh, okay, I got you.
6	I understand.
7	MR. GREGOIRE: Okay, moving on, we did
8	implement the Aging Management Review process as
9	outlined in 10CFR Part 54 and NEI 95-10. Our
10	application process considered GALL, Revision 1.
11	GALL Revision 2 came out in draft form
12	sometime after we submitted our application and became
13	finalized much later after our application was
14	submitted.
15	CHAIR SIEBER: Have you upgraded your LRA
16	to embrace the concepts in GALL 2?
17	MR. GREGOIRE: With regard to GALL 2, we
18	have a number of RAIs from the staff that challenged
19	us on getting in alignment with the GALL Rev 2 and so
20	we have made a number of commitments and changes to
21	our programs to recognize GALL 2.
22	CHAIR SIEBER: I sort of gathered that
23	you're not fully consistent with GALL 2. Is that
24	correct?
25	MR. GREGOIRE: We have not done a complete
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full assessment of that document to ensure we are in 1 2 complete alignment with it. 3 MR. TWOMEY: We did not do a line-by-line 4 check. 5 CHAIR SIEBER: I'm sure during the staff's presentation you will give us an assessment of your 6 7 opinion as to the degree to which the licensee's

application of the combination of GALL 1 and GALL 2 is

satisfaction to you.

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10 MS. GALLOWAY: I can add something right 11 now. What we did with Columbia as well as other 12 applications we had in-house was take the operating 13 experience that was captured in GALL Rev 2, which had 14been developing over time, and used that operating 15 experience as opportunities to ask RAI.

16 RAIs, all the in-house So we asked applicants, that we felt were the most important 17 18 changes that were going to be captured in GALL Rev 2. 19 So yes, we do feel that on the important items that we have captured that with Columbia as suggested. 20

21 CHAIR SIEBER: Yes, now that's been the practice with a number of licensees within the last 22 23 two years, I would say that it's sort of bits and 24 pieces as you go along.

MS. GALLOWAY: Yes, last summer we did a

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59 systematic check against all the in-house applicants 1 2 20 or so key changes that were being against a addressed and captured in GALL Rev 2. 3 CHAIR SIEBER: And this is what, about the 4 5 70th LRA? GALLOWAY: Well, 6 MS. we've already licensed for the 71, so yes. 7 8 CHAIR SIEBER: I lose count after awhile, 9 but I presume the ones in the future will become 2 10 exclusively? 11 MS. GALLOWAY: Yes, we have the Limerick 12 application which is a fairly recent one. 13 CHAIR SIEBER: Okay, thank you. 14 CONSULTANT BARTON: In your aging 15 management, the demin water system, your description says it provides containment isolation and integrity 16 17 in the system since intended function is safety 18 related. Yet the system also contains a storage 19 which I couldn't find 20 tank, it had any Aging 21 Management Reviews of that storage tank. Is there a reason for that? 22 23 MR. GREGOIRE: We'll get back to you on 24 that. Oh, wait a minute. 25 David Lee, Energy Northwest MR. LEE: NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

License Renewal Team. The storage tank is 1 not 2 credited for performing at (a)(1), (a)(2) or (a)(3) intended function. That is why it's not in-scope. 3 4 The only function for the demineralized 5 water system is containment isolation boundary portions of piping that go into the containment and 6 7 for portions, non-safety related portions of the 8 system that are in-scope due to the spatial 9 interaction containing in areas safety related 10 equipment. 11 CONSULTANT BARTON: The reason I asked is 12 description the application says your in system intended function is safety related. 13 14 MR. LEE: For the containment isolation 15 There's a portion of the piping that portion. 16 penetrates the containment vessel. 17 CONSULTANT BARTON: Okay, just that 18 piping? 19 Right. MR. LEE: MR. GREGOIRE: Next slide. 20 So we are 21 accrediting 55 Aging Management Programs, 35 already 22 exist, 20 are new. 23 have plans right now targeted to We 24 complete the majority of those new programs within the 25 next couple years, incorporating or consider, take NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

61 into consideration operating experience and the 1 2 development of it to make sure that we are creating 3 programs that are effective at addressing aging 4 management. 5 CHAIR SIEBER: What's the date that your current license expires? 6 7 MR. GREGOIRE: 2023. 8 CHAIR SIEBER: So we've got some time. 9 MR. GREGOIRE: Our commitments are no later 10 than 2023, but our plans are much more 11 aggressive in 2013. 12 CHAIR SIEBER: Yes, you will not succeed if you wait until the last minute. 13 14 MR. GREGOIRE: That's right. No 15 disagreement --16 CHAIR SIEBER: Advance, you adopt a new 17 program, which still gives you a lot of time. 18 MR. GREGOIRE: With regard to Time-Limited 19 identified a Aqinq analyses, we've number of disposition in, in accordance with the NUREG and NEI 20 21 95-10, and characterized them in accordance with 54.21. 22 There are a couple exceptions that we 23 24 failed to do that we'll talk about in the open items. 25 If you don't mind I'll just defer until then. Next NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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We have a number of commitments, 71 commitments we've made. However, the majority of these are related to our existing and new programs. We have individual ones for each program.

We have a commitment tracking process that 6 7 we use to ensure that we carry out our commitments as 8 we communicated them to the staff, and we'll be 9 relying on that to drive home all these commitments. I guess additionally I'd 10 MR. ATKINSON: 11 offer, senior management is quite interested in the 12 implementation both the earlier items and then the follow-on to stick to the plan. 13

So there will be multiple opportunities for us to track and weigh in on that programming and ensure the resources and commitments are met.

17 MR. GREGOIRE: With regard to 18 implementation, we fully understand that there's been 19 challenges in the industry with implementation. We 20 plan to be engaged.

We know there's a lot of lessons learned. We will be involved with the benchmarking other sites. We'll continue to participate with the NEI License Renewal Implementation working group.

We expect to carry out self-assessments

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and audits during this preparation period prior to the PEO, Period of Extended Operation. And we are in the development process for having that project map laid out with the expectation to have that somewhat completed early next year.

Next slide. With that I'd like to
7 transition to --

8 MEMBER SHACK: Before you get, let me just 9 ask a quick question on that. I looked through your 10 first amendment to the License Renewal Application, 11 your commitment 39.

12 And you removed the commitment to enhance 13 the material and handling system inspection program to 14 look for corrosion. Why did you do that?

MR. TWOMEY: Because we implemented it. The program owner saw the benefit into implementing that enhancement right away, so he took the initiative and upgraded all the program documents and they're doing that now.

MEMBER SHACK: Okay.

21 MR. GREGOIRE: I'd like to move to the 22 open items. Now with respect to concerns expressed by 23 the NRC, I do want to say that of these six we've 24 already provided two responses, albeit they were here 25 in just the last month or two so they didn't have

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64 opportunity to get into the Safety Evaluation Report 1 2 consideration. 3 The other four, we fully intend to have 4 those responses provided by next month if not sooner. 5 We have some sitting on my desk that'll be out the 6 door here very shortly. 7 But let's go ahead and go into the six The first one is related to the high 8 open items. 9 voltage porcelain insulators, and Abbas, if you would 10 just go to Slide 35. 11 Now the concern is with the insulators that are out at the Ashe Substation. You can see on 12 the picture there that the Ashe Substation, it's 13 14 approximately three-quarters of a mile north of our 15 cooling towers. We've had concerns with drift from the 16 17 cooling towers affecting insulators in our transformer 18 yard. We initially did some studies due to an event we had back in the '80s, '90s time frame, early '90s 19 time frame. 20 And that those studies demonstrated that 21 22 the drift was somewhat limited to just right around 23 the transformer yard and it really dropped off if you 24 got a little bit north of the yard. 25 And so we initially didn't include the NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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65 insulators in the Ashe Substation in our program. 1 2 When asked to provide the data that supported the 3 evaluations we had some difficulty with that and it 4 really wasn't a major issue for us to go ahead and 5 include the Ashe insulators in our program. As a matter of fact, this last outage we 6 7 went and tested the insulators for the accumulation 8 buildup on it and determined that it was very minimal 9 accumulation. 10 We have also instituted a PM to evaluate 11 these once every eight years for buildup to determine 12 if they need cleaning. And that's consistent with the Administration, 13 Bonneville Power who the runs 14 switchyard there, as far as their cleaning process. 15 CONSULTANT BARTON: Let me ask you a question about your switchyard. 16 Since you really 17 don't do the work and it's done by some T&D people, how do you control the work as plan operators? 18 We essentially treat, the 19 MR. ATKINSON: 20 work is primarily done by Bonneville Power Administration under contract to us. We treat them as 21 22 a contractor and provide technical oversight for the 23 work conducted in the transformer yard. 24 So I mean we're out there providing that 25 oversight. NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1	CONSULTANT BARTON: And there's a
2	requirement that they communicate with you before they
3	go in the yard to do any work or any, you've got that
4	all written down and
5	MR. ATKINSON: We have a Memorandum of
6	Understanding and we do control that work out in the
7	yard. And frankly, it's come from some lessons
8	learned in dealing with that.
9	CONSULTANT BARTON: That's why I asked.
10	MR. ATKINSON: Yes, sir.
11	CONSULTANT BARTON: Okay.
12	MEMBER STETKAR: Dale, you hopefully
13	weren't being very careful when you said transformer
14	yard. What about the Ashe Substation?
15	MR. ATKINSON: The Ashe Substation is
16	actually operated by the Bonneville Power
17	Administration. So again we have a very good working
18	relationship on that.
19	From a practical point of view, you know,
20	this issue around the insulator fouling if you will,
21	you know, the mechanism, you look at that picture
22	you've got the cooling towers right in the middle.
23	And for those of you that were out there it was a
24	windy day.
25	MEMBER STETKAR: You know, you put the
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67 insulators in-scope so I'm a little less concerned 1 2 about insulators, that I'm a little more concerned 3 about the fact that that is the connection for one of 4 your accredited offsite power supplies out there to 5 the, within the breakout. I didn't have an electrical drawing. 6 For 7 some reason I couldn't find an electrical drawing in 8 your FSAR so I'm kind of at a loss. But I'm assuming that the circuit breakers 9 10 are out there at that substation, otherwise we 11 wouldn't be talking about that substation and 12 therefore maintenance of those circuit breakers, testing of those circuit breakers. 13 And since -- is it an overhead line that 1415 comes into the site? It is, yes. 16 MR. SWANK: 17 MEMBER STETKAR: And the line itself are under the auspices now of Bonneville Power authority. 18 So the question is, you know, extending 19 from your transformer yard out, how do you control, 20 21 you know, maintenance and testing of those circuit 22 breakers, maintenance of the line, you know, above and 23 beyond just the insulators that we're talking about? 24 MR. SWANK: Brian, could you help us with 25 those questions after identifying yourself? Introduce NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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MR. ADAMI: Technical Services Manager in Sub. The scope of the work that is done at Ashe Substation is coordinated with Columbia. Every time we go into a manage group we're in discussions with them what the scope is.

We strategize with them. In fact, maintenance and upgrades, we used to have French air blast Cogenel breakers in the Ashe Substation.

We have upgraded to SF6, and so the installation, the testing of these devices, you know, are things that we talk about and we have an agreement that requires our involvement with them.

14CONSULTANT BARTON:And there is an15agreement?

MR. ADAMI: There is an agreement.

MEMBER STETKAR: Just talking about thingsisn't quite the same.

MR. SWANK: Right, but we -

(Simultaneous speaking.)

21 MR. SWANK: -- and make sure there's a 22 clear understanding of who owns what and how it's 23 controlled.

24 MEMBER STETKAR: And Brian, just because 25 there were several people speaking, so we have it for

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69 the record, can you say your name again? 1 Brian Adami, Tech Services 2 MR. ADAMI: 3 Manager. 4 MEMBER STETKAR: Thank you. 5 CHAIR SIEBER: And this is the standard NERC agreement that you're referring to? 6 7 MR. GREGOIRE: No, I believe this is NERC is interface requirements 8 separate situation. that we have for NUC-001, but there is a working 9 10 agreement for that, that were in place before NERC. 11 CHAIR SIEBER: Correct, okay. I'm Dick Skillman. 12 MEMBER SKILLMAN: Ι would like to build on John Barton's question, please. 13 14When asked about controlling work in the transformer 15 there's Memorandum of yard the а answer was 16 Understanding it's controlled, and I'm assuming 17 through your work control at the station? 18 MR. SWANK: That's correct. 19 MEMBER SKILLMAN: Please describe how that same control is conducted at the substation, Ashe 20 Substation. 21 We'll let Brian talk about it 22 MR. SWANK: in detail, but understand that there is a difference 23 because we control physical access in our transformer 24 25 yard. NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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1 So when you get to the Ashe Substation	it
2 is different, and that's done through the	
3 MEMBER SKILLMAN: MOA.	
4 MR. SWANK: Exactly. And so	
5 MEMBER SKILLMAN: But though, please	let
6 me explain why that's the question. From an opera	tor
7 in the control room, if my offsite power is com	ing
8 through Ashe I'm very interested in assuring that A	she
9 is fit for duty and I don't want people in there do	ing
10 stuff that I don't know about.	
11 MR. SWANK: Right.	
12 MEMBER SKILLMAN: Hence my question, ho	w's
13 the control of work conducted for Ashe?	
14 MR. ADAMI: Brian Adami, Tech Servi	ces
15 Manager. BPA has their own requirements as far	as
16 fitness for duty, security, access into	the
17 substation.	
18 Operation of the equipment over at A	she
19 Substation is anything that's going to affect	the
20 operation at Columbia Generating Station	is
21 coordinated with us.	
22 In fact, if we are going to go into a	24-
23 hour run with a diesel generator and going to	be
24 connected to the grid for that amount of time, we h	ave
25 requirements in our procedure to coordinate with th	em.
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And if there's weather situations that 2 concerns for both of of draw us in terms grid reliability, the test may be rescheduled. I'll say that we go into discussions and have agreements on how to protect offsite power.

We will ask them and they will agree to not work on certain equipment if we're in a situation has any kind of vulnerability from a risk that standpoint. And so it's a combined mutual situation as governed by our agreement with them.

MEMBER SKILLMAN: Thank you.

12 GREGOIRE: If there are no further MR. questions in the insulators we'll move on to the next 13 14open item. So Abbas, if you could go to Slide 26.

15 I should note one last thing with the 16 We did provide a response already to the insulators. 17 staff on August the 18th with that regard to inclusion 18 of those insulators.

19 The next open item has to deal with 20 operating experience. There was concern raised and 21 expressed with regard to how we as the licensee would 22 be treating future operating experience and using that 23 to shape or develop new Aging Management Programs.

24 To date we have not been clear enough and 25 we fully expect to, we've had a number of discussions

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with the staff to make sure that we provide the 1 2 appropriate clarity. 3 But let me just be clear, I guess I'm 4 repeating myself. Let me be clear on this issue. We 5 are going to be laying out exactly how we're going to be using operating experience. 6 7 We currently have an operating experience program owner with the company who manages that. 8 He 9 does that full time for the company. We have a 10 procedures processes. 11 We rely on an individual, or our License Renewal Team participates in the daily or the weekly 12 review of operating experience to assess the impact 13 14of, you know, whether we need to evaluate it further. 15 We fully intend to continue to use this 16 Currently we receive operating experience program. 17 from both INPO as well as the NRC that we use and we 18 evaluate some of them. 19 Recently, Information Notice 2011-04 we've effects Management 20 evaluated for on our Aging 21 Programs. There's a number of them out there. So we 22 are actively doing that right now. 23 When we develop our new programs we will, 24 part of the development of those programs is to take 25 into consideration operating experience that is out NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	there so that we ensure that we're taking those
2	considerations into play when we're developed a
3	program.
4	But we are evaluating, and even when the
5	next version of GALL comes out, should it come out a
6	Rev 3, that it will be an operating experience program
7	and we'll be considering that as well.
8	Our response to the staff we expect will
9	be provided, it will be provided next month to close
10	this item.
11	MEMBER SKILLMAN: If I could, please. I'm
12	Dick Skillman. My question is two-fold. To whom does
13	your OE program owner report? And at your station on
14	a scale of one to ten, one being not important and ten
15	being very important, how is the OE program regarded,
16	please?
17	MR. GREGOIRE: Well, I would say it ranks
18	up there as a ten as being very important and we do
19	take it into consideration. The OE program reports to
20	our organizational effectiveness.
21	You know, it evaluates not only external
22	operating experience but as well as internal
23	experience, and we utilize that information to shape
24	the organization.
25	Now we've had a number of PI&R inspections
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1	that have evaluated us. We've, being of very few
2	issues that have been identified.
3	MEMBER SKILLMAN: Thank you.
4	MR. GREGOIRE: So in closing with this
5	one, we fully plan to have that submittal to the staff
6	no later than next month to hopefully close this item
7	with the staff.
8	The next open item is regarding upper-
9	shelf energy requests for technical data associated
10	with the determination of our initial transverse
11	upper-shelf energy associated with certain nozzle
12	forgings.
13	And Abbas, if you could, let's go to Slide
14	61. So the nozzles we're speaking about are the N12
15	instrument nozzles. They're located in the beltline
16	of the reactor vessel.
17	We have provided the initial information
18	to the staff with regard to the initial upper-shelf
19	energy, 62 foot-pounds, as well as the copper content
20	of 0.27 percent.
21	Since then the staff has asked us for the
22	data to support it. We have obtained the data. This
23	is a letter that I just reviewed this week and it
24	should be submitted to the NRC no later than next
25	month.
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75 CHAIR SIEBER: What's the of range 2 diameters of those nozzles? 3 MR. GREGOIRE: I'll ask John Sisk. 4 CHAIR SIEBER: They look like six to 5 twelve, six to twelve inches. John Sisk, Principal Engineer 6 MR. SISK: 7 and program owner. And your question was, what is the diameter of the -- the outside diameter of the water 8 level instrument nozzles are 3.32 inches. 9 10 CHAIR SIEBER: And that's the only ones 11 that you're concerned with? MR. SISK: There are four nozzles and they 12 13 are all the same size, yes. 14CHAIR SIEBER: So they're not large LOCA 15 points. 16 MR. SISK: That's correct. 17 CHAIR SIEBER: Okay, thank you. 18 MR. GREGOIRE: So again, the Request For 19 Information on technical data, we've just reviewed it and we plan to be submitting that here very shortly. 20 21 MEMBER SHACK: Is the database that you 22 have comparable to the one that you supplied for the 23 Class 2 forgings or smaller? MR. GREGOIRE: I'll have to refer to John 24 25 Sisk again. John? NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

76 MR. SISK: John Sisk, Principal Engineer 2 and program owner. And your question was with regard 3 to the --4 MEMBER SHACK: I assume you're supplying 5 the data, but I mean you gave them a number before and they asked for the basis of that. And you've done 6 7 that before for the Class 2 forgings and they found 8 that the amount of data was acceptable. I just wondered if you had a comparable 9 10 amount of data for the Class 1 forgings. 11 MR. SISK: It is a comparable number of 12 data points. 13 MEMBER SHACK: Thank you. 14 MR. GREGOIRE: Any more questions before 15 Thank you. So again like I said, we will John Sisk? be providing that here shortly. 16 17 The next open item, if you go to Slide 28, 18 Abbas. This open item is related to metal fatigue and the concerns for assessing other limiting locations. 19 We have received, this has taken us some time to get 20 21 through this. 22 We have looked at other locations. They're listed in our Table 4.3.3 and 4.3.5 of our 23 24 application. Through the evaluations that we've done, 25 we've just completed them, all of the other locations NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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1 are less than 1.0, the ASME criteria. 2 So we will be submitting that and i 3 should be going to the staff no later than November. 4 The next open item is associated wit 5 lower core plate rim hold-down bolts. Now we notifie 6 the staff in June 29, that we did not have wedges i 7 our vessel. 8 And we had communicated that we would be 9 treating the core plate rim hold-down bolts with 10 TLAA or we would be installing wedges at least m 11 later than two years prior to the period of extended 12 operation. 13 We have done assessments for the current 14 license, but with regard to the period of extended 15 operation we will do one of those two things. We will	t hdn eaod t
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16 either complete that TLAA or install the wedges	1
i either comprete that instari the weages.	
17 However, the staff had asked us to be mor	е
18 specific on what characterization of TLAA, 54.21	©
19 characterization, so we will be more specific an	d
20 we'll also submit AMR line item associated with this	•
21 Again we expect to submit that informatic	n
22 no later than November.	
23 MEMBER STETKAR: Don, you mentioned yo	u
24 did assessments for the current licensing. Has that	t
25 all been resolved with the staff or is that an ongoin	g
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2	MR. GREGOIRE: There is an ongoing
3	question. We need to provide them the information and
4	we are very comfortable with our analysis that
5	supports our current license basis.
6	MEMBER STETKAR: Thank you.
7	MR. GREGOIRE: And with regards to the
8	last open item, I want to point out this was a
9	response we provided just a few weeks ago to the
10	staff.
11	There was a concern about the application
12	of, or a TLAA application for our cranes, polar cranes
13	specifically.
14	CONSULTANT BARTON: You don't call this a
15	polar crane, do you?
16	MR. GREGOIRE: We do not have a polar
17	crane. We don't have a dome or, we have an overhead
18	crane. We have actually 15 in-scope cranes and hoists
19	and we will, you know, consider a TLAA for those 15
20	in-scope.
21	They do remain valid through the end of
22	the period of extended operation. And again like I
23	said, we had closed on, or we provided the response to
24	the staff just a few weeks ago.
25	So in summary of the six open items, two
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79 of them we've already provided the responses. The 1 2 other four are very close to being submitted out to 3 the staff. 4 We hope that there won't be any challenges 5 for meeting the future dates for license renewal. We think we've pretty much closed the loop on these but 6 we'll try to address any concerns the staff may have 7 8 in a timely manner. 9 CHAIR SIEBER: Is your overhead crane that 10 you use during refueling, is that a single-failure 11 proof crane? 12 TWOMEY: It is It meets all the MR. requirements of NUREG-0612. 13 14 CHAIR SIEBER: Okay, heavy loads. 15 It's heavy loads, that's MR. TWOMEY: 16 correct. 17 Thank you. CHAIR SIEBER: 18 MR. GREGOIRE: With that I will turn it back over to Dale Atkinson. 19 20 MR. MOSTALA: There is some of the 21 functions that David Lee would like to correct. David? 22 23 David Lee, Energy Northwest MR. LEE: 24 License Renewal Team. Mr. Chairman, I'd like to issue 25 a correction to an earlier statement that I had NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	stated.
2	CHAIR SIEBER: Okay.
3	MR. LEE: In regards to his question, he
4	was asking about the plant service water system not
5	the plant makeup water system.
6	MEMBER STETKAR: That is correct.
7	MR. LEE: The plant service water system
8	is not credited for (a)(1) function. Therefore, the
9	portions that are only in-scope are due to portions
10	accredited for (a)(2) spatial.
11	MEMBER STETKAR: Okay, plant service
12	water, acronym TSW so we're real clear, provides
13	cooling for the RCC heat exchangers. Is that correct?
14	MR. SWANK: Just for clarity, it does
15	provide the normal quote "cooling source." We can
16	cool the heat exchangers with our safety related
17	service water system.
18	MEMBER STETKAR: Okay, I didn't know that.
19	Thank you. That resolves that concern, thank you.
20	MR. GREGOIRE: I think we have a couple of
21	closures on some items.
22	MR. LASALLE: Just real quickly, John
23	LaSalle, coat programs. There was a question about
24	the coatings that we use in the suppression pool. And
25	the coating's an epoxy.
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81 The inspection is a 360-degree diver visual each outage, and a minimum of 25 percent of 2 that each outage is a close-up visual, meaning within 3 4 three feet. 5 And then any identified areas of degradation, they're followed up on subsequent outages 6 and are identified. 7 8 CHAIR SIEBER: Have you seen any areas of 9 degradation in the past? 10 MR. LASALLE: Yes, we have. 11 CHAIR SIEBER: And how do you repair that 12 of do you just monitor it? They've been monitoring it 13 MR. LASALLE: 14and we have yet to do repairs on any coatings. 15 These indications, do they MEMBER SHACK: number in the tens, the hundreds? 16 17 MR. RICHTER: Typically we measure them by square foot. Steve Richter, Code Programs. 18 We measure them by square footage and typically they're 19 on square inches type, and then we track, we have a 20 21 limit of how much we would allow in terms of square 22 footage. 23 MEMBER SHACK: How many square inches are there? 24 25 MR. RICHTER: How many square inches? Ι NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	can get back to you on that. I can tell you total we
2	have under 50 square foot of damage or degraded
3	coatings. Would you like a more exact number?
4	MEMBER SHACK: No, that's close enough.
5	CHAIR SIEBER: Any further questions?
6	CONSULTANT BARTON: I've got a bunch of
7	them. How tight do you want to be on your 10 o'clock
8	break?
9	CHAIR SIEBER: Yes, watch it.
10	CONSULTANT BARTON: Watch it, okay. Your
11	tank inspection program, diesel fuel tank. I couldn't
12	find evidence that you ever looked at it. Have you
13	ever inspected diesel tanks for corrosion?
14	MR. MOSTALA: Carolyn Beaudry can answer
15	that question.
16	MS. BEAUDRY: I'm Carolyn Beaudry, the
17	buried piping and tanks program owner. And our diesel
18	fuel oil tanks, we have three of them, and they are
19	buried underneath our diesel generator building. And
20	we do a, every ten years we do UT on the internals of
21	the tanks.
22	CONSULTANT BARTON: I didn't get you, you
23	do what?
24	MS. BEAUDRY: We do ultrasonic testing on
25	the inside of the tanks every ten years.
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83 CONSULTANT BARTON: Have you found any degradation in the tanks? 2 MS. BEAUDRY: 3 No. Based on our 2005 4 inspection of all three tanks, the greatest amount of, 5 through the period of extended operation the greatest amount of degradation we would have seen would have 6 7 been 0.02 and our corrosion allowance is 0.18. 8 CONSULTANT BARTON: Okay, thank you. 9 MS. BEAUDRY: Thanks. 10 CONSULTANT BARTON: Do you also have --11 oh, you still had a question on it? 12 MEMBER SHACK: Just a question. I mean how much of the tank surface do you actually cover 13 14with that UT inspection? 15 MS. BEAUDRY: I'm not sure. I can get back to you on that. 16 17 CONSULTANT BARTON: You also have above 18 ground tanks? 19 MS. BEAUDRY: Yes, we do. CONSULTANT BARTON: I mean just stay with 20 21 your audit, okay. 22 MS. BEAUDRY: Oh, I'm sorry, I don't have 23 it. 24 CONSULTANT BARTON: Oh, okay. Condensate 25 storage tank, fabricated steel located outdoors, are NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	these tanks insulated or not?
2	MR. TWOMEY: They are not.
3	CONSULTANT BARTON: Not insulated.
4	MR. TWOMEY: They are coated.
5	CONSULTANT BARTON: They are coated,
6	honestly.
7	MR. TWOMEY: Yes.
8	CONSULTANT BARTON: Have you ever found any
9	corrosion on the outside of the tank surface in your
10	inspections? Forget about the seal thing because I'll
11	get to that next, but the tank surface itself?
12	MR. TWOMEY: Not on the tank surface.
13	CONSULTANT BARTON: All right. The
14	interface of the tank to the foundation, was that
15	supposed to have a seal originally?
16	MR. TWOMEY: No. The design drawings
17	never called out for a seal.
18	CONSULTANT BARTON: All right, so you did
19	find some corrosion there and that's been corrected?
20	MR. TWOMEY: That's corrected and it's
21	been sealed.
22	CONSULTANT BARTON: Okay, and it's been
23	sealed.
24	MEMBER STETKAR: John?
25	CONSULTANT BARTON: Yes.
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1	MEMBER STETKAR: Did you have more on CST
2	as long as you brought it up?
3	CONSULTANT BARTON: On the
4	MEMBER STETKAR: The condensate storage
5	tank.
6	CONSULTANT BARTON: Yes.
7	MEMBER STETKAR: You do have more?
8	CONSULTANT BARTON: Yes, the issue I still
9	have on this is, you do inspections of that area and
10	apparently that corrosion has been going on, and it
11	wasn't really identified and put in your corrective
12	action system.
13	And the system engineer has looked at that
14	tank and didn't enter it as an item in corrective
15	action.
16	So my question here is, you know, do you
17	have confidence in how effective is your corrective
18	action system when the system engineer, who I take
19	should be a responsible guy for a system and know
20	what's going on in a system, finds an item, a
21	discrepancy, does not enter it in the corrective
22	action system?
23	So I question, you know, how serious is
24	your corrective action system? How well does it work
25	and, you know, are you satisfied with it or you've got
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to fix it?

2	MR. TWOMEY: Well, I can answer that
3	specific more than Adami, I guess in total. But you
4	ask if this engineer was aware of it, made the
5	decision up front that the cost, it was a limited
6	corrosion and it was, again this corrosion was on the
7	tank if you will, the lip where the hold-down bolts
8	are and it was outside the bolt circle.
9	So he had made the decision that well,
10	that loss of material doesn't affect the, you know,
11	the integrity of the hold-down bolts. Therefore, you
12	know, I'll watch it.
13	CONSULTANT BARTON: Until it got into the
14	bolt area and couldn't
15	MR. TWOMEY: Right, and
16	CONSULTANT BARTON: I don't get that, but

17 okay.

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18 MR. TWOMEY: No, no, and then we coat, you the corrosion. 19 know, And we've just done the 20 training, a recent training, where the expectation is 21 you don't make that decision up front.

22 You document it in the corrective action 23 process and then you document that decision. You're 24 right. That was a shortcoming.

CONSULTANT BARTON: Thank you.

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87 MR. GREGOIRE: Well, and we provided 2 training to our engineering staff with regard to 3 identification and documentation of aging issues. 4 And we demonstrate, through our outage 5 we've had guite a number of CRs that have been So the 6 generated on corrosion, on wear, on cracks. 7 message has been sent and they do understand it. 8 CONSULTANT BARTON: Yes, because I noted 9 again, NRC had an issue on their inspection that it 10 appeared that training wasn't very effective in Aging 11 Management Program issues, et cetera. 12 MR. GREGOIRE: So we have currently trained all our engineering staff. We have plans for 13 14training our maintenance and operations staff. We are 15 working on establishing recurring training for all our engineering staff 16 on the aqinq concerns, 17 identification and addressing aging concerns. 18 MR. ATKINSON: This will be managed consistent with the systematic approach to training. 19 So that's that the Training Advisory Group reviews it, 20 21 makes sure that the periodicity and depth of training 22 is adequate to maintain their required performance. 23 CONSULTANT BARTON: John, did you still 24 have something? 25 MEMBER STETKAR: Yes, just a quick one NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

88 because we're getting short on time here. On the CST I need some clarification, because as I read the SER and the inspection reports, the SER says in a response to RAI v.2.1-1 it was noted that ultrasonic thickness measurements of the tank bottoms, this is the condensate storage tank, are performed every ten years. The inspection report seems to indicate, the staff's inspection report, that the tank bottom thickness has never been measured. Those two pieces of information seem in conflict. Have you ever measured the thickness of the bottoms of the condensate storage tanks? MR. TWOMEY: We have not. We have committed to do that and we've only done a visual from the --MEMBER STETKAR: Yes, Т saw the commitment. That's what brought up this difference between the RAI response and the commitment and the inspection observations. So okay, thank you. CONSULTANT BARTON: Inaccessible mediumvoltage cable is not subject to 50-49. You've experienced water intrusion in a couple manholes

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24adjacent to the cooling towers but never identified25the source of the water. Have you finally figured

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that one out?

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MR. ADAMI: Brian Adami, Tech Services Manager. I'll address that question and cover both manhole and the cable issue. So the cables in these manholes they are designed for the environment in which they are installed.

And they're operating normally and we're maintaining these manholes dry. We're testing these cables in the next refueling outage. So and the best thing for these cables to remain healthy is for them to remain in a dry environment and so let me tell you what we're doing about that.

Thanks for bringing that slide up. If you can see on the diagram where he has the mouse, there's our six cooling towers in the middle. There's the circ water pumphouse.

And then to the north, there's our transformer yard, and the color coding on this slide is such that the red dots are manholes that we have found standing water in.

The green ones were inspected and they were found dry. Any manholes that we did find water in we immediately pumped the water out and we've reconditioned the French drains in these manholes so that they drain.

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90 We did find silt in them that was 1 2 preventing their drainage. They are routinely 3 inspected now for water, also for the continuing good 4 condition of those French drains. 5 Now furthermore, yes, we have found the source of water for each of these locations identified 6 7 in red there. So for E7 down by the cooling towers, the source of water was the drain water and surface 8 9 water from the cooling tower. 10 On E8, that water was found, the water 11 that was found to fill that communicates from our circ 12 water pumphouse basement. We found that when level is raised in that 13 14 basement to allow the circ water pump to start, when 15 that level is high that water communicates to that 16 And that was recently discovered on our manhole. 17 start up following our last refueling outage. 18 CONSULTANT BARTON: Is there a fix to 19 that? MR. ADAMI: Since it was just entered in 20 21 our corrective action program, we were looking at that 22 evaluating whether it should be administratively 23 controlled where we are going too high, higher than 24 necessary to bring the head for the pump start, or if 25 there's something like plug in the conduit that would NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	be the preferred fix for that. So it's being
2	evaluated currently.
3	CONSULTANT BARTON: Thank you.
4	MR. ATKINSON: But essentially what Brian
5	is saying is that we will either close that
6	communication path or control the water level such
7	that it never reaches a point of communication,
8	because it is our intent to not continue to allow that
9	water source to enter that manhole.
10	MR. ADAMI: That is correct.
11	CHAIR SIEBER: Now you said that you
12	either have tested or will test the cables that were
13	exposed to water intrusion. What kind of tests will
14	you perform to ensure the cable integrity is
15	maintained?
16	MR. ADAMI: Pan-delta tests on the medium-
17	voltage cable and also on our 480 volt, we're
18	committed to meggering those cables.
19	CHAIR SIEBER: Okay, but you're limiting
20	it to a megger test?
21	MR. ADAMI: That is correct.
22	CHAIR SIEBER: Okay.
23	MR. SWANK: And these are normally
24	energized cables.
25	CHAIR SIEBER: Okay.
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1	MR. MOSTALA: Also, Mr. Chairman, there is
2	a follow-up question that Jim Hamlen would like to
3	address on the non-seg bus.
4	MR. HAMLEN: Yes, my name is Jim Hamlen,
5	and I'd like to answer Mr. Stetkar's question about
6	the 6.9 kV bus which failed. That bus is not in-
7	scope. It does not perform a safety related function.
8	It supports no (a)(3) regulated event, and
9	the only cables in the vicinity were fail-safe cables,
10	so there's no (a)(2) non-safety, affecting safety
11	consideration for that bus.
12	CHAIR SIEBER: What's a fail-safe cable?
13	You can ground, you can short, you can open, and each
14	of those has an effect on safety related equipment.
15	Have you analyzed all three potential
16	failure modes and its effect as far as spurious
17	operations, failure to operate when required for an
18	upstream effect on the power supply itself from the
19	failures?
20	In other words, circuit breakers tripping,
21	protective actions. Could you
22	MR. HAMLEN: I don't know if that
23	evaluation's been done but we'll find out.
24	CHAIR SIEBER: I think that would be a
25	wise evaluation to support. Find out what's in the
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1	room, look at the failure effects in analysis for
2	cables that are reasonably affected by a failure of
3	that cable or other cables, not in-scope cables, and
4	that can give you some assurance as to whether the
5	plant safety functions can be performed upon
6	MR. TWOMEY: Well, just understand that
7	the location of that bus is a non-safety related area
8	of the plant. That is our turbine building.
9	CHAIR SIEBER: Nothing in that room is
10	MR. TWOMEY: There's nothing in that area
11	of the plant that performs an (a)(1) function.
12	MEMBER STETKAR: The concern is larger
13	than that particular bus section. I think we all
14	understand that.
15	(Simultaneous speaking.)
16	MEMBER STETKAR: Have you looked at metal-
17	enclosed bus failures throughout the plant and looked
18	at potential interactions with, in-scope not safety
19	related but in-scope cables and switch gear?
20	CONSULTANT BARTON: I've got one more,
21	Jack.
22	CHAIR SIEBER: All right.
23	CONSULTANT BARTON: Emergency diesel
24	generator starting error system has a history of
25	routinely failing the past dew point surveillances.
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94 And you guys put together a design change which you 1 didn't implement, instead you decided to change out 2 3 desiccant more frequently and that didn't solve the 4 problem. 5 Is this still an issue at the site or have you found a way to get them over that problem that's 6 7 been going on for awhile? 8 MR. MOSTALA: Scott would you address that 9 question, or John. 10 MR. LASALLE: I'll go ahead and answer 11 that. John LaSalle, Code Programs. The problem was basically a maintenance issue of the air desiccant. 12 And we basically have corrected that by --13 14 CONSULTANT BARTON: What did you do? 15 Increasing maintenance MR. LASALLE: frequency in our desiccant dryers. 16 17 CHAIR SIEBER: Did you use a purger with a heater? 18 Well, actually they're 19 MR. LASALLE: 20 physically going in and changing out the desiccant 21 frequently so you don't have channeling and you don't 22 lose your surface area. 23 CONSULTANT BARTON: So you now change, you 24 fixed this to change the desiccant out more 25 frequently? NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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1	MR. LASALLE: That's correct. And we've
2	been maintaining a dew point of, it's minus 19 in the
3	air.
4	CONSULTANT BARTON: Okay.
5	MR. LASALLE: Could I make a quick
6	correction on the record for the coatings of the
7	wetwell? We have ten locations that have been
8	repaired and there are ten that are being monitored.
9	CHAIR SIEBER: Any more, John?
10	CONSULTANT BARTON: I got one on
11	miscellaneous waste and radioactive drain system. The
12	floor drains are now going to 55-gallon drums. Is
13	that the way you intend to continue this or, it sounds
14	like a Mickey Mouse kind of operation you've got going
15	now.
16	MR. SWANK: I'm not aware that we're doing
17	that.
18	CONSULTANT BARTON: Well, it's in your
19	application I believe. Miscellaneous waste,
20	radioactive system equipment and floor drains collect
21	borated water from the Standby Liquid Control System,
22	direct this water to 55-gallon drums in the reactor
23	building.
24	MR. MOSTALA: Mot Hedges would answer
25	that.
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96 MR. HEDGES: Mot Hedges, plant chemistry. That is specifically drains from around our Standby 2 Liquid Control tank. 3 4 When we test that there is some borated 5 water that ends up in the test tank and that actually 6 drains down to a plant drain, because we do not want 7 the boron to go down and be treated with the regular 8 waste because otherwise the boron would end up in the 9 reactor. 10 So that specific waste is collected in 55-11 gallon drums and processed separately. 12 CONSULTANT BARTON: So that's your 13 permanent planned installation, is to --14 MR. HEDGES: That's correct. That's the way the plant was designed to operate. 15 CONSULTANT BARTON: Okay. 16 17 Jack, if you'll indulge MEMBER STETKAR: me I've got one last one since you mentioned drains. 18 19 CHAIR SIEBER: Sure. We actually have all 20 day. 21 MEMBER STETKAR: I know I certainly do but 22 other people have lives. 23 CHAIR SIEBER: We don't need lunch. 24 MEMBER STETKAR: There was an event that 25 was documented, it came up in the SER and RAIs in the NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

97 context of fire barriers. It was a water leak, and 1 2 I'm searching for my notes here because I have too 3 many notes. 4 There's a water leak in the radwaste 5 building cable spreading room. Fifteen to twenty 6 gallons I think that was characterized that apparently dripped down through cracks in the floor and got into 7 the Division 2 switchgear room down below and caused 8 9 some problems. 10 And fine, I mean, you know, you made a 11 commitment, you sealed the floor and all that kind of 12 stuff. My question was, does that cable spreading room have a sprinkler system in it? 13

Is it protected? Because the leakage was characterized as a drain line from a fire protection system. And so the first question is, does it have a sprinkler system in that room? MR. TWOMEY: Yes, it does.

MEMBER STETKAR: It does, okay. The second question, if it's got a sprinkler system in the room does the room have floor drains in it? MR. TWOMEY: Yes, it does.

23 MEMBER STETKAR: Okay. The 15 to 20 24 gallons didn't make it to a floor drain then?

MR. TWOMEY: That's correct. Because the

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1	location where it was, and specifically what that was
2	it was a construction joint in that floor, basically a
3	cold joint.
4	And we recognize that of course water will
5	find the path of least resistance and the 15 to 20
6	gallons
7	(Simultaneous speaking.)
8	MR. TWOMEY: before it could get
9	through a floor drain it went down through there and
10	now we treat those as part of our fire barrier.
11	MEMBER STETKAR: Great, thanks. I was a
12	little more concerned about floor drains, because if
13	it didn't have floor drains in it the water, water
14	does flow downhill.
15	MR. TWOMEY: I understand your concern,
16	yes.
17	MEMBER STETKAR: Thanks.
18	CHAIR SIEBER: Any further questions from
19	members? John?
20	CONSULTANT BARTON: I'm all right.
21	CHAIR SIEBER: Okay, go ahead, closing
22	remarks.
23	MR. ATKINSON: All right. Mr. Chairman
24	and members of the ACRS subcommittee, I do appreciate
25	the opportunity to bring the team here and discuss
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99 Columbia Generating Station and the License Renewal 1 2 Application. 3 We are confident that we have the 4 responses necessary to meet the NRC staff's needs or 5 requirements to close the open items and my hope is that we can do that on a timely and still supports the 6 7 schedule. I did want to also communicate that in 8 senior management we do have periodic reviews. 9 So for 10 the implementation of the programs we'll provide 11 detailed oversight of that. I mean I'd like to recognize a lot of the 12 hard work of folks both on the Energy Northwest team 13 14and also particularly NRC staff. This is a lot of 15 work to get through all the scoping and evaluation of 16 that and I really do appreciate it. at Energy Northwest understand our 17 We 18 responsibility and are committed to the long term safe 19 operation of Columbia. 20 With that, Mr. Chairman, I will turn it 21 back to you. I guess one thing to be clear on, my 22 understanding is we still have a question to get back 23 to you on perhaps after the break, with regards to a fail-safe discussion with cables, is that correct? 24 25 CHAIR SIEBER: Okay. NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1	MR. ATKINSON: Okay, we'll excuse me,
2	are you ready to discuss that item?
3	MS. BEAUDRY: No, a different item.
4	MR. ATKINSON: Oh, we've got one more
5	follow-up, okay.
6	MR. BEAUDRY: Carolyn Beaudry, buried
7	piping program owner. The diesel fuel oil tanks are
8	UTed with a grid system and there are 164 points on
9	the diesel fuel oil. Thank you.
10	CONSULTANT BARTON: Thank you.
11	CHAIR SIEBER: No further questions?
12	Thank you very much for your presentation and your
13	responsiveness to our questions.
14	And we'll now take a break and we'll
15	resume at 25 minutes to 11:00 according to my watch as
16	opposed to that.
17	(Whereupon, the foregoing matter went off the record
18	at 10:18 a.m. and resumed at 10:35 a.m.)
19	CHAIR SIEBER: I think we're ready to
20	resume, but before we begin with the staff the
21	applicant would like to respond to items.
22	MR. HAMLEN: Yes, my name is Jim Hamlen,
23	and I'd like to provide additional information on your
24	question with respect to the bus failure and
25	evaluation of cables.
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101 There was an evaluation done to address 1 the issue with open circuits, with hot shorts and 2 3 shorts to ground. In the turbine building at 4 Columbia, the only circuits with a safety function are 5 the RPS and MSIV logic circuits, and those were determined to be fail-safe. 6 If the circuit was opened or damaged the 7 8 components would be in their safe position, and the 9 only non-segregated bus, safety or non-safety, is in 10 the turbine building and then outside in the 11 transformer yard. 12 CHAIR SIEBER: Okay, you said open or 13 grounded, what about shorts? MR. HAMLEN: That is included as well. 1415 CHAIR SIEBER: Okay. MEMBER STETKAR: And all of 16 those 17 conditions, for example, MSIVs, will close? 18 MR. HAMLEN: Yes. MR. SWANK: And one last correction. 19 20 CHAIR SIEBER: Okay. 21 MR. SWANK: Dave Swank, Energy Northwest. 22 I needed to correct a statement that I made. The RCC 23 exchangers, Reactor Closed Cooling heat heat 24 exchangers are normally cooled by the plant service 25 water system and they are only cooled by the plant NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	service water system.
2	The primary load for Reactor Closed
3	Cooling is the spent fuel pool cooling system and its
4	heat exchangers. Those heat exchangers can be cooled
5	by safety-grade service water.
6	MEMBER STETKAR: The RCC also cools the
7	recirc pump seals, is that correct?
8	MR. SWANK: That is correct. It also
9	provides containment cooling. And so on the loss of
10	Reactor Closed Cooling we would be forced to shut down
11	the unit.
12	MEMBER STETKAR: Does that mean on a loss
13	of plant service water you'll lose containment cooling
14	and recirc pump seal cooling?
15	MR. SWANK: That's correct.
16	MEMBER STETKAR: Okay. I guess I'm still
17	a little bit curious why the TSW supply line isn't in-
18	scope.
19	CHAIR SIEBER: Okay.
20	MS. GALLOWAY: The staff appreciates the
21	opportunity to be able to discuss review to date as
22	well as provide a status of the open items that
23	remain.
24	I'd like to introduce the staff making our
25	presentation this morning. Arthur Cunanan is the
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1	project manager responsible for coordinating all at
2	ACRS that will be associated with the review.
3	Tony Gardner is a member of our technical
4	staff and he will be assisting Arthur in moving
5	through the presentation.
6	Allen Hiser is our senior level advisor in
7	the Division of License Renewal. I know the committee
8	is well familiar with Dr. Hiser. Matt Homiack is a
9	mechanical engineer in our Division who will be
10	talking about operating experience.
11	And then we've had the opportunity to be
12	introduced to Greg Pick earlier, the senior inspector
13	who will talk about the inspection today at Columbia.
14	CHAIR SIEBER: Okay, thank you. Arthur?
15	MR. CUNANAN: Good morning, Chairman, and
16	members of the ACRS staff. My name is Arthur Cunanan
17	and I'm the Project Manager for Columbia Generating
18	Station License Renewal Application.
19	I'm here to discuss the staff's review of
20	the Columbia License Renewal Application as documented
21	in the Safety Evaluation Report. Melanie has made
22	introduction on who's at the table.
23	Also seated are members of the audience
24	from the technical staff who participated in the
25	review of the License Renewal Application or at the
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1	audits conducted at the plant.
2	As mentioned before, Greg Pick from Region
3	IV is on the phone. Greg, can you hear me?
4	MR. PICK: I am on the phone and yes, I
5	can hear you, Arthur, thank you. This is Greg Pick.
6	MR. CUNANAN: Thank you, Greg, I can hear
7	you. Greg Pick will be available throughout this
8	presentation and will be presenting the results of the
9	license renewal inspection.
10	CHAIR SIEBER: Okay, great.
11	MR. CUNANAN: Next slide. Here is an
12	outline of today's presentation. Next slide. This
13	slide shows an overview of Columbia Generating
14	Station. The applicant has covered most of the points
15	presented in the slide.
16	The staff conducted audits and inspections
17	for the License Renewal Application during the period
18	shown on this slide. In addition, Region IV conducted
19	its license renewal inspection on October 18 through
20	November 4 of 2010. Those inspection results will be
21	presented shortly.
22	CHAIR SIEBER: I have a question on the
23	environmental report. Columbia River flows from north
24	to south basically from Canada. Well, it starts in
25	Montana and makes a big loop.
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105 As far as plant safety is concerned, I 1 2 presume the Columbia River has dams both upstream and 3 downstream of the plant. 4 MR. CUNANAN: Yes. 5 CHAIR SIEBER: Have those been examined as far as dam failure and the effect on the ultimate 6 7 water supply to the plant in case of an accident 8 condition? 9 analysis has MR. CUNANAN: The been 10 conducted and it's presented in the UFSAR on Columbia. 11 And from reading its analysis it stated that the 12 seismic Category 1 structures are located in the maximum postulated flood elevation that is designed to 13 14withstand the static and dynamic forces which can 15 result in a flood, flood due to the breach of the Grand Coulee Dam which is the maximum postulated -16 17 CHATR SIEBER: That's the major dam failure that would affect the site? 18 19 MR. CUNANAN: Yes. 20 CHAIR SIEBER: Grand Coulee, okay. 21 Because the ones that are close to the site did not 22 seem to have enough head to cause a lot of damage. 23 And the UFSAR, they also MR. CUNANAN: 24 looked at the low water consideration, and the 25 analysis showed that it wouldn't compromise the safe NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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shutdown of the plant.

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CHAIR SIEBER: Okay, thank you.

MR. CUNANAN: In preparing the Safety Evaluation Report and in addition to the audits and inspections already mentioned, the staff conducted indepth technical reviews and issued over 230 Requests for Additional Information.

8 Section 2 of the Safety Evaluation Report 9 describes the structures and components subject to 10 Aging Management Review. The staff issued some RAIs 11 as a result of the scoping and screening audit, but 12 the issues were resolved before the issuance of the 13 SER with Open Items.

Also the applicant submitted as part of its annual update, a 440-page supplement to the License Renewal Application on July 16, 2010, that the staff had to review.

The supplement includes three new systems which are added to the scope of license renewal. The systems are heating steam, heating steam condensate and heating steam vents.

For the three new systems the applicant added no new material, aging effect or Aging Management Program, and the staff agrees with this supplemental submittal.

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1	If there's not any questions on this slide
2	I'll turn the presentation over to Greg Pick, the
3	Region IV lead inspector, who will discuss the license
4	renewal inspection review.
5	Greg, you can start. We're going to be on
6	Slide 8.
7	MR. PICK: Thank you, Arthur. Good
8	morning, Mr. Chairman, and members of the ACRS staff.
9	I'm a senior inspector in Region IV. I've been
10	leading the license renewal inspections since 2007.
11	I'm calling in the Wolf Creek facility in
12	Kansas where I'm leading the fire protection
13	inspection. Next slide, please.
14	Our team for the Columbia Generating
15	Station inspection consisted of one electrical, two
16	civil and three mechanical engineers. We did evaluate
17	scoping of non-safety related components affecting
18	safety related components.
19	We reviewed 34 of the 55 Aging Management
20	Programs. Before I go on, can everyone hear me
21	clearly?
22	MR. CUNANAN: Yes, Greg.
23	MR. PICK: Thank you, Arthur. And out of
24	those 34 programs we reviewed 14 of the new Aging
25	Management Programs and 20 of the 35 existing Aging
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Management Programs.

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We believe that the applicant had developed appropriate Aging Management Program evaluation reports of their Aging Management Programs that allowed us to make assessments of their plans for managing aging. Next slide, please.

7 In the inspection results, we questioned 8 the applicant's suitability of using a one-time 9 approach for several of their 11 proposed one-time 10 programs.

11 We believed that the one-time programs inappropriate since they did not verify 12 were the absence of aging effects in structures, systems and 13 14components being monitored by existing one-time 15 We contacted Division of License Renewal programs. who shared similar concerns. 16

17 After further discussions with the team 18 and the knowledge of forthcoming Requests for 19 Additional Information on these programs, the applicant revisited their use of the 11 one-time 20 21 programs and identified six that should be 22 characterized plant-specific as programs, and 23 initiated actions to develop Aging Management Programs for each. 24

Related to the structures monitoring

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program, the one I'll visit, their procedures did not include clear and concise acceptance criteria and did not identify the detail required when documenting structural defects.

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Our concern was that this would not allow for effective trending of the defects during their five-year inspections, and the different inspectors conducting inspections would not have the ability to identify any changes in the structural defects.

10 The applicant agreed with this and 11 initiated a corrective action document to make sure 12 they modify their program in the future.

For their chemistry program effectiveness 13 14we questioned the basis for their sampling plan, which 15 specified а five percent sample of applicable 16 components up to ten samples for each population of 17 components grouped by material and environment.

We had revised our guidance in GALL Rev 2 for recommended sample size, and when we talked to the applicant they agreed to adopt the sample selection criteria identified in Revision 2 of the GALL for each population of components.

Next slide, please. In regards to the high-voltage insulator program, the applicant during their discussion accurately characterized what our

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inspection found and the inspection team is comfortable with the actions being taken to test every eight years and clean if needed, the Ashe Substation insulators.

In its results related to buried piping, the team determined the applicant had reliability 6 7 problems with their post-anode system. They had inscope service water piping still protected with the 8 post-anode system but would eventually need to replace 10 the remaining existing post-anode strings.

11 The applicant had already installed several deep anode beds and retired the unreliable 12 The applicant has committed to 13 post-anode strings. 14 install the remaining deep-bed anodes to ensure 15 protection of the in-scope piping.

16 regards to the lube oil In analysis 17 program, in their Aging Management Program evaluation 18 report they discussed using the Karl Fischer test to identify the presence of water. 19

20 When we went to the metallurgy lab and 21 discussed this with the people, they in reality did not use the Karl Fischer test method because it 22 23 created false positives. They used a different test method for water. 24

The applicant committed to change their

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111 Aging Management Program evaluation report to 1 2 accurately reflect the water content test being used. 3 During our interviews with several of the 4 system engineers on site, the system engineers were 5 not comfortable with their training related to identifying aging effects on structures, systems and 6 7 components that they were assigned to inspect. 8 We also learned from the applicant that they already had plans to provide EPRI training for 9 monitoring aging effects, therefore the 10 team was 11 comfortable with the applicant's plans for providing training for their system engineers. 12 Next slide, please. 13 14 CONSULTANT BARTON: Before you go to the 15 next slide I have a question and it's probably for the 16 applicant. The bullet you brought in on buried piping 17 cathodic protection system issues, what has the applicant done to improve that? 18 Carolyn Beaudry, buried 19 MS. BEAUDRY: In 2008 we did upgrade our 20 piping program owner. 21 cathodic protection system although not all of it was 22 upgraded. We installed four deepwell anodes and we 23 24 do have plans to install another one. Right now, Zone 25 10 of our old rectifier system is still in operation NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1	and providing protection to our service water system,
2	and we will upgrade when it becomes necessary. Zone
3	10 is still functioning.
4	CONSULTANT BARTON: When will you upgrade,
5	when it becomes necessary? When will it become
6	necessary? What's your plan to upgrade, I guess?
7	MS. BEAUDRY: We will upgrade when it's no
8	longer functional and we have to upgrade. We will
9	hopefully before then.
10	MR. GREGOIRE: We will be evaluating the
11	system. It's not going to just sit there and fail on
12	us. We'll be evaluating along the way and Engineering
13	will evaluate the situation associated with it and
14	make that determination at the appropriate time to
15	replace that.
16	CONSULTANT BARTON: Thanks.
17	MR. GREGOIRE: My name is Don Gregoire.
18	MR. HOLSTON: My name's Bill Holston, on
19	the DLR staff. Just to augment the licensee's
20	response, they are committed to perform annual
21	cathodic protection surveying, checking all ground or
22	soil to piping potentials on an annual basis.
23	And from that they can easily determine
24	where they need to make the necessary improvements.
25	CONSULTANT BARTON: Thanks. All right,
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Greg, I'm done.

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Thank you, sir. Our additional MR. PICK: inspection issue related to a, this issue was an example that had elements in both Part 50 and Part 50, and this was resolved during the inspection.

The applicant did make some changes to the specific 7 Aging Management Program related to 8 documentation of structural indication.

9 independently evaluated team the The condition of the reactor building as part of 10 our 11 review of the site-specific operating experience. Ιt described a surface crack on the exterior of the 12 reactor building. 13

From our walk-downs in the field, the team 1415 identified that the interior of the reactor building had a crack that followed the outline of the crack on 16 17 the exterior and questioned whether this was а 18 through-wall crack.

19 We had concerns that a possible aging mechanism related to moisture intrusion on 20 the 21 reinforcing steel may have occurred and impacts on the 22 structural capability to withstand a design-basis seismic event. 23

24 The applicant provided photographs and 25 they performed evaluation in accordance with the

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concrete codes.

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Following review of the photographs and independent review of their evaluation, the team concluded that the applicant took appropriate actions to evaluate the design capability to withstand the design-basis earthquake and to assess the impact of the aging effects.

8 CHAIR SIEBER: Were you ever able to 9 determine whether the crack was continuous from the 10 outside to the inside?

MR. PICK: Our conclusion based on the evidence that the applicant provided, the photographs and discussions and review of their construction paperwork, we do not believe that it was ever a through-wall crack.

We agree with their conclusion that it was a cold joint crack. That it occurred because they had stopped a pour.

CHAIR SIEBER: Oh, okay. Thank you.

slide, please. 20 MR. PICK: Next Our 21 overall conclusion based on inspection, our the 22 applicant properly scoped non-safety related 23 structures, systems, components, and they properly 24 applied Aging Management Programs to those structures, 25 systems and components.

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And we believe that reasonable assurance exists that aging effects will be managed and intended functions maintained. That concludes my presentation. Are there any questions?

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CONSULTANT BARTON: Yes, I've got one. Your inspection report states that the applicant had not completed many elements in their Aging Management Programs so the team could not assess the effectiveness of the planned implementation.

10 But yet your slide says you got reasonable 11 assurance that aging effects will be managed and 12 intended functions maintained, so I guess I'm in a 13 quandary here.

14MR. PICK: What specifically was missing 15 during our inspection is, for new programs applicants 16 generally do not have program procedures whatsoever. 17 Our experience in Region IV has been some applicants 18 have identified procedures, drafted procedures, identified changes to existing procedures on their 19 plans for monitoring aging effects. 20

21 This applicant Ι understand, as has 22 another program that's going to be budgeted to develop 23 those procedures that I just talked about. That 24 statement was specifically there for future 25 recognize the limitations of inspections to our

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1	inspection.
2	CONSULTANT BARTON: That's why I had asked
3	the question, because I thought you'd have to do a
4	follow-up inspection and you said you're going to
5	probably have to do that. Okay.
6	MR. PICK: The follow-up inspection will
7	be the 71-003.
8	CONSULTANT BARTON: Okay. I understand,
9	Greg.
10	MEMBER SKILLMAN: Greg, this is Dick
11	Skillman. The question that I have is, for each of
12	these items that your team found, were they entered
13	into the licensee's corrective action program?
14	MR. PICK: Yes, they were.
15	MEMBER SKILLMAN: All can be accounted
16	for?
17	MR. PICK: Yes, they were. I did that
18	independently by talking to the applicant.
19	MEMBER SKILLMAN: Thank you, Greg.
20	MR. PICK: Any additional questions?
21	CHAIR SIEBER: Apparently there are no
22	additional questions.
23	MR. PICK: Thank you, gentlemen. I will
24	turn the meeting back over to Arthur.
25	MEMBER STETKAR: Greg, don't hang up the
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1	phone though.
2	MR. PICK: I don't plan on hanging up.
3	MR. CUNANAN: Greg will be here throughout
4	the meeting. All right, thanks, Greg. We're going to
5	move on to Section 3.
б	Section 3 of the SER covers the staff's
7	review of the applicant's Aging Management Programs
8	and Aging Management Review line items in each of the
9	systems which was reviewed against the criteria in the
10	GALL report.
11	For a given Aging Management Review, the
12	staff reviewed the intended function, material,
13	environments, aging effect and the proposed Aging
14	Management Program combination.
15	If an Aging Management Review did not
16	align with the GALL report, the staff conducted a
17	technical review to ensure adequacy and issued a
18	Request of Additional Information if appropriate.
19	Next slide. As shown on the Table, the
20	staff reviewed 55 Aging Management Programs. The
21	staff also reviewed over 5,000 Aging Management Review
22	line items from the submitted license renewal
23	application.
24	As Greg had discussed, there were several
25	one-time inspection programs which were revised to a
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plant-specific periodic inspection programs. The staff at headquarters coordinated with the Region about these one-time inspection program and the Region further incorporated its attention to these programs during its inspection.

staff believed that the one-time 6 The inspection programs were inconsistent with the GALL 7 report which recommended periodic inspections 8 for systems that have environments that change over time 10 such as raw water.

11 Subsequent generic RAIS were issued 12 related to the sampling size. All programs shown in this slide are unique to the plant except for a Small 13 14 Bore Class 1 Piping program which is a generic program 15 that plants must revise to a plant-specific program if 16 the plant had operating experience related to small 17 bore weld cracking, which brings us to our first open 18 item.

MEMBER STETKAR: Okay, before you do that, 19 Arthur, I've got a couple questions about specific 20 AMPs and sort of the rationale of why the staff 21 22 accepted certain things.

23 The buried piping and tanks inspection 24 program, in the licensee's operating experience it's 25 that leakage noted instances of has occurred

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119 associated with buried piping as a result of internal 1 2 corrosion. 3 In the applicant's response to RAI B.2.5-4 2, they say that alternative volumetric examination 5 methods will not be used to conduct interior wall thickness measurements in lieu of excavating 6 and 7 visually inspecting buried pipe. 8 And the staff accepted external visual 9 inspections of buried pipe as a way to infer the 10 thickness of the wall? 11 Based on the fact that they've had experience with internal corrosion of buried pipe, I 12 don't quite understand that. So could you explain why 13 14that's acceptable? 15 Yes, I have Bill Holston MR. CUNANAN: that can comment on that. 16 17 is Bill MR. HOLSTON: Yes, my name 18 Holston, Division of License Renewal. The purpose of 19 the buried pipe inspection program is to examine only the external surfaces of the piping system. 20 21 And that's why directed excavated 22 inspections of at least ten feet of pipe are typically 23 What we allow in GALL Revision 2 is the norm. 24 alternatively is to take 25 percent of the piping 25 length and do it from the inside with an ultrasonic NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701

examination.

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2	Of course that gives you the added benefit
3	of looking inside and looking from the outside. In
4	some cases piping systems are buried 20, 26 feet in
5	the ground and that's why we offered that opportunity.
6	There are other programs, for instance,
7	internal surfaces monitoring program, the open cycle
8	cooling water program that would address the operating
9	experience which you cited.
10	MEMBER STETKAR: Does the open cycle
11	cooling water program here include internal
12	examination of, for example, standby service water
13	piping and the fire protection piping that's buried?
14	MR. HOLSTON: I did not evaluate that
15	program. Jim Gavula, you still on the line?
16	MR. GAVULA: Yes, I am. Hello?
17	MR. CUNANAN: Yes, go ahead, Jim. Can you
18	answer that question?
19	MR. GAVULA: Yes, open cycle cooling does
20	internal inspections. I would need to go back and
21	look at the specific portions of the systems that it
22	looks at though.
23	MEMBER STETKAR: I'd appreciate that,
24	because at least for fire protection there seems to be
25	evidence that they're not going to do internal
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inspections of any of the buried piping sections, at least from what I could divine from a couple hundred pages worth of stuff.

4 So I'm really curious about whether 5 they're going to be doing internal inspections of 6 buried in-scope piping systems, in particular those associated with, you know, raw water fire protection, 7 8 standby service water and anything else, because it wasn't at all obvious. 9

MR. GAVULA: If I can add, in many cases they will infer the condition of the buried piping based on the condition of the above ground piping in that the internal surfaces would be comparable as a similar environment.

MEMBER STETKAR: Okay, thanks.

16 MR. CUNANAN: Thanks, Jim. I also have17 present, Michelle Kichline.

MS. KICHLINE: Hi, I'm Michelle Kichline,
License Renewal. I review the fire protection
programs.

And the fire protection program does allow you to use inspections of the internal surfaces of the above ground piping to determine what the condition would be of the internal surface of the buried piping. You can also do non-intrusive or UT

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inspections to determine the condition of the internal surfaces of the piping.

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MEMBER STETKAR: Okay. I guess, and this 4 may be for the applicant. And since the operating experience mentions instances of leakage associated with buried piping as a result of internal corrosion, 6 7 have you had instances of leakage of above ground 8 piping associated with internal corrosion? I mean is there something unique about the

buried piping environment that I don't understand?

MR. ATKINSON: One moment, please.

buried MS. BEAUDRY: Carolyn Beaudry, 12 The only leaking pipe that I am 13 piping program owner. 14 aware of is actually potable water which is a PVC 15 I'll have to get back to you on to where the pipe. internal corrosion --16

17 MEMBER STETKAR: Okay, and as I said this 18 only, Ι extracted that from the is operating experience that's cited in, if you want to look it up, 19 it's SER Section 3.0.3.2.3. 20

21 CONSULTANT BARTON: That talked about 22 several problems in these systems.

MEMBER STETKAR: Yes, you know, that's 23 24 what I extracted from my quote here.

CONSULTANT BARTON: Yes, and not just one

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123 system. 1 2 Corrosion of, you know, MEMBER STETKAR: mentioned wouldn't 3 obviously the system you be 4 subjected to corrosion. 5 CONSULTANT BARTON: Two thin wall PVCs, something like that, yes. 6 7 MR. CUNANAN: We have it as marked to get 8 back to you on that. 9 MEMBER STETKAR: Yes, thanks. 10 MR. CUNANAN: Okay, this open item 11 describes the staff's concern related to operating 12 experience. So the program descriptions the in Application 13 License Renewal state that future 14operating experience will be used to adjust the 15 program as appropriate. The details on how it will use future 16 17 experience to operating ensure that the Aqinq 18 Management Programs will remain effective are not 19 fully described. 20 I would like to introduce Matt Homiack, 21 who will address this open item. 22 MR. HOMIACK: Good morning. Thanks, 23 Arthur. As Melanie Galloway highlighted the 24 importance of this issue during the meeting, on behalf 25 of the staff I will follow her lead and provide some NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

additional context.

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Arthur mentioned, this As open item concerns how the applicant will use future plant specific adjustments through operating experience to ensure that its AMPs are effective and to update them or to create new AMPs when necessary.

This is a new emergent issue under NRC staff review for all license renewal applications. 8 Ιt has not previously been presented before the ACRS. 9

10 Melanie mentioned that the staff undertook 11 an effort to review applications against GALL Rev 2 12 changes, this is a similar item except it stems from the SRPLR Rev 2. 13

14 To ensure that new issues and lessons 15 learned on aging management will be appropriately 16 captured and evaluated, the staff has asked the 17 applicant to describe its programmatic activities for 18 the ongoing review of operating experience.

the staff's RAI, 19 In response to the 20 applicant has proposed to use its existing operating experience program in conjunction with its corrective 21 22 action program as the means to gather and evaluate 23 operating experience.

24 However, the applicant did not provide 25 details with the respect to how information on aging

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Clearly the corrective action program is a critical element for the applicant's ability to use operating experience. Do they have the ability to put the right information into that program and also to extract the right information out of that program?

10 Also of concern is what type of 11 information the applicant will consider in operating 12 experience evaluations when they concern aging. Are they going to look at the materials and environments 13 14and aging effects when necessary?

Also of concern is the type of information that the applicant's going to consider as operating experience. Initially they had indicated that they would not consider subsequent revisions of the GALL report as operating experience.

Note that they did say that they would 20 21 consider GALL Rev 3 as operating experience so we're 22 glad to hear that, but it also extends to other, you 23 know, lessons learned as operating experience that we 24 think that should be considering as well, also 25 training for use of these programs on age related

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We did note that the applicant has initiated some action and to provide some training to its personnel. However, we think there's probably additional areas that need training such as for screening operating experience and also for submitting operating experience information.

8 Also note that the applicant indicated 9 earlier that it's using its License Renewal Team on a 10 daily basis to screen operating experience and that 11 kind of thing.

My question is that that, is a correct-out because the applicant's applying for license renewal? We'll need to see some plans on how they want to go forward with that on an ongoing basis.

So in summary, the staff is challenging the applicant to make sure that its existing processes are appropriately sensitized with respect to the consideration of operating experience on aging management.

21 MEMBER SKILLMAN: Matt, this is Dick 22 Skillman. Let me ask you to explain a little more 23 regarding your last comment.

What I heard you say is it seems the applicant has zeroed in on OE because they're making

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an application. Please say more about what you meant when you said that.

MR. HOMIACK: What we want to see is a plan to go forward and consider operating experience for license renewal on an ongoing basis. So the question is, how is the applicant going to, you know, essentially move from its License Renewal Team to its normal plan operating staff, you know, for license renewal?

10 MEMBER SKILLMAN: May I ask, as you have 11 made that comment is there reason to believe they 12 wouldn't invest the same amount of energy in the 13 future that they are now investing in OE?

MR. HOMIACK: No, I don't think so. But we just want to see what their plan is for making that transition.

MS. GALLOWAY: I think we see this more as a broad industry issue. There's a difference in the first 40 years of operation where there's a lot of emphasis on failures and events and operability.

But when you get into an aging management emphasis there's more of a prevention and how do you change things in your program so that the failures don't occur. And that's the kind of transition we want to be sure and see.

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And that's the training and that's the orientation and that's this idea of thresholds, of understanding when you get enough operating experience information you rationally need to process it as a change to your Aging Management Programs. And that's what we want to look at.

7 And when we talked about updates to 8 guidance documents, you know, we're glad when we hear 9 the industry looked at a GALL Revision as operating 10 experience, because clearly that's what we view it as 11 a compilation of.

But what we want the industry and applicants to be sensitized to is that by the time it gets in an update to a GALL it's already historical. We want them to be evaluating it in real time.

don't want them to wait for 16 We the 17 industry compilation to come out from the NRC, and we 18 want it to be both plant specific information as the corrective action we have talked about during 19 the 20 applicant's presentation, but we also the want 21 information shared so that the industry as a whole has 22 the benefit of aging management operating experience 23 incorporated into maintaining that can be the 24 effectiveness of those Aging Management Programs for 25 that 20-year license renewal period.

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MEMBER SKILLMAN: Thank you.

MR. CUNANAN: further Are there any All right, thank questions on operating experience? you, Matt and Melanie.

open item describes the staff's This related 6 concern to the high voltage porcelain 7 insulators. The high voltage porcelain insulator program manages the buildup of hard water residue on 8 in-scope high voltage insulator deposited by vapors 10 from the cooling towers.

Management of this effect consist 11 of either periodic coating or cleaning of 12 the high voltage insulator. The staff noted that the applicant 13 14did not include the high voltage porcelain insulator 15 at the 230-kilovolt Ashe Substation in the High 16 Voltage Porcelain Insulator program even though its 17 breaker provided an alternate path during a station 18 blackout.

19 applicant stated that it did not The porcelain insulators because 20 include these they 21 concluded that the spray drift phenomenon would not occur due to the significant distance from the cooling 22 towers, but could not provide any further information 23 to support its conclusions. 24

Since then, the applicant submitted its

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RAI response indicating that it would include the 230-2 kilovolt porcelain insulator as part of the High Voltage Porcelain Insulator program with testing every eight years and cleaning if needed.

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The staff has reviewed the applicant's response and expects to close this item. Is there any questions on this program?

Section 4 of the SER contains the staff's 8 9 review of the Time Limited Aging Analysis, TLAA. The 10 following slides presents the open items related to 11 the TLAAs.

item describes 12 This the staff's open concern related to metal fatigue. This is a generic 13 14 item that the ACRS has seen before with previous 15 plants, such as Hope Creek and Salem.

The applicant stated that it addressed the 16 17 effects of component fatigue life by assessing the 18 impact of the reactor cooling environments on a sample 19 of critical components identified in NUREG-6260.

20 This NUREG identified sample locations 21 that are susceptible to the effects of a reactor The staff noted that 22 cooling environment. the 23 applicant's plant specific configuration may contain additional locations that need to be analyzed for the 24 25 effects of the reactor cooling environment other than

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1	those identified in NUREG-6260.
2	The applicant stated that it will submit
3	its analysis to the staff to resolve this open item.
4	The staff must still review this analysis when it is
5	fully submitted.
6	MEMBER STETKAR: Arthur?
7	MR. CUNANAN: Yes.
8	MEMBER STETKAR: Not related to this
9	specific open item but the general topic of metal
10	fatigue, I noticed that the projected number of
11	transient cycles for a number of transients out
12	through the 60-year period of extended operation will
13	well exceed the number of analyzed cycles.
14	If just look at their linear extrapolation
15	in Table L4.3-2 of the License Renewal Application
16	and, in fact, it looks like, you know, a number of
17	those will exceed the number of analyzed cycles even
18	before you enter the period of extended operation.
19	And I think the staff had a couple of RAIs
20	regarding that and I understand that the applicant has
21	a program to constantly reevaluate the number of
22	cycles.
23	The question I had was, did you ask the
24	applicant for any histograms of the actual annual
25	occurrence rates of each of those transients so that
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1	you could see if there were any trends?
2	In other words, in some plants you notice
3	a very large number of transients early in core life
4	with a decreasing number as a function of history,
5	which means those linear extrapolations might be very,
6	very conservative.
7	On the other hand, if the frequency has
8	remained fairly constant over the how ever long it is
9	operating the plant, 20 some-odd years now, yes, you
10	draw a little bit different conclusion about the
11	possible conservatism of those extrapolations.
12	Did you ask for any of that information?
13	Was it supplied?
14	MR. CUNANAN: Allen Hiser can speak to
15	that.
16	MR. HISER: We did not in this case and
17	generally we don't look for details like that.
18	MEMBER STETKAR: Okay.
19	MR. HISER: The applicant, within their
20	calculations once they establish a limit on the number
21	of cycles, if it turns out to be non-conservative they
22	have to deal with the consequences of that through
23	their Aging Management Program.
24	So whether the analysis is conservative or
25	potentially non-conservative at this point, ultimately
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1	they still have to deal with the
2	MEMBER STETKAR: I was more curious
3	because they did what seems to be a linear
4	extrapolation. Other applicants have gotten fairly
5	creative about segments of the data, historical data
6	that they use for the extrapolations. Here it was
7	strictly a linear extrapolation.
8	MR. HISER: Well, it's linear but if it's
9	a two-point linear, if you do have a decreasing trend
10	then -
11	MEMBER STETKAR: And that's why I say, in
12	this particular case since they did just a linear
13	extrapolation I'm less concerned about it. I was just
14	curious whether you'd actually asked them for it.
15	CONSULTANT BARTON: Some applicants have
16	actually come in here and showed us the history.
17	MEMBER STETKAR: No, that's right. That's
18	right.
19	CONSULTANT BARTON: Yes, and then it kind
20	of peters out.
21	MEMBER STETKAR: The reason I bring it up
22	is just whether you'd asked for it, because other
23	applicants have used selective exclusion of certain
24	parts of their operating history to justify different
25	extrapolations.
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MR. HISER: If we see anything unusual in the way that they have treated their data then we would go into more detail on that. But in this case with the linear extrapolation and our expectation of a decrease in trend in transients, it really wasn't necessary.

MEMBER STETKAR: Okay. Thank you.

8 CHAIR SIEBER: Well, part of the analysis 9 is to identify all of the transients that occurred so 10 you can tell what the operating experience really is. 11 In some cases that requires a lot of detail work in 12 reviewing logs and plant transients and so forth.

Some licensees will use the design functions which are usually conservative, and say I either do or don't have enough cycles remaining to last through the 60-year lifetime.

17 My question would be, to what extent did 18 this licensee actual operating history use to 19 determine what the cycles and how were many 20 assumptions went into that process to sort of fill in 21 the blanks for avoid having to do detailed day-by-day, week-by-week or month-by-month analysis of what the 22 transients were and how do we know the information? 23 24 MR. CUNANAN: I have Ching Ng who can 25 speak to that.

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MR. NG: This is Ching Ng from License Renewal. In applicant's fatigue monitoring program they say that I will track, they will look at the trends of the occurrence of the different transient on an annual basis.

And even though that they don't have a specific action limit, for example, 80 percent or 70 percent, but by looking at a trend annually the staff believe that applicant can enable to catch the instances when the occurrence of transient exceed the design limits.

12 CHAIR SIEBER: Okay, but does that include 13 examination of the past history of the transients at 14 the plant or do they make some assumptions and say, 15 this is our base point from this point forward where 16 we're going to count transient, which is of those is 17 true?

18 MR. NG: I think let's step back and, 19 typically during the Aging Management Program audit 20 the staff will look at the histogram of the 21 occurrences of the different transients.

And those histograms of occurrences, the staff reviewed it on site and do not require them to submit it as part of license renewal, but the staff did look at it.

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MR. COLE: Jack Cole, Energy Northwest engineering staff. What we at Energy Northwest did is we looked at our operating transients, our cycle counting, over the full period of 1983 until this time.

And we found that some transients were going to be lower and some were going to be higher. We were short on startups and shutdowns. As result of our review, we issued what we, tech metal, it has the projected number of cycles for the full 60-year life of the plant.

And for our fatigue analysis, then we went back for our TLAA evaluation with environmental fatigue, updated the cycles to the projected 60-year cycles and re-ran those analyses.

The plant has a commitment now that when they are approaching any of the limits they will have to update to Class 1 design reports. But as we've done that for all of the TLA locations we have good expectation.

We've already evaluated the maximum usage locations for these revised cycles, so we will take on the activity to update for the revised projected

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CHAIR SIEBER: Thank you. That answers my question.

MR. CUNANAN: Is there any further questions with metal fatigue? All right. This open item describes the staff's concern related to the core plate rim hold-down bolts.

8 In the original license renewal 9 application the applicant stated that Columbia had 10 core plate wedges installed around the periphery of 11 the core plate within the shroud.

Core plate wedges prevent lateral motion 12 of the core plate and are not subject to stress 13 14relaxation. However, in a conference call the 15 applicant stated that it had discovered there were no core plate wedges located around the periphery of the 16 17 core plate within the shroud.

18 Having no core plate wedges results in the 19 applicant having to perform bolt inspections as 20 described in BWRVIP-25 titled BWR Core Plate 21 Inspection and Flaw Evaluation Guidelines.

The applicant submitted a license renewal application supplement to include a commitment to install wedges at least two years prior to the beginning of the period of extended operation or

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However, the applicant had not selected one of the three options of 10 CFR 54.21(c)(1) to 6 demonstrate the evaluation of the TLAA. Also the 8 applicant did not provide an AMR line item for the core plate rim hold-down bolts for the aging effects of loss of preload due to stress relaxation.

11 Furthermore, the applicant stated that it would deviate from the BWRVIP-25 inspection guidance 12 until December 31, 2015, because as with other BWRs 13 14 with no wedges it does not plan to inspect the hold-15 down bolts for relaxation stress due to the difficulties in performing the inspection. 16

17 The staff has concern that the effects of 18 aging will be adequately managed not without performing the inspections. The applicant has not yet 19 provided its response for staff review. 20

21 MEMBER STETKAR: Arthur, and I asked this 22 earlier. This is I assume an issue for the current 23 licensing basis as well as the license renewal, is 24 that correct? Because it's sort of a bit disturbing 25 that they discovered in 2011 that they didn't have the

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1	wedges in a plant that's been operating for 27 years.
2	MR. CUNANAN: Yes, we agree that it's a
3	current licensing and a license renewal kind of issue.
4	MEMBER STETKAR: And NRR is following
5	MR. CUNANAN: Yes, we're currently with
6	MEMBER STETKAR: Just out of I'm not a
7	boiling water reactor guy so I'm, nor am I structural
8	guy so I'm speaking well out of my area of expertise.
9	You mentioned other boiling water reactors don't have
10	the wedges either.
11	Have any of them performed inspections of
12	the bolts during their current licensing period?
13	MR. CUNANAN: Chris Sydnor?
14	MR. SYDNOR: Hi, this is Chris Sydnor.
15	I'm a materials engineer in Division of Component
16	Integrity, since been consolidated into the Division
17	of Engineering.
18	We engage the BWRVIP, is the EPRI BWR
19	Vessels and Internals Project, on these kinds of
20	issues in current licensing space and during the
21	current for, on an ongoing basis.
22	That's correct. The deviation that was
23	discussed in the slide is in a sense kind of generic
24	for all boiling water reactors without wedges. So
25	we're going to be kind of engaging them in, you know,
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1	on an ongoing basis on the potential need for
2	inspections as discussed in BWRVIP-25, and if
3	inspections are not performed what kind of analyses
4	are being done to support that conclusion.
5	MEMBER SHACK: Yes, but how have you dealt
6	with this problem with the other BWRs in license
7	renewal? I mean I went back and looked and a lot of
8	them had deviations but then it wasn't clear to me how
9	they were resolved.
10	MR. CUNANAN: Yes, to that point there is
11	the deviation and then until the point where it pass
12	the date of 2015, then a decision has to be made
13	whether to do inspections or it's a revise from the
14	BWRVIP program that shows how the inspections will be
15	conducted.
16	MR. SYDNOR: Yes, the subject deviation is
17	set to expire at the end of 2015, December 31st, 2015.
18	MEMBER SHACK: And so the other BWR
19	license renewals probably have a similar sort of a
20	thing for their deviations? There's a
21	CHAIR SIEBER: For a currently operating
22	plant ultimately.
23	MR. CUNANAN: Yes, for a current
24	operating. I have Jeff Poehler on the microphone too.
25	MR. POEHLER: Yes, Jeff Poehler, Senior
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Materials Engineer in the Vessel Internals branch of Division of Engineering. Yes, to the other question, have other BWRs inspected?

Some have performed inspections of those bolts but they have not performed the inspections that were originally prescribed in the BWRVIP-25 Inspection Evaluation Guideline, because it originally prescribed ultrasonic testing or a VT1 from below the bolts which proved to be unfeasible.

10 So some of them have done limited VT3 11 visual inspections of some portion of the bolts.

12 MEMBER SHACK: There's a big difference. 13 MR. POEHLER: Right, but yes, it's 14 basically in my understanding is they've done those from above and it's been a best effort to see if the 15 bolts have rotated, which would indicate fractured 16 17 bolts.

And they haven't seen any evidence of any IGSCC cracking that would cause failure. But again they're not doing ultrasound exams which would be more effective.

So it needs to be addressed on a generic level for the whole fleet, the whole BWR fleet. And a number of them have submitted the TLAA, committed to do the TLAA for stress relaxation and have submitted

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those analyses.

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CHAIR SIEBER: Any further questions on this topic? Okay.

MR. CUNANAN: Okay, moving on to the next slide. This open item describes the staff's concern related to the upper-shelf energy. I would like to introduce Allen Hiser to present this open item.

8 MR. HISER: Thanks, Arthur. As the 9 applicant described earlier they identified several 10 small-bores from the instrument nozzles that have 11 neutron fluence levels above 1 times 10 to the 17th 12 neutrons per centimeter squared, and this necessitates consideration of neutron embrittlement effects 13 in 14these nozzles.

15 For the N12 nozzle forging, which we saw several schematics from the applicant, the applicant 16 17 demonstrated that the, showed that the upper-shelf 18 energy would meet the Appendix G requirements of 50 foot-pounds using an initial energy of 62 foot-pounds 19 and copper content of 0.27 percent identifying that 20 21 these values are not heat specific but come from a 22 statistical analysis performed by General Electric.

In the absence of a technical basis for these assumptions, the staff has requested that the applicant provide documentation of the source of these

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143 values so that the staff can determine acceptability 1 2 of the applicant's analysis. 3 The applicant as I stated earlier has 4 indicated they will provide this information in its 5 RAI response. CHAIR SIEBER: Is that kind of information 6 7 typically retrievable by licensees, the non-specific 8 characteristics of various heats? 9 Ιt depends MR. HISER: on what's 10 available. In the case of this nozzle, there was no 11 heat specific NPRs with Charpy data or with the copper In this case they're relying on a database 12 content. analysis from other similar heats. 13 14 CHAIR SIEBER: Yes, that's where the issue 15 And so what happens if you don't come up with is. item-specific heat data? 16 17 MR. HISER: Well, if you don't have heat 18 specific then the staff generally has accepted an analysis of a database of similar materials. 19 In this case, this is an A508 grade Class 1 forging and so 20 21 they have data that, they have indicated that they 22 have data for other A508 Class 1 forgings. 23 CHAIR SIEBER: Similar, yes. Okay. 24 MR. HISER: So depending on how they 25 analyze the data and where their assumed values are NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	relative to that database will determine whether we
2	find it acceptable or not.
3	CHAIR SIEBER: Okay, thank you.
4	MR. CUNANAN: Any further questions on the
5	upper-shelf energy open item? Okay, next slide.
6	Thanks, Allen.
7	This open item describes the staff's
8	concern related to the applicant's analysis for its
9	cranes. The applicant states that the analysis for
10	its cranes does not meet the definition of a TLAA.
11	However, the staff believes that the
12	analysis for its cranes meet the definition of a TLAA
13	because there is a design limit on the number of
14	cycles specified in Crane Manufacturers Association of
15	America, CMAA 70 specifications, which involved a time
16	limited assumption.
17	The applicant has submitted its RAI
18	response indicating that it would analyze the cranes
19	under 10 CFR 54.21(c)(1)(I). The staff is still
20	reviewing its response.
21	In conclusion and pending successful
22	resolution of the open items, the staff will be able
23	to determine that the requirements of 10 CFR 54.29 (a)
24	have been met for the license renewal of Columbia
25	Generating Station.
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145 The staff's conclusion will be provided in 2 the final Safety Evaluation Report which is scheduled for a February 2012 issuance, which Melanie has stated 3 4 in her introduction may be challenging due to the 5 extent of RAIs and open items. And with the possibility of follow-up RAIs 6 7 we are looking ahead towards the need for further 8 scheduled delays. This concludes my presentation. Do 9 you have any further questions? 10 CHAIR SIEBER: Any further questions? 11 MEMBER SKILLMAN: I do. This is Dick 12 In the past say three operating cycles, six Skillman. years on the 24-month cycle, has this station been in 13 1495-001, 002 or 003? 15 MS. GALLOWAY: Greg, can you answer that? MR. GREGOIRE: Don Gregoire, Regulatory 16 17 Affairs Manager. We had a 95-001 due to a multiple scrams performance indicator going white, and that was 18 in 2009 time frame, 2010 time frame. 19 20 MEMBER SKILLMAN: Thank you. 21 CHAIR SIEBER: That's the only one. 22 MR. GREGOIRE: That's the only one in the 23 last, what did you say? 24 MEMBER SKILLMAN: Three cycles, six years. 25 I think we might have had MR. GREGOIRE: NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS

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1	one related to security.
2	MEMBER SKILLMAN: That's fine. Thank you.
3	CHAIR SIEBER: Any additional questions
4	from the members? John?
5	MEMBER STETKAR: I have one for the, not
6	for the staff if you want to dismiss the staff, I have
7	a follow-up for the applicant.
8	CHAIR SIEBER: Well, go ahead.
9	MEMBER STETKAR: Okay. I'm back on the
10	bus duct failure out in the turbine building. And my
11	problem is I don't understand the words fail-safe, so
12	I tend to just dismiss those words as kind of
13	meaningless.
14	The steam pressure sensors that are out in
15	the turbine building are there for a reason. They
16	actuate MSIV closure for some types of steam line
17	breaks I assume.
18	You know, what they're there for in
19	particular and where they are, I have no idea. My
20	question is, can you have failures of those cables or
21	the pressure sensors such that the low steam pressure
22	signal does not go into the protection logic and
23	therefore does not close the MSIVs?
24	That is not a fail-safe, it is not a cut
25	the cable and have an open circuit, it is not the
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147 design basis analysis of the transmitter. It's can 1 2 you have a failure of that cable that gives you a false high pressure signal thereby disabling the MSIV 3 4 closure signal from those sensors? That's the 5 question. If the answer to that question is yes, 6 7 then I'm really not sure why things that can affect 8 those cables are excluded from the scope of license 9 renewal. 10 MR. ATKINSON: We'll have to have just a 11 moment to think about this. 12 MEMBER STETKAR: Okay. It's very complicated and it's the way people don't normally 13 14think because people think fail-safe, fail-safe, fail-15 safe. 16 And it gets to -- Jack asked the question 17 and we got a very quick response, but it really didn't 18 address the fundamental issue. Sorry. We have time so I thought I'd bring it up. 19 We actually have 20 CHAIR SIEBER: an 21 additional 12 hours. 22 MR. ATKINSON: Yes, this is Dale Atkinson 23 with Energy Northwest. We'll take just a few minutes. 24 We're going to have to have some candid discussion 25 about where the physical location of those devices are NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. WASHINGTON, D.C. 20005-3701

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1	that perform this function and verify that this is
2	MEMBER STETKAR: Also the cables too.
3	MR. ATKINSON: Right.
4	MR. CUNANAN: Also if the applicant's
5	answer is not satisfactory to the staff we will
6	continue further discussion after this.
7	MEMBER STETKAR: You know, in some sense
8	it would be nice to have a definitive answer, you
9	know, within the context of this meeting, but
10	understand. Occasionally you do have takeaways from
11	these subcommittee meetings.
12	CHAIR SIEBER: I would like to have it on
13	the transcript if we can.
14	MEMBER STETKAR: If we can. But if we
15	can't, you know, we can follow up and if there's
16	another subcommittee meeting or a full committee
17	meeting we can follow up. We tend not to forget.
18	MR. CUNANAN: We do have a takeaway with
19	your question on the internal corrosion.
20	CHAIR SIEBER: I have schematics but I
21	don't have physical layouts. I have all the drawings
22	of the plant but they're off of schematics.
23	MEMBER STETKAR: You don't have electrical
24	drawings, do you?
25	CHAIR SIEBER: I have whatever is in the
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1	FSAR.
2	MEMBER STETKAR: I couldn't find much on
3	electrical in the
4	CHAIR SIEBER: It's not complete. It's
5	single lines and typicals. And single line doesn't
6	answer it.
7	MEMBER STETKAR: No, no.
8	MR. ATKINSON: Is this an item we're going
9	to be able to give back to you in a few minutes or do
10	you want to just wait right now for a response?
11	CHAIR SIEBER: I think the choice is
12	pretty soon or at the full committee meeting.
13	MR. SWANK: I'll give you what we have.
14	So I think there's some confusion on what signals
15	we're talking about. This is Dave Swank, Energy
16	Northwest.
17	So they'd be, signals of concern would be
18	DEH oil pressure, low oil pressure which would feed
19	into RPS, Reactor Protection System. And then
20	secondarily, also feeding into RPS would be the
21	throttle valve position.
22	So those are the two signals there at the,
23	if you remember for those of you who came to the
24	plant, on the west end of the turbine building are all
25	the non-segregated buses that we're talking about.
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150 These signals are all down on the east end of the 1 2 turbine. 3 And so what we're looking at, believe we 4 evaluated it, we want to verify that we evaluated the 5 distance and the potential effects from any of the buses on the west end to the signal cables on the east 6 7 end running to the control room. 8 MEMBER STETKAR: The reason I focused on 9 this was not so much the RPS, the reactor scram. 10 It's, and I'll give you a hook and this again is from 11 the SER. But it's the response to RAI 2.1-1(a). And at least as it's characterized in the 12 SER, it talks about loss of RPS and MSIV isolation 13 14 logic sensors. And it says things like, the safety 15 related MSIV isolation logic sensor inputs the safety related components of the miscellaneous drainings 16 17 system and safety related main steam valves located in 18 the turbine generator building are classified as 19 safety related because of an NRC commitment, yada, 20 yada, yada. 21 That's what led me to believe but, you 22 know, I know you have EHC oil pressure, I know you 23 have a turbine stop valve or a governor valve input 24 for reactor protection. 25 The sense that I got from that is there NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W.

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1	also may be steam pressure or steam flow sensors out
2	there in the turbine building that give you an MSIV
3	closure signal. Perhaps I'm misinterpreting or
4	reading too much into the, you know, this excerpt from
5	the RAI response.
6	MR. SWANK: And I think that may be the
7	case.
8	MEMBER STETKAR: If that's the case that's
9	fine, but
10	MR. SWANK: The only safety related
11	MEMBER STETKAR: That's the only one.
12	MR. SWANK: Yes, the ones you described,
13	those two sets of instruments are the only safety
14	related components in the turbine building.
15	MEMBER STETKAR: And that's just the EHC
16	oil pressure and the turbine stop valve or control
17	valve position?
18	MR. SWANK: Exactly. Correct.
19	MEMBER STETKAR: I think I'm happy with
20	that. There are a number of reactor scram signals
21	that come in from various and sundry, but I was more
22	concerned that for some reason I've seen plants
23	that have secondary steam, you know, steam pressure
24	for secondary steam line breaks out in the turbine
25	building that feed back into the MSIV closure logic
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which is a completely different function.
And, you know, there may not be a backup
protection for some of those breaks.
MR. SWANK: Right.
MEMBER STETKAR: But if you tell me
there's none of that type of sensors out in the
turbine building I'm satisfied.
MR. SWANK: Okay. We've asked that
question to our team back home. We're looking for the
answer back.
CHAIR SIEBER: Yes, when we have the full
committee meeting perhaps you can direct that as
MR. SWANK: Thanks.
CHAIR SIEBER: Well, I think we're at the
point on the agenda where we will, it's labeled
Subcommittee Discussion. Generally during meetings,
types of subcommittee meetings for license renewal, we
ask each of the members if they have comments to make
or concerns that have either not been addressed or
have arisen during the conduct of the testimony here.
Gordon, do you have any of those two
categories, additional questions or concerns?
MEMBER SKILLMAN: I don't have a concern
but I have an observation.
CHAIR SIEBER: All right.
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MEMBER SKILLMAN: I found in the work that I've been doing for some time that when an inspection team or the station's CNRB or other oversight members find that there is weakness in a particular program, it doesn't take long to find that that weakness is promulgated into other related programs, and among them the corrective action program.

8 And so to the extent that the aging 9 programs or the oversight of the aging programs may 10 not drive the rigor and discipline to identify the the issues in the corrective action 11 problems or 12 program, that gives me cause for alarm. And it just reinforces how important the focus is on 10 CFR 50 13 14Appendix B.

15 It's almost a lost art in our business 16 that unless senior leadership is driving hard to 17 implement all 18 points, then it's very easy to forget 18 about design control, good old Number 3, our 19 corrective action program, which I believe is XIV.

And so when I hear a weakness here and weakness there, I go to that point in my mind where I say, how much energy is senior leadership investing in ensuring that Appendix B to 10 CFR 50 is really being obeyed?

And to the extent that that feeds into all

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1	other programs, I raise that flag.
2	CHAIR SIEBER: Okay.
3	MEMBER SKILLMAN: Thank you.
4	CHAIR SIEBER: Thank you. Bill?
5	MEMBER SHACK: Maybe a similar one. That,
6	you know, I looked at the regional inspection and the
7	AMP inspection. They seemed to find a lot of problems
8	and I think more so than I think is fairly typical,
9	and you sort of wonder whether you should, you know,
10	there have been an expanded inspection like we do for
11	steam generators?
12	You know, when we find out we've got this
13	many problems in these, you know, should you look at
14	all the Aging Management Programs?
15	But, you know, the staff seems to feel
16	that what they're doing is satisfactory but that's
17	just, I just wondered if there is a, you know, a
18	program where you would, in fact, go back for another
19	regional inspection just to see if, in fact, they
20	really followed up or to look at the rest of the
21	programs.
22	If the batting average is that poor on the
23	first sample, you know, should you be doing more?
24	CHAIR SIEBER: Okay, and I think that's
25	based on most of these comments. That's a worthy
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155 thing for the staff to think about whether they need 1 2 to do something additionally or whether they can under 3 the inspection programs that are out there. 4 John? Thanks, Bill. 5 MEMBER STETKAR: I have nothing more to I kind of echoed Dick's and Bill's sentiments 6 add. 7 regarding possible follow-up. 8 CHAIR SIEBER: Yes, I come up with the 9 same kinds of feelings that the other members have concluded in this area. 10 And I'm not sure what mechanisms the staff has to address that but I think 11 12 it's something that we ought to think about. 13 MEMBER STETKAR: I know at least on one 14 plant license renewal, you know, that I chaired, the 15 staff indeed did a second follow-up inspection. Ιt wasn't on looking at an additional number of AMPs, it 16 17 was a different issue, but indeed they did another inspection. 18 So apparently before the whatever it is, 19 the final 70-something or other, I can't open on 20 21 numbers, before the --22 CONSULTANT BARTON: Yes, I don't remember 23 which plant that was but I remember the issues. 24 MEMBER STETKAR: And it doesn't make, I 25 actually do remember the plant but it's not relevant. NEAL R. GROSS COURT REPORTERS AND TRANSCRIBERS 1323 RHODE ISLAND AVE., N.W. (202) 234-4433 WASHINGTON, D.C. 20005-3701 www.nealrgross.com

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1	CHAIR SIEBER: Yes, I remember a similar
2	instance, but this one is a more general which is,
3	what is the total adequacy of all the programs? I
4	mean are they effective or not to be able to draw
5	conclusions applicable to license renewal or not?
6	And I think that we have to ponder that
7	but I'd like to ask the staff to ponder that also.
8	MEMBER STETKAR: And in a sense we're sort
9	of quizzing the staff the same way they quiz the
10	applicant about, if you find the deficiency what's the
11	program for increasing the sample size?
12	CHAIR SIEBER: Okay, is there any other
13	comments from members? John?
14	CONSULTANT BARTON: Yes, I don't like
15	doing reviews of plants that are 12 years out, and I
16	think some of the comments you're hearing is because
17	of that.
18	The plants that are closer to the, you
19	know, the period of extended operation, the start of
20	that, seem to be more prepared in their Aging
21	Management Program, at their training.
22	They've actually run some of their
23	programs so that you get a good sense of how ready
24	they really are. I mean we're 12 years out, we're
25	hearing they're not ready, they're not trained.
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1	They've got a bunch of programs, they've
2	miscalculated programs, a bunch of issues that, you
3	know, is it really meaningful or not? But they've had
4	a lot of time to go and fix these things.
5	So when you look at a program this far out
6	I don't know what it really tells you, how ready they
7	really are for their extended license. And, you know,
8	as far as any major issues, are there any, you know,
9	big things out there I see in reviewing this, no, I
10	don't.
11	But I see a lot of smaller issues that
12	and I wonder about the inspection. We've done the
13	inspection. The NRC has 12 years out and lots of open
14	items.
15	And when I asked are you going to do
16	another one, no, we're going to the final 70P3 or
17	whatever it is. Well, I'm looking for something
18	between now and then because of the number of issues
19	you've got out here.
20	CHAIR SIEBER: Well, you know, the
21	Columbia's not unique in this regard. I think that
22	the program either says you ought to have the programs
23	in place where you have to have sufficiently clear
24	commitments, the program that you will establish
25	before license renewal takes effect will properly
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cover the issue.

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And so the situation the Columbia presents to us is not unique at least in my experience and I've done audits.

5 On the other hand, what it does is it transfers to the inspection process basically the 6 7 obligation to determine if the details that the 8 programs that licensees establish fully satisfies 9 the regulations, number one, and secondly, the 10 commitments that they made in the process of applying 11 for license extension.

So the situation we're faced with here is not unique. On the other hand, the opportunity for ACRS to become involved goes away once we approve the staff's action to bring it an extended license.

16 And so I appreciate the concerns that we 17 have because it's sort of like grabbing at a cloud, 18 but I think the point that's to be made from this discussion amongst all of us is the fact that if you 19 get your renewed license that does not stop 20 the 21 additional work, the additional thought and the 22 additional definition of the requirements, and are these requirements being satisfied to make a renewed 23 license or an extended license valid? 24

And so that obligation I think is upon all

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of us to do, applicants and staff. And on the other hand, I think that we can all put some additional thought into these concepts and maybe the process could be improved a little bit. But right now I'm not prepared to describe how we could contribute to an improved process.

Any other comments from the members? Ιf not, I'd like to thank the applicant for the work they 8 have performed and for coming here with a large contingent of plant people.

11 I hope there's somebody left in the state 12 of Washington or out at the plant to keep it safe. And I think the staff has done a very good job in the 13 14 review and I'd like to thank you also. It's not only 15 for the work that you did but for your presentations 16 today.

17 And I would ask at this point, if there 18 are any members of the public who would like to make a statement before the committee? If not, I thank all 19 of you for the work that you've done to prepare for 20 21 this meeting and for the presentations that you have made. 22

23 With that this meeting is adjourned. 24 (Whereupon, the foregoing matter was 25 concluded at 11:55 a.m.)

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Columbia Generating Station ACRS License Renewal Subcommittee Meeting

October 19, 2011

Columbia Generating Station

- Dale Atkinson Vice President, Emp Dev/Corp Services
- Dave Swank Engineering General Manager
- Don Gregoire Manager, Regulatory Affairs

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- John Twomey Project Manager, License Renewal (incoming)
- Abbas Mostala Project Manager, License Renewal (offgoing)



Columbia Generating Station Team

Plant Management

- ▼ Dale Atkinson
- ➤ Dave Swank
- Bruce MacKissock
- 🗶 John Bekhazi
- Don Gregoire
- 🛎 Brian Adami

License Renewal Team

- × John Twomey
- ▼ Scott Wood
- 🗶 Abbas Mostala
- 🗶 AREVA Team

Program Owners/Subject Matter Experts

- ➤ Carolyn Beaudry
- 🗶 John Lasalle
- 🗵 John Sisk
- ▼ Steve Richter
- ▼ Steve Gosselin
- ▼ Jack Cole
- ➤ Doug Ramey
- ➤ Mott Hedges
- ▼ Jim Tansy
- × Robert Nielson



Agenda

- Energy Northwest and Plant Overview
- Plant Status, Major Improvements
- License Renewal Application
- Safety Evaluation Report Open Items
- Concluding Remarks





Energy Northwest at a Glance

- Providing public power since 1957
- Hydro, solar, wind and region's only nuclear power plant
- Projects generate carbon-free power for 1 million homes



Who are We?



Energy Northwest is a Joint Operating Agency authorized by the State of Washington







Hanford Site – Tenant Only

- Approximately 1100 acres leased from the Department of Energy (DOE).
- Located on the Hanford Nuclear Site which is wholly owned and operated by the DOE.
- Energy Northwest maintains authority to determine all activities in the plant's exclusion area as defined in 10 CFR 100.



Plant History

- Construction Permit March 19, 1973
- Operating License December 20, 1983
- 5% Power Up-Rate May 1995



Plant Description

- General Electric Boiling Water Reactor
 - BWR-5 / Mark II Containment
 - Plant circulating water & ultimate heat sink makeup supplied from the Columbia River
- 3486 MWt/1230 MWe


Plant Status and Major Improvements

David Swank Engineering General Manager



Plant Status

- Recently completed refueling outage R20
- Significant accomplishments during outage:
 - Replaced main condenser
 - Replaced main generator rotor
 - Modified non-segregated bus



Major Improvements

 Main condenser replacement 2011 2007,09 Reactor recirculation pump motor • replacements • Feedwater heater replacement 2007 Improved turbine control system 2007 Addition of 4th diesel generator 2005 **Emergency bus cross-tie** 2005 Hydrogen water chemistry 2004



Major Improvements (cont'd)

- Noble metal coating reactor vessel 2001,07 internals
- 24 month operating cycle adopted 2001
- Reactor recirculation pump adjustable 1996 speed drive
- Digital feedwater level control system 1996
- Low pressure turbine rotors replaced 1992



Don Gregoire Manager, Regulatory Affairs



License Renewal Application (LRA)

- License Renewal Project
 - Initiated 2006
 - Team Established June 2007
 - LRA Peer Reviewed May 2009
 - LRA Submitted January 2010
- LR Team Engaged with the Industry
 - NEI License Renewal (LR) Task Force and Working Groups
 - Observed Audits/Inspections at other Plants
 - Participated in other Plants' LR Peer Reviews



- Scoping and Screening
 - Consistent with 10 CFR Part 54 and NEI 95-10
 - In-scope structures, systems, and components screened to determine if Aging Management Review required
 - Mechanical boundary drawings identify (a)(1),
 (a)(2) and (a)(3) in-scope components



- Aging Management Review (AMR)
 - Consistent with 10 CFR Part 54 and NEI 95-10
 - Used NUREG-1801 Generic Aging Lessons Learned (GALL) Report Revision 1



- Aging Management Programs (AMP)
 - 55 Programs Credited for LRA
 - 35 Existing
 - 14 Enhancements
 - 20 New



- Time-Limited Aging Analyses (TLAA)
 - TLAA Identification and Disposition Consistent with NUREG-1800 and NEI 95-10
 - TLAAs Dispositioned in Accordance with 10 CFR 54.21(c)(1)



- 71 License Renewal Commitments
- Commitment Tracking System
 - Ensures changes to implementing procedures and programs reviewed for License Renewal impact
- Commitments Include:
 - Existing programs credited for the period of extended operation (PEO)
 - New programs, inspections, and enhancements to be completed prior to and during the PEO



- Implementation
 - Industry Benchmarking for Lessons Learned
 - Participation in NEI License Renewal
 Implementation Working Group
 - Self-Assessments/Audits
 - Implementation Project Road Map Under Development





- High-Voltage Porcelain Insulators
- Operating Experience
- Upper-Shelf Energy
- Metal Fatigue
- Core Plate Rim Hold-Down Bolts
- Fatigue Analysis of Polar Crane



• <u>OI 3.0.3.3.7</u>

High-Voltage Porcelain Insulators

The 230 kV Station Blackout recovery source insulators at Ashe substation were not included in the LRA insulators Aging Management Program (AMP)

- Insulators are now in program
- Tests conclude minimal accumulation and within limits
- Testing on 8 year frequency consistent with operating experience
- Response submitted August 18, 2011



• <u>OI B.1.4-1</u>

Operating Experience (OE)

Future operating experience evaluations for aging effect were not specifically included in the LRA

- LRA to be updated to clearly call out intent to review OE on an ongoing basis
- Internal/external OE considered on an ongoing basis
- Operating Experience program documentation to specifically address aging effects
- Initial/recurring training for plant staff
- Response to be provided in November



• <u>OI 4.2-1</u>

Upper-Shelf Energy (USE)

Technical basis not provided for initial transverse USE and copper content for instrument nozzle forgings

- Technical basis to be provided in November
- Supports acceptability through end of period of extended operation



• <u>OI 4.3-1</u>

Metal Fatigue

Columbia's metal fatigue Time Limited Aging Analysis (TLAA) performed for sample of critical locations listed in NUREG/CR-6260 may not be limiting

- The limiting locations have been identified
- Calculations conclude that all locations have an environmental cumulative usage factor below 1.0
- Response to be provided in November



• <u>OI 4.7.4-1</u>

Lower Core Plate Rim Hold-Down Bolts

Neither TLAA nor AMR line item for the reactor pressure vessel lower core plate hold-down bolts were provided

- LRA will be amended to include:
 - AMR line item for TLAA
 - TLAA disposition for 10 CFR 54.21(c)
- Response to be provided in November



• <u>OI 4.7.5-1</u>

Fatigue Analysis of Polar Crane

Columbia's LRA did not include TLAA for polar crane

- Columbia has an overhead crane but not a polar crane
- TLAA for the 15 in-scope cranes and hoists
- Remains valid through the end of the period of extended operation
- Response provided October 5, 2011



Closing Remarks































Typical Sand Pocket Drain Line









United States Nuclear Regulatory Commission

Protecting People and the Environment

Advisory Committee on Reactor Safeguards (ACRS) License Renewal Subcommittee Columbia Generating Station (Columbia) Safety Evaluation Report (SER) with Open Items October 19, 2011

> Arthur Cunanan, Project Manager Office of Nuclear Reactor Regulation



Presentation Outline

- Overview of Columbia license renewal review
- SER Section 2, Scoping and Screening review
- Region IV License Renewal Inspection review
- SER Section 3, Aging Management Programs and Aging Management Review Results
- SER Section 4, Time-Limited Aging Analyses (TLAAs)



Overview

- License Renewal Application (LRA) submitted January 19, 2010
 - Applicant: Energy Northwest (EN)
 - Facility Operating License No. NPF-21 requested renewal for a period of 20 years beyond the current license date of December 20, 2023
- Approximately 12 miles north of Richland, WA
- BWR with a Mark II containment


Audits and Inspections

- Scoping and Screening Methodology Audit
 - May 10-13, 2010
- Aging Management Program (AMP) Audits
 - May 24-28, 2010
- Region IV Inspection (Scoping and Screening & AMPs)
 - October 18, 2010 November 4, 2010



Overview (SER)

- Safety Evaluation Report (SER) with Open Items issued August 30, 2011
- SER contains 6 Open Items (OI):
 - Operating Experience
 - Metal Fatigue
 - Core Plate Rim Hold-Down Bolts
 - High-Voltage Porcelain Insulators
 - Upper-Shelf Energy
 - Fatigue Analysis of Polar Crane



SER Section 2 Summary

Structures and Components Subject to Aging Management Review

- Section 2.1, Scoping and Screening Methodology
 - Methodology is consistent with the requirements of 10 CFR 54.4 and 54.21
- Section 2.2, Plant-Level Scoping Results
 - Systems and structures within the scope of license renewal are appropriately identified in accordance with 10 CFR 54.4
- Sections 2.3, 2.4, 2.5 Scoping and Screening Results
 - SSCs within the scope of license renewal are appropriately identified in accordance with 10 CFR 54.4(a), and those subject to an AMR in accordance with 10 CFR 54.21(a)(1)



United States Nuclear Regulatory Commission

Protecting People and the Environment

License Renewal Inspections

Greg Pick

Region IV Inspection Team Leader



Overview

- Six inspectors for 2 weeks
- Scoping & screening inspection
- > Aging management programs inspection





AMP Inspection Results

- One-Time Inspections applicant misapplied use of one-time program in six cases
- Structures Monitoring no administrative mechanism to trend structural indications
- Chemistry Program Effectiveness committed to revise sample sizes to meet GALL, Revision 2



AMP Inspection Results

- High Voltage Insulators improperly excluded 230kV insulators from aging management activities
- Buried Piping reliability issues exist with portions of the cathodic protection system
- Lube Oil Analysis identified implementation weaknesses
- Various Programs identified a need for training on how to assess aging effects



Additional Inspection Issue

Assessed a reactor building crack after review of plant operating experience in Structural Monitoring AMP:

- Impact of moisture on the crack
- Ability to withstand seismic forces



Inspection Conclusions

- Scoping of non-safety SSCs and application of the AMPs to those SSCs were acceptable
- Reasonable assurance exists that aging effects will be managed and intended functions maintained



Section 3: Aging Management Review

- Section 3.0 Aging Management Programs
- Section 3.1 Reactor Vessel & Internals
- Section 3.2 Engineered Safety Features
- Section 3.3 Auxiliary Systems
- Section 3.4 Steam and Power Conversion System
- Section 3.5 Containments, Structures and Component Supports
- Section 3.6 Electrical and Instrumentation and Controls System



SER Section 3

3.0.3 – Aging Management Programs

55 Aging Management Programs (AMPs) presented by applicant and evaluated in the SER

	Consistent with GALL	Consistent with exception	Consistent with enhancement	With exception & enhancement	Plant Specific
Existing (35)	15	3	10	1	6
New (20)	10	3			7



SER Section 3

Several one time inspection programs were revised to plant specific periodic inspection programs:

- Cooling Units Inspection
- Diesel-Driven Fire Pumps Inspection
- Diesel Systems Inspection
- Flexible Connection Inspection
- Monitoring and Collection Systems Inspection
- Service Air System Inspection
- Small Bore Class 1 Piping Program



SER Section 3.0.2.1 – Operating Experience OI B.1.4-1

 Details of future operating experience to ensure AMPs will remain effective for managing the aging effects are not fully described



SER Section 3.0.3.3.7— High-Voltage Porcelain Insulators OI 3.0.3.3.7

- High-voltage post insulators at the 230 kV Ashe Substation is not included in the AMP
- The applicant indicated that it would either:
 - Establish appropriate coating or cleaning tasks
 - Develop information that would demonstrate why the spray drift phenomenon would not affect the 230 kV switchyard station post insulators



SER Section 4: TLAA

- 4.1 Introduction
- 4.2 Reactor Vessel Neutron Embrittlement
- 4.3 Metal Fatigue Analysis
- 4.4 Environmental Qualification of Electrical Equipment
- 4.5 Concrete Containment Tendon Prestress Analysis (not applicable to Columbia)
- 4.6 Containment Liner Plate, Metal Containments, and Penetrations Fatigue Analysis
- 4.7 Other Plant-Specific TLAAs



SER Section 4.3 – Metal Fatigue OI 4.3-1

- Addressed the effects of the coolant environment on component fatigue life on a sample of critical components identified in NUREG/CR-6260
- The applicant's plant-specific configuration may contain additional locations that need to be analyzed other than those identified in NUREG/CR-6260



SER Section 4.7.4 – Core Plate Rim Hold-Down Bolts OI 4.7.4-1

- Contrary to the original LRA the plant does not have core plate wedges
- The applicant had not selected one of the three options of 10 CFR 54.21(c)(1) to demonstrate its evaluation of the TLAA
- No AMR line item for the core plate rim hold-down bolts
- The applicant submitted a deviation from BWRVIP-25 inspection guidelines, which could result in inadequate management of the aging effect



SER Section 4.2.2 – Upper-Shelf Energy OI 4.2-1

Applicant projected upper shelf energy (USE) for the N12 nozzle forgings to 54 EFPY, but did not justify:

- The initial USE of 62 ft-lbs
- The copper content of 0.27 percent

Staff needs to verify acceptability of applicant assumptions to assess applicant's analysis that the USE for the N12 nozzle will remain > 50 ft-lbs at the end of vessel life



SER Section 4.1.2.9 – Fatigue Analysis of Polar Crane

<u>OI 4.7.5-1</u>

- The applicant stated that the analysis for the crane does not meet the definition of a TLAA
- Crane is designed to CMAA No. 70, which has a design limit on the number of lifts. Therefore, the staff believes it meets the definition of a TLAA





On the basis of its review and pending satisfactory resolution of the open items, the staff will be able to determine that the requirements of 10 CFR 54.29(a) have been met for the license renewal of Columbia Generating Station



Backup Slides



Columbia's Onsite and Offsite Power







Figure 1: Droplet fallout settling on transformer yard



