

UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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BRIEFING ON OPERATOR LICENSING PROGRAM

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PUBLIC MEETING

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FRIDAY,

JANUARY 13, 2017

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ROCKVILLE, MARYLAND

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The Commission met in the Commissioners= Hearing Room at the Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, at 9:34 a.m., Stephen G. Burns, Chairman, presiding.

COMMISSION MEMBERS:

STEPHEN G. BURNS, Chairman

KRISTINE L. SVINICKI, Commissioner

JEFF BARAN, Commissioner

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ALSO PRESENT:

ANNETTE L. VIETTI-COOK, Secretary of the Commission

MARGARET M. DOANE, General Counsel

EXTERNAL STAKEHOLDERS:

JOHN AUSTIN, Director, Nuclear Training, Vogtle

Nuclear Station, Southern Nuclear Company

GREGG LUDLAM, Chairman, Nuclear Energy Institute=s

Licensed Operator Focus Group

CASEY PFEIFFER, President, Professional Reactor

Operator Society

RUSTY SHOEMAKER, Manager, Accreditation, Institute of

Nuclear Power Operations

NRC STAFF:

VICTOR McCREE, Executive Director of Operations

MICHAEL CHEOK, Director, Division of Construction

Inspection and Operational Programs, Office of

New Reactors

BILL DEAN, Director, Office of Nuclear Reactor

Regulation

CHRIS MILLER, Director, Division of Inspection and

Regional Support, Office of Nuclear Reactor

Regulation

EUGENE GUTHRIE, Chief, Region II Operations Branch

NANCY SALGADO, Chief, Operator Licensing & Training

Branch, Office of Nuclear Reactor Regulation

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

9:04 a.m.

CHAIRMAN BURNS: I=ll call the meeting to order.

I want to welcome our external panelist, the NRC staff and the members of the public, both who may be in the room as well as listening remotely.

The purpose of today=s meeting is to discuss the status of operation licensing in the nuclear power industry and we=ll cover issues related to licensee training programs, NRC initial licensing examinations and re-qualification.

And, we=ll begin with presentations from the external panel, which includes Rusty Shoemaker, Manager Accreditation at the Institute of Nuclear Power Operations, Casey Pfeiffer, President, Professional Reactor Operator Society, John Austin, Director of Nuclear Training at the Vogtle Nuclear Station and Gregg Ludlam, Chair of the Nuclear Energy Institute Licensed Operator Focus Group.

And, we=ll have your presentations followed by quick questions from the Commission.

And, after that, we=ll have a brief break and then hear from the staff on the topic.

So, I look forward to today=s presentations and the discussion with the Members of the Commission.

Before we begin, to my colleagues, have anything they=d like to say?

(No response.)

1                   CHAIRMAN BURNS: Well, great. I think, Mr.  
2 Shoemaker, you're up first. Welcome.

3                   MR. SHOEMAKER: Thank you, Mr. Chairman,  
4 Members of the Commission.

5                   Again, I'm Rusty Shoemaker, I'm Manager of  
6 Accreditation at INPO. I've been in this position since September of  
7 2014 and I have 21 years' experience in various position at INPO.

8                   Also, I have 15 years' experience in the industry  
9 working at the H.B. Robinson Station in South Carolina.

10                  I appreciate the opportunity to come today to share  
11 INPO's involvement with operator training programs. We'll do that in  
12 several different arenas.

13                  The first slide kind of is an outline of my topical areas.  
14 First, I'll cover the National Academy for Nuclear Training, particularly  
15 in regard to the accreditation process that we implement.

16                  We also have involvement with the plant evaluations  
17 that INPO does in addition WANO Peer Reviews. I'll highlight our  
18 training involvement in those activities as well.

19                  Then, between evaluative activities, we also do some  
20 continuance monitoring and I'll highlight that and how that fits into the  
21 assistance that INPO provides.

22                  Then, as we wrap up, I'll highlight where the NRC staff  
23 has some oversight and involvement and how they're engaged in our  
24 activities, particularly in the accreditation arena, and then, highlight at  
25 the end on my last slide, I'll summarize an operations improvement

1 initiative that we've recently started at INPO.

2 Moving into the National Academy for Nuclear  
3 Training, we have three constituent parts of that. One is INPO with  
4 primarily the staff and the training accreditation arena.

5 But, also, the Utility Accredited Training Institutions,  
6 each of those have an award of accreditation status and they represent  
7 a major part of the constituent group of the National Academy.

8 And, then, the Independent National Nuclear  
9 Accrediting Board, which we have 26 members, four different areas  
10 covered in that Board membership.

11 We have utility representation that generally  
12 represents two of the five people on any particular Board.

13 We have non-nuclear training represented there, post-  
14 secondary education as well as we have five members nominated from  
15 the NRC on that Accrediting Board.

16 The National Academy for Nuclear Training is  
17 responsible for setting the standards of excellence for conduct on high  
18 quality operator training -- maintenance and training, technical training  
19 as well and we're focusing today primarily on the operator side.

20 We also established the criteria -- objectives and  
21 criteria for establishing and maintaining accreditation.

22 We currently have three objectives, 20 particular  
23 criteria and that was a recent change in the last couple of years.

24 Moving on to the accreditation process, the  
25 accreditation process has several pieces.

1           The first starts with the Utility Accreditation Self-  
2 Evaluation Report. The stations, over the course of accreditation  
3 cycle, we use the objectives and criteria that we use to conduct our  
4 visits and evaluate themselves, write a report, and that report becomes  
5 part of the documentation that we send to the Board.

6           We also have an independent look with this INPO  
7 accreditation team visit, which we have a mixture of INPO folks as well  
8 as utility representative and peers that conducts a one-week visit after  
9 some preparations to come do an independent look using those same  
10 objectives and criteria.

11           And, then, the process reaches its conclusion at the  
12 National Nuclear Accrediting Board Meeting where station  
13 management as well as my team manager will present the conclusions  
14 -- our overall conclusions of those visits and the report.

15           Multiple decisions can be made at that Accrediting  
16 Board. We do have several stations going through initial accreditation,  
17 so Vogtle and Summer in particular, so, we have some activities. It's  
18 not been for some time in the initial accreditation area.

19           Most stations for come renewal of accreditation for  
20 their programs. We have also have a Board decision that we could  
21 place programs on probation due to some issue that they need to go  
22 resolve and come back to a second Board, usually six months later.

23           And, then, we have an opportunity to withdraw  
24 accreditation from any of the programs. That typically has not been  
25 done, except for in a case where a plant is shut down.

1                   And, the whole accreditation process occurs on about  
2 a six-year frequency.

3                   Moving into plant evaluations and WANO Peer  
4 Reviews, our division also provides training evaluators that participate  
5 on each trip. That, again, is a recent change. We had that in the past.

6                   Several years, we did not have a training evaluator on  
7 plant evaluation peer reviews. The last two years, we've been  
8 instituting that -- re-instituting that position. They're on every trip.

9                   The focus on plant evaluations and WANO Peer  
10 Reviews is really looking at how training is being used to improve  
11 performance. So, it's a little bit different objectives and criteria in what  
12 we use in accreditation.

13                   And, we do have a training objective in the plant  
14 evaluation performance objectives and criteria. It has about 15  
15 individual criteria.

16                   Part of that review also involves a simulator crew  
17 performance evaluation. This primarily focuses on operator  
18 fundamentals and control room team work, also, accident and response  
19 and abnormal response procedures covered with that.

20                   That activity in the simulator is primarily led by the  
21 operations evaluator with some industry peers on his team.

22                   Our involvement with plant evaluation peer reviews  
23 occurs about every two years.

24                   In between the evaluation activities and plant  
25 evaluations and accreditation visits, in the past several years, we've

1 instituted a continuous monitoring and assistance arena.

2                   We've always had some assistance. We focus our  
3 attention in this area to provide performance monitoring between those  
4 types of activities.

5                   We take a lot of the data we get at INPO, go through  
6 the reviews and we have a periodic review of senior station  
7 management on their performance in between the evaluation activities,  
8 typically, about twice a quarter.

9                   We use a graded approach for the continuous  
10 monitoring and to help target our assistance.

11                   We have basically four categories of plants. We have  
12 stations in what we would call normal monitoring, which is a majority of  
13 the stations.

14                   We also have an elevated, escalated and special focus  
15 which allows us, as we move down that graduation and graded  
16 approach, we've provided more assistance to stations that need more  
17 assistance.

18                   The assistance and monitoring arena, we also have the  
19 opportunity, if we see industry trends or a particular issue that we want  
20 to identify of developing and operating experience document. We  
21 have divisions at INPO to do that.

22                   And, we could write an industry event report which is  
23 what we, typically, in the past, is called significant operating experience  
24 reports.

25                   Several years ago, we changed that to industry event



1 reports and we have four different graduations there.

2                   One, the top two actually require a response and  
3 reaction from the station. Whereas, the lower two categories is  
4 primarily sharing of just information.

5                   Moving into the NRC oversight that=s provided and  
6 engagement with this, we do have periodic observers from the NRC  
7 staff on our accreditation team visits.

8                   Typically, one or two visits a year where they actually  
9 go into the field with us as observers.

10                   We also have that on plant evaluations about once or  
11 twice a year, when an NRC observer will participate with some portion  
12 of a plant evaluation period.

13                   We also have NRC nominated members on our  
14 National Nuclear Accrediting Board, just as we have five different  
15 previous executives from the NRC staff that=s members, acting  
16 members of the Board.

17                   And, then, each Accrediting Board, we have a seat  
18 there for the NRC observer that=s typically filled.

19                   And, then, we also have an NRC interaction with the  
20 Commission on an annual basis, typically, in the May time frame where  
21 we share general trends and have interactions focused primarily on  
22 training or accreditation.

23                   Finally, I=ll wrap up with an area that we have identified  
24 recently, some Operator Fundamental Action Plan, which is an industry  
25 improvement initiative.

1                   We=ve noticed some SICWIC performance over time  
2 in looking at operations training, operations performance.

3                   Generally, we=re about around a medium performance  
4 of plateaued effectively. And, what we want to try to do is increase  
5 that. So, we=ve been taking here recently, we=ve formed an industry  
6 working group to get the industry involved with the INPO staff, take all  
7 of our data, analyze events, what we can do to increase and move that  
8 performance up.

9                   A lot of focus in this area and the operator  
10 fundamentals area.

11                   We=re also including training and we=ll look at training  
12 and relative primarily to the improving and sustaining performance, hard  
13 look at the simulator performance there.

14                   And, then, lastly, I would highlight that we last had an  
15 operations training program on probation in the 2013 time frame. It  
16 was closed in September and we=ve not had a probation activity since  
17 then.

18                   Mr. Chairman, Members of the Board, that concludes  
19 my remarks.

20                   CHAIRMAN BURNS:     Okay, thank you, Mr.  
21 Shoemaker.

22                   Mr. Pfeiffer?

23                   MR. PFEIFFER:   Thank you, Mr. Chairman, and thank  
24 you to the Commission and the NRC for the opportunity to make our  
25 presentation today.

1 I am the President of the Professional Reactor  
2 Operator Society, also, a Unit Supervisor, Senior Reactor Operator at  
3 the Sequoyah Nuclear Plant.

4 I=ve had a license in the SRO, or Reactor Operator for  
5 13 years.

6 My presentation today is going to be talking about the  
7 operator perspective from the initial license and the requalification.

8 For PROS, we have about 400 members nationwide,  
9 mostly licensed operators. Like I said, I=ve participated in two  
10 licensing processes, RO, Reactor Operator in 2004 and a Senior  
11 Reactor Operator License in 2013.

12 I=ve also been involved in two or three NRC validations  
13 in Atlanta for written tests for the Sequoyah Nuclear Plant. And, been  
14 involved in requalification training since 2004.

15 Next slide, please? The operator licensing process is,  
16 to me, is one of the most challenging programs in our industry. It=s 18  
17 months where we have 40 hours a week of training in class. And, to  
18 be successful in the program, most operators will tell you that it probably  
19 takes more like 60 hours a week to be successful, and, some people,  
20 maybe closer to 70 hours a week.

21 Right now, the NRC pass rate is about 92 percent for  
22 NRC exams. And, that has been an uptick from the last four or five  
23 years.

24 Also, the throughput from the industry that INPO has  
25 given, the numbers either from INPO, about 70 to 75 percent for ROs

1 and 75 to 80 percent for SROs. And, that has also up ticked through  
2 the last decade.

3 The reason why operator licensing is so important is,  
4 we want to make sure that we have competent -- stable, competent line  
5 of operators that are they=re trained and available to our plants to make  
6 sure that the health and safety of the public is not compromised.

7 Right now, licensing issues that we see in operations  
8 is one of the things, is need to ensure that the licensing process is fair  
9 and equal across the industry.

10 And, I say that, we have test standards that are  
11 different from region to region. I know, in the past four or five years,  
12 that has kind of started to equalize. But, I know, in the past that Region  
13 II had some SRO-only paperwork and guidelines that they went by that  
14 the rest of the regions didn't go by.

15 And, I see some of that=s been included into the new  
16 revision of the NUREG.

17 The other -- another issue is the KA in a NUREG-1021  
18 requirements, that the written tests, sometimes, is actually closer to a  
19 75-question RO test is closer to 100 to 110, 125 questions due to the  
20 fact that the NUREG-1021 says that all distractors need to be plausible.

21 Or, when the -- back in 2004, when we went to that all  
22 distractors plausible, the KA catalogue is so detailed, that it's hard for  
23 examiner writers to write a question without making it a two-part  
24 question.

25 And, sometimes, the operators will get the KA portion

1 that the licensing is testing for correct, but the second part is usually a  
2 procedure of some kind of plant admin second topic that we put on there  
3 to make sure that all the distractors are plausible.

4 Like I said before, SRO only questions, they do not  
5 have the same standard across the regions, even down to the individual  
6 examiners themselves.

7 I know that I=ve been involved in two licensing at  
8 Atlanta and the, you know, the two examiners that sat in our exams that  
9 we went through, and this was about five or six years ago, you know,  
10 even they had different standards for SRO-only questions.

11 Next slide? The last thing the operators are  
12 concerned about is, we do see this uptick in pass rates and throughput,  
13 but, I know that a lot of the site licensee exam writers and the NRC  
14 examiners, you know, we're starting to see a turnover with retirements.

15 And, the issue that the operators are concerned about  
16 is, we need to make sure that the processes, you know, are good and  
17 standard and that the turnover process is between the -- not only the  
18 licensee writers, but the examiners or the NRC, make sure that we  
19 maintain these standards and don=t have a drop because of the quality  
20 of the written and operating tests that we have.

21 Next slide, please? Improvements that I=ve seen and  
22 organization has seen in the last ten years, I know, ten years ago,  
23 throughput in the industry was 50 to 60 percent to what some of the  
24 INPO numbers.

25 NRC workshops to help exam license writers, I=ve

1 been to one. Region II invited me about eight or nine years ago and it  
2 really helped me understand the process.

3 And, those workshops have really helped the licensee  
4 exam writers. So, we need to continue doing those.

5 Better communication between examiners and exam  
6 writers. Probably, a decade ago, you didn't have the communication  
7 between the chief examiner and the site exam writers.

8 I think the site exam writers were afraid to call the chief  
9 examiners to, you know, ask about a KA being changed or, you know,  
10 get clarification.

11 And, that -- this communication improving has helped  
12 the overall test product.

13 Also, licensees are getting more and better feedback  
14 from licensed operators. Back when throughput was only 56 percent,  
15 one of the things that has -- that came up was, hey, why don't we have  
16 more licensed operators, you know, perform the, you know, the --  
17 looking at the exams, giving the feedback?

18 And, now, I know at our plant at Sequoyah, you know,  
19 we went from four to five people looking at a license test to maybe 15  
20 or 20. So, the feedback makes the product a better product.

21 Next slide, please? Requalification, 10 CFR 50.59  
22 has a guideline for requalification of licensed operators.

23 NRC has the oversight of the biannual testing process.  
24 The biannual, every two-year testing is a written exam, usually 35 or 40  
25 questions, a simulator set and job performance measures.

1           And, NRC inspectors usually come in for one week of  
2 this examination for the cycle to make sure that the licensees are  
3 following guidelines.

4           And, as Rusty said earlier, INPO does the  
5 reaccreditation of licensed operator programs.

6           Next slide, please? Operators, for the Rev. 11  
7 changes, operators see an issue with the new simulator grading scale.

8           The 0-3 grading scale is not the issue, it's the way that  
9 the, essentially, points are only taken away. In the past, we've kind of  
10 had a, you know, a kind of a scale where, all right, you did something  
11 correct, get a point. You know, kind of a weighted scale.

12           Now, it's a, you know, only errors, nonconsequential  
13 errors are the only thing that's taken away.

14           One of the examples that I could see that would cause  
15 this to have more simulator failures is the tech calls for the Senior  
16 Reactor Operators.

17           And, when I say tech spec calls, you know, some tech  
18 specs, for example, pressurizer pressure, you have a tech spec where  
19 you have to write down, you know, on the NRC test, you actually have  
20 to go in, besides writing the tech spec, you have to write the, you know,  
21 18F, 18G, which we normally wouldn't do during the plant because  
22 they all have the same conditions.

23           But, pressurizer pressure doesn't just have a trip for  
24 high and a trip for low and an SI for a low, it also goes into OT delta, T  
25 over temperature, delta T and over pressure delta T, which, our other

1 tech specs that have the same actions.

2                   And, if someone doesn't realize that, you could see  
3 where you get built up, you may be looking at 15, 20 tech specs during  
4 a simulator scenario or 15, 20 different parts of a tech spec. And, if  
5 you miss two or three, it could lead you to a grading scale of 1 or a  
6 failure.

7                   Next slide, please? Also, a lot of the operators and  
8 the operator trainers that I've talked to suggested having longer time  
9 lines.

10                   For example, right now, it's a 180 days. They would  
11 like to maybe have that pushed out to nine months. And, really, it is --  
12 I've seen it rushed at the end to have, you know, the test being a quality  
13 test right before it starts within a week or two.

14                   Having these longer time lines would have more  
15 dialogue and would improve the overall product.

16                   I did like the Attachment 2 of the ES-401 for SRO-only  
17 question guidance. And, we just need to make sure that they're  
18 applied uniformly across the NRC regions and the examiners.

19                   The last change I have question to, and, you know,  
20 some of my industry colleagues could probably clear this up, was we  
21 did write an ES-401N for the new style sites for the written test. And,  
22 right now, I don't understand how the simulator portion of these tests  
23 could be graded the same since the plants act in such different  
24 manners.

25                   You know, this style, you know, you know, the design



1 24 hours, you may not even have to do any actions during an accident.  
2 And, how do you grade that criteria as compared to a normal -- a plant  
3 that we have running right now?

4 So, in closing, NUREG-1021 Rev. 11, the bones of it  
5 are good, the process is still sound. But, we need to make sure we get  
6 through the operator simulator licensing issues that I know my other  
7 colleagues will talk about.

8 And, we want to make sure that this doesn't  
9 adversely affect operator licensing because operator licensing is  
10 important to maintaining the protecting the health and safety of the  
11 public.

12 Thank you, Mr. Chairman.

13 CHAIRMAN BURNS: Thank you, Mr. Pfeiffer.

14 Mr. Austin?

15 MR. AUSTIN: All right.

16 I'd like to thank Chairman Burns and the NRC for  
17 having us here today to talk about Vogtle III and IV training and some  
18 of the challenges that we had going through the first license exam  
19 process.

20 We've got several topics we'll talk about through the  
21 simulator. The first with the simulator, plant reference simulator, we  
22 found that we cannot make that happen the way it's defined.

23 So, we needed to go to the Commission-approved  
24 simulator route to be able to get -- to have a simulator available to be  
25 able to license our initial operators.

1           Through that process, we found several human  
2 engineering deficiencies which are part of the new license criteria that  
3 we had to go and make sure that they did not affect the validity of the  
4 simulator.

5           And, we also invoked a scenario-based testing as part  
6 of that, and some additional runtime capabilities to ensure the simulator  
7 didn't have any issues during the license exam, and, it did not.

8           Also, the part of that process, the referenced  
9 simulators needed for reactivity manipulations. So, as part of this  
10 process, we had to do an exemption with the Commission-approved  
11 simulator to be able to get those five reactivity manipulations done  
12 before the license process is finished.

13           Continuing on, we made several assumptions coming  
14 into this when we were looking at the regulations we have overseeing.  
15 NEI 06-13A talks about allowing waivers for experience and plant  
16 evolution requirements. And, it gives specific guidance there.

17           We can waive a lot of these things but still hold the  
18 license toward the end until you finish all those requirements and then  
19 issue a license at that point.

20           That was our assumptions going into the examination  
21 process.

22           And, you look at some of our previous understandings,  
23 we've had prior grating the waivers at another sister utility and also  
24 concurrence with the industry alignment meetings to be able to waive  
25 some of these requirements you see below were the job shadowing

1 requirements, meaningful work experience, on-the-job training  
2 programs and in plant job performance measures.

3 Because, at the time of the construction of the plant, it  
4 was=t available to do some of these -- just portions of this.

5 So, we had to go back and complete our actions to go  
6 ahead and complete some of these requirements, 240 hours in the  
7 control time and the OJT program was developed and implemented.

8 And, then, we also had to process an exemption for the  
9 in plant JPMs as required for NUREG-1021 with an alternate means.  
10 That means, we did a really an equivalency metric, not an exemption,  
11 but the process is the exemption.

12 So, we had to go do three in plant JPMs in a method  
13 similar to what you would do in the plant because, our plant, at this point  
14 in construction, is not available to be able to do in plant JPMs. So, we  
15 ended up processing that.

16 All right, the -- also, we did get a waiver granted for the  
17 six-month meaningful work experience. And, that=s -- once that is  
18 completed, then we=ll have the licenses being issued when that is  
19 done. So, that=s one of the waivers we did get.

20 That includes the pre-operational testing requirements  
21 that we have. Since the plant is not at a point where we're doing pre-  
22 operational testing, we=ll be doing that later on in 2017 and 2018 and  
23 then we=ll apply for our final licenses at that point.

24 So, going forward, as part of our message is, we  
25 believe we need to revise some of the currently regulatory framework,

1 06-13A, the NEI document, for plants under construction based on, we  
2 need operator licenses to be complete a little bit earlier than we  
3 expected before to be able to process multiple license classes to meet  
4 the needs of the station for the number of operators that we do need.

5 We also developed a new framework. We interacted  
6 with NRC staff to make sure we have better alignment earlier on.

7 And, this includes more disciplined use of the public  
8 meetings on our end. We put together a regulatory strategy as a  
9 company and as an industry to make sure that we're interacting with  
10 staff to make sure that we have alignment going into some of these  
11 things so we can move forward.

12 At Vogtle, we are in the middle of a second license  
13 class and we have one more that we'll complete in March of '18.  
14 We'll continue on with this waiver process that we're using now.

15 The next license class that begins for the fourth license  
16 class, we will not need any of the waivers or exemptions that we have  
17 present. And, we'll have the plant at a point where we can do that.  
18 So, that will be in late 2019 when we get there.

19 And, we're on target right now to finish the plant  
20 referenced simulator before fuel load. Once we get the final design,  
21 the final simulator products and get the testing done to the simulator in  
22 2018 time frame.

23 So, the plant reference reference simulator portion will  
24 be complete at that point.

25 CHAIRMAN BURNS: Okay, that's it?

1 MR. AUSTIN: Thank you.

2 CHAIRMAN BURNS: Thanks.

3 Mr. Ludlam?

4 MR. LUDLAM: Good morning, Mr. Chairman and  
5 Members of the Commission.

6 I'm Gregg Ludlam, Director of Fleet Training for  
7 Exelon.

8 I'm currently on loan to INPO as an Accreditation Team  
9 Manager and I actually work for Mr. Shoemaker.

10 I have been the Chairman of NEI=s Licensed Operator  
11 Focus Group since 2006 and the only remaining charter member of the  
12 group when it was formed back in 1998.

13 I want to thank the Commission for this opportunity, this  
14 is a career goal. This is quite an honor to be here. And, I know all of  
15 us feel the same way. So, thank you for the invitation.

16 Over the last several years, as Mr. Pfeiffer=s outlined,  
17 a lot has been accomplished in the operator training.

18 Our throughput numbers continue to improve. Our  
19 pass rates are stable in the industry. We believe we're putting up only  
20 the best possible candidates to go through the examination process.

21 To that end, we continue to learn from each other. We  
22 do a lot of sharing. We have improved in our candidate selection,  
23 which gives us more stable classes and have contributed to the  
24 throughput improvements.

25 We also share a lot of lessons learned and a lot of

1 operating experience. And, I don't think any of that would be possible  
2 without the collaboration between the Focus Group, INPO and helping  
3 us with candidate eligibility process, and, most importantly, the NRC  
4 staff.

5 The folks sitting behind me and the staff, I've worked  
6 with many of them over my career. I've known many of them from my  
7 -- the duration of my career.

8 We have a very robust, thorough, well-run operator  
9 licensing program and we should be proud of that.

10 I began my commercial career in 1998, I'm sorry, 1988  
11 at Vermont Yankee coming out of the Navy and became a student of  
12 the licensing process, frankly, because of some failures on my part.

13 I continued to learn over that time and, because of  
14 those learnings, and because of understanding both regulation and  
15 NUREG-1021, clearly, this process is robust, it's stable, it's thorough  
16 and it ensures that only the most qualified operators to staff our control  
17 rooms.

18 As Mr. Pfeiffer and Mr. Austin said, you know, the goal  
19 here is to protect the health and safety of the public. We, on the  
20 industry side, do not want to do anything to diminish that by potentially  
21 putting somebody in our control room that doesn't belong there.

22 So, to that, I applaud the process.

23 Nevertheless, we are facing some unprecedented  
24 changes in NUREG-1021 Rev. 11. That version of the NUREG, and  
25 from me, I started with Rev. 6 back in 1988, so it's come along and

1 grown in thickness over time, addresses a lot of things that needed to  
2 be taken care of that I'll outline here in just a moment.

3 But, I'm going to focus on two items that are important  
4 to the industry that we believe we ought to take another look at.

5 The changes to the waiver process and the changes to  
6 the appeals processes are absolutely necessary. They're thorough,  
7 they're very well done. And, again, I applaud the staff for those  
8 changes.

9 Next slide, please? Regarding simulator grading  
10 changes, I'm sure you're aware of Atomic Safety and Licensing Board  
11 decision that happened in 2014 that directed the staff to award a license  
12 to a candidate of Vogtle.

13 I speak for the industry in saying we hope that never  
14 has to happen again. Not because it wasn't the right decision, it  
15 clearly was, we shouldn't be putting the ASLB in that position.

16 Our examiners have all the tools necessary to make  
17 those decision, we believe, and we shouldn't put the candidates  
18 through that kind of stress.

19 That particular candidate went through about three  
20 years of examinations, appeals, re-examinations. I'm sure some  
21 embarrassment and some stress dealing with that whole process.

22 To that end, again, the changes made in NUREG-1021  
23 Rev. 11 to address both appeals and waivers should address that and  
24 that's a good thing. Very happy for that.

25 Finally, I don't think we should have to rely on the

1 Atomic Safety and Licensing Board to make a licensing decision.  
2 That=s what the staff=s for and the examiners are for and they do a  
3 good job of it.

4 In contrast, the simulator grading process in NUREG-  
5 1021, as Mr. Pfeiffer outlined, is being changed and, I quote, to more  
6 accurately reflect candidate performance.@ That quote came from a  
7 staff member at one of our public meetings.

8 There=s no other change to the grading process that=s  
9 occurring as a part of NUREG-1021. So, if you have a grading scale  
10 that=s 1 to 3 currently, and it=s being shifted to 0 to 3, so the -- you=re  
11 kind of shifting to the left without changing the pass/fail point, it appears,  
12 and it=s somewhat yet to be proven, but, it appears that you=re biasing  
13 the scale toward failure.

14 So, if you only shift one side of it and don=t shift the  
15 pass/fail point, you would anticipate that more failures would occur.

16 To that end, and I know this will be disputed in multiple  
17 public meetings, we=ve talked about anywhere from two to ten percent  
18 more failures when you apply the new criteria over past examinations.

19 And, it depends on the examination set and the data  
20 set. And, again, I expect the staff will clarify that for you.

21 But, any amount of failure should be unacceptable if  
22 the process is robust and has been in place and has been thorough for  
23 such a long time and is deemed such by both the Atomic Safety and  
24 Licensing Board and others.

25 The changes are a result of a Lessons-Learned



1 Review Team and an Operator Lessons Improvement Team that took  
2 the Atomic Safety and Licensing Board findings and made an attempt  
3 to try to improve the process.

4 Certainly understand the need and the goal. We just  
5 don't understand what the purposes of expanding that grading scale  
6 without also changing the pass/fail point and being sensitive to biasing  
7 toward more failures.

8 When I quoted the two to ten percent change in  
9 failures, one of the questions my group asked at a public meeting is, do  
10 we think that two to ten percent of our newly licensed operators  
11 shouldn't be in our control rooms? Of course, the answer is no.

12 But, then, if those numbers are even remotely  
13 accurate, why are the changes necessary?

14 Next slide? In the Atomic Safety and Licensing Board  
15 proceedings, the staff made a quote, and I'd like to read it, it's pretty  
16 impactful.

17 Had the staff conducted its administrative review of the  
18 grading of the simulator portion of the candidate's 2012 SRO exam in  
19 accordance with its guidance and in a fair and evenhanded manner, the  
20 candidate would have had passed the 2012 exam.

21 That's pretty powerful. What that tells the industry is  
22 that the Board recognized the process is, in fact, robust. It's stable, it  
23 works. It's not perfect. There is some subjectivity that's built into to  
24 it to allow the examiners to make some decisions as they're watching  
25 a candidate's performance. We believe that's a good thing.

1                   And, you know, contrary to that, some of the changes,  
2 while taking away the subjectivity may not allow some of the flexibility  
3 for the examiners to make some of those decisions.

4                   It=s a very dynamic process, as you can imagine. So,  
5 an examiner needs to have the ability to work on the fly, if you will, to  
6 address candidate performance.

7                   Next slide, please? The Lessons-Learned Review  
8 Team also quoted something that we thought was pretty important.  
9 And, I=m not going to read the entire quote that=s on the screen, but,  
10 as you can see, basically, they said we believe the process works.  
11 None of our recommendations require urgent change at this time.

12                   So, if the real issues of the candidate at Vogtle had to  
13 do, perhaps, with examiner performance, and they had to do with,  
14 arguably, following or not follow the process.

15                   And, you have all of these internal groups saying the  
16 process works. Then, why is it that the only aspect of the process  
17 we=re changing is simulator grading? Begs to ask the question, and  
18 that=s one of my points today.

19                   I=d like to shift gears at this point and move on to the  
20 Generic Fundamentals Examination. The Generic Fundamentals  
21 Examination=s been in place for many years.

22                   For the last several, it=s been a 50-question  
23 examination. It=s kind of a precursor to go/no go, if you will, to  
24 proceeding in the program.

25                   It=s offered four times a year, in March, June,

1 September and December.

2                   The exam itself is not directly required as a standalone  
3 exam in 10 CFR 55, it=s actually a component of NUREG-1021.

4                   It, for us, anchors the start of the rest of our 18-month  
5 programs. So, if that program or if that examination is offered four  
6 times a year, you can imagine at the end of -- 18 months later, we=re  
7 doing examinations -- final examinations four times a year.

8                   And, of course, rely on NRC resources, staff resources  
9 to do those examinations.

10                   It was announced in February of this year that, as part  
11 of Project Aim, we were going to reduce the number of examinations  
12 down to two per calendar year, with the June and December  
13 examinations being eliminated.

14                   One of the questions my group asked is, do we  
15 recognize the challenges to resources to the NRC staff in now  
16 conducting examinations only twice a year, essentially bottling up the  
17 final examinations 18 months later to only two times a year instead of  
18 four like they used to be.

19                   And, to my -- the best of my knowledge, that still hasn=t  
20 been worked out yet.

21                   What we want to move to as an industry, and the  
22 industry wants to take this over if we can, we want to be able to have  
23 an on-demand examination process.

24                   There=s a system, for example, called NANTeL that  
25 the industry uses to do everything from general employee training, RAD

1 worker training and a number of other courses through on-demand  
2 secure examination processes that we could easily move this process  
3 to.

4 And, we're ready to do that as early as 2018 and save  
5 the Commission millions of dollars in contractor costs for the generated  
6 exams that we do now. We think we can get there.

7 And, earlier this year, I was asked if the industry would  
8 be interested in writing two of the exams that are being eliminated.  
9 And, frankly, we said, no, not without some changes to the process.  
10 We're not interested in assuming NRC cost or burden.

11 Our chief nuclear officers agree with us and so,  
12 therefore, we're at a bit of an impasse right now.

13 So, in closing, we feel that the urgency to get NUREG-  
14 1021 published is a bit unfounded. We think that it should either be  
15 delayed so that we can work out the details of simulator grading and  
16 Generic Fundamentals Examinations.

17 Or, at least publish the rest of it with those two pieces  
18 out and let's work on a quick revision to it that'll get those pieces  
19 figured out and resolved to the benefit of, not just the industry, but to  
20 the staff and their needs and also to our candidates to ensure that they  
21 continue to get a fair, challenging, stable, thorough examination that  
22 doesn't waiver them.

23 Again, protecting the health and the safety of the public  
24 is what's most important here.

25 And, while I've talked about two significant challenges

1 the industry is pushing back on, again, I don't want to lose sight of the  
2 fact that, without the dedication of the NRC staff members behind us  
3 that we all work with every day, this process wouldn't work.

4 I can go to bed at night and I can tell my neighbors  
5 every day that, you can rest easy because we have safe folks in our  
6 control rooms because of what they do every day.

7 Thank you, Mr. Chairman.

8 CHAIRMAN BURNS: Okay, thank you. Thank you  
9 for the presentations. We'll start the questions this morning with  
10 Commissioner Baran.

11 COMMISSIONER BARAN: Thank you all for being  
12 here and for your presentations.

13 I want to start by asking about the NRC staff's informal  
14 review of the denial of reactor operating licenses. It's basically an  
15 informal appeals process.

16 Last year, when the staff proposed eliminating this  
17 process as part of Project Aim, I was worried that it raised fairness  
18 concerns. And, I thought it would increase the number of formal  
19 adjudications going to the Licensing Board which would probably erase  
20 any savings we would get from the change.

21 Ultimately, the Commission approved eliminating this  
22 informal review, but the staff is now looking at postponing the  
23 elimination for 18 months.

24 And, so, I wanted to get the panel's thoughts on this  
25 informal appear review process. Is it valuable? Has it helped resolve

1 complaints informally? If NRC gets rid of the process, what do you  
2 think the impacts would be?

3 MR. LUDLAM: Yes, Mr. Baran, I'll take that question.

4 We -- my focus group actually was pushing back a little  
5 bit on that elimination. We see it as a bit of a backstop to the regions  
6 in making some of the decisions.

7 We asked for some data, and if I have the data right,  
8 over the last two years, approximately 60 percent of the informal  
9 appeals are overturned by the staff here at Headquarters.

10 So, the process does work as a way to check the  
11 results as a result of checking the results of the region and giving the  
12 candidate another opportunity before elevating or going anywhere else.

13 So, if 60 percent of the decision made by the region  
14 are, in fact, overturned, it tells me that the process works.

15 We've asked for it to remain. In fact, instead of  
16 making it informal, make it formal in part of 1021.

17 There are aspects of it that will still happen, but the  
18 wording is not exactly the way that the informal process happens today.

19 COMMISSIONER BARAN: So, you're supportive of delaying this for  
20 18 months or making it maybe just keep it all together --

21 MR. LUDLAM: Exactly.

22 COMMISSIONER BARAN: -- permanently?

23 Do others have thoughts on this?

24 MR. AUSTIN: We're aligned with Gregg.

25 COMMISSIONER BARAN: Okay.

1 Casey, any --

2 MR. PFEIFFER: I'm aligned with Gregg.

3 COMMISSIONER BARAN: Okay, well, that's easy  
4 on that one.

5 Let's turn to the Generic Fundamentals written exams.  
6 Last year, the Commission approved the staff's proposal to reduce the  
7 frequency of NRC administered exams from four per year to two per  
8 year.

9 And, as you mentioned, there's been some talk that  
10 the industry may develop and administer two exams each year to offset  
11 that reduction.

12 Mr. Ludlam, in your presentation, you kind of laid out  
13 three preferred options for how to proceed on this. And, I'll  
14 paraphrase these and if I get it wrong, you can tell me.

15 But, option one, the industry develops and administers  
16 two exams per year, but with no new or modified exam questions?

17 MR. LUDLAM: Correct.

18 COMMISSIONER BARAN: Option two, eliminate the  
19 exam all together.

20 Or, option three, NRC makes these exams available  
21 on-demand.

22 And, so, I wanted to explore, you know, each of those  
23 with you and the rest of the panel.

24 If industry did end up developing two exams per year,  
25 isn't there a value in having some questions that are new, or original

1 rather than drawing exclusively from a pool of recycled questions?

2 MR. LUDLAM: Yes, Mr. Baran, the banks that we use  
3 are approximately 2,000 questions for pressurized water reactors and  
4 about 2,000 questions for boiling water reactors. They're actually  
5 bigger than that, but, as time has progressed, we've kind of culled the  
6 bank down to usable questions over the last few years.

7 Frankly, if I can put an operator in my control room that  
8 can memorize those banks for this go/no go question for this test, that  
9 might be an okay thing anyway.

10 But, at this point, the banks, we believe, are big enough  
11 from a psychometric educational standpoint that they don't need to be  
12 added to for modified or for new questions.

13 If we could get to pass that point, again, in agreement  
14 that the banks are large enough, and we understand that's a major  
15 point of contention right now, we'd have the ability to do on-demand  
16 examinations much more easily than having to add questions to the  
17 bank and then push the button to get the exam. It's a time and  
18 efficiency issue.

19 I understand, and I don't know the exact numbers, but  
20 the contractor costs for developing the exams for the staff are in the  
21 millions of dollars. We'll eliminate that for you. You know, we'll do  
22 it our way by using the bank and known exam software and making  
23 them on-demand. So, it's kind of an option 3B, if you will, in your three  
24 choices you gave us.

25 Yes, we could write the two exams now with no



1 changes, but basically, we feel that=s transferring some inefficiencies  
2 and costs and burden over to the industry that the NRC had.

3 Why not take the opportunity to change the process  
4 now, make it more efficient, without diminishing its importance and  
5 allowing us to have our classes start whenever we want?

6 COMMISSIONER BARAN: And, can you talk a little  
7 bit more about what you=re envisioning for on-demand. Is that like  
8 online testing? What does that look like from your program?

9 MR. LUDLAM: I=ll use the example of NANTeL,  
10 which I referenced in my presentation.

11 So, NANTeL was a software suite maintained by INPO  
12 and there=s many other different ways to do this, but I=ll just use this  
13 one as an example, where certified proctors log into the examination,  
14 request the examination and then administer it to a student.

15 It=s done electronically on television monitors, as you  
16 would imagine. It=s graded electronically within the software suite.  
17 It=s very controlled, very secure.

18 So, a student sits down, say, self-studies Generic  
19 Fundamentals for three or four weeks, feels he=s ready. Goes to a  
20 proctor, asks for the examination, it=s created in that moment. He  
21 takes it and that go/no go check to start license class is now done.  
22 And, he=s ready to sit and waiting for the start of the class whenever  
23 that might be.

24 The way we do it today is, we teach anywhere from six  
25 to ten weeks to sometimes more of Generic Fundamentals to a class,

1 the standard stand and deliver kind of teaching.

2 At the end of that, we do a number of practice exams  
3 and then the final NRC examination. And, that is the go/no go point to  
4 proceed in license class.

5 We can compress that time frame quite a bit if we had  
6 this ability.

7 COMMISSIONER BARAN: But, from your point of  
8 view, your sense is that the requirement to have new or modified  
9 questions makes that harder to move to that framework?

10 MR. LUDLAM: Right, it makes it a little more difficult  
11 to do it. It makes more time consuming. It takes, you know, an  
12 individual to sit down and create those five new questions.

13 There=s estimates that that=s anywhere from 20 to 30  
14 hours of development time to do it, about 10 to 20 hours to modify  
15 questions for a 50-question exam. And, then, to validate it and make  
16 sure it works.

17 In an electronic on-demand style format, the tiering of  
18 what question requirements are required is built into the software. The  
19 software picks those questions, generates the examination and the  
20 candidate takes it. Very quick, very on-demand.

21 Should we look at, over time, perhaps going back in  
22 and adding questions? Maybe, but, honestly, it=s Generic  
23 Fundamentals, it=s reactor theory, it=s heat transfer, it=s fluid flow.  
24 Those topics don=t change, you know, the science doesn=t change,  
25 they are what they are.

1                   And, again, one of our other points that, perhaps, this  
2 is the time where we agree, we've got a bank as big as we need it,  
3 let's move on.

4                   COMMISSIONER BARAN: And, then, so, we kind of  
5 covered two of the options.

6                   The third option which, I'll admit, sounded kind of  
7 drastic to me, which is, get rid of the exam all together.

8                   MR. LUDLAM: Yes, let --

9                   COMMISSIONER BARAN: Is your sense really that  
10 we don't need to have a written exam on nuclear fundamentals for  
11 reactor operators?

12                  MR. LUDLAM: Not exactly, 10 CFR 55.41 has a  
13 number of topics that are required to be tested. And, those include  
14 reactor theory, heat transfer, fluid flow components and all those sort of  
15 things.

16                  They could be part of the actual reactor operator,  
17 senior reactor operator examination, the final examination, sampled like  
18 everything else that's sampled for a topic.

19                  Right now, the Generic Fundamentals exam is a  
20 standalone exam basically over samples those items in 10 CFR 55.41.  
21 Is that necessary? Maybe, maybe not.

22                  From an educational psychometric standpoint, it feels  
23 like not. But, that exam's been in place since 1989, I believe. When  
24 I went to license class, I took it for the first time.

25                  And, you know, it does serve a purpose, right? It

1 serves a foundational purpose and we understand that.

2 I don't expect that elimination of the exam is a viable  
3 option. But, knowing that it's not a regulatorily required standalone  
4 exam by itself, you don't get what you don't ask for.

5 COMMISSIONER BARAN: Other thoughts on Mr.  
6 Ludlam's comments or those three options?

7 MR. PFEIFFER: I like the NANTeL, the on-demand.  
8 I think it opens up, you know, better start times and start for a license  
9 class which could spread out the final licensing exams for -- so, NRC  
10 staff has more spread out exams.

11 You know, we're still four times a year, you know,  
12 rotating around if you had an on-demand where you could do it any  
13 month, you could spread out the licensing, final licensing exam to any  
14 month and rotate your classes around that.

15 You know, the NANTeL, we take like -- say, we take  
16 our radiation protection training or plant access or other training on that,  
17 and, like I said, it's simply, you study the material, get a proctor and,  
18 you know, the bank, whatever bank you're -- whatever test you're  
19 taking, it pulls up a bank of questions and you perform the test and it  
20 grades it right there on the spot.

21 MR. AUSTIN: I believe in the initial license class part,  
22 fundamentals are covered every day. When you're operating the  
23 plant and you trip the reactor, you model this, you model that. You  
24 have to cover those pieces.

25 So, at a higher level than just a GFES, it's covered and

1 recovered all the way through systems classes, all the way in the  
2 simulator training, all in the plant walk downs to understand any  
3 reactivity changes, understand thermodynamics, understand heat  
4 exchanger performance. Those things are constantly covered and  
5 recovered.

6 And, then, also, in the requalification process, too,  
7 fundamentals come right back into that, too, and are covered  
8 consistently all the way through the initial program and then also forever  
9 in the requal program.

10 COMMISSIONER BARAN: Since it comes right at the  
11 beginning of the process or near the beginning of the process, does it  
12 help as a screening mechanism for you at all or not really?

13 MR. AUSTIN: Oh, absolutely.

14 COMMISSIONER BARAN: Yes.

15 MR. AUSTIN: Oh, yes, it=s a go/no -- like I said, it=s  
16 a go/no go process. If you don=t pass that portion.

17 MR. LUDLAM: Many stations, bargaining unit  
18 agreements for Union operators, for example, state, if you don=t pass  
19 that examination, you stop.

20 MR. AUSTIN: That=s how it is at TVA.

21 COMMISSIONER BARAN: Okay, great, thank you  
22 very much. Did you have anything to add?

23 MR. PFEIFFER: No, we -- I mean, we look at the  
24 effectiveness of the end product. The beginning part, I mean, we  
25 obviously recognize NANTeL as a viable mechanism to conduct secure

1 exams.

2 Fundamentals is a necessary part, and so, I don't think  
3 the industry's talking about elimination. Fundamentals, it's really just  
4 how it's covered.

5 I go back to when I was licensed in the early '80s. It  
6 was part of my original license exam. So, I was a pre-GFEs license  
7 person. It was still a very critical part.

8 And, we see fundamentals as being very critical to  
9 being maintained throughout.

10 COMMISSIONER BARAN: Okay, thank you.

11 Thanks.

12 CHAIRMAN BURNS: Thanks, Commissioner.

13 Commissioner Baran covered, I think, particularly this  
14 issue on the GRE issues I was interested in, so I appreciate that and I  
15 appreciate the discussion on that.

16 I want to start my questions, I think, with you, Mr.  
17 Shoemaker, and, I'm interested in this initiative you talked about from  
18 the INPO in the industry with respect to focusing on operator  
19 fundamentals.

20 And, you know, I know in your last slide, you mentioned  
21 the issue of cyclic performance. And, I realize it may be a little too  
22 early to -- I'm not asking for any, you know, final judgment or whatever,  
23 but are there sort of thoughts or issues sort of looking at -- the group is  
24 looking at with respect to that? With respect to operator performance  
25 with you think are work diving into through this review to get at this issue

1 of cyclic performance?

2 MR. SHOEMAKER: One of our early targets is really  
3 looking at the effectiveness of simulator training.

4 CHAIRMAN BURNS: Okay.

5 MR. SHOEMAKER: And, you know, we've changed  
6 over the last five years from more of a true performance observation  
7 one hour scenario or multiple crews to more of a crew performance  
8 observation and effectively an exam and a much more extended period.

9 We're not quite sure of the effect that that's had  
10 relative to reinforcing and continuing to reinforce fundamentals.

11 We're also -- so, the simulator is one of our first initial  
12 points --

13 CHAIRMAN BURNS: Okay.

14 MR. SHOEMAKER: -- of looking at, do we need to  
15 look differently at how we're driving the industry to conduct our training,  
16 conduct our evaluations and then our coming in and looking at that.  
17 We want to make sure that we're effectively maintaining that properly.

18 And, then, just looking at the, what's the real time  
19 evaluation of application of -- get back to the fundamentals question of  
20 the fundamentals on a day to day basis.

21 As several of the panel have mentioned, fundamentals  
22 are not just at the beginning and it goes away.

23 CHAIRMAN BURNS: Right.

24 MR. SHOEMAKER: It's pretty consistent. But, we  
25 have to apply it and that engaged thinking operator is an important part

1 of the aspect of their job. We want to make sure we're not slipping  
2 there.

3 And, the performance we've seen, it's kind of it's  
4 cyclic around what I would say is a plateau. And, INPO is consistently  
5 working at let's continue to raise the bar. And, you know, excellence  
6 is a journey, not a destination.

7 So, we're just looking at what it's going to take to step  
8 that up to improve performance. We have actually seen three, four or  
9 five significant events that operators have either contributed to or  
10 caused that get our attention. And, our long-term goal is to get those  
11 significant events down.

12 So, we see this as ripe territory, but it's going to take,  
13 again, the collective knowledge of the industry to figure out what to do  
14 there.

15 Training is a piece of that, but it's really the  
16 performance piece in the control room that we're looking at. So,  
17 we're looking at changes in what the operations evaluator looks at,  
18 changes to what the training evaluator looks at.

19 And, it is truly too early to tell what we might do, but  
20 it's going to be a tweak in there.

21 CHAIRMAN BURNS: Okay. Any other of you --

22 MR. PFEIFFER: I would say that, you know, and just  
23 jump on with everyone else, you know, operator fundamentals is  
24 something that's every day in the control room.

25 You know, I work in the control unit supervisor and



1 we=re talking about operator fundamentals. We=re talking about, you  
2 know, every job that goes out, pre-job brief, we=re talking, you know,  
3 what are we looking at and what are we going to do?

4 We don=t see the expected response when we=re  
5 performing plant manipulations, what we=re going to do if that=s all tied  
6 in with operator fundamentals.

7 One of the, you know, I think we kind of talked about  
8 and the last time I was here for the Fukushima meeting was, one of the  
9 concerns that I have with some of the Beyond Design Basis. And,  
10 sometimes, we see these cyclic, you know, operator fundamental  
11 issues is at some of our training, we only have a certain amount of time  
12 for a requalification training.

13 And, so, if you=re -- we are adding in training for  
14 Beyond Design Basis, adding training for, you know, lessons learned,  
15 adding training for admin topics, you know, the training the operator  
16 fundamentals and retraining or going over the systems to see, you  
17 know, what I need to -- you know, I don=t use a system every day, so,  
18 I may have to get some, you know, requalification on it or looking at it  
19 again so I, oh, yes, bring up some points that I knew about, but, you  
20 know, need to refresh.

21 And, sometimes, some of these cyclic events, some of  
22 these significant events are, you know, really stuff that is, you know, low  
23 accident risk, low, you know, low level stuff that turns into a significant  
24 event.

25 And, part of it=s because, you know, we sometimes

1 focus so much in training on the Beyond Design Basis accidents, the  
2 Fukushima stuff, the stuff that came from Fukushima and we don=t  
3 practice on the bare bone fundamentals that we maybe should have.  
4 We had to take away some of the time. So, what I=d have to add.

5 CHAIRMAN BURNS: Okay.

6 MR. LUDLAM: And, Mr. Chairman, we don=t think  
7 instructors are without some attention here, too. Until recently, there  
8 was not a standard industry-wide course for new simulator instructors.  
9 And, that=s a very unique position in our organizations.

10 INPO helped us get that off the ground. We=ve run a  
11 year worth of those classes. They focus very much on reinforcing  
12 fundamentals, getting into the whys, why an operator does what they  
13 may do, do what they do, in error sometimes, and getting at the root of  
14 those behaviors and correcting them. So, we hope to see some  
15 traction from that as well. It=s a little early yet, though.

16 CHAIRMAN BURNS: Okay. And, actually, what you  
17 said, Mr. Ludlam, it sort of touches on the next question, I think, has a  
18 relation to my next question which it really is I think couple, and, I know  
19 Casey and I think at least one other of you talked about this correction  
20 of knowledge transfer, sort of knowledge management which, I know, I  
21 think for all of us, and it crosses disciplines, not only in this industry.

22 As I say, my colleagues, when I was -- my colleague=s  
23 predecessor, he had -- there was a big concern for me and so our legal  
24 department, in terms of understanding regulation, understanding, you  
25 know, the roots of the, you know, nuclear law and things like that, and,

1 obviously, in the technical areas.

2                   So, what do you see, Casey, you touched on this, what  
3 do you see are practices or what do you see -- or any of you -- what --  
4 is ways we can address that sort of knowledge, transfer knowledge  
5 management issue?

6                   Because I think you=re both -- I think -- or, you touch  
7 on in your last answer, you know --

8                   MR. PFEIFFER: I would say that operator, you know  
9 OE, operator experience that INPO bank that we have, that we have to  
10 go back on.

11                   And, you know, in training, we talk about, you know,  
12 OE, we talk about SOERs and, I guess they=ve been changed to  
13 something, IERs now. We always talk about them.

14                   So, we are aware of the -- what happened on these  
15 significant events. And, you know, they=re very good at, you know,  
16 what, you know, what distractors and what causes went into these  
17 events.

18                   So, we are looking at those in requalification training  
19 and on shifts to make sure that we, as operators, are getting the lessons  
20 learned across the industry from these events.

21                   MR. AUSTIN: We set up early on in our license  
22 operator=s career, when he first starts, we give a mentor right out of the  
23 chute. This is what you can expect in license classes.

24                   And, then, also, during that class, they have mentors  
25 and they have class leads, but also have experience. Some of the

1 guys we=re getting upgraded SRO, the ROs can share that experience.

2 We actually track the percentage of people who=ve  
3 been in the control room for a while who come through license class to  
4 make sure we have a good mix of folks who=ve been through license  
5 training and also requal.

6 Also, and, we also make -- every class has a class  
7 sponsor that interacts with those students to make sure, along the path,  
8 they=re there. And, they get into the requal program, they also have  
9 the similar thing, shift manager, and they also have a mentor that helps  
10 keep that transfer of knowledge.

11 And, then, for some key positions and some units, has  
12 a knowledge transfer retention program that these folks have unique  
13 skills, fire protection individuals, those kind of folks, very unique skill  
14 sets. We make sure we get that knowledge transfer retention done for  
15 some of those key positions across the station.

16 MR. LUDLAM: And, Mr. Chairman, I=d also -- I=d  
17 agree with everything Casey and John said.

18 Also, you know, as we mature over the years, the  
19 quality of our training materials gets better. The quality of our plant  
20 operating procedures gets better.

21 Those things contribute to knowledge transfer  
22 indirectly, but, they=re key components of it as well.

23 So, you know, the maturity and experience level of our  
24 operators changes, is changing now over time. Most folks don=t  
25 spend the 15-plus years in the control room, they=re moving off to

1 engineering, they=re moving off to maintenance.

2 CHAIRMAN BURNS: Okay.

3 MR. LUDLAM: The side benefit of that is spreading  
4 operations experience and operational focus around the rest of the  
5 organization. That helps us as well.

6 So, while you may not have that career senior reactor  
7 operator with 15-plus years in the control room, you have them all over  
8 your organization and, indirectly, that helps us as well.

9 CHAIRMAN BURNS: Yes.

10 MR. AUSTIN: We=ve all had the vision of being a new  
11 plant. We don=t have qualified operators who=ve operated AP1000  
12 plants for years and years and years.

13 So, as part of our vision going forward is to make sure  
14 we have enough extra operators when we go through the program is  
15 that we do pepper the rest of the organization with operations  
16 experience.

17 And, also, providing management certifications, too, for  
18 key leadership positions to share that knowledge of operations and that  
19 adherence to ops-led organization.

20 CHAIRMAN BURNS: Okay, great.

21 Well, thank you for the discussion.

22 Commissioner Svinicki?

23 COMMISSIONER SVINICKI: Thank you, Mr.  
24 Chairman.

25 Good morning and welcome to each of you. Some of

1 you are return presenters. Mr. Pfeiffer, I'm beginning to think you're  
2 going to be president for life of the Professional Reactor Operator  
3 Society.

4 (LAUGHTER)

5 COMMISSIONER SVINICKI: But, thank you for your  
6 continued willingness to lead that organization.

7 As you mentioned, it's not particularly a large  
8 organization in terms of numbers. But, that's more a reflection of the  
9 fact that it's a very elite class of individuals in America that are licensed  
10 reactor operators.

11 So, I do appreciate your presentation here today.

12 And, Mr. Ludlam, you mentioned that this was a career  
13 aspiration to present before the Commission. But, since the Chairman  
14 was just asking all of you about knowledge management and  
15 retirement, I hope this doesn't mean that you're going to retire now  
16 that you've achieved this capstone goal of appearing before our  
17 Commission.

18 We do have an agency photographer that is  
19 memorializing this day for you. So, hopefully, we'll be able to share  
20 some of that with you. There's lots of pictures of this side of the table.  
21 I hope we're getting some of our presenters.

22 But, in all seriousness, thank you for coming here  
23 today.

24 It's the nature of these things that we call a meeting  
25 and we spend our time talking about those areas about which maybe

1 there=s some differing views or some disagreement.

2 I think each of you has acknowledged the fact that, as  
3 a part of the operator licensing lessons learned review and this pending  
4 Revision 11 to the NUREG, that there are elements that there is  
5 agreement that they are beneficial changes.

6 But, of course, we=re not talking about those here  
7 today. So, I think to people who haven=t been as involved, it might  
8 look like there=s just a hotbed of controversy about the entire Rev. But  
9 I -- so, I appreciate, I=m grateful that each of you has at least clarified  
10 that there is a host of other items that we=re not talking about here  
11 today.

12 But, let me now fall into that same syndrome of talking  
13 about the things that we=re talking about here today as opposed to all  
14 the good work that=s been done in development of the proposed  
15 revision.

16 I=ll just dive into some particulars here. I=ll return to  
17 Commissioner Baran=s questioning. He mentioned the fact that, as a  
18 part of a body of 150 items, and I offer that a little bit in my own defense  
19 here, under Project Aim that the Commission did approve elimination of  
20 the informal appeals process.

21 Let me be clear, that if I were voting right now here at  
22 this table, I=d commend Commissioner Baran for pointing out some  
23 potential outgrowths of the elimination of that, that perhaps it is a false  
24 economy that you would then, in a formal process, have to pay the costs  
25 of eliminating your informal review process.

1                   So, if I were looking at it today and he brought it to the  
2 Commission=s attention, again, I offer in my defense that we had an  
3 awful lot of Project Aim proposed items that the Commission was  
4 considering at the same time.

5                   In that case, you=re not going to do as much due  
6 diligence on each of those items.

7                   But, I would reverse my support for the elimination of  
8 that more informal appeals process if that matter were before me today.

9                   We will issue a Staff Requirements Memorandum as a  
10 result of this meeting, which issues direction. So, if provided an  
11 opportunity there to offer the NRC staff relief on that Commission  
12 decision, I would do so.

13                   Similarly, I now look at the reduction in the frequency  
14 of the GFE and I think this is actually a beneficial part of being learning  
15 organizations. And part of our nuclear culture is, that as we examine  
16 and get more information, we go back and look at changes that we  
17 contemplated.

18                   Interesting parallel, as I sat here today, was thinking  
19 about a very similar meeting that this Commission conducted on a set  
20 of proposed ideas and changes that the Office of Chief Financial Officer  
21 had for NRC=s fee setting process.

22                   And, we had a great team of not only CFO staff, but  
23 other staff across the NRC that looked at our -- the way we set fees.

24                   As is well known, under law, the NRC must recover 90  
25 percent of its budget from the entities that it regulates. We attempt to



1 do that with fairness and transparency. But, we can always perfect  
2 these processes.

3 So, we had a meeting. We had a panel of folks from  
4 the outside of NRC, much as yourselves. We had a second panel of  
5 NRC staff.

6 And, at the end of the day, with the exception of one  
7 narrowed modification to a broader proposal from the staff, the  
8 Commission, you know, did not find that the pursuit of some of the  
9 broader changes was ultimately likely to be fruitful and worth --

10 We have a long time NRC staff member, Marc Dapas,  
11 who recently took a position back here as the Director of the Office of  
12 Nuclear Material Safety and Safeguards.

13 He=s got this saying with Commissioner Baran and I  
14 found rather infectious and I was just about to say it again. But, he  
15 says, is the juice worth the squeeze? That=s often his.

16 So, this is -- I actually don=t like this saying, but  
17 something about it has just gotten on a do loop in my brain.

18 But, I think with some of the changes to the fee setting  
19 process, the Commission could not agree that the juice was likely to be  
20 worth the squeeze.

21 And, it was going to take significant development to  
22 come up with those changes.

23 So, I think that there are instances where we can make  
24 changes. There is a case to be made that there possibly meritorious  
25 changes. There=s a lot of good intention and hard work by the people

1 who come up with the changes.

2 Which, I went back and tried to assure OCFO, you  
3 know, they did really good work there. But, you don=t always get your  
4 proposed change. We don=t have to make every change that we  
5 could possibly make.

6 So, you know, I=d like to consider that my willingness  
7 to re-look at these two areas, the informal appeals process and the  
8 reduction in the GFE frequency have some similar chance that,  
9 ultimately, there=s a bit of a false economy in it on the GFE.

10 And, Commissioner Baran did such a thoughtful  
11 exploration of the potential changes you could make, the pluses and  
12 minuses, and his engagement with the panel when he did his question  
13 and answer period, that I think it=s worth stepping back and looking at  
14 that as well.

15 It=s interesting on the elimination of the informal  
16 appeals process, the NRC staff presented inside the building to  
17 Commission staff about these contemplated changes. And, they said,  
18 we=d postpone that for 18 months.

19 But, when it comes to the GFE frequency, well, that  
20 change is agreed to, so, we just want to honor that Project Aim  
21 commitment.

22 So, on the one hand, we=re willing to re-look at things  
23 and be flexible. And, on the other hand, we=re not.

24 Given that the cost of things with our fee recovery is  
25 ultimately paid by somebody. I know that when NRC looks within the

1 four corners of its own budget, it often finds things that appear to be  
2 cost-effective. But, because we bill others for the work we do to 90  
3 percent degree, it=s really just a cost shifting.

4 And, I think, often, NRC=s execution of a piece of work  
5 can be more efficient because of our role. Our role is different. So,  
6 sometimes, we can do things under one contract across the country  
7 that=s more cost-efficient.

8 So, I think that this is very useful to step back and look  
9 at this. And, I think much as the staff is contemplating changes for the  
10 reactor oversight process and we=re in a continuous learning process  
11 and evaluation there, there have been instances where the Commission  
12 has calibrated and said, you know, I think that=s not just a process  
13 change, I think the Commission itself ought to look at that change.

14 I think that us, as a Commission, examining some of  
15 these changes to a NUREG, while it might appear invasive to the staff  
16 or look extraordinary, it=s really not. Because, we bring a different  
17 perspective.

18 We=re looking sometimes at a higher level about the  
19 juice being worth the squeeze on some of these proposed changes.

20 So, I think your input is very valuable. At a minimum,  
21 we need to keep an iteration where we go back and re-look at changes  
22 we=ve made.

23 Mr. Ludlam, you quoted from the cover level, a cover  
24 memo of the staff=s Lessons-Learned Review Team. And, you said,  
25 they won=t read it because it=s kind of long.

1                   But, I will read this one sentence of it. This was the  
2 NRC staff -- this is from the review team that looked at operator  
3 licensing.

4                   They said, the team concluded that the license  
5 operator examination process is an extremely high quality process.

6                   Now, knowing NRC, I have to tell you that we look at  
7 things that are pretty good and often call them adequate. We call them  
8 sufficient.

9                   We don't toss around phraseology like extremely high  
10 quality. That is a level of effervescence of NRC staff that is not typical  
11 around here.

12                  So, I think we are looking at changes that are possible,  
13 maybe not necessary.

14                  The other thing that I think in March it'll be six years  
15 since the accident at Fukushima. We've been in a very dynamic  
16 period on the safety side of our regulatory paradigm.

17                  So, something maybe that hasn't been as big a part of  
18 our dialogue for the last few years as it was prior is cumulative effect  
19 and cumulative impact of regulatory changes.

20                  We've had another plant that announced a premature  
21 closure last week because of a number of factors, not all of which are  
22 regulatory.

23                  But, we used to look at regulatory impact and  
24 regulatory effect, cumulative effect, of a set of changes where, at some  
25 point, the cumulative effect of that is significant on a regulated

1 community.

2                   The scoring or grading process, that=s one where,  
3 again, and I should have begun with that, in my time here at NRC, I  
4 formed a view that, our mission is very important, but there=s a handful  
5 of things we do that have such a direct impact on public health and  
6 safety.

7                   And, chief among them is operator licensing. And, our  
8 Commission, we travel around the world. We talk to a lot of our  
9 counterparts. They don=t license operators in their countries and we  
10 do.

11                   So, sometimes, I have to offer a defense of why this is  
12 part of the U.S. system and why it=s so important.

13                   But, because of that, I think your approach changes with  
14 care and caution. If there wasn=t a case where it was worthwhile to  
15 maybe say, I=m not going to implement a change to the grading system.  
16 What I=m going to do is for 12 months, 18 months or 24 months, pick  
17 your time period, I=m going to look at a study of -- I=m not going to  
18 implement a new grading system, but I am going to say what would be  
19 the effect of this new grading system? And, then, make an informed  
20 view.

21                   You know, the benefit of the grading system we have,  
22 and I=m not trying to sound like I=m against all improvement, but you  
23 do have something in this industry called operating experience and  
24 runtime. We know what the grading system we have now yields. We  
25 know that we have very highly skilled and qualified operators in this

1 country.

2 I would approach any change to that grading system  
3 with a lot of caution and maybe do some sort of pilot where I knew what  
4 would be the effect. I was kind of capturing that.

5 I think -- I know we looked retrospectively, I think that=s  
6 hard to do for the purposes that Mr. Austin mentioned.

7 So, I think I want to close with one other thought which  
8 is, we didn=t spend a lot of time on AP1000. Thank you, Mr. Austin,  
9 for being here today.

10 We=re talking about how is it to take a new or a new-  
11 ish reactor technology and get operators ready for licensing?

12 When it comes to advanced reactors, as an Agency,  
13 we often testify to the fact, we can license a truly advanced reactor, but  
14 it=s going to require a lot of exceptions and a lot of waivers. And, we  
15 can do that.

16 And, I don=t share the view that there=s anything  
17 negative about that. It=s not the most efficient thing in the world.

18 It sounds like, in the case of the AP1000, we confronted  
19 those inefficiencies. We addressed them. We did get through the  
20 exemption and waiver processes we needed to.

21 Something as simple as, you know, job performance  
22 measures, you don=t have a plant, you can=t do that, an exemption is  
23 absolutely necessary.

24 We found alternatives. We found surrogates. But, I  
25 think, ultimately, it=s not efficient, so we do want to look at that process

1 at some point in the future.

2 And, with that, I'll close, Mr. Chairman. Thank you.

3 CHAIRMAN BURNS: Thank you.

4 And, I want to thank our first panel for your  
5 presentations as well as the discussion we've had here.

6 We'll take a break and come back around 10:20 and  
7 we'll have our second panel of the NRC staff.

8 (Whereupon, the above-entitled matter went off the  
9 record at 10:15 a.m. and resumed at 10:23 a.m.)

10 CHAIRMAN BURNS: Well, welcome back.

11 I want to welcome the staff panel. Ms. Salgado and I  
12 were talking because she used to be one of my clients over at the NEA  
13 for several years before she returned to the NRC last year.

14 But, Vic, I'll let you kick off the staff panel and do the  
15 introductions.

16 MR. MCCREE: Thank you and good morning, Mr.  
17 Chairman, Commissioners.

18 We're pleased to be here today to give a broad  
19 overview of the operating licensing program.

20 As indicated in the first panel, there are no individuals  
21 more critical to the safe operation of commercial nuclear power plants  
22 than licensed operators.

23 When we issue an operator license, it reflects both the  
24 trust that we've placed in these individuals and the responsibility that  
25 they bear for the continued safety of their facilities.

1                   Our licensing program must be able to determine which  
2 individuals have demonstrated the skills and abilities to meet these high  
3 standards of responsibility.

4                   Next slide, please, slide three. Today, we'll  
5 emphasize several key messages including that our operator licensing  
6 program is thorough, reliable and subject to thoughtful improvements.

7                   It is also informed by operating experience, lessons  
8 learned, and feedback from operators, industry, members of the public,  
9 and those responsible for implementing the program.

10                  The briefing that you'll hear today reflects an ongoing  
11 effort from the Office of Nuclear Reactor Regulation, the Office of New  
12 Reactors as well as the regional offices to ensure that the program  
13 goals are met.

14                  These goals include consistent execution of the  
15 examination process, cooperation among the respective offices and  
16 regions to respond to operator licensing needs with agility.

17                  And, finally, an ongoing search for efficiency as well as  
18 effectiveness in the licensing process.

19                  And, with that, I'll turn it over to Bill Dean, the Director  
20 of Office of Nuclear Reactor Regulation who'll provide you an historical  
21 perspective of key milestones in the operator licensing process.

22                  MR. DEAN: Thanks, Vic.

23                  Good morning, Chairman, Commissioners, happy  
24 Friday the 13th. Hopefully, this doesn't turn out to be an unlucky day  
25 for our team here at the table.



1 CHAIRMAN BURNS: I will say this, you just stepped  
2 into it.

3 MR. DEAN: Yes?

4 CHAIRMAN BURNS: Today is Colgate Day and the  
5 13th of Friday, it was always celebrated as Colgate Day and it=s a good  
6 day because it was 13 men with 13 prayers and 13 dollars who founded  
7 Colgate University, my alma mater in 1819.

8 So, get over this 13 is an unlucky number.

9 You may proceed, Mr. Dean.

10 (LAUGHTER)

11 MR. DEAN: Well, I=ve always been a Crest guy, not  
12 a Colgate guy.

13 (LAUGHTER)

14 MR. DEAN: So, it, too, has been a career aspiration  
15 for me to talk to the Commission about the operator licensing program.  
16 The last time I had a chance to do that was back in 1987 when  
17 Commissioner Curtis called me up from Atlanta to meet with him down  
18 in Washington, D.C. at his office downtown to talk about, I forget what  
19 it was, but it some operator licensing issue.

20 I started my career in >85 in Region II as an Operating  
21 Licensing Examiner and spent the first eight or nine years of my career  
22 involved in the operator licensing program.

23 Ultimately, I had the job that Nancy has, the Branch  
24 Chief of the National Operator Licensing Program.

25 So, I have a very strong affinity for the operator

1 licensing program, as you can imagine.

2                   And, as Mr. Pfeiffer indicated, the contribution of the  
3 operator licensing program in terms of the public health and safety, I  
4 think, is tremendous. It's a very important program and I was proud  
5 to hear you talk about how you have talked to international counterparts  
6 about the operator licensing program.

7                   Because I think it is a very valuable and important  
8 program. And, the mileage that I get when I talk to individuals of the  
9 public and tell them, you know, one of the things that we do to assure  
10 safety is that we actually examine the individuals who are at the controls  
11 and managing the control rooms.

12                   And the operator license at the nuclear power plants  
13 creates a tremendous amount of public confidence. And, so, it's a  
14 very important program.

15                   And, as far as the operator licensing examiners  
16 themselves, Vic commented on their competence and capabilities is a  
17 very highly trained cadre of individuals that are Agency experts on  
18 integrated plant operations and emergency procedures.

19                   And, they're frequently called upon to support reactive  
20 inspections when there are events at plants where the control room may  
21 have had some contribution to that event and provide a very valuable  
22 service beyond just their operator licensing work.

23                   So, it's a great group of people and I'm very proud to  
24 be affiliated with them.

25                   Over the years, the operator licensing program has

1 evolved and it=s evolved in a direction to create a more objective, less  
2 subjective program and something that is more focused -- has a greater  
3 safety focus.

4 And, I=m going to talk about a few things that have  
5 occurred in the past as kind of a preamble to Chris and Nancy and Gene  
6 talking about Rev. 11 as the most current version.

7 When I was the operator licensing branch chief, we  
8 were working on Revision 5 to NUREG-1021. So, you know, about  
9 every four or five years, we=ve seen a major revision to the operator  
10 licensing standards.

11 Some due to just the accumulation of things and sort  
12 of a self-assessment continuous improvement approach. And, in other  
13 cases, as a result of some significant feedback or events that have  
14 occurred.

15 So, on slide four, there=s the second bullet talks about  
16 the written exam passing grade which changed from 70 percent to 80  
17 percent. That was a direct result of the TMI event and the efforts on  
18 the part of this Agency to engender in the public, you know, greater  
19 confidence in the quality and competency of the operators, given their  
20 contribution to that event.

21 And, so, that was a direct result amongst other  
22 changes back in the late >70s and early >80s that resulted from TMI.

23 On the next slide, there=s a couple things I wanted to  
24 talk about. I was only going to talk about two, but I=m actually going  
25 to talk about all three, given the earlier discussion on GFE.

1                   But, back in the mid-80s, there was a lot of concerns  
2 raised by industry about the content validity of our examinations, both  
3 the written examinations and the operating examinations.

4                   And, in reality, we had a very subjective process. The  
5 written exam was an essay test. So, those of you that have taken  
6 essay tests in the past know that, gee, why did I get that score on that  
7 test? I knew what, you know, whoever the grader was had their  
8 subjective view on how you needed to convey the content to answer  
9 the question.

10                  And, then, our operating tests were also very  
11 subjective. We would have sometimes, the operating test would go  
12 over two days. And, you can see the look on the faces of examiner  
13 candidates when they found out who their examiner was going to be.

14                  Industry had a book, a scouting report on all the  
15 examiners and they knew who the ones that would, you know, take guys  
16 out in the plant for basically two days and run them through the mill.

17                  And, many times, a lot of the questions that we had in  
18 written tests or operating tests were what we called back then Oolies.  
19 And, Vic has challenged me on the use of that term. What the heck is  
20 a Ooly?

21                  But, basically, it=s a small tidbit of arcane information  
22 that, in many cases, our examiners used, sometimes to prove how  
23 smart they were, but did that really have a contribution to the content  
24 validity of the test?

25                  And, so, in the mid to late >80s, we developed,

1 because of a lot of negative feedback about our examination content of  
2 the knowledge and ability catalogues, which are the backbone now of  
3 the formation of our written and operating tests that we have to have  
4 content valid important questions so that we know that when we're  
5 examining the operators, operator candidates, we're examining them  
6 on important things.

7                   So, that was an important development back in the mid  
8 to late '80s.

9                   In 1987, I think this might have been the reason why I  
10 had a chance to talk to Commissioner Curtis, the Commission was  
11 working on a policy statement on the training and qualification of nuclear  
12 power plant personnel. And, I think that was in '87.

13                   That led to a substantial change to 10 CFR 55 that  
14 recognized the industry-led accreditation process that Mr. Shoemaker  
15 talked about.

16                   It was a very robust program that has been a  
17 tremendous asset in improving the training and qualification of  
18 examiners.

19                   And, of course, the utilization of a systems approach to  
20 training.

21                   That was, I think, a watershed event for the industry in  
22 terms of that Commission policy statement and that change to our  
23 regulation. And, it lives today very successfully through the many  
24 cases, the efforts of INPO in terms of their accreditation process.

25                   And, then, I wasn't going to talk about the GFE exam,

1 but there was so much discussion on it and I do want to go back to 1989  
2 when the GFE came into being. And, it was very strongly supported  
3 by industry because of the fact that, when we gave the operating test,  
4 and back then, there was an individual section just on fundamentals,  
5 that many times, because that training was done early in the program  
6 and by the time it got around the exam, you know, operators had  
7 sometimes forgotten some of that stuff.

8 And, so, we saw failures as a result of that. So,  
9 industry was very supportive of us segregating that test and doing it  
10 early in the program and kind of just go/no go and get it off the table  
11 while still meeting the regulation.

12 So, there was a lot of industry support back then for  
13 that GFE exam.

14 I'm on slide six now. The last thing I want to talk  
15 about is the oversight of the requalification program.

16 This was an area where there was really some  
17 significant concerns by industry that, through the way that we were  
18 administering the requalification examination, we were adversely  
19 affecting safety and nuclear power plants.

20 The way we used to do it was, basically, several weeks  
21 before we wanted to administer the exam, we would tell the licensee,  
22 okay, we're going to come in and do a requal exam and we want you  
23 to identify or make available these 20 operators. And, to us, it didn't  
24 make a difference what crew they were on, you know, or whether they  
25 were on shift at the time or not. Those were the ones that we wanted

1 to examine.

2                   And, so, they had to pull these people together,  
3 rearrange their shifts and, basically, we would give them this  
4 examination. And, there were several instances where, you know, we  
5 had pretty poor results in the requal exam. And, that created a lot of  
6 problems for the licensee in terms of, okay, how do I put together crews  
7 of people that pass the exam?

8                   And, so, that led to a lot of focus on, what is the right  
9 way for us to approach requalification? And, ultimately, by the mid-  
10 90s, we had moved into, with a lot of improvements in the way we did  
11 exams or their job performance measures came about as a more  
12 objective way to test knowledge in an operational manner.

13                   We moved to an inspection approach as opposed to  
14 conducting the examinations. And, so, since the mid-90s, we've been  
15 inspecting requalification.

16                   But, that resulted from some really, I believe,  
17 unnecessary regulatory burden that we, through the operator licensing  
18 program, applied to industry.

19                   So, that's enough from a historical perspective. I'd  
20 like to turn it over to Chris Miller, there he is way down at the other end,  
21 to talk about the current state of the operator license program.

22                   Chris?

23                   MR. MILLER: Thank you, Bill.

24                   Good morning, Chairman, Commissioners.

25                   CHAIRMAN BURNS: Chris, pull it a little closer to you

1 there.

2 MR. MILLER: Yes, that works. Is that better?

3 So, I'm on slide seven and, as we seek to license safe,  
4 competent operators, we must have reliable consistent examinations  
5 able to effectively assess an adequate level of competency in the  
6 applicants.

7 We accomplish this with the exams following NUREG-  
8 1021 guidance, which I will briefly detail parts of.

9 The NUREG splits the initial examination into two  
10 phases, the Generic Fundamentals Exam and the Site-Specific Exam.

11 The GFE examines fundamental knowledge topics,  
12 including reactor theory, thermodynamics and components as required  
13 by regulation. A passing score of 80 percent is required before the  
14 Site-Specific Examination can be administered.

15 Following accredited facility training, and once an  
16 application is received, the NRC administers the Site-Specific  
17 Examination to the individual.

18 This examination is split into the three parts, the Site-  
19 Specific Written Examination, the Walkthrough, also known as Job  
20 Performance Measures, or JPMs, and the Simulator Scenario portion.

21 The Site-Specific Written Examination is a 75-question  
22 examination for the Reactor Operator and 100-question for the Senior  
23 Reactor Operator applicants. Overall passing score is 80 percent.

24 The Walkthrough portion of the operating test is also  
25 split into two parts, administrative and control room and in plant systems



1 portions.

2                   Typically, two simulator scenarios are administered to  
3 each applicant in a crew-based format. Scenarios last approximately  
4 one and a half hours, examination response to normal, abnormal,  
5 emergency conditions and assess items, including ability to diagnose  
6 conditions, manipulate controls, follow plant procedures and  
7 communicate effectively.

8                   And, then, SRO applicants are also examined on the  
9 ability to direct others and on their understanding and ability to use tech  
10 specs, technical specifications.

11                   An applicant passing every portion of the Site-Specific  
12 Examination and meeting other requirements such as the medical  
13 requirements, is granted a license.

14                   Next slide, please? This graph reflects the average  
15 overall national pass rate. It's not broken down into the various  
16 portions of the Site-Specific Examination nor by regional performance.

17                   As you can see, the pass rate for both SRO and RO  
18 applicants have been increasing since 2007 and is well above 90  
19 percent from 2010 onward.

20                   Next slide, please? Now, I'd like to focus on some  
21 improvements we are making to our processes and programs.

22                   The Revised Reactor Program System, or RRPS,  
23 operator licensing modules is the system of record for operator license  
24 tracking, it's an important improvement in tracking license operator  
25 docket information.

1           It required digitization of hard copy licensed operator  
2 docket files into ADAMS. This effort began in 2014 and required a  
3 large up front expenditure of resources due to the need to scan, upload,  
4 profile over 35,000 individual -- over 34,000 individual documents.

5           And, it still requires ongoing scanning of new  
6 documents into each license operator file. However, after the  
7 scanning, we still input our information, manually generate the  
8 correspondence and the licenses manually and distribute the  
9 information manually.

10           We will leverage the improvements made in RRPS with  
11 a new initiative called Operator Digital Docket Workflow.

12           The workflow is currently being designed to include  
13 many -- the ability to receive and digitally read information submitted by  
14 the licensed facilities, automatically file the paperwork into the correct  
15 operator digital docket folder, digitally creating a signed template that  
16 forms and documents and enable parallel review by multiple NRC  
17 individuals. And, upload and profile the documents into the correct  
18 folder location in ADAMS.

19           Then, another significant improvement and efficiency  
20 is expected from the changes to RRPS to allow a nationalized  
21 scheduling scheme for NRC operator license examiners.

22           Headquarters staff are working with the contractor  
23 developing RRPS Inspection Modules to create examiner scheduling  
24 tools to assist with examiner resource planning.

25           A region that needs assistance with an examination will

1 be able to easily and quickly locate available examiners, qualified in a  
2 particular technology in other regions, the Technical Training Center,  
3 and in Headquarters.

4 This will improve sharing of in-demand examiner  
5 resources, especially during peak periods.

6 Next slide, please? Several notable changes have  
7 resulted from lessons learned following a decision that overturned the  
8 NRC denial of the Senior Reactor Operator License for an applicant.

9 A Lessons-Learned Review Team was established to  
10 assess the issues that led to the ASLB hearing decision. This team  
11 conducted a comprehensive review of the NRC=s processes for initial  
12 operator licensing, including staff administrative reviews, also referred  
13 to as appeals, and identified 23 recommended improvements to the  
14 initial operator licensing process.

15 Gene Guthrie, who will be presenting in a few minutes  
16 was a member of that team.

17 An Operator Licensing Implementation Team was  
18 formed to review that lessons learned report, determine how each  
19 recommendation would affect the operator licensing program and  
20 develop an action plan for each recommendation that=s made. Tim  
21 Colb sitting behind me, led that team.

22 We have been deliberately, not urgently, crafting these  
23 important changes recommended by these teams since 2014. We  
24 dispositioned the 314 public comments received during extended  
25 comment period, conducted three public meetings on this topic with the

1 Operating Licensing Focus Group and considered over 300 internal  
2 comments received from all four regions, NRO and the Technical  
3 Training Center.

4 Nancy Salgado, our Operator Licensing and Training  
5 Branch Chief will discuss the specific recent improvements to the  
6 examination process being addressed by NUREG-1021 Rev. 11  
7 expected out this month.

8 Nancy?

9 MS. SALGADO: Thank you, Chris.

10 Good morning, Chairman and Commissioners.

11 One of the major undertakings for the operator  
12 licensing staff was to work on Rev. 11 of NUREG-1021, from here on  
13 referred to as Rev. 11.

14 To address the lessons learned and feedback that  
15 Chris just discussed and to implement two Project Aim commitments,  
16 specifically, one of the conclusions from the lessons learned review  
17 team report was that flexibilities in the current NUREG-1021 have led  
18 to implementation differences amongst the regions.

19 To illustrate these differences, I shall share a couple of  
20 examples identified by the Lessons-Learned Review Team.

21 Regarding simulator scenario grading NUREG-1021  
22 currently has a provision to allow an applicant with two noncritical errors  
23 in a single rating factor to earn a point back and receive a score of 2  
24 instead of 1 if the applicant performed a similar task correctly.

25 This provision was not consistently applied across the

1 regions, was thoroughly evaluated on its merits and has been deleted  
2 in Rev. 11.

3 The regions were also inconsistent when assigning  
4 responsibility to develop the site-specific written examination outline.  
5 Two of the regions required the chief examiners to generate the outline,  
6 while the other two regions allowed the facility licensees to write it.

7 This has been clarified in Rev. 11 to require the NRC  
8 to generate all site-specific written exam outlines, eliminating the need  
9 for the NRC to evaluate the facility licensee's random knowledge and  
10 ability sampling process.

11 Project AIM identified two re-baselining commitments  
12 in the operator licensing program area. The first involved reducing the  
13 number of GFEs administered each year from four to two.

14 And, the second involved eliminating the informal staff  
15 review process.

16 These two items will be discussed in greater detail in a  
17 future slide.

18 Next slide, please? There are two major changes in  
19 Rev. 11 regarding the construction and developments of the operating  
20 test.

21 The first is to specify that all administrative tasks, JPMs  
22 for SROs must be tested at the SRO level.

23 Currently, in NUREG-1021 only requires the SROs to  
24 be evaluated in greater depth on these administrative tasks without  
25 stating the number of JPMs that must be at the SRO level.

1           The second major change is that all scenarios must be  
2 new or significantly modified. This clarifies the current guidance which  
3 only requires each applicant to be tested on only one new or  
4 significantly modified scenario.

5           Simulator scenario grading was also significantly  
6 revised, including eliminating the provision of granting credit for a  
7 correct action, providing a limit on the number of rating factors to which  
8 an error can be attributed, changing the grading scale from 1 to 3 to 0  
9 to 3, and changing the grade for the failure of a critical test from 1 to 0.

10           These changes were made to promote consistency  
11 and to improve the evaluation tools for determining the competency of  
12 the applicants.

13           To evaluate the impact of the proposed revisions, the  
14 staff performed a pilot evaluation which involved regrading 266  
15 simulator operating tests given during the period from December 2014  
16 through December 2015 using the new criteria and determined that  
17 these changes would result in a potential decrease in the pass rate from  
18 100 to 97.75 percent.

19           Next slide, please? In response to industry feedback  
20 regarding the Project Aim commitment to reduce the number of GFEs,  
21 the staff implemented a transition period during fiscal year 2017 by  
22 administering three GFEs.

23           After this transition period, two GFEs will be  
24 administered each fiscal year. This GFEs reduction will still allow the  
25 same number of individuals to be tested. It will just increase the length

1 of time between successive tests.

2 To mitigate the impact of fewer GFEs offering, Rev. 11  
3 allows the facilities to submit more test applicants by permitting  
4 individuals who are not now enrolled in the initial operator license  
5 training, but are designated as potential future enrollees to take the  
6 exam.

7 Additionally, based on industry comments regarding  
8 Rev. 11, the staff added a provision that would allow for industry authors  
9 to voluntarily develop up to two additional GFEs per year.

10 These changes resulting in part from public comments  
11 and resulted in the process change that partially addressed industry  
12 concerns while keeping true to the commitments made to meet Project  
13 Aim targets.

14 Although the staff understands the industry=s interest  
15 to either eliminate or transition to an on-demand GFEs, there are  
16 numerous challenges and difficulties associated with such a transition.

17 For example, how an on-demand GFEs can meet the  
18 regulatory requirements for the NRC to approve the exam.

19 The staff looks forward to future meetings with the  
20 industry to further identify, discuss, and thoroughly evaluate potential  
21 challenges, benefits and consequences for both of these options.

22 The other Project Aim commitment involved eliminating  
23 the informal NRC staff review of specific contentions related to the  
24 individual applicant=s license denial.

25 The informal staff review process is not required by

1 regulation. Applicants will still be able to challenge examination results  
2 through the adjudicatory hearing process as describe in the regulation.

3                   However, Rev. 11 does not remove the informal NRC  
4 staff review process, but adds guidance to allow 20 days rather than 5  
5 days for licensees and applicants to submit post-exam comments,  
6 thereby, resulting in a higher quality comment submittal.

7                   Also, guidance was added to request each applicant=s  
8 comments be accompanied by the licensed facility position.

9                   Based on industry and internal comments associated  
10 with scope of these and other changes in Rev. 11, the elimination of the  
11 informal NRC staff review process has been delayed for one year after  
12 implementation in order to evaluate the impacts of these changes. The  
13 staff will continue to monitor this closely.

14                   Next slide, please? NUREG-1021 Rev. 11 was sent  
15 to admin on December 2nd to start the publication process and we  
16 expect it to be published later on this month.

17                   Regulations require that the criteria in the Rev of  
18 NUREG-1021 in effect six months before the administration date is  
19 used to prepare written examinations and operating tests.

20                   That means that Rev. 11 will be used to develop  
21 license examinations six months after it is published.

22                   Thank you.

23                   I=ll now turn it over to Mike Cheok, the Director of the  
24 Division of Construction Inspection and Operational Programs in the  
25 Office of New Reactors to discuss operator licensing for the AP1000



1 reactors.

2 MR. CHEOK: Thank you, Nancy.

3 Good morning, Chairman, Commissioners.

4 I will be speaking to you about operator licensing for  
5 the AP1000 reactors at Vogtle Units 3 and 4 and at VC Summer Units  
6 2 and 3.

7 I will start by providing a brief status of the activities.  
8 And, I will then talk about the staff initiatives, given the lessons learned  
9 from administering these first of a kind exams at U.S. plants.

10 NRC staff successfully administered the first complete  
11 AP1000 exams this past June. Vogtle Unit 3 completed their exam in  
12 July of 2016 and Summer Unit 2 completed theirs in September of 2016.

13 In administering these exams, the regulatory  
14 infrastructure the staff had developed over the past few years was  
15 effectively implemented.

16 This included the guidance for write up in NUREG-  
17 2103, the Knowledge and Abilities Catalogue for the AP1000 design as  
18 well as the guidance found in our revision of NUREG-1021, the  
19 Examiner Standards which provided examination outline for the  
20 AP1000.

21 However, there were some challenges that the staff  
22 and the licensees had to work through before being able to administer  
23 some of these exams.

24 First, due to the status of the control room simulator  
25 and the human factors engineering design, the licensees did not have

1 a plant reference simulator.

2 As a result, the licensees requested staff approval of  
3 the AP1000 simulation facilities at Vogtle and VC Summer.

4 The staff completed safety evaluations to designate the  
5 licensee simulation facilities as Commission-approved simulators for  
6 use in operator licensing exams.

7 Additionally, the staff granted exemptions to allow for the  
8 use of these simulators to perform the control manipulations as part of  
9 the licensees' training programs.

10 There were also challenges in the way to conduct the  
11 in plant systems job performance measures, or JPMs.

12 Because the plants have not yet been fully constructed,  
13 the licensees requested an exemption from the requirement that a  
14 portion of the operating tests be administered in the plant walkthrough  
15 and also requested approval of the alternative methods to test the  
16 applicants in plant systems knowledge.

17 The staff's evaluation found that the licensees had  
18 enough plant operating procedures in place to develop a sufficient  
19 number of JPMs and that the licensees' proposal of alternative methods  
20 were adequate to ensure that the JPMs would meet the exam standards  
21 found in NUREG-1021.

22 Next slide, please? Because the staff and licensees  
23 have resolved the challenges associated with administering the first  
24 AP1000 exams, we do not expect additional technical issues to emerge  
25 when administering the next set of exams.

1                   We are now preparing to conduct additional exams  
2 scheduled in 2017 and beyond. Gene Guthrie will discuss this in more  
3 detail during his presentation.

4                   Also, the licensees are continuing to perform activities  
5 necessary to establish a plant reference simulator prior to plant startup.

6                   While the current configuration of the simulators at VC  
7 Summer and Vogtle model the integrated plant system operations.  
8 There are portions of the plant design that are not yet complete.

9                   The plant design is expected to be reflected in the plant  
10 reference simulator. There are inspections, tests, analysis and  
11 acceptance criteria commonly known as ITAAC that verify completion  
12 of the design commitments previously approved by the staff.

13                   Therefore, the licensees will be completing activities  
14 associated with these ITAAC. NRC staff will perform the ITAAC  
15 inspections as well as verifications to the ITAAC closure notifications  
16 when the licensees have completed ITAAC activities.

17                   The licensees will also be conducting simulator  
18 performance testing prior to the declaring the simulation facilities as  
19 plant referenced simulators.

20                   Next slide, please? So, in evaluating our activities  
21 over the past two years, we have identified several areas that staff  
22 actions could have been more effective and efficient.

23                   John Austin from the previous panel discussed some  
24 of these areas.

25                   As a result, the staff has set up a working group and

1 has reached out to our licensees to identify lessons learned from the  
2 administration of the initial exams.

3 To help guide this improvement process, staff in  
4 Region II, NRO and NRR has developed a chart to describe the  
5 activities of the working group.

6 We have identified several topics to be addressed  
7 which include, number one, incorporate the process for approving the  
8 simulation facility into an NRC guidance document such as a Standard  
9 Review Plan.

10 Number two, to modify existing documents to minimize  
11 the use of exemptions.

12 And, number three, to enhance the general guidance  
13 under development of and administration of exams for new reactors in  
14 the future revision of NUREG-1021.

15 We will continue to involve the licensees and other  
16 stakeholders as we develop the above guidance and procedures. The  
17 resulting updates from our documents should be beneficial for future  
18 operator licensing activities at new reactors.

19 This completes my presentation. Gene Guthrie from  
20 Region II will next discuss regional implementation of the operator  
21 licensing program from both the operating and the AP1000 reactors.

22 MR. GUTHRIE: Good morning, Chairman,  
23 Commissioners.

24 Now, this morning, I will be presenting the regional  
25 perspective on assuring reliability and capacity while successfully

1 meeting operator licensing goals.

2                   Significant amount of effort is allotted to planning and  
3 scheduling as part of the project management required for each of the  
4 operator licensing examinations.

5                   The regions have detailed schedules planned for at  
6 least two years. This is to ensure that the regions are fully prepared to  
7 successfully administer these operator licensing examinations.

8                   The graphic on this slide represents the number of  
9 exams that were conducted in each of the regions over the last two  
10 years. Noticeable on the bar graph is the number of exams in Region  
11 II is about double that for the other regions.

12                   This is attributed to factors such as the difference in the  
13 number of the units in each of the regions, retention and retirement  
14 issues at some of the sites and declining demand in other regions due  
15 to plant closures.

16                   Annually, the NRC issues a Regulatory Information  
17 Summary to all the licensees in which we request the dates that they  
18 desire the NRC to conduct an operator licensing examination and the  
19 number of applicants for each of the examinations over the next four  
20 years.

21                   Up to now, the regions have met the industry requested  
22 examination dates without having to make any significant changes.  
23 Whenever the licensees have requested schedule date changes, the  
24 regions have been able to accommodate most, if not all, the requests  
25 with only minor adjustments.

1           The licensees, for example, have recently requested  
2 schedule changes due to facility economic issues and delays in new  
3 build construction milestones.

4           Next slide, please? Two first of a kind AP1000  
5 examinations were successfully administered in accordance with the  
6 current examination standard at Vogtle and VC Summer in July and  
7 September of this year.

8           For each of these examinations, the exam team  
9 implemented an approved job performance measure exemption that  
10 allowed for the application of alternative methods to administer these  
11 required plant walkthrough examination items.

12           This alternate method was necessary because the  
13 actual plant was not available.

14           The examiners were able to administer all of these  
15 examination items in a similar fashion to an operating fleet examination  
16 such that there wasn't a loss in the value of these job performance  
17 measures.

18           The individuals in the picture on the slide are the exam  
19 team members located in one of the simulators at the VC Summer plant  
20 and was taken during the operations examination this past September.

21           The number of simulators used to conduct an  
22 examination and the class size are key factors that determine the exam  
23 team size.

24           The individuals on the team were from Region II,  
25 Region IV and the Office of New Reactors. We also has cross regional

1 and Headquarters support for the Vogtle operations examinations.

2 The applicant performance for each of the  
3 examinations were consistent with the national exam pass rate, as  
4 discussed on previous slides.

5 The AP1000 operator licenses will be issued when all  
6 the experience requirements are met. Specifically, applicants must  
7 gain experience during pre-operational testing while operating the  
8 actual plant to meet the licensing basis requirements prior to being  
9 issued licenses.

10 In the meantime, the applicants have been informed of  
11 their grades and they remain and continue training.

12 Next slide, please? Significant effort has been made  
13 to address previous challenges related to reliability when implementing  
14 the licensing program. The meaning of reliability referred to here is a  
15 consistent implementation of the operator licensing program examiner  
16 to examiner and region to region.

17 Our goal is to achieve the same results, regardless of  
18 who implements the program guidance during the operator examination  
19 process.

20 A Lessons-Learned Task Force initiative, self-  
21 assessments and identification of regional differences have enhanced  
22 our consistency and scrutability to help ensure that that practice  
23 continues.

24 As a key member of the Lessons-Learned Task Force  
25 initiative, I believe that the issuance of Rev. 11 to NUREG-1021 is

1 essential to our ongoing initiative of reliable administration of operating  
2 examinations, an overall enhancement to the operator licensing  
3 program.

4           Program Office with regional support will conduct  
5 training in Region III this spring on the NUREG revision which will help  
6 to ensure consistent examination implementation when the NUREG  
7 becomes effective.

8           Additionally, the sharing of examiner cross regionally  
9 in support of examination allows for the regions to identify and correct  
10 identified consistency issues.

11           During the 2015 and 2016 time period, the regions  
12 administered about 100 examinations to about 900 applicants. The  
13 demands for examinations and the number of applicants has been  
14 generally stable over the past several years.

15           These numbers are generally considered high in an  
16 historical perspective.

17           In an effort to ensure that the regions are utilizing their  
18 examiner resources efficiently and to help the regions more fully  
19 understand their capacity to conduct examinations during the peak  
20 demand periods, we are collaboratively pursuing a national examination  
21 schedule.

22           The regions are training examiners as a national exam  
23 resource as opposed to strictly a regional resource to share between  
24 the regions as necessary to administer the examination schedule as  
25 requested by the licensees.



1           A national schedule will provide the ability to track  
2 essential information like detailed examiner availability, capability and,  
3 additionally, provide managers the ability to recognize and manage our  
4 peak capacity for scheduling and administering exams.

5           And, that concludes my comments and I turn to Vic for  
6 closing comments.

7           MR. MCCREE: Thanks, Gene.

8           Mr. Chairman and Commissioners, I recognize we=ve  
9 exceeded our allotted time. But, it is Friday the 13th and I=m thankful  
10 we have a Chairman that can see the goodness in that.

11           We=ve presented quite a bit of information rather  
12 briskly. I apologize for that, but I hope that it gives you confidence that  
13 we=re implementing the operator licensing program effectively and that  
14 we=re granting licenses to -- initial licenses to operators based on the  
15 skills and abilities that they demonstrate, that gives us confidence that  
16 they can safely operate commercial nuclear power plants.

17           We=re executing the examination process more  
18 consistently, we believe, but, certainly based on the historical  
19 discussion that Bill provided and some of the changes that we=ve made  
20 in the past and of late, we are cooperating, collaborating across the  
21 offices and regions to more flexibly meet the program needs.

22           And, we=re thoughtfully evaluating ways to make the  
23 program even more efficient. As we do this, we=ll never lose sight,  
24 that safety and a set focus on safety is central to our decision to license  
25 each of the nuclear reactor operator applicants.

1                   We will be in a position later this month to publish  
2 Revision 11 to NUREG-1021. However, if the Commission directs us  
3 to do otherwise, we will do that as well.

4                   We will continue our interaction with stakeholders to  
5 evaluate further enhancements to the program.

6                   At this point, we're prepared to answer any of your  
7 questions.

8                   Thank you.

9                   CHAIRMAN BURNS: Okay, thank you.

10                  And, thanks to the staff for the presentations.

11                  And, again, we'll start with Commissioner Baran.

12                  COMMISSIONER BARAN: Thanks.

13                  Well, thank you for all your work on both AP1000  
14 operator licensing and Revision 11 of the guidance.

15                  I want to just jump right in, there's so much to talk  
16 about. Let's start with where we started on the first panel which is the  
17 staff's informal review process for the denial of reactor operator  
18 licenses.

19                  Last year, this was, as part of Project Aim re-baselining  
20 something that the staff recommended for elimination. That was  
21 approved. Now, some time has passed and the staff is proposing to  
22 hold off on eliminating the informal review process for 18 months.

23                  Can someone talk just briefly about what the thinking  
24 is behind this course correction?

25                  MR. MILLER: I can address that, Commissioner, as a

1 starting point and then I think, from a regional perspective, it might be  
2 good to have Gene also weigh in.

3                   When we went into this with Project AIM, we thought it  
4 could be a resource savings and what the goal is, is really to try to get  
5 the information out to the regions to make the decision.

6                   And, so, as a result of some of the public comment we  
7 received on that, there=s two things we heard.

8                   One was that, hey, you=re making a lot of changes  
9 and, as you heard the other panel mention, that review process is kind  
10 of a backstop.

11                   So, if you make these changes and there=s something  
12 that really doesn=t sit right and you hadn=t anticipated it, we like to have  
13 that backstop in place.

14                   So, we thought, okay, that=s a good point. So, we  
15 thought we=d keep it in place, but we=d also make some changes to it.  
16 The changes that we made to it are to enable the information that we  
17 were getting in the program office in the informal review to get out to  
18 the regions instead of a five-day turnaround for some of the information,  
19 a 20-day turnaround and then some interaction from the facility  
20 licensee, et cetera. But, that was big picture thinking on that.

21                   Gene, anything else from the regional perspective?

22                   MR. GUTHRIE: So, the regions involvement in the  
23 appeal process starts with the exam results. And, our involvement  
24 really starts with the licensees presenting appeals or desired changes  
25 to the exam.

1           So, that comes in the form of comments. And, the  
2 regions will resolve those comments and will make decisions and inform  
3 the program office and then we'll issue those an exam report.

4           If the next phase, if you will, is the informal review  
5 process that exists right now, that part is where the individual applicant  
6 submits information to the program office and then that's reviewed.

7           So, what you see is a difference in what's submitted  
8 to the NRC. First, it's from the licensee -- facility licensee. Then, it's  
9 from the applicant.

10          And, so, you see a difference in the information that's  
11 submitted to the NRC for review.

12          So, the regions are involved in both of those  
13 processes. We help on the informal part the regions get involved in  
14 helping with the technical aspects of the exam itself and any issues with  
15 the questions, et cetera that are being appealed.

16          And, then, the -- so, you know --

17          COMMISSIONER BARAN: Let me ask the big picture  
18 question on this which is, would the staff have any concerns if the  
19 Commission opted to just decide to retain the informal appeal process  
20 rather than postponing an elimination for a year and a half?

21          MR. DEAN: Would we have any heartburn over that?  
22 I don't think that we'd initially have any heartburn over it. I think  
23 another thing that led to our determination to extend it for another 18  
24 months was because of some of the angst over the simulator grading  
25 scores.

1                   And, so, we wanted to have a relief valve, as you will,  
2 to provide something, some opportunity that, if industry thought  
3 somebody was wrongfully graded on the simulator exam that there was  
4 some capacity to do that.

5                   But, I don=t think the staff would have any huge  
6 heartburn.

7                   I think that we did develop the recommendation  
8 through Project Aim because, we thought, given the additional time we  
9 were giving licensees to provide us feedback that that kind of countered  
10 the need to have this informal review process.

11                  But, you know, I don=t know that it=s a -- I think, what  
12 did we do last year, Chris? Maybe nine or ten informal reviews?

13                  MR. MCCREE: Seven.

14                  MR. DEAN: So, and, I think historically as I think  
15 Gregg Ludlam indicated, you know, there=s been about a 60 percent  
16 sort of reversal rate, historically.

17                  So, industry, obviously, is interested in keeping it  
18 because of that factor.

19                  MR. MCCREE: Commissioner, the only think I=d add,  
20 as you know, Project Aim was focused on us being more effective,  
21 efficient and agile.

22                  In this instance for the issue on informal reviews, it was  
23 always the staff=s and our intent to maintain the essence of an informal  
24 review, of a deliberative process to receive comments, both from the  
25 licensee and from the applicant to determine whether any grading, any

1 aspect of the grading merits -- merited merits change.

2 And, as Chris alluded to, to achieve an efficiency to  
3 reduce our costs, if you would, in this process, the desire was to forward  
4 fit, if you would, to take the input that we would gain from the Program  
5 Office and provide that to the regions, extend the time from 5 to 20 days  
6 to allow for a more deliberative review of the initial step, if you would,  
7 from the applicant, from the licensee to fact that into the front end.

8 And, then, that way, take advantage of efficiencies that  
9 would be gained from, quote, not having an informal review, but still  
10 gain the same effectiveness, the independent, thorough, objective  
11 review.

12 So, if we were to retain the current process in its current  
13 form for the long-term, we would still implement the process effectively.  
14 We would just need to find other areas where we can derive those  
15 efficiencies.

16 COMMISSIONER BARAN: Let's turn to the options  
17 that were discussed for the Generic Fundamentals Exam, I'll call them  
18 like the industry's preferred options on this that they mentioned.

19 I wanted to get your collective thoughts on those ideas.  
20 One idea was eliminating the exam all together, but I'm not sure there  
21 was really that much enthusiasm for this option even on Panel I.

22 Any brief thoughts about that approach?

23 MR. MILLER: I could address that, Commissioner.

24 So, eliminating the exam all together would be difficult,  
25 one, in that it would require a rule change.

1                   So, could we do it? Yes, we could do it. Those  
2 requirements for those -- that testing -- there=s good reasons why  
3 applicants are tested on that information, some coming back from all  
4 the way back from the TMI era and how operators acted.

5                   So, there=s a good reason for them to be in there. So,  
6 I think we would agree with that that it=s not a -- that=s not a very viable  
7 one to totally remove it.

8                   I could go on to the next one, if you want, the --

9                   COMMISSIONER BARAN: Yes, go for it.

10                  MR. MILLER: -- combination of them. In other  
11 words, put them back together.

12                  Bill mentioned one of the reasons and why it was good  
13 to split them out and the industry was interested in that when we did it.  
14 I think that it does give you some, you know, a screening process as we  
15 heard in the first panel. And, it=s good for the industry for a screening  
16 process. It=s also good for us because it means we=re -- the  
17 population of folks that we=re putting our attention toward is lower.

18                  But, you know, could it be done? Yes, they could be  
19 combined into one test. It would make the site-specific test much  
20 larger because then you have more question to examine these  
21 fundamental questions. So, it=s possible.

22                  And, we could look at that and we=re willing to look at  
23 that, but it would --

24                  COMMISSIONER BARAN: It sounds like it=s  
25 possible, but you don=t think it=s a good idea?

1 MR. MILLER: I just think that, yes, it would be  
2 challenging and larger tests, I don't think members of the industry and  
3 some of our staff think that a much larger test is a good idea on the  
4 written exam at site-specific.

5 COMMISSIONER BARAN: Another approach that  
6 we discussed, and I'll let the Branch Chief Emeritus weigh in on this at  
7 some point.

8 But, another approach is the industry develops two  
9 exams per year to make up for the two exams we're not developing.  
10 And, but, no new questions, no modified questions in those exams.

11 What do people think about that as an option?

12 MR. DEAN: So, let me weigh in and I may not get  
13 complete alignment from my staff on this.

14 I tend to lean towards the opinion that was expressed  
15 by Mr. Ludlam that we've got thousands and thousands of questions  
16 that we've developed over time.

17 It's the rationale behind adding new questions each  
18 time would probably give the opportunity to build up the bank so it was  
19 of sufficient size so that, if somebody studied the bank, you know, that  
20 would be how they'd pass the test. We didn't want that. Right?

21 Well, now that you've got thousands and thousands of  
22 questions, my feeling is that, if somebody memorizes all that stuff, and,  
23 in essence they're learning the information, so God bless them.  
24 Right?

25 But, you know, the staff has some data that shows



1 every time we add new questions, the, you know, the pass rate is lower  
2 than what the overall pass rate is for the -- or the, you know, for the  
3 overall test.

4 And, so, sure, there=s probably some psychometric  
5 information that shows that, you know, you have a new question in a  
6 common area sometimes that throws people off. But, I=m not so sure  
7 that=s necessarily a reflection of content validity.

8 Anyway, you know, we, too, have plans to move  
9 towards is an on-demand approach. We=re working towards that.  
10 Again, it=s a year or so away I think.

11 The challenge in handing it off to the industry is  
12 something I think that Chris talked about which is the responsibility that  
13 we have in the regulations to improve the exams.

14 So, if it was something that was on-demand done by  
15 industry, how does the NRC effectively approve those exams? We=d  
16 have to talk through that and I think Nancy talked about, you know, our  
17 desire to, you know, be engaged with industry and how might we do  
18 that.

19 So, but, I think for this year, we=ve got three exams  
20 that we=ll do. I think that=s adequate. I think we=ve made some  
21 changes to try and alleviate this concern that if you only did it twice a  
22 year, gee, that backs up our operator licensing training program by  
23 allowing individuals who haven=t yet been inserted into a training  
24 program to take the test.

25 So, I think we=ve made some modifications of that to

1 mitigate some of those concerns.

2 COMMISSIONER BARAN: Nancy, do you have  
3 thoughts about this? And, you should feel free to disagree with him.

4 (LAUGHTER)

5 COMMISSIONER BARAN: Pretend he=s not the  
6 Office Director and he=s just the Branch Chief Emeritus. What do you  
7 think about the --

8 MS. SALGADO: I=ve just been back --

9 COMMISSIONER BARAN: -- no --

10 MS. SALGADO: -- for four months, thank you for this  
11 opportunity.

12 Well, I think, yes, the bank size is 2,000 deep in both  
13 PWR and BWR.

14 I did get some input from the industry, a concerned  
15 individual that shared with me as an instructor that he cautions his  
16 students to be taught, not to learn the bank. Don=t learn the bank.  
17 You must learn the concepts.

18 And, this person encouraged me to continue to stand  
19 by having new and modified questions, due in part to not having  
20 students learn the bank. He wants -- and he really appreciates people  
21 learning the concepts and gaining that knowledge.

22 And, so, I think that we have to be -- move forward in a  
23 thoughtful and deliberate manner as we have in the past. We=d like  
24 to explore having a measurement and testing expert evaluate the  
25 thought of what is the right size of the bank, you know, for us to be

1 comfortable with that?

2 We also have to then evaluate what changes we=d  
3 have to do to 1021. There=s many things that need to be done. It=s  
4 not something that we can do quickly.

5 And, there is a reservation that, you know, the way we  
6 do it now is a good, solid way. We see performance on the bank  
7 questions being much -- well, sustained high, the modified a bit lower  
8 and the new ones lower.

9 And, so, there=s learning being done. I hope I didn=t  
10 step on anything, Bill. And, I hope my staff is happy with that response.

11 COMMISSIONER BARAN: I=m over my time, but I  
12 just want to follow up with you for a second on this on the on-demand  
13 option.

14 And, you talked a little bit about challenges or things  
15 that have to be worked through on that. And, Bill alluded to that a little  
16 bit, too.

17 Can you just talk a little bit more about that? Is this  
18 something that=s feasible at all? What=s the kind of time frame for  
19 feasibility on this? Is this something that the staff thinks we should be  
20 moving towards or not?

21 MS. SALGADO: I think it=s something that we need  
22 to be thoughtful about. I think we=ve had some discussions with TTC  
23 on a platform that they have that might be able to be used. But, it=s  
24 very much in its infancy. We must have further discussion on that.

25 But, the reality of determining how to approve the on-

1 demand exam is something that we would -- that would -- it=s novel --  
2 but, we have to take a lot of time to evaluate that because I=m not  
3 necessarily seeing a clear, solid path of how to do that approval on an  
4 on-demand test as it exists today.

5 COMMISSIONER BARAN: And, so, just so -- I=m  
6 sorry, I=m going way over.

7 CHAIRMAN BURNS: That=s all right.

8 MS. SALGADO: And, I=m sorry if I talked around that  
9 question.

10 COMMISSIONER BARAN: So, is the issue there, just  
11 to kind of understand it concretely, is the issue that because there=s  
12 software that just generates a test that the NRC staff would not have  
13 reviewed that software generated test and that=s what would be, we  
14 think, required under the regs or the guidance? Or, what=s the specific  
15 issue there about that?

16 MS. SALGADO: I think I need time to think about that,  
17 sir.

18 COMMISSIONER BARAN: All right, well, fair enough.

19 MR. MILLER: I can, just at a high level and then  
20 maybe, I don=t know, Theresa may want to answer.

21 But, at a high level, yes, we review each one of those,  
22 make sure that the sample plan is adequately followed and, for the ones  
23 that we do now.

24 So, if you do an on-demand one or if you do -- this  
25 would really create the, you know, the possibilities of, you know,

1 hundreds of on-demand tests. What=s our piece in it? How often do  
2 we review that to make sure the sample plan is followed? That the  
3 questions don=t, you know, overlap each other, don=t, you know, and  
4 cover the right information. So, that=s really the concern.

5 We would have to be, as Nancy pointed, very  
6 deliberate to make sure we were able to review something like that and  
7 not have it be a staff resource burden of too great of an amount.

8 COMMISSIONER BARAN: So, it would be a  
9 paradigm shift and it sounds like we=re not really sure at this stage  
10 whether that=s generally a move that would be in the right direction or  
11 not from the staff=s point of view?

12 MR. DEAN: No, but my comments to the staff on this  
13 has been, I want to move in that direction.

14 You=re hearing, you know, there=s some hurdles that  
15 we have to overcome, but we want to move in the direction that we can  
16 develop content valid examinations that we can administer in an on-  
17 demand basis. That=s what the future goal is.

18 COMMISSIONER BARAN: Okay.

19 MR. DEAN: But, it may be a year or two before we=ll  
20 be there.

21 COMMISSIONER BARAN: Okay, thanks.

22 Thank you for your indulgence.

23 CHAIRMAN BURNS: Okay, no, you wanted to  
24 explore a few more issues on that that were of interest to me.

25 Let me go back to the -- we=ve had some discussion

1 on the appeal process. So, just make sure I understand. So, first  
2 step, when we call the so-called informal, and I won't quibble with the  
3 meaning of that word or the application of the word.

4 The first thing is, is we're letting the letting the -- we're  
5 giving the licensee, I mean, the actual operator of the facility, so the  
6 facility licensee the results. Here's how your staff who stood for the  
7 exam came out.

8 And, what we're doing under this revised process,  
9 we're now going from a 5 to 20-day period for them to respond.

10 I'm just -- I guess I'm -- maybe I didn't study enough  
11 for this exam here today. I'm trying to understand what those steps  
12 are. Nancy?

13 MS. SALGADO: I hope that Gene will help me out  
14 here and make sure I'm solid.

15 Going to 20 days comment period is not during the  
16 appeal process. It is after when you're getting post-exam comments.  
17 If you get better quality comments, the region may --

18 CHAIRMAN BURNS: They're commenting -- let me  
19 -- wait.

20 So, they're commenting on the exam itself? Now,  
21 make sure I talk what I'm talking about, are they commenting on the  
22 written exam or the simulator exam or both or whatever else there is  
23 to?

24 MR. GUTHRIE: All portions of the exam.

25 CHAIRMAN BURNS: Okay. So, the licensee might

1 come in and say, you know, really? You asked that question, or you  
2 challenge him on that during the simulator exam. You asked this  
3 question, you know, made this sort of trick question on the written -- is  
4 that what you're getting?

5 MR. GUTHRIE: Well, most often, the comments  
6 revolve around some technical nature. The procedure that the -- the  
7 licensee --

8 CHAIRMAN BURNS: Okay.

9 MR. GUTHRIE: -- submits the questions, right?

10 CHAIRMAN BURNS: Okay.

11 MR. GUTHRIE: So, we review them. And,  
12 sometimes mistakes are made, in a wrong procedure cited or  
13 somebody didn't fully understand the whole aspect of --

14 CHAIRMAN BURNS: Okay.

15 MR. GUTHRIE: -- you know, how this relates to this  
16 question, that procedure relates to that question. So, that's what's  
17 going on there.

18 The facility licensee is interested in having the most  
19 applicants pass the exam.

20 CHAIRMAN BURNS: Sure.

21 MR. GUTHRIE: Sometimes, there's competing  
22 interests, if you will, between an applicant who wants to pass and the  
23 facility licensee who wants the most applicants to pass.

24 So, sometimes, the licensees, in their post-exam  
25 comments, will submit comments that are in the best interest of the

1 operating facility and that=s what the region gets.

2 It=s important to --

3 CHAIRMAN BURNS: Again, I=m trying to understand  
4 when we get that.

5 MR. GUTHRIE: We get that right after the exam=s  
6 done.

7 CHAIRMAN BURNS: Is administered? Okay.

8 MR. GUTHRIE: Yes.

9 MS. SALGADO: Right. And, the two options that I  
10 said that we modified was one was associated with the post-exam  
11 comments.

12 CHAIRMAN BURNS: Right.

13 MS. SALGADO: Then, the other one was to have a  
14 licensee=s position on the applicant=s contentions. That=s different  
15 that is associated with the request for the informal appeal.

16 CHAIRMAN BURNS: From the --

17 MS. SALGADO: On the particular question.

18 CHAIRMAN BURNS: -- person standing for the  
19 operator=s license?

20 MS. SALGADO: Correct. The licensee would make  
21 a position on --

22 CHAIRMAN BURNS: So, then, you get an up or down  
23 from the --

24 MS. SALGADO: Get their position.

25 CHAIRMAN BURNS: -- facility licensee with respect



1 to that? Okay, so and then, that=s the quote informal process? And,  
2 then, the beyond that is?

3 MR. GUTHRIE: Adjudication.

4 CHAIRMAN BURNS: You go -- and, okay.

5 And, so, all right, they challenge it. How many of them  
6 have gone to the Licensing Board for actual adjudication?

7 MR. DEAN: I can count on one hand, there=s been  
8 some in the past.

9 CHAIRMAN BURNS: There have been some? But,  
10 I used to handle these, actually.

11 MR. DEAN: Yes, but only a handful in my history have  
12 gone to a Board.

13 CHAIRMAN BURNS: And, actually, what happens  
14 then often is there is an informal negotiation because I form by your  
15 reason, the only reason I -- my first opportunity to go to the Surry Plant  
16 was about one.

17 So, okay, so, sort of lost my train of thought. But, so,  
18 what you=re -- what we are thinking of, that=s what I=m trying to  
19 understand and now this is -- I think as Commissioner Svinicki said, sort  
20 of a reflection on what the recommendation that came to the  
21 Commission was to eliminate that operator applicant=s informal  
22 engagement in view of the fact that the facility applicant might be the  
23 advocate for the --

24 MR. DEAN: And giving them more time.

25 CHAIRMAN BURNS: Okay, all right, okay, I think I

1 understand.

2                   Let me ask this, I have other questions, so the points  
3 were raised, I think, in some of the presentations on the first panel in  
4 terms of need for consistency, for example, across regions in the  
5 process.

6                   Maybe give you a chance to sort of, what are probably  
7 the key aspects that we do to assure consistency across the region in  
8 terms of, you know, Bill sort of touched on it as in the good old days is  
9 you, you know, you would sort of hit your head if you saw a certain  
10 examiner come in the room or what, what do we do to --

11                   We probably -- people probably still do in some cases,  
12 my guess is. But, what do we do to enhance consistency across the  
13 regions or ensure sort of a fidelity between well experienced examiners  
14 and newer examiners?

15                   MR. DEAN: So, let me start and I think Chris and  
16 Gene and others might want to weigh in.

17                   So, the examiner incentives are a big piece of that,  
18 right? And, if I was going to talk about what=s the major theme of Rev.  
19 11? It=s trying to address aspects of the examiner standards that led  
20 to inconsistent application.

21                   I would offer that the Program Office probably could  
22 have been -- because we were aware of these differences, just like in  
23 the inspection program, right, the GAO audit on green findings that, you  
24 know, Region IV had, you know, twice as many as Region II or  
25 whatever.

1                   And, we were okay with that because we=re talking  
2 about green findings that didn=t have any real significance, right?

3                   But, it does reveal that there are challenges sometimes  
4 in our guidance documents that are interpretable. And, so, I think the  
5 major theme in Rev. 11 is how can we eliminate or address areas where  
6 we had language in the examiner standards that kind of fostered some  
7 of these inconsistencies.

8                   So, we go out and we do audits, right, we have operator  
9 licensing program audits and we go out and watch people administer.

10                  You know, we do cross pollination and, you know,  
11 Chris=s discussion about moving towards more of a national approach,  
12 I think, is going to improve consistency because it=ll have more  
13 blending of resources from different regions involved in operating  
14 licensing examinations.

15                  So, there=s a number of things, but there=s still a  
16 human element. I mean, it=s the most human element of what we do  
17 as a regulator is this interface, one on one interface between the  
18 individual examiner and the individual candidate.

19                  And, we=re never going to fully eliminate the degree of  
20 subjectivity. But, as I=ve tried to point out is, over the decades, we=ve  
21 done a lot of things to make it a much more objective and safety focused  
22 process.

23                  CHAIRMAN BURNS: Yes, Chris?

24                  MR. MILLER: And, there are specific things, as Bill  
25 alluded to, you know, within 1021 Rev. 11 that there=s a number of

1 things that we have addressed.

2 I think SRO -- consistency of SRO questions on the  
3 exams is one of them.

4 But, beyond what we fixed in 1021 Rev. 11, we went  
5 beyond that and said, there=s some other things that we think we need  
6 to do.

7 So, we came up with a list of regional inconsistencies,  
8 so to speak. And, I mean, it=s a list and we meet periodically with all  
9 the branch chiefs of the examiners in the regions. And, we discuss  
10 these issues. We talk about, well, how come you got more of this in  
11 this region than that region? And, we actually keep them on a list and  
12 we discuss those.

13 And, then, when significant issues come up, I mean,  
14 it=s a very robust team and they have conversations I will say  
15 frequently. I don=t want to lock them into a time frame, but certainly  
16 weekly, Nancy=s on the phone with the rest of the team talking about  
17 some issue of consistency.

18 So, we=re continually to try to close that gap of, you  
19 know, where there are things are being done different and across the  
20 regions.

21 CHAIRMAN BURNS: Okay.

22 MS. SALGADO: May I?

23 CHAIRMAN BURNS: Sure, Nancy.

24 MS. SALGADO: If we could pull up the slide 12?  
25 One of, you know, we=ve been -- I think the answers have been focused

1 on 1021. And, I wanted to highlight this photo is that, in this photo, it  
2 was an operating exam that was occurring the fall at the Brunswick  
3 facility.

4 And, if I had to point to I would show you that we have  
5 a Headquarters member auditing the Region II examiners that are  
6 giving the exam. Okay?

7 So, we do this in -- the Program Office does this in the  
8 regions and we try to hit, you know, it's hard because, you know, we're  
9 manpower poor at the moment, but we try to do a couple in each region.

10 And, in addition, we do an office -- a thorough office  
11 review of each regional office every year, well, you know, staggered  
12 year. You know, we were just in Region III. Next year, it's Region II.

13 And, in addition, we also have examiners that, since  
14 we share examiners, we have examiners go and help Region II if they  
15 need assistance. And, we ask them during our office reviews or during  
16 our get togethers, are there any differences that you want to highlight  
17 that we need to be aware of? Whether it's a good practice or a bad  
18 practice, and we try to gain insights of what they are.

19 CHAIRMAN BURNS: Yes.

20 MS. SALGADO: And, Gene, is there anything else?

21 MR. GUTHRIE: So, the nexus of the regional  
22 differences was actually an initiative that came out of the lessons  
23 learned review team. It's actually a recommendation, I think it was  
24 1.6, if I remember right. And, that's where we called out and said that  
25 the -- all the regions need to identify what they do different.

1                   And, out of that, we created a list and determined which  
2 ones can we not do different? Which ones are required to do the  
3 same? And, which ones are okay to -- you know, some things, it=s  
4 okay for the regions to do differently, it just -- it=s a regional thing and  
5 that=s okay. So, that=s what we did.

6                   And, there was, you know, hundreds of differences that  
7 were identified.

8                   Ongoing, that=s still -- that=s the database that=s  
9 considered. We had corrective actions for each and every one of  
10 those. Some of them are long-term requiring Rev. 11 to come out.  
11 Other ones were addressed, you know, short-term and we continued to  
12 do that.

13                   There=s actually a form that we have for examiners  
14 who are cross regional support to other regions to identify. And,  
15 there=s actually a checklist, if you will, to help them spur their thoughts  
16 and make sure they=re identifying differences.

17                   CHAIRMAN BURNS: Okay.

18                   MR. MCCREE: Mr. Chairman?

19                   CHAIRMAN BURNS: Yes?

20                   MR. MCCREE: If I could, I think this is a great  
21 question and just, if I could wrap up. You heard about standards. You  
22 heard about cross pollination of examiners on exams and audits.

23                   Qualification, standard qualification is also important,  
24 the training and refresher training, the operator annual operator  
25 licensing exam conferences is a way to focus that as well.

1 Bill mentioned something I thought was important as  
2 well and, that is, a number of the insights that we learned about when I  
3 asked and Eric Leeds agreed to that we needed to do a lessons learned  
4 review as a result of the SLB panel decision, if you would.

5 But, a number of those differences we had seen and  
6 talked about a decade or more before. And, we had not necessarily  
7 attacked in a way that I think was comprehensive and responsive.

8 So, it was a wakeup call of sort that we need to do in  
9 any program that we have. If it's more than a decade old and we've  
10 not made any substantive changes and looked at it very well that we  
11 definitely need to do that. And, I know that's being imbedded in our  
12 culture as, if not anything else, as a result of Project Aim that we need  
13 to have these types of cultural introspective reviews of programs,  
14 processes and procedures to make sure that they're not only effective  
15 but they're efficient as they need to be.

16 So, again, I think is the good example for us.

17 CHAIRMAN BURNS: Okay, now, I appreciate it.  
18 And, I do appreciate the effort that goes into that because you said that,  
19 I think a couple of you said that the sort of contact with this, you know,  
20 larger class of licensees, if you will, and assuring that there's a, you  
21 know, there's a good fidelity in some areas where there is judgment  
22 that has to be applied and as well as, you know, a responsibility, I think,  
23 and appropriately so, across regional offices.

24 You know, so I commend that for that continued effort.  
25 I'll close there. The only thing I will say is running through my head

1 is, I had sort of recollections of the bar exam and I remember because  
2 they used a standard question bank. So, I got some, I think, the first  
3 written exam -- written question on the exam was some arcane thing on  
4 the Uniform Commercial Code, but I had read it and studied it from the  
5 background thing and I saw that and I said it=s going to turn out okay.

6 So, anyway --

7 (LAUGHTER)

8 CHAIRMAN BURNS: -- I knew the answer, it=s going  
9 to turn out okay.

10 But, anyway, thanks.

11 Commissioner Svinicki?

12 COMMISSIONER SVINICKI: Well, thank you all for  
13 your presentations. I guess I was flashing back a little bit, to be honest,  
14 to the Professional Engineer Licensing that route begins with a  
15 fundamentals exam upon graduation.

16 So, yes, you can study to the test and that=s  
17 undesirable.

18 I probably share Mr. Dean=s view, though, that, if an  
19 individual can memorize 2,000 questions, she would make a very good  
20 licensed operator.

21 (LAUGHTER)

22 COMMISSIONER SVINICKI: But, this meeting is  
23 about more than Rev. 11 and a subset of changes in Rev. 11. So, I  
24 just wanted to pull back and offer a reaction on a couple of other topics.

25 Consistency across the regions was really a genesis



1 for some of this look. I appreciate that the Chairman explored that with  
2 the panel.

3 And, that Bill Dean said, really, a theme of changes,  
4 the approach of changes to the NUREG was about that consistency  
5 across the region. And, it does have parallels with the green findings  
6 issue that has been looked at in the reactor oversight process.

7 Some level of variability will occur, but we do try to have  
8 a coherent national program that we're administering so that an  
9 individual will feel that it's going to deliver in the main, the same results  
10 no matter where you are, in which region of the NRC system.

11 So, I think that that is important and Nancy and Gene  
12 touched on that in their initial presentation.

13 Nancy gave examples of inconsistencies across the  
14 region with like the crediting of points back in certain circumstances and  
15 things like that that Rev. 11 is addressing.

16 And, Gene talked a lot about the sharing of examiners.  
17 And, I think that is going to be a real key measure that allows you to at  
18 least have a check on what level of divergence are you encountering.  
19 Is it worth addressing? Is it of a low level since we do have humans in  
20 the loop, as Bill Dean said, and you're going to have some level of  
21 subjectivity there.

22 But, we do have an enduring obligation to be looking at  
23 that. And, I think that you've presented a set of measures that is very  
24 systematic and keeping our eye on the ball there.

25 Chris talked about something that I'm going to count

1 myself in the, perhaps, smallish cohort of people that are kind of excited  
2 and geeked up about which is the revised Reactor Program System  
3 which we've been hearing about for some time.

4 That is, first of all, I think a good example of why, when  
5 we look at like fee billing and invoicing, it's a very significant  
6 undertaking to take -- undertake a major systems upgrade, which is  
7 what's occurring here with the RRPS system.

8 And, then, I appreciated also your discussion of the  
9 operator digital docketing system and the workflow there and how  
10 we're moving towards that.

11 It reminded me a little bit of the U.S. Federal  
12 government going to the Electronic Official Personnel Folder and we  
13 used to, all of us had throughout our federal career, this bundle of paper  
14 that followed us around if we moved from the field to Headquarters and  
15 things like that.

16 So, while painful and imperfect at first, you know,  
17 ultimately that is simply a more robust system.

18 I don't know, and I might ask you, Chris, is the  
19 operator digital docket, would that be able to follow operators if they  
20 were to change utilities and plants? Ultimately, would it do that?

21 MR. MILLER: Yes. Well, the system already, the  
22 way it's set up, it has an operator docket file for each licensed operator  
23 that has a license. So, yes, that would be able to follow if they went to  
24 a different utility.

25 The piece that operator digital docket does better than

1 what we have right now is, now it=s all collected. It=s collected  
2 digitally, but it just sits in a digital folder and if we want to process  
3 something like get information out of that folder.

4 We still have an administrative assistants that are  
5 typing in the information that we receive from the licensee. They=re  
6 manually inputting all the information.

7 So, what this does is allows us to -- and it will take  
8 cooperation from the licensees to submit the information in a digital  
9 format. But, once they do, it just makes the manipulation of those so  
10 much easier and we think great efficiencies are there.

11 But, yes, it will, to answer your question, it does -- it will  
12 go across when they move to a different utility.

13 COMMISSIONER SVINICKI: But, even this initial  
14 rollout still has quite a bit of paper, both on the inputting end, you just  
15 described, and on the outputting. And, we still, the end steps of it are  
16 still old fashioned, shall we call it.

17 But, I do think it=s important, as painful as some of  
18 these upgrades are, if no one ever begins, we never get there and you  
19 don=t start with the full expression of what you hope to achieve. So, I  
20 appreciate that we are working on that.

21 Mike Cheok, I appreciate that you talked about the  
22 aspects. You=re presentation was very much in alignment with the  
23 first panel about there were certain things that the infrastructure for  
24 AP1000 operator licensing, the infrastructure served us well, but there  
25 were still aspects of it that we needed to use the exemption and waiver

1 process.

2 I don't think there's anything wrong with that.  
3 However, I think, on the Commission-approved simulator, that was a  
4 little painful getting there. And I think even the NRC staff would  
5 represent that we would hope that that, you know, we could move  
6 through that more efficiently in the future.

7 But, you know, it was a bit of a first of a kind thing and  
8 I want to credit that, you know, we have been adaptive in the processes  
9 and we have gotten there, not always as elegantly as we might hope to  
10 do in the future. So, I think that that's important.

11 Again, Commissioner Baran stepped through very  
12 systematically the various options that industry or others could come up  
13 with on the frequency of the GFE.

14 I can't help, though, but, again, be drawn back to the  
15 Commission's meeting on fee process improvement and potential  
16 changes.

17 As we sat, it became apparent that, although certain  
18 things could be changed, there simply wasn't a huge outcry to do them.  
19 The efficiencies were potential and maybe not guaranteed. And, at the  
20 end of the day, if we were somewhat indifferent, ultimately, it wasn't  
21 clear why we would take on certain changes.

22 So, I, you know, I find myself thinking maybe, you  
23 know, you don't make a change or you could, again, have something  
24 that the two other exam offerings could be done without changed  
25 questions.



1 MR. DEAN: When we would qualify somebody and  
2 either go see some particular person that would qualify you in a certain  
3 area and they would ask you these Oolies.

4 COMMISSIONER SVINICKI: Isn't the entirety of the  
5 Navel Academy experienced about Oolies pretty much?

6 MR. DEAN: Probably. And, I --

7 (LAUGHTER)

8 COMMISSIONER SVINICKI: That=s my  
9 understanding of it.

10 MR. DEAN: And, I=d have to say, I did go to an  
11 accredited university, I did not go to the Academy.

12 COMMISSIONER SVINICKI: Okay. Well, we can  
13 say that about our Academy colleagues here, our EDO among them  
14 who=s going to probably ask for the last word.

15 And, then, the risk of sounding like I=m saying Bueller,  
16 Bueller, I noticed that Mike Johnson is in the back row. I need to see  
17 you after the meeting, Mike, you=re in the back row so you can run out  
18 of here really fast. So, please hold, it=s on an entirely different topic.  
19 But, thank you. And I had to make sure that Mike was awake in the  
20 back row.

21 In the back row, we also have like Mr. Webber.  
22 There=s a lot of people on smart phones back there, I=ve got to tell you.

23 But, I do appreciate -- the staff ran over a little bit  
24 because Mr. Dean had a lot of historical references. Actually, I found  
25 that really informative. I hope it=s part of KM at the point at which we

1 might, hopefully never, but we might lose you from the NRC. I hope  
2 we do some structured interviews with you to make sure that we've  
3 documented some of that.

4           It's interesting and I'll just use my last minute to tell  
5 this story. I felt reinforced in some of the back and forth on the splitting  
6 of the GFE off. And, Chris Miller talked about this a little bit, too.

7           When people want to make a change, so maybe I say  
8 this to any of the NRC staff listening who, sometimes lose their patience  
9 with me, and you say, why does it take so much to convince Svinicki  
10 that a change needs to be made?

11           Part of it is that I've been humbled sometimes in my  
12 career, because I look at a change, and early on in your career, you're  
13 like, that's great, let's do that because we're the smartest people in  
14 the world and we just thought of a new thing.

15           What you find is that it's better to ask the question,  
16 why did it exist in the form it did? Because, you're predecessors, in  
17 general, were as smart, or smarter than you, and, if they put the  
18 structure in place, so, to begin with the knowledge of why it is the way  
19 it is, sometimes those people had painful learnings that caused them to  
20 have the structure they have.

21           So, yes, I am a bit of a skeptic, but I start with that.  
22 But, and often, you're very compelled by why they had it that way and  
23 had it split out.

24           So, I also, in all seriousness was reflecting on that  
25 when you told the story of why does the GFE exist? Why are

1 fundamentals tested separately?

2 So, I will let Victor talk about Oolies and I'm done.

3 MR. MCCREE: Oh, no, well, on your last point, one of  
4 the disciplines that many of us learned from a former Deputy EDO, Bill  
5 Cain, was to ask the question. You know, why do we do this?  
6 Followed by, why do we do it this way?

7 And, an axiom, I think we're learning to add to it as, is  
8 there a better way to do it? So, it's a three-part question, but you  
9 definitely start with the first two.

10 To your structured interviews, by definition, when it's  
11 Bill, they will be on unstructured. But, we will do our best to --

12 COMMISSIONER SVINICKI: Is that because Bill is  
13 unstructured?

14 MR. MCCREE: I'm going to have to do some  
15 research on Oolies. I was watching the Michigan-Ohio State game  
16 and I could have sworn that --

17 COMMISSIONER SVINICKI: Oh, you're in  
18 dangerous territory here, be very, very careful.

19 MR. MCCREE: I could have sworn he mouthed Ooly  
20 at that some point during the game. But, I'll have to do some research  
21 yet.

22 COMMISSIONER SVINICKI: Okay, thank you.

23 CHAIRMAN BURNS: Oh, well, thank you.

24 Any last comments? Calls?

25 COMMISSIONER BARAN: Can I push my luck and



1 ask about one quick thing?

2 CHAIRMAN BURNS: Sure.

3 COMMISSIONER BARAN: He=s like, yes, I guess.  
4 You can=t get away with this stuff when there are five Commissioners,  
5 so I=m just going for it.

6 One thing that the first panel talked about a little bit and  
7 they raised some concerns about, that we didn=t really talk about much  
8 at all on the second panel was just the basic simulator testing grading  
9 change from -- going from 1 to 3 with 1.8 being a pass to 0 to 3 with 1.8  
10 being a pass.

11 Which, on its face, does seem like it has the potential  
12 to raise the bar to pass.

13 Can someone just briefly -- what=s driving this  
14 change? And, to be even a little more pointed about it, is the staff  
15 concerned that right now, the bar is too low? Or is it something else?

16 MR. MILLER: So, let me address that.

17 I think part of the -- or the main reason for the change  
18 was to get the ability to better evaluate the competency of an applicant  
19 who made a number of failures.

20 If you look at how this structure of these simulator  
21 grading goes, they give you full credit for everything and then they start  
22 deducting for when you don=t do something right.

23 So, in order to -- before, you couldn=t deduct down  
24 below a grade of 1, and that left some challenges when you had some  
25 very important critical steps that were missed.

1           For example, you know, in a BWR blowing down with  
2 ADS or something depressurizing the plant, some very critical steps.  
3 So, they thought, well, let=s -- let us take it, for that kind of situation, we  
4 need to be able to go all the way down to zero.

5           Now, why didn=t they change the grading criteria?  
6 And, I=ve talked to several of the examiners on this. And, I=ll yield to  
7 Gene if he wants to give a little bit more detail.

8           But, my understanding is, you=re still starting with 3  
9 and going down from a 1.8 was felt that that was still the, you know,  
10 that=s about as far we want to go.

11           That many mistakes, that many errors, that we would  
12 have to put up with -- to call somebody competent. So, there wasn=t  
13 a direct need to change the cutoff.

14           That being said, if you=ll look in the LLRT, the Lesson-  
15 Learned Report, they anticipated that, hey, that could possibly cause a  
16 change in the difficulty of the exam, which is not what they were after.

17           But, they said, we don=t think it=s going to be very  
18 significant. So, that=s when staff took a look at all of the grading for  
19 the exams from 2014 December to 2015 December and regraded it  
20 according to the current grading standards that are in NUREG-1021  
21 Rev. 11. And, they found that that would only make a difference of  
22 approximately 2 percent.

23           You know, it was just for that year, we=re not saying  
24 that absolute number. But, it looked like it wasn=t -- they were right, it  
25 was not significant in the change. But, that=s the general thought

1 pattern.

2 CHAIRMAN BURNS: The fundamental rationale,  
3 though, kind of, it=s to be able to make finer distinctions between  
4 applicants taking the test, is that --

5 MR. GUTHRIE: So, the basis behind -- the whole  
6 reason for making the change was because of the hearing results.  
7 Okay? In the hearing results, the results in the report stated that the  
8 staff overstepped their authority.

9 There was arbitrary grading decisions and, you know,  
10 we needed to address that.

11 So, when you go and you look at the 1021 guidance for  
12 implementing the process, what we found was that there was flexibilities  
13 in the guidance as it was written such that when different examiner to  
14 examiner, region to a region, looked at those guidance requirements,  
15 those flexibilities and we ended up with inconsistencies in application of  
16 the grading process.

17 One of them was very obvious giving a point back. If  
18 you -- what we do is we tally up the number of errors that are made in  
19 a certain competency in an area of performance and those add up to a  
20 certain amount.

21 If the person did, no matter how many they have, if the  
22 person did any one right, they get a point back.

23 When you looked at the guidance, there was  
24 flexibilities on whether you could do that or not. And, that -- and the  
25 hearing results, they said that our decisions was an abuse of discretion

1 as a result of these inconsistencies that were identified.

2 So, when we looked at the results of that with the  
3 Lessons-Learned Review Team, we determined by creating specific  
4 objective criteria as it relates to application of grading that we could  
5 alleviate the subjectivity away from the examiners, create very objective  
6 criteria and when this error occurs, it results in this. When this error  
7 occurs, it results in this. And, that=s what we did.

8 So, why did we go from a 1 to a 0? Primarily to  
9 address what=s characterized an error or a task that=s called a critical  
10 task.

11 There are certain things that an operator needs to do  
12 that are critical in nature that puts the plant in safe condition or mitigates  
13 consequences of an accident. If they don=t do that, that=s significant.

14 And, so, when you look at an error that=s made,  
15 there=s errors in communication, for instance, okay, then there=s errors  
16 in not putting the plant in a safe condition. So, you know, should they  
17 be treated the same? We didn=t think so. But, we needed to be more  
18 -- so that there wasn=t any flexibilities in the application of that.

19 So, we created the 0 to specifically address failure of  
20 critical tasks. If somebody fails to meet a critical task, you get 0 points  
21 for that.

22 COMMISSIONER BARAN: Okay, thank you.

23 MR. GUTHRIE: Thanks.

24 CHAIRMAN BURNS: All right, thanks.

25 And, I=m pleased we had this opportunity this morning

1 to discuss the status of the operator licensing in the nuclear power  
2 industry.

3 I know the licensing program is very important to all the  
4 panelists who=ve been represented here today, both on the staff as well  
5 as the industry.

6 And, I want to assure that, as I think you heard this  
7 morning, we=re very interested in the continued success of the program  
8 to assure that we have good operator crews out there at the facilities  
9 that we license.

10 Again, thank you and we are adjourned.

11 (Whereupon, the above-entitled matter was  
12 concluded.)