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NUCLEAR REGULATORY COMMISSION

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34TH REGULATORY INFORMATION CONFERENCE (RIC)

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TECHNICAL SESSION - TH25

PRACTICAL EXPERIENCE IN EXECUTING A 10 CFR PART 52

COMBINED LICENSE FOR VOGTLE UNITS 3 AND 4

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THURSDAY,

MARCH 10, 2022

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The Technical Session met via Video-  
Teleconference, at 8:30 a.m. EST, Omar  
Lopez-Santiago, Deputy Director, Division of  
Construction Oversight, Nuclear Regulatory  
Commission, presiding.

PRESENT:

OMAR LOPEZ-SANTIAGO, Deputy Director, Division of  
Construction Oversight, RII/NRC

ZACH HARPER, Manager, Plant Licensing Engineering,  
Westinghouse Electric Company, LLC

AMY CHAMBERLAIN, Nuclear Development Regulatory  
Affairs, Southern Nuclear Operating Company

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NICOLE COOVERT, Chief, Construction Inspection  
Branch I, Division of Construction Oversight,  
RII/NRC

VICTOR HALL, Chief, Vogtle Licensing & ITAAC  
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## P R O C E E D I N G S

(8:30 a.m.)

MR. LOPEZ-SANTIAGO: Good day and welcome to the third day of the 2022 Regulatory Information Conference, or the RIC. This morning, we're going to have a great panel of discussion about our experience executing the first Part 52 Combined License for Vogtle Units 3 and 4.

My name is Omar Lopez-Santiago. And I'm the Deputy Director for the Division of Construction Oversight in our Region II Office in Atlanta, Georgia.

I'm going to be the Chair for today's panel discussion. This is a busy time for Vogtle and all of us as we work together to ensure that the first new powerplants built in this country in over ten years are safe.

We meet today, we have the following panelists: first, Zachary Harper. Zach is the Manager of Westinghouse Plant Licensing Engineering team and his group is responsible for Westinghouse Licensing Activities related to new plant builds.

Next we have Amy Chamberlain. Amy is the Nuclear Development Regulatory Affairs Manager for Southern Nuclear. In this role, Amy supports Vogtle

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3 and 4 construction licensing needs.

Next we have Nicole Coover. Nicole is the Branch Chief of the Construction Inspection Branch 1 in DCO in the same division I work for and Nicole is responsible for managing the construction inspection program of Vogtle's Units 3 and 4.

And last but not least, Victor Hall. Vic is the Branch Chief of the Vogtle Project Office at the Office of Nuclear Regulatory Regulations. Sorry, Nuclear Reactor Regulations, NRR and he's responsible for licensing and overseeing the construction of Vogtle 3 and 4.

In today's panel, we're going to be discussing the following topics: We're going to be talking about licensing, ITAAC and you are going to hear that word a lot, ITAAC means Inspections Tests Analysis and Acceptance Criteria.

The construction inspection program and applying lessons that we have learned throughout this process to future applications. As a reminder, this is a panel discussion so we encourage everybody, the audience, to ask questions to the panelists and please use the chat function in the application.

So as an introduction and a start to kicking off the panel discussion, please Vic, tell us

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a little bit about your work with Part 52.

MR. HALL: Thanks Omar. And welcome to everyone to the Regulatory Information Conference. So in Part 52, I won the Part 52 lottery and it's the jackpot because I have the best job in the world.

What I mean by that is the work that we get to do is so unique and so important to the country that again I feel incredibly blessed and lucky to do what I do.

So I'm the Branch Chief of the Vogtle Project Office in the Office of Nuclear Reactor Regulation. I love our tag line. In NRR, it's we make the safe use of nuclear technology possible.

And as you might have gleaned from the name Vogtle Project Office, we do that very specifically for the Vogtle Construction Project which is as Omar mentioned, the first nuclear construction project in this country in over 30 years.

So this is going to sound really corny. I want to apologize, but it's like 8:30 in the morning here in D.C. and I'm the king of bad jokes, but what we do in the office is kind of magic. It's making safety from nothing.

As a regulator, you know, we don't make

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a single pump or a valve, we don't design anything, we leave that to Zach and the good folks at Westinghouse. We don't build the plant, we leave that to Amy and the fine folks at Southern.

But what Nicole and I get to do is from paper. We help create the rules, we inspect, we do, you know, we don't create anything, but we make safety.

We're able to create the plant, make the plant safe through our regulatory structure through our licensing and through our oversight which we do at VPO.

And that's kind of a cool thing when you think about it, it's an influential pursuit of making something safe without actually touching it. And so it's a kind of a unique thing. And it takes incredibly talented folks to do that.

There's a skill, there is a special knowledge that goes into being a regulator and making that happen. And that's where I feel perfectly lucky because I'm working with the folks in the Vogtle project office who are just really good at what they do.

We have, there are 11 of us, we are engineers, project managers, who have since the very

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beginning of Part 52 worked on this unique process to make and make the plant safe. Part 52 is kind of a unique beast.

It's the first time we're ever going through this process. If you've heard me talk about Part 50 in the past, you know, it was derived from the FCC's regulations on building communications tower.

There was a separate construction permit for building them and then operating them. So, you know, you're talking about 1950s type regulatory structure. And Part 52 which is born in the 1990s was meant to standardize plants, bring some stability to the very first structure, and you know, we now have 20 years' experience of design certifications, combined licenses and a lot of lessons learned from that.

And we're in the first kind of stages of this overseeing construction to the very end which is really exciting in getting to see all of that come together.

So in terms of Part 52, my experience is the last four years working with incredible people who have incredible experience and getting a chance to see this plant come out of the ground and be done

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safely.

MR. LOPEZ-SANTIAGO: Okay, great. Nicole, what about you?

MS. COOVERT: Good morning. As Omar said, I am, my name is Nicole Coovert. I am the Branch Chief in the Division of Construction Oversight in the DCO Region II Office. And I would echo Vic Hall that the folks that I have the pleasure and opportunity to work with every day are just incredible inspectors with skill sets that go across many different disciplines and experiences.

And when I say inspectors, it's Region II inspectors. All of us are involved in the Vogtle project and performing inspections. So it's part of our mission. We regulate and provide inspection oversight.

Other construction activities for the Vogtle Unit 3 and 4 sites that's located in Waynesboro, Georgia. And this is to provide reasonable assurance of adequate protection for public health and safety to promote common defense and security and to protect the environment.

The Division of Construction Oversight also implements the inspection program which includes resident and regional inspectors with the support

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from headquarters technical experts as Vic Hall was referring to.

And what keeps us busy, very busy, is the planning, scheduling and completing of three different types of inspections which are construction inspections, initial test programs, and operational program inspections.

The resident and regional inspectors at Vogtle exert significant time and resources to verify that the licensee's construction and completion of inspections, tests, analyses, and acceptance criteria deserve more say and we'll say that a lot today, is what we call ITAAC.

As part of the new reactor licensing process for the licensee of Part 52, a combined license enables the licensee to construct a plant and operate it once construction is complete.

And if certain design-specific pre-approved sets of performance standards, or ITAAC, identified in a combined license are satisfied. So essentially, the ITAAC or necessary information, that when successfully completed by the licensee, provide reasonable assurance that the facility has been constructed and will operate in accordance with the combined license, the provisions of the Atomic Energy

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Act of 1954 as Amended and the NRC's rules and regulations.

So through licensing and inspection activities, when the NRC makes that determination that all ITAAC is satisfied, the NRC would authorize licensee to load fuel, initial plant startup, an operation which we also commonly call and refer to as the 52-103G finding.

MR. LOPEZ-SANTIAGO: Thank you, Nicole. Amy, your turn.

MS. CHAMBERLAIN: Sure. I'm Amy Chamberlain. I'm the Nuclear Development Licensing Manager for Southern Nuclear. And I have actually spent most of my career working in Part 52.

The last eight years I've been here with Southern working to build the Vogtle 3 and 4 plants in Augusta, Georgia. My team is based out of our Birmingham office so we are responsible for license amendments, exemption requests, alternatives, and really being the forward-looking organization to take some of that work off of the folks at the site.

And so for the last eight years we've been working very closely with Westinghouse and Zach's team to process these license amendments and various changes to our license.

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So but before I came to Southern, I also have worked in other Part 52 applications and pre-applications. So I've seen Vogtle 3 and 4 actually get constructed and getting really, really close to coming aligned.

It's really personally for me something I wanted to see for our industry. So I'm really excited, like you said, it's a very busy time at the site. And we're working hard to get those ITAAC closed. So that's my role for Part 52.

MR. LOPEZ-SANTIAGO: Thank you, Amy. Zach, what about you?

MR. HARPER: Good morning, everyone. My name is Zach Harper. I'm the Manager of Licensing Engineering here at Westinghouse. I have about 12 years of experience working in Part 52.

I started when we were still developing the design certification document. And my experience there was primarily working in the ISG 11 process which now is in RG 1.206 and supporting the ACRS meetings and the various chapters, the responses to the NRC's Request for Information.

I also supported the different license applications for AP1000 and as well as I've also supported some international efforts in China,

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supporting their licensing process as well.

Since the design certification timeframe, I've been supporting Amy and her team to develop inputs to their license permit amendment requests and the Tier 2 departures, that are written under the Section 8(b)(5)(B) criteria as well as supporting the site teams with ITAAC closure via engineering inputs.

I have a pretty unique job where I get to sit between the Westinghouse engineering team that defines the requirements and specifies the design for the plant.

I also work with the construction engineers on site to make sure that, you know, we understand their needs and how, what we can do within the bounds of license to make their job easier and more efficient.

And then working with the team, the ITAAC team there on site to understand where they're struggling or in need of changes or clarification on requirements or what design inputs they need for ITAAC closure.

I'm excited to be with you today. I look forward to the questions that we can answer.

MR. LOPEZ-SANTIAGO: Thank you, everybody. So let's start with licensing. And this

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question is for Amy. Amy, from your license perspective, what do you perceive to be the greatest benefit to executing a Part 52 combined operating license?

MS. CHAMBERLAIN: So I would say it's two parts and they're kind of intertwined, certainty and finality. So those, so certainty and what has been designed has been licensed and constructed in the Part 52 process.

We're required to construct in accordance with our license and I will say during construction, this always, this hasn't always been a benefit and it sometimes has been a challenge, but I personally believe that when we become operational, we'll have certainty in our licensing basis through the work that we have done as a licensee through the various processes including ITAAC.

And finality plays into that certainty. We have, the DCD has finality and that through the process has gained a certainty in the construction process also. I don't know, Zach, you want to chime in on finality and the DCD?

MR. HARPER: Yes, I think that that's really one of the key advantages of, you know, the Part 52 process where you get that finality and you

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get those safety issues identified and resolved up front in the process and resolved.

And then through the COL application that designs application process, that design has finality and that goes up through the start of the plant.

I would say that, you know, just to jump off of the question that you have, another key benefit of the Part 52 process is standardization.

You know, for me, I perceive, you know, the Part 52 process, you know, the key advantages is standardization, design finality, resolving those key issues up front prior to construction.

So for, you know, the key success for, of a new nuclear build, you know, standardized design developed through a standard procurement and construction process and is licensed in a standard approach and it's perhaps the most salient lesson learned from, you know, the 1980s of their nuclear builds.

And it was recognized through the development of the Utility Requirements Document, the URD and the promulgation of the Part 52 and allowing that standardization and the finality of it really gives a designer and a licensee the confidence to know that once that plant is constructed that it's

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going to start up and operate.

MR. LOPEZ-SANTIAGO: Okay. Vic, this question is for you. How has the NRC managed to cut license amendment review times in half compared to the review times for the operating fleet? Can you apply that for all licensing work done by the NRC?

MR. HALL: Thanks, Omar. So I'm going to give a little background and context. Because as Amy mentioned, there have been a fair number of licensing actions since the combined licensing from 2012.

We have, the NRC has issued and posted just over 200 licensing actions which includes license amendments, examinations and code alternatives and the last four years really since the formation of office bubble project office and another group we'll talk about called the Vogtle Readiness Group, the VRG.

We managed to keep our review time around six months which is about half of the standard time for a, I'll call it a routine licensing action inside the Agency and the most important thing is we've done it with the same come and high rigorous standard of safety.

So there, you know, it's not like we're just doing them quicker. It's still, it's a matter

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of being finding efficiencies and doing things kind of to the pace it's required for construction because, you know, what's different about Vogtle obviously to the rest of the fleet is they're building a plant and there's a need to change the license as things come up as construction is showing that the plant designs will be a little bit different than what we originally anticipated.

So how we've gotten there, you know, the first thing is we have amazing people working on this. The Project Managers that we have on our team are extremely experienced in Part 52 and new reactors.

They're problem solvers. And so they know their craft. And then again, it is a craft to be an NRC Project Manager that knows the regulation, that understands the engineering side of it and can bring those two together towards safety.

So we have amazing people that work on this who are currently motivated. And really I'm going to say a huge tip of the hat to communications that we've done for this project.

I mentioned the Vogtle Readiness Group. It's kind of, we took our lessons learned from the watts bar reactivation and built this, I'll call it a team.

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But really it was still our independent parts of our agency working together and just communicating nonstop. We've had, I think 40 different VRG meetings in the last four years.

And it's really just bringing together different parts of the Agency. The Vogtle project office chairs part of it, Nicole's group and Omar, your group obviously in the did the new construction oversight and Region II chair it.

And we have other support from NRR. And we bring together all the different parts of the agency. We bring together our tech groups. We bring together our legal side.

We bring together our security folks, our IP folks and we have discussions about what's coming, and how we can solve the problems in front of us. So that's internally. Externally, we've been meeting with the licensee and with all our stakeholders very frequently to make sure that we see problems, or see the questions that are coming up ahead of time and set ourselves up for success.

We set up a cadence of weekly public meetings for licensing actions. You know, our teams are probably going to be required to face off, you know, having close to 10 to 12 licensing actions

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inhouse at a time. Right?

And so those weekly meetings were really key for us to be able to talk about the issues that were in front of us and talk about the challenges.

A lot of pre-application engagement so those meetings were fantastic to be able to get a feel for what was coming. And quite frankly, again, it's been thanks to those types of communications that the qual of the applications that have come in from Southern had a good and put a lot of state to complete our views in shorter times.

So I think it's been just communications, communications, communications that they've really allowed us to move at a faster pace than typical.

If you guys are fair for me, Omar, to say the rest of the Agency should just communicate and yes, fix it all. It's a completely different set of challenges and different scale that we've been working on, but I do, I am very proud of the work that we have done at the Agency in licensing.

I do think there are lots of really good lessons learned. We'll talk about lessons learned, there's lots of positives we can draw from the work we've done on licensing and again help build our efficiency in that place as we go forward.

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MS. CHAMBERLAIN: I --

MR. LOPEZ-SANTIAGO: Okay, thank you. Go ahead, Amy.

MS. CHAMBERLAIN: Yes, if I could just jump off of that. I, you know, the communications have been key, but it's been kind of specific and one of the things we did a number of years back was talk, work with NRC to define what we say are high, low and medium complexity bars.

So we knew, Zach and I knew going in what bars we thought were high complexity just based on the amount of engineering work involved or the internal churn on creating the arguments of why we needed the license amendment.

And so extending that, those lessons learned that we have learned internally between our two organizations and opening up that line of communication with the NRC, so that we were communicating, hey, this one's coming in, this licensing action is coming in and we think it's medium complexity because of X, Y and Z.

It really helped the staff prepare for those pre-application meetings so that they had the right folks in the room for those meetings. And then, down the road they could plan, okay, this one is a

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very high complex bar.

We are most likely going to need an audit of this work and we would have all of that planned in advance before we even submitted the licensing action.

So I think that was key, but then also on the other end because, you know, we're nuclear. We're always learning, we're always trying to get to excellence. We took a lot of feedback from the early days as submitting these licensing actions and really worked them in to submittals.

Each time we learned, we learned something that hey, we expect the staff to ask this question and so making sure we had it up front in the signals and one interesting thing I love data.

And you could see from our submittals if you look in ADAMS at the number of RAIs. They really decrease over time as we got better with that communication.

So and as Vic said, just because I like numbers, we actually have somewhere around 15 exemptions and alternatives today. And we're currently on amendment 188 for Unit 3 and 186 for Unit 4.

MR. LOPEZ-SANTIAGO: Okay, we got a

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question for Vic. Vic, why are many advanced reactors designers not taking advantage of Part 52 and instead opting for Part 50?

MR. HALL: Yes, great question. And I listened in to some of, I think it was Tuesday's session on advance reactors. And heard, I think it was the folks at X-energy talking about looking at using Part 50. You know, my guess, again, this is a guess because I think we're kind of focused on the back end construction, but if you look at going way back to what it takes to get a certified design and a COL, I imagine there's some calculations that go back to how much it's going to cost for that delible work so, you know, we're, the NRC is developing a Part 53 which is going to be a technology neutral framework which I know just about, you know, this much about.

But that might be the future for advanced and smaller reactors. I think Part 50 and Part 52 are still the standard for a large light water nuclear reactor.

So if you're looking at a smaller plant, small modular plant, you know, I don't know how to tell enough to put together. So it's a fair question, it's probably better directed at those designers who

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are looking at advanced reactors.

And I think it's going to take into the totality of the process. At the very beginning, if you look back at Zach when you start, when Zach initially submitted the D.C. for Westinghouse, we're talking gosh, 2000, I'm going to mess up my math here, 2002 timeframe is when you first applied I think for the D.C. AP1000.

So you're looking at a long stem between that and where we are now. I think the some shows going through it.

MR. LOPEZ-SANTIAGO: Okay. So let's move on to ITAAC for a little bit and then we might go back. We might come back to licensing. So Nicole, what preparation was required for complex ITAAC such as structural reconciliation, the ASME ITAACs or long-lead items?

How has the NRC been inspecting ITAAC and how does that relate to the 103G finding?

MS. COOVERT: Oh, thanks, Omar. Well, first of all, you know, complex long-lead ITAAC, you know, as you said, one of the examples is the ASME related systems like reactor coolant system or the passive core cooling system.

You know, for our inspections, we verify

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that the systems were designed, constructed, fabricated, installed, and tested to the required codes and standards.

For these long lead ITAACs, the NRC has been inspecting these activities since the beginning of the construction projects and as we're approaching Unit 3 all ITAAC complete milestone, we actually had relatively minimal inspections remaining compared to the amount of inspections that we've already completed.

So to give you understanding of our inspection process for these complex ITAAC, so early on in the construction project, the NRC performed vendor inspections and observed the initial fabrication and construction in our key AP1000 components all over the world.

A couple of examples is the inspected major reactor coolant system components and containment fabrication in Japan, Korea, Italy. We have our inspectors out there at these facilities performing those inspections.

We inspected safety related, key electrical component fabrication in Switzerland. We also went to the Wyle Labs (inaudible) in the United States to observe squib value testing and we observed

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fabrication of modules, mechanical skids, ASME system piping assemblies, at multiple different vendors.

So following that, the NRC will also perform multiple design specification inspections at the design authority, Westinghouse.

And Zach was present for I would say most of those inspections in the corporate office. And this was to verify that the design of this key AP1000 component system structures would meet the acceptance criteria and that the design ensured that the most probable transients, the most probable occurrences that would occur during normal operation and operational transients would have least radiological risk and those with extreme situations have the potential for the greatest risk are the least likely to occur.

And essentially, that is the licensee's accident analyses that is described in their Updated Final Safety Analysis Report. And from there, the NRC inspection staff who performed installation inspections at the Vogtle site will verify that the license was constructed, welded and performed non-destructive testing for ASME systems, in accordance with applicable code.

You know, other inspection attributes

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included verifying welder welders were qualified, construction activities were reviewed and approved by authorized nuclear inspectors as required and then our final aspect inspections verify that the as-built conditions meet the design and if they don't how are they reconciled.

These inspections, they include pre-operational component and system testing like verifying a flow rate or system functionality as designed, or performing components or system walkdowns to verify compliance with seismic, equipment reliability in harsh environments like high pressure, temperature, moisture such that the component/system would perform its intended function during a design basis accident.

So to better inform and prepare our inspectors for these tests, including start-up testing, the NRC and the Chinese regulator, National Nuclear Security Association, or NNSA, participated in an inspector exchange program that lasted several years and allowed approximately 18 NRC inspectors to travel to China to Sanmen nuclear power plants and witness first hand some of these activities.

Additionally we were able to engage with Southern Nuclear and Westinghouse staff at Sanmen and

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that helped us to get an understanding of the differences or the changes that we would see in the U.S. AP1000 plants.

So definitely, as I describe it, it's a very complicated for these long-lead inspection program for some of these ITAAC and it's happened over the years.

And so as Amy had said and Vic had said, one of the most important key lessons learned is to communicate and communicate often. Some of these other activities like the structural reconciliation and that is to verify the seismic category Class 1 structures like a containment shield building.

You know, they didn't have the formal structure, the documentation structure like ASME Code does in the system N5s so we met with Zach and Westinghouse and Southern Company years ago to determine what those final documents would look like.

So all of these things are planned in advance. So lessons learned is for complicated long-lead activities whether it's non-ITAAC or ITAAC, it is very important to understand what the end product looks like so that you can plan it and be prepared for those complicated issues. Thanks, Omar.

MR. LOPEZ-SANTIAGO: Thank you, Nicole.

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So this question is for Zach. Zach, do you have any lessons learned about the easiness of it to inspect ITAAC?

MR. HARPER: Yes. So I would just maybe leverage a little bit off of Nicole's response. She was talking about the lessons learned related to the planning activities.

I think for us one of the key lessons in terms of inspectibility for those long lead type ITAAC or the ITAAC that we were having to perform very early in the project, was we had, I would say an area of struggle where Westinghouse did not necessarily appreciate what a targeted ITAAC meant.

Where, you know, we would have activities such as EQ or ASME and, you know, the NRC had identified those to be inspected, but those activities for example were already complete.

So you know, for us, you know, us thinking okay, targeted ITAAC inspection, we will provide all of the documentation at the end. I think one of the lessons there for us was, okay, when they say target it, we'll make sure that, you know, they're, we have to plan that out, make sure that they're on site at the vendor at Westinghouse.

Most of the remaining target ITAACs are

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on site so it's not as applicable right now, but when we had first started, it was I would say taxing on both Westinghouse and the NRC to make sure that to catch up and identify, okay, how can we satisfy the ITAAC and make sure that we had a good understanding of what needs to be completed.

So I would say that was one lesson learned for us. Another would be an area that for inspectibility, where there's not a basis document for an ITAAC, like what you would have for a tech spec so we really never go back and forth on what tech specs mean because there's a basis, there's analyses that they describe exactly what the intention of that tech spec is.

There's not for an ITAAC and so I think the lesson for us was, okay, for ITAAC that, because you, ITAAC really just have a very basic statement.

They have a design commitment test and then an acceptance criteria and, in some cases, that can be taken different ways. So I think clear communication between Westinghouse and Southern and Southern and the NRC on how that ITAAC will be completed and the documentation that will be provided as an important part of the inspectibility for an ITAAC.

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Another example would be during testing such as hot functional testing where hot functional testing is a very dynamic evolution where a lot of tests are happening.

It's a very coordinated event where the site, where the plant heats up, tests are performed, and then the plant cools back down. So for us, something that we had learned in China that we had applied here in the U.S. was to establish predictive analyses prior to that hot functional testing.

That way the, you know, when the test is run, Westinghouse can do a quick post-test analysis, confirm that the ITAAC, yes, the ITAAC can be met and then move on to the next test.

And then the ITAAC paperwork can be verified later. And then having a good understanding between Westinghouse and Southern and if it's targeted, the NRC up front will look at what we planned to do.

But I think that's an area that I would say was a success, is having that good plan established, having those predictive analyses already run that way we knew that we met the ITAAC whenever we did our post-test analysis and we could just move on to the next test and not have any delays.

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MR. LOPEZ-SANTIAGO: Thank you, Zach. Amy, do you have anything to add?

MS. CHAMBERLAIN: Yes, I'll just echo Nicole and Zach, you know, that, I mean, that overcommunication especially with the dynamic construction situation ensuring that the staff inspectors have access to see what they need to see to inspect is critical.

And then on the ITAAC language itself, verbatim compliance, I'll just say a little less than half of all the licensing actions we've submitted were ITAAC related.

We need to make some sort of change so that verbatim compliance, I think that's a lesson learned. It was for us, we learned while we went, but also for future applications, making sure that you're very clear on that language so that it can be inspected.

And then, you know, as Zach said, there's no basis documents so there's certain words that you would think we all understood what they meant, but there's a lack of definition of them.

And so I would say that ensuring that those specific words like as built were in your licensing basis and your Tier I and your COL could

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really help a future applicant so that everybody is on the same page with ITAAC.

MR. LOPEZ-SANTIAGO: Thank you. So this question is for Zach. And it's a little bit long so I'm going to, bear with me here. So the China AP1000 project, even as a first of kind plant, were finished in about eight years and have already been operational for a few years.

But it is already more than 10 years for the construction of Vogtle Units 3 and 4 which have been delayed again and again. From your perspective, what are the reasons for the delays for the Vogtle project? Were any lessons learned from the China AP1000 projects used to help the Vogtle project?

MR. HARPER: Okay, all right. So I think just as a little bit of background, so there are four AP1000 plants that are operating safely in China.

China uses a Part 50 type process where it's kind of like a modified type 50 process where they have a PCR that's required to obtain a construction permit for the AP1000 that have been in around in the 2009 timeframe.

Then they construct and to load fuel they submit an FSAR, a Final Safety Analysis Report, to the China National Nuclear Safety Administration, the

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NNSA, and then something that's a little bit different than Part 50, they have something called an RFSAR which is a Revised Safety Report which they submit about a year after initial operation.

And the plants, the plants have been operating safely in the United States for quite some, or have been operating in China for a few years now and they're performing very well.

The, in terms of a comparison between a, this is really a comparison of a Part 50 to a Part 52 process, so I don't think that the delays either in China or here in the U.S. were resolved of the regulatory process. The regulatory process is robust.

It can be trying at times no matter what process you follow. I don't think we're necessarily victims of a Part 52 process. I don't necessarily agree with that part of the comment.

I think the, in terms of lessons learned, yes, there were a lot of lessons learned that were brought from the China projects to the U.S. Some examples were for, you know, we for the first of a kind testing where the design certification has a subset of tests that were identified as being special where they, where these tests are really there to

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demonstrate phenomena of the plant acting, make sure that the phenomena of the plant is performing as expected.

These are tests like natural circulation tests. There's the in containment reflow and water storage tank test, heat up test, so on and so forth.

So those tests were run in China and we were able to demonstrate that the plants were the same build in China as here in the U.S. And we were able to successfully write license amendment requests to take advantages of those tests and show that the performance in the United States would be the same as the performance here, or the performance in China.

So that was one example. Another example or you know, detail design changes that are identified since they're and it's the advantages of standardization where it's a standard design.

They have the same plan, well, same nuclear island in China as they do here. Their turbine building is a little bit larger because of the different standards, but you know, those design changes we, as they are developed for China, they're reviewed for applicability and if they're good changes to be made, they roll right into the design for the U.S. plants.

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So that's a very, it's an active process. It's ongoing as the plants are built and constructed there. So I think I'll pause there. If there's more questions later, we can address more.

MR. LOPEZ-SANTIAGO: Okay, thank you, Zach. We have a question for Amy. Amy, regarding documentation of ITAAC, there was a lot of preparation including table top and exercise on how to close ITAAC.

Still it seems that closure recommendation for the final ITAAC appears to have encountered significant problem at the last moment holding up the 103g finding. What went wrong and what lessons are there for future Part 52 applicants?

MS. CHAMBERLAIN: So we've mentioned that we've been working the close, as the comment suggests, we're working to close ITAAC basically since the beginning of the project.

And you know what we see in the ICN submittals, are a list of reference to principle closure documents. And at times, these can be a lot, hundreds of documents that go in, that are referenced in a single principle closure document.

And so for many of the ITAAC that are left, there are significant portions of them that are

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already completed. But as the comment mentions, there is documentation that still needs to be completed.

And we do hold ourselves to a very high standard. We want to complete this plant in a safe and quality way and so we've got to get the documentation right.

And the documentation comes after construction is complete so that's where you would see so why we haven't submitted all of the ICNs for Vogtle 3 and 4 at this point in time.

MR. LOPEZ-SANTIAGO: Okay, thank you. So let's move on to the next section of Construction Inspection. We have a question for Nicole.

So, Nicole, with so much construction going on and with inspection progress being hampered by the pandemic, how can you be sure that NRC has inspected what needs to be inspected to ensure that the plant is being built safely?

MS. COOVERT: Thank you, Omar. And that's a very good question, a very valid question for our inspection group and our program.

So during the COVID-19 pandemic, our inspection program kept track with Southern Nuclear company's construction activities and at the same

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time, we specifically prioritized, you know, our inspections to one, focus on the mission critical activities, but also through high transmission times, prioritize our inspector safety and the safety of the plant workers that we interface with.

So during the entire pandemic, this did not change. We, our residents continue to connect daily with the key on-site activities, such as: the plan of the day, and work activities, pre-job briefs.

We also use both remote and on-site means to implement the construction program. With that focus of the nearing the 52 103g finding so we can talk through inspections remotely from possible, but during times the high transmission we specifically reserve the onsite inspection for those critical mostly activities which included directly observing first of a kind AP1000 testing and significant test activities that are typically only performed during once in a lifetime the plant.

So some of the examples that we were on site that's been specifically saw face to face and observed during our inspections was the Unit 3, the reactor vessel and reactor coolant system hydrostatic tests. We saw the Unit 3 hot functional testing, the containment structural integrity test and integrated

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leak rate test for containment for both Units 3 and 4.

And we also had inspectors on site to observe installation of safety related items that become inaccessible once construction is complete or when the plant is operating.

So for example, we were onsite observing the rebar installation and concrete placement for the Unit 4 seismic Cat 1 structures, our containment and shield building.

But I will note that, you know, as I discussed in the earlier section about these long lead ITAAC, you know, we have done so many different types of inspections over the years that, you know, we have confidence in those activities that we've inspected.

And when there are non-enforcement is identified, then we build and inspect those as well. But again, our inspections are not focused on one specific activity, but we ensure that this mission critical activities are observed. So hopefully that answers your question. Thank you.

MR. LOPEZ-SANTIAGO: Thank you, Nicole. Vic, what have you taken from the NRC's transformation to be a risk-informed regulator for

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the construction inspection program?

MR. HALL: So and I don't mean to back us any, Nicole had a good point. I want to key off of it. I'll answer that question, but I'm, Nicole, you're bringing back some really good memories of, good relative memories of early on in the pandemic and our discussions about how we keep our people safe and, you know, what was going on at the site.

And I remember pretty early on, I think Southern was one of the very first utilities to have a massive testing facility outside of the plant.

And they were communicating their cases so we were able to make a judgment call as to whether it's safe for our folks. So you know, Nicole, we sound like we're the same organization, but we obviously have plenty of discussions and don't always agree, but I've remember being incredibly impressed with your side of the house when you're just making sure our people were safe, but at the same time we're also getting the job done to make sure that we're looking at everything that we need to look at and making sure our folks weren't in harm's way.

As far as transformation goes, Amy keyed on data earlier on. And I like jumped, you probably didn't notice it, but I like jumped on chair when she

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did it because that has been to me, we're in the information age, the biggest ability for us to think differently about how we do what we do.

We developed a construction inspection program, you know, over the course of a decade, with an idea of how construction's going to play out in the first of our Part 52.

And, of course, it's not going to be exactly as you design it. Right? It's just there's no working so we're not going to be able to design it perfectly.

So being able to look back now at several years of experience and using that data to look at where we can be more efficient, where have we seen enough of certain activities when it comes to looking at ITAAC and really, you know, spend our time in the right places has been for me, eye opening.

We build a dash board relatively early on in the Vogtle project where we just gathered up everything we could. I mean, what we build our time for hours and what our cultural, what our specialties were we were using and that was to me key and just eye opening.

Plus, going down the regions and just, hey guys, here's what we got data wise. You know,

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where can we work together to adjust our inspection program and what are you seeing as inspectors as the key places to go.

So to me, transformation has been just this wonderful use of data to be able to tailor our program and be more efficient.

MR. LOPEZ-SANTIAGO: Thank you, Vic. We have a question for Nicole. Nicole, can you explain more specifically the remote inspections of ITAAC versus completion on site? How does remote inspection of ITAAC work?

MS. COOVERT: Okay, thank you, Omar. Well essentially as the definition or of the acronym, ITAAC, it's Inspection Tests, Analyses and Acceptance Criteria, so those all have different functions and abilities to inspect those areas.

So inspections can be done either onsite, they can be done remotely, but definitely the testing or the acceptance criteria and analysis is all prime candidates for remote activity, remote inspections, because as Amy said and Zach said, some of these documents are thousands of pages.

And that's just one document that support a closure of an ITAAC. So you know, there are definitely opportunities to do remote inspections.

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We actually, before the pandemic, there was, you know we had big team inspections. We would have a one-week off-site inspection looking at this documentation and then we would have on-site inspections as well.

So that's no different than we did before the pandemic. To handle the specific inspections that we wanted to do during the pandemic to observe testing or their inspection activity, then we would be very deliberate that we'd send folks on site to see those activities, we'd coordinate with the licensee when this event was specifically going to happen so there was no compromise to our inspection program where we missed opportunities. We just did it differently.

MR. LOPEZ-SANTIAGO: Thank you, Nicole. Amy, from Southern's perspective, can you tell us about the NRC's findings on cable separation?

MS. CHAMBERLAIN: Yes. So we take these findings very seriously. We've taken corrective actions in the instances of separation nonconformances and we put measures in place to prevent reoccurrence going forward as we complete construction, remain focused on safety and quality as our top priorities.

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MR. LOPEZ-SANTIAGO: Okay, thank you, Amy. Now this question is for Zach. Zach, from a design authority perspective, what are the key processes you have implemented to ensure the constructive plant aligns with the design and licensing basis?

MR. HARPER: Yes, well this is a good question. This is probably as far as to lessons learned, this would probably be the number one. And I think that so I guess a little bit of background.

When we had initially, you know when Southern received their design or their construction or their combined operating license in the 2012 timeframe, within I would say like one or two months, we started to identify at site there were things being implemented at the field that were not in alignment with the license so we had, you know, paused to take a close look.

And I think and at that point, we began to implement changes within the Westinghouse process to ensure that the design aligns with what's actually constructed at the constructed plant.

So and we really haven't had significant issues, you know, after those big changes were implemented. And so what could we do, so what we

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really didn't have the benefit of any NEI 96-07, Appendix D at that time, because it wasn't written, it was written after our lessons?

The, what we, the primary thing is we established a licensing basis review for every document that was developed and you can imagine how many documents that we create, we perform a licensing basis and back determination to confirm that document aligns with the applicable FSAR so the Vogtle FSAR and the other licensing documents.

And there's, we developed a very robust procedure qualification program for people that are developing documentation, qualification program for people that are identifying non-conformances at site and reviewing those non-conformances and really a culture shift to ensuring like what Amy had said earlier verbatim compliance to the license and making sure that we're meeting every word that is said.

We've done other things as well. We've done compliance reviews. We've taken certain scopes of work, we've picked, you know, the commodities within the plant (inaudible) to check to make sure that they're within the bounds of the license.

So what we did in terms of passing the lessons learned, when we wrote NEI 9607 Appendix C,

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in Section I think 411, we added, you know, basically a sentence, a few sentences in there that says during the construction period, you know, you document your basis for no impact of the license as you go along.

So that was kind of our attempt at passing those lessons to others in the industry and it, you know, I think it's important, you know, to pass those and the other is really what I said before is the verbatim compliance making sure that when we wrote the design certification, it seemed like a good idea at the time to write, you know, ambiguous statements like generally or this is representative, but and that was a good idea at the time because we thought, oh this is going to give us wiggle room as we go forward.

And as it turns out, it's really difficult to inspect to that type of language and so throughout the construction, a lot of the changes that we actually made are not necessarily design changes, they are changes to improve the clarity of the license, to very clearly state what we are going to do.

Because there's a lot of detail in there, but even with that said, it was, you know, loading that license with the variances that you're going to

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take and, in some cases, getting NRC approval to do that when we were required to was a very important lesson for us.

And you know, those that work in Westinghouse on the AP1000 it's really a culture. Does what you're doing comply with a license? And it's a question that, you know, our group receives a lot of questions every day on that questioning attitude, hey, can I do this, can I do that?

And when necessary, we get Amy's team involved and to make sure that they're comfortable with those decisions.

MR. LOPEZ-SANTIAGO: Okay, thank you, Zach. And we have one more question for Vic and Nicole. Okay, sorry, right. So would the NRC establish a singular branch or office like DCO or VPO during the construction of future SMR projects, small modular reactor projects?

MR. HALL: So Nicole, you can jump in too, but I hope so because I think the combination of VPO and DCO has worked well. You know, as we start putting a lot of lists together, I'm sure we'll do the environmental scan to see what the future of the power looks like and put together the right type of organizations that combine the expertise whether it's

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ITAAC or whether it's Part 50 based plant with the inspection staff.

Again, I think that looking at the success we've had really with the VRG gives Vogtle a written script which brought together all different parts of the Agency.

I thinks that's, you know, that's just almost a common sense recommendation of how we put it together so I think we'll have to wait and see out there and I think we've just got to sort our application scenarios right now.

And NuScale, has their certified design, but I'm sure NRC managers will be looking very hard at what's the right organizational structure for when we're ready for construction inspection plans.

MS. COOVERT: And I can't agree with you more, Vic, because, you know, one of the key lessons learned and I know that's the next topic, but the Vogtle readiness group really was a part as a fantastic lessons learned from Watts Bar that we were able to not only communicate inspection licensing issues, but we were also looking at, you know, the logistics so to speak or the budget or staffing of all of these different activities so it's a very solid structure on how to look at those different aspects

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of an inspection program and oversight program.

And we, the one note I would say is that, you know, whatever the organization looks like, we have in this panel we have a senior manager nuclear from the NRC, Mr. Omar Lopez.

He is our champion for the small modular reactor program so I know that we will get the DCO, the Division of Construction Oversight lessons learned into what that project looks like in the future.

MR. LOPEZ-SANTIAGO: Thank you very much. Before we move on to the next section, there's a question here, Nicole, for you. How would ITAAC work if the majority of the advance reactors would be manufactured off site and would start with minimal on-site construction?

MS. COOVERT: So that's a great question. And that goes, that model is exactly what we did for the AP1000 that the vendor inspectors which went to facilities all over the world were key inspection attributes for completing ITAAC.

So whether it's done on site, it's done in a fabrication shop, all of them are verified to have the nuclear standards for appropriate quality assurance program and they're inspected with all of

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the rigor that an on-site inspection would perform as well. So it would be the same model.

MR. HALL: And Nicole, you're bringing back good memories. And before I used to wear ties, I wore a Polo shirt and hardhat, and I remember I got a chance with the vendor inspection staff to travel to Korea.

We watched the pouring of the ignot unit, that piece just lump of metal that eventually formed the reactor vessel and so we have inspectors who are able to go all over the world and inspect these vendors that are building plants.

I do think that we will have to think a little differently about other plants. I mean, it's going to be a different model versus, it's likely to be a different model versus these large construction sites on site so, you know, I have something we're looking at too and I think we'll have to be times in a changing world and how we can best adapt to that.

MS. COOVERT: Yes, I absolutely agree with you, Vic. And we have other types of facilities like the field facilities, you know, that we can leverage lessons learned from multiple business lines, not just construction reactors or operating reactor business lines.

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MR. HALL: Good.

MR. LOPEZ-SANTIAGO: One more question for Nicole. Nicole, has the NRC considered incorporating regulatory office site guidelines to supplement the reactor off-site process and then begin termination process to help to remove ITAAC from some other nonsignificant interest?

MS. COOVERT: Okay. That's, I will, I want to call my friend, Mr. Vic Hall, because what we do is for both the inspection process and the oversight, the program office, we are continuously reviewing our procedures, our manual chapters to ensure that they're not only risk informed, but when we come across lessons learned, that we are absolutely discussing them, how do we incorporate them, real time.

So we're not waiting for the next project to make changes to inspection program. Vic, anything else you want to add to that?

MR. HALL: Yes, I'm sure we'll talk about this a little bit more. We talked to this concern, but we are a learning organization that's always looking to get better.

You know as I heard Amy and Zach talking earlier about the compliance versus safety, which

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again, an ITAAC war story here, and you know, I think we're painting a picture of everything being rosy, but not everything has worked perfectly.

And one of my least favorite ITAAC stories was I got a call, Amy, or from one of your colleagues was working on ITAAC, said Hey, we got there's an ITAAC, this was very specific because we need to test our tanks of water.

And to test them, you can either fill them with nitrogen because the ITAAC very specifically says test them by filling with nitrogen air.

Now they said that, because in what plants operate to fill with nitrogen, 100 percent nitrogen, but to test them, you could use anything. You could use any kind of gas. It would not change the flow with the acceptance criteria.

And the question is well, can we just use air which actually is 70 something percent something nitrogen anyway. And you know, it was a tough call and legally, the language of the law of compliance said now it's got to be nitrogen.

You know, we would be relatively easy license now, but you're talking about time to do that. And in the construction environment, that's just not

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a realistic so I know the folks at Southern had to go find tanks of nitrogen because to fill this reactor full of nitrogen to comply with the letter of the law for the ITAAC language.

And that was a shame. To me that was okay, a good lesson that could be learned there. What we really should be focusing on safety versus just the compliance. Again, if someone did the right thing, we were you know, it was the letter of the law.

It was Tier I information so it was relatively unbendable, but it pointed to again, certainly if you look forward to writing ITAAC language, to be more realistic and just to get a takeaway learned from the last year of construction, I think we can make improvements.

And so along those lines, you know, I think we're always looking to improve our guidelines for the reactor process for the significant determination process.

So we're always looking to improve and looking for feedback there as well.

MR. LOPEZ-SANTIAGO: Okay, thank you, Vic. Let's go to the last section. Applying lessons learned to an advanced reactor and future

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applications. This question is for Amy. Amy, what should the NRC do differently if when we have another reactor construction project?

MS. CHAMBERLAIN: Differently? I think we have to look at what we've done, well in this, in what we've done for three and four. I mean, the communication, the VRGs we've already mentioned those.

Those are the key features that need to keep those communication lines open with the NRC. I know when I first came on about eight years ago, there were some lines open, but maybe they are not anything like what we have today that we've built and we've added to over time. So I think those would, the key features to keep moving forward we kind of touched along the CROP, the inspection process.

I think there's further opportunity for that are informed. That process and then I think we have more lessons we are going to learn as we come, as three and four comes online.

A particular focus for me is how is Tier I going to affect us as we are operating? So those would be key things I think, lessons learned, things that the NRC should consider going forward.

MR. LOPEZ-SANTIAGO: Anything from you,

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Zach?

MR. HARPER: Well I agree with Amy. I think that a lot the struggles and towards the beginning of the project they have since been resolved with really good communication.

And I think that, you know, carrying that and they've been implemented it's like, so I think that the process that we have now, today and with the open lines of communication with the headquarters organization and with Region II, the onsite inspectors I think that is what really needs to be taken forward.

MR. LOPEZ-SANTIAGO: Thank you. This question is for Vic and Nicole. What advice would you give your NRC colleague who are building a construction inspection program for advanced reactors?

MR. HALL: You went first, is it okay, if I start this one first?

MS. COOVERT: Go ahead, Vic.

MR. HALL: I just volunteer. Sorry. No, that's a great question. Everyone's obviously interested in what's going to happen with advance reactors.

I know that some motions use a director

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in venue and they are working on what is a pretty fascinating and very interesting framework for Part 53. Which was meant to take us forward for advance reactors.

You know, from what I've seen from them, it's been again, just really, really cool work and it's Vogtle's right, I'm proposing that Vogtle is the best project in the world.

But looking forward to some very interesting stuff and so again you're building a relative structure that's going to work for many different technologies, and you know, I think, I know for a fact that they've been taking their all lessons learned from what we've done in the past.

And we will be putting together lessons learned for this project as well which, you know, I'm looking forward to sharing with them and then helping them develop the program.

I do want to give applaud for our lessons learned because I know that we saw our behind-the-scenes stuff, special moderator Jim Gaslevic is leading our effort to put together our lessons learned effort from this stage of Part 52.

Our goal is once the thing is online, 103g, we have behind-the-scenes the first 52.103g,

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we're looking at having public meetings and gathering more feedback and really capturing, especially capturing these lessons learned from the last few years just to get, to see different what is going well, what may improve and help that team in the future for advance reactors.

MS. COOVERT: Yes, and the only thing I would add to Vic's perspective, is I agree with everything that he said, is that the one definite recommendation is the communication as Zach and Amy both said.

Having those open, direct understanding each other and your communication styles, you know, that's very important to get through if you want to be efficient and effective getting through some of these complicated issues, that's when you really challenge your communication and your working status because they can get very difficult.

And so establishing open communications very is a key lesson learned from the very beginning. Also having, I would recommend a VRG like organization within the NRC and the benefit of that is you're having key senior managers across the Agency that you can leverage and resolve issues in a very timely manner or get the resources to do so.

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So that was when we restarted that up after Watts Bar, that was a, it really quickly promoted a faster resolution of some of these issues.

For an inspection standpoint, I would say that, you know, continue to have a formal oversight process that allows repeatability, consistency, you have a defined methodology of how you're doing inspections, you understand what your inspection scope is and when it's complete.

And then big picture, I would say organizational flexibility and agility. You know, with different things happening in the industry, with VC summer, when that situation occurred and just the different challenges you face, including COVID.

You really have to have an organization that can turn on a dime and still keep safety its number one focus. So those are the recommendations I would have the lessons learned.

MR. LOPEZ-SANTIAGO: Thank you. So before we go to the next question, Vic, I have a follow up for you. You mentioned that the VPO office which is sponsoring a lessons learned effort for the Vogtle Project 3 and 4. How do you plan to engage the public so you can get their input?

MR. HALL: Thanks, Omar. We are planning

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public meetings. What's kind of nice about the virtual world is it's so a lot easier to gather folks from all around the world really to meet in forums like this so if there is a silver-lining to the pandemic, it's these kind of use of technologies.

But I think in everything we do, we are trying to get as much feedback from all stakeholders. And so for the lessons learned, absolutely, we will be looking to again, engage the public, engage all of our stakeholders and, you know, I'd like to hear the criticism.

I want to hear where we could have done better. And feed those awesome again for the future. Because again, I think we've done great work, but we're humans and we are a learning organization committed to getting better and learning.

So absolutely, there will be follow up on lessons learned. And I will say one more thing when it comes to communications. You know, we're not the IRS, you can call us, you don't get a recorded line.

If you email or call us, you're getting a person and so if you have questions, if you want to call up, if you have things you want to feed us before hand, you have my email, you have Omar's email address, you have Nicole's email address and phone

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numbers.

Reach out to us anytime because we do want to hear back. We do want to hear from as many possible stakeholders and we do want to engage as many people as possible.

Again, the more opinions you get, the more diverse gift thought we get the better we will be in the future.

MR. LOPEZ-SANTIAGO: Thank you, Vic. We have a question for Zach. Zach, how much did having a reference combined operating license help licensing and construction of Vogtle or it did not help?

MR. HARPER: Well, I think it did help. The, so take back in time, there's a design center working group that was made up of, you know, TVA, Southern Nuclear, Scania, (inaudible) there was Duke, what progress at the time.

And they made up a group and the RCOLA originally was Belafonte. It transitioned to Vogtle maybe the 2008 timeframeish. But ultimately what that group did and they partnered -- there's another organization called New Start and really what they were doing is establishing what a Part 52 license would look like and what those RCOLA applications would look like, so.

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And the reference kind of set the standard, it set, you know, what everyone else followed and that just contributed to you know, the standardization of the plant.

Because when all the words in the licensing basis are the same, then you know, you have one issue, one solution, one implementation into multiple plants.

So I think that you know that process, what happened with New Start and you know, part of what they were doing was they were closing COL information items.

It's like certain information items are things that specified in the DCD requirements to a COL that need to be closed. And they were developing plans for closure and some plans closure would be hey, Westinghouse, go do this work and some cases it would be some site-specific evaluation.

Others it would be ways that could be addressed by a licensee in a standard way in the same. And so I think that RCOLA process was helpful in bringing the licenses, moving the ball forward, moving the licenses through the RCOLA application to a COL.

Now obviously there's only one plant

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being built. But even still, I still think it was an advantage having all of those utilities involved because frankly there was not a Part 52 license before. There wasn't a COL that had intended to build.

And having inputs from different utilities into a standard way of submitting a license I think was a big advantage because it, you know, established an industry precedent for that application that was ultimately approved and is being constructed and will hopefully start soon.

MR. LOPEZ-SANTIAGO: Thank you, Zach. So this question is for everybody here so. Given the chance to go back in time, what would you do differently? Let's start, who wants to start? Don't make me pick. Okay, let's go with Amy.

MS. CHAMERLAIN: That's a great question. Let me think about it for a minute.

MR. HARPER: Do you --

MS. CHAMBERLAIN: I'll --

MR. HARPER: -- do you want me to --

MS. CHAMBERLAIN: I'll go and, you know, I'll be honest, my rule of thought is licensing. You know, that's where I think and I think I'd go back to the verbatim compliance and what Zach mentioned on

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how many changes we needed to make and not just ones that required NRC approval, but the departures that we made through our own 50.59 like process that we had to provide so much clarification in the FSAR to allow for construction, to allow for inspectibility.

I think if I had it to do over again, with all the knowledge I have now, is to go back to those days. You know it's easier to do something right, you know, do it once, I tell my kids all the time, you know, it's better to do it right once than having to go back and do it again.

And so that would be the only that, not the only thing, but I think that'd be the major thing that I'd go back and do is look at the DCD and Vogtle 3 and 4's COL application from in that light. Zach, did you want to add?

MR. HARPER: Well, I agree with you. I think that that's good. What, not to repeat what you said, I would also bring up the, I think the implementation of Tier II star, you know, if I had to go back and do it all over and give someone, you know, tell someone the future I would talk to them about Tier II star. I don't think that part of the regulation was necessary.

I think that we could have done other

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things in the license. You know, since that time we've implemented, you know, certain criteria or Southern has impletmented certain criteria in their COL to address that, but you know, if I could go back in time, then Tier II star would be at the top of the list to either identify those requirements, put them in an ITAAC somehow or identify those requirements and say hey, this is just like an FSAR.

We have to comply with the FSAR no matter what. It's, you know, a Tier II star requirement in terms compliance, what's actually put in it's final resting place, you know we're required to follow that just as much as we are to follow words in the FSAR.

And you know we can, the industry has demonstrated the use of 50.59 for years safely, across the industry through the operating plants and, you know, I think that was probably a bigger lesson learned that has been implemented in several of the new, the more recent design certifications where they don't have that.

So I am happy to see that others have been able to take advantage of that lesson.

MR. LOPEZ-SANTIAGO: I'm sorry, very, very, high level. Will you explain what Tier II star is for the audience that might not know.

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MR. HARPER: Oh, sure. So in a design certification, there's two tiers, there's Tier I which is made up of mostly the ITAAC, there's some other information, but that any time you change, touch anything in Tier I, it requires the NRC's prior approval.

The, in Tier II that's what a traditional operating plant's final safety evaluation report looks like. It has the same structure, it follows the Reg Guide 1.70 format.

And you know, there's provisions within 50.59 that allow you to make, that allow utility to make changes without prior NRC approval.

Within Part 52 however, there's an additional criteria that was added to the design certification rules that information that is bracketed and italicized and has a little star next to it requires NRC approval to change.

So that, at a high level, that's really it's information that a traditional operating Part 50 plant would be able to make changes to without NRC approval, it's for you know, for Part 52 plants that information requires it.

MR. LOPEZ-SANTIAGO: Okay. Thank you. Nicole, you want to go next?

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MS. COOVERT: Sure, the one thing I would note in looking, if I could go back in time, is I would look at a possible more flexible inspection program.

And I say that because we created from the construction reactor oversight process, we have as I talked about earlier, we have manual chapters that have and inspection procedures and that framework is outstanding.

In really looking at types of inspections so that you have a good broad regulatory breadth of inspections that happened over this huge project.

In developing those, we also made inspection plans that in some times and in some cases, were very restrictive and didn't allow us the flexibility that we have since incorporated into our program.

And I say that because the benefit we had and the foresight we were having at the time was, I mean, I believe the renaissance was happening, we needed to be prepared for multiple new construction projects, all in different phases.

So it was very important to have that kind of rigor and structure. But as we worked through Vogtle's inspections sometimes we found areas that we

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could make improvement and changes.

And so Vic had referenced it earlier in this discussion that we worked with VPO several years ago and we went and we essentially looked at every single activity that we've done to date, the hours, inspection hours, we have done in certain areas, functional areas, types of valves, welding, companies.

And so we were able to go back and say put some more flexibility into our program because we did that assessment. So again, Vic said it perfectly.

We're a learning organization, we've never going to be perfect, but we, if we have that mindset to keep looking forward, we're not stuck in something that's not flexible or agile, but that is the recommendation I would make if I was going back in time.

MR LOPEZ-SANTIAGO: Thank you. Vic, what do you have for us?

MR. HALL: There's so many things I would change if I could go back and I probably wouldn't have as much grey hair. You know what I'm saying? There are a lot of nuggets today.

I think just ideas that talk about the history of how things were developed and Zach, when

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you talked about targeting of ITAAC and I still remember early discussions when we were talking about should we have a public list of targeted ITAAC and how you balance that idea of independence into being offering clarity and then openness to what we were going to inspect so adding in every area there's things I'd love to go back to and change.

But I think along the way, we've appropriated all of those lessons, but I think we've tried along the way to improve along the way so I appreciate the comments on Tier II star. I know that's been a sore point.

Certainly, the idea of this compliance versus safety and looking at the language of the ITAAC, boy if I could go back and re-write some of those ITAAC, I'd love to because I think there's certainly room for improvement in those.

But having said that, I think we've done an admirable job, again you know, making the magic happen, making safety come through these words that other humans have to understand so I'm proud of what we've done, I know that there are plenty of things that we can improve from and I'm looking forward to making a better safe nuclear industry.

MR. LOPEZ-SANTIAGO: Thank you, Vic. So

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from the conversation this morning, I have heard the following things, for example, communications. From communication and frequent communication is very important to ensure that all the stakeholders are on the same page and to avoid problems down the road.

Also, we heard that when you're developing your design certification, your license, your ITAAC, it's very important to make sure like you're very specific and you're clear to avoid confusion down the road because every person has a, will have a different many interpretations of what you originally intended to write.

So anything before closing, anything else that you guys would recommend or give any advice to the people that are trying to put in place new advance reactors?

And we have four minutes. If you were King for the day, what would you change?

MR. HALL: I'll have to say, the folks that have joined today and the last day of the RIC is usually the tough point in that people are tuned out from all of the speeches so if you're on the call today and you're listening, you are probably way ahead of the game than you're understanding of nuclear processes and your interest in the Part 52

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and everything else so you know I thank you for listening certainly today.

Again I would welcome or invite you to stay engaged, to give us a call if you have questions on what you heard today and talk more because I think it's important to keep dialogue going.

Communication is going to be across everything. And we talked a lot about communication. We're doing a lot about that, it's being deliberate about how you communicate, in such a manner as I understand, I'm going to talk more, I'm going to have more meetings.

Gosh no one wants more meetings, but it, I think we've been very deliberate in structuring who will bring it in, how we're bringing folks in, making sure engaging the public.

I know we've had Vogtle witness groups down near the site to make sure we're able to reach the local communities which is just, you know, critically important for what we do in the NRC so being deliberate and moving forward is going to be key.

MR. LOPEZ-SANTIAGO: Zach, you're on mute, Zach.

MR. HARPER: Sorry. I don't think that

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I have any other really lessons learned for the advance reactors. I think that you know, I think that a lot of them are in their pre-application stages at this point and I think that you know, they're in there still developing their technology.

I would say that there is a lot of, you know, I get a lot of questions on Part 52 and I think that, you know, there are balances between Part 50 and Part 52.

You get the advantages of that signed finality and you get the advantages of the standardization and you get certainty and those issues and all the issues resolved up front.

That's big advantages. The downsides is that it can be challenging during construction to make changes to that license because you have a license.

And so as the plant is being constructed, you don't want the delays and, you know don't want the licensing process to cause delays.

So you know, it's really a balance on what the advance reactors on what their strategy is, their licensing strategy is going to be. And I think that the challenges, building a nuclear reactor is challenging no matter what.

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No matter what process you follow, Part 50, Part 52, Part 53, it's all going to be challenging. There's not a process that's going to make things just easy.

So but I think that some of the key lessons that we talked about today apply regardless of what process that we're following and you know, I just thank everybody that stuck around at this point for their time and I appreciate sharing with you.

MR. LOPEZ-SANTIAGO: Thank you, Zach. Nicole, Amy, any last words?

MS. COOVERT: Again, I -- oh, go ahead, Amy.

MS. CHAMBERLAIN: Just real quick. I haven't said it and I almost always say it when I talk to folks. If you look at Unit 4, we've applied lessons learned on Unit 3 right to Unit 4 and so as Zach said, standardization we have two plants next to each other that we're building the same and we're learning and applying it.

Things just go smoother on Unit 4 so I think to future applicants, that is something you should definitely, you know, look at that even though Part 52 might be difficult at times to construct, once you apply those lessons, you do gain a lot of

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benefits thankfully. Go ahead.

MR. LOPEZ-SANTIAGO: Thank you. Nicole?

MS. COOVERT: Yes, the only thing I would add is that, you know, today you heard three different independent perspectives. We all have our individual roles in this, but I can tell you that from what you heard today that every one of us, every position, our number one focus is the safe construction and operation of these nuclear power plants.

So, you know, that's a commonality that we have even in our different independent rules. Thanks, Omar.

MR. LOPEZ-SANTIAGO: Well, thank you all of you for your participation and sharing your thoughts of our lessons learned of implementing the Part 52 for Vogtle 3 and 4. So that's all we have. Thank you very much and have a great day.

(Whereupon, the above-entitled matter went off the record at 10:01 a.m.)

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