

Memo to File: July 23, 2018

Attached is the transcript of the Annual
Assessment Meeting for Indian Point
Units 2 and 3 on June 21, 2018.



Official Transcript of Proceedings

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING

2018 INDIAN POINT ANNUAL ASSESSMENT

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THURSDAY,

JUNE 21, 2018

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TARRYTOWN, NEW YORK

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The U.S. Nuclear Regulatory Commission
staff met in the Grand Ballroom at the DoubleTree by
Hilton Tarrytown, 455 South Broadway, Tarrytown, New
York, at 7:00 p.m., Brett Klukan, Facilitator,
presiding.

1 NRC STAFF:

2 BRETT KLUKAN, Regional Counsel, NRC Region I

3 DANIEL COLLINS, Acting Deputy Regional Administrator

4 JAY COLLINS, Senior Materials Engineer, Piping and

5 Head Penetration Branch, Office of Nuclear

6 Reactor Regulation

7 BRIAN HAAGENSEN, Senior Resident Inspector, Indian

8 Point

9 DANIEL SCHROEDER, Chief, Projects Branch 2, Division

10 of Reactor Projects

11 JIMI YEROKUN, Director, Division of Reactor Safety

P R O C E E D I N G S

(7:00 p.m.)

MR. KLUKAN: This is the Indian Point Annual Assessment Meeting. My name is Brett Klukan. Tonight I'll be serving as a facilitator for this meeting. In a couple of minutes, once I've finished with my opening remarks. I'm going to turn it over to the NRC staff you see assembled here.

After their initial presentation, we'll turn it back to you for your comments and questions. Just for your awareness, the meeting tonight is being recorded, and a written transcript will be generated from the audio file. The audio recording will be posted on the NRC website and a transcript will be entered into ADAMS, which is the NRC's electronic recordkeeping system.

So in light of that, I would ask when it is your turn to speak that you please identify yourself for the sake of the record. Here's how the public speaking order will be determined. At the registration table, there was one sign-up sheet. When you register to speak, you should have received a ticket stub, the other half of which was entered into a bowl.

The speaking order will be determined like

1 names, simply by pulling names at random from the
2 bowl, again the point of which is the speaking order
3 be at random. Just so you have some advance warning
4 of when it is your turn to speak, the selected numbers
5 will be put up on display on the projector screen as
6 we scroll through them.

7 If you'd like to speak this evening and if
8 not already registered to do so, please step outside
9 and add your name to the list prior to the end of the
10 NRC's opening presentation. After that, I will not
11 add any more names to the container. Those who
12 register late will have an opportunity to speak only
13 if the container has been exhausted, and as remaining
14 time otherwise permits.

15 I just want to recognize or emphasize
16 there's no prohibition against donating tickets to
17 others. However, both individuals, the transferor and
18 the transferee must be present at the time of the
19 donation, and the donation must be announced when the
20 number is called.

21 For the sake of efficiency, based on
22 previous experience at past meetings, please try to
23 have this figured out before the number is called, so
24 we don't end up conducting, you know, real time
25 raffles for tickets.

1 In order to encourage a broad array of
2 speakers tonight, individuals will be limited to one
3 three-minute speaking segment. So for example if your
4 number is called but you've already spoken because
5 someone has donated your ticket to you, you may in
6 turn donate that ticket to someone else, but you can't
7 use it yourself to speak again.

8 I would ask that we keep the area beyond
9 the first row of chairs clear. If you have something
10 you'd like to present to the NRC staff on the page,
11 please hand it to me and I'll carry it up there to
12 them.

13 Now for some basic ground rules. You
14 know, having facilitated this meeting for a number of
15 years now, I regard it as safe to surmise that many of
16 you likely have strong positions regarding the matters
17 to be discussed here tonight, and furthermore that the
18 positions embraced by one portion of you may appear
19 fundamentally at odds with another portion.

20 Nonetheless, be that as it may, I entreat
21 all of you to respect each other, that you refrain in
22 particular from any snide remarks or gestures meant to
23 disparage others in the audience tonight. So such
24 behavior wholly unsuited to the conduct of civil
25 discourse will not be tolerated.

1 A three strikes rule will govern
2 disruptive behavior by individuals in the audience.
3 Upon the third strike, after two verbal warnings, you
4 will be asked to leave the room. If you refuse to
5 leave, local law enforcement will escort you out.

6 Let me be very clear as to this next
7 point. I've never had this occur, and I hope I don't
8 have to do this, but I want to be very clear on this.
9 Threatening gestures or statements under no
10 circumstances will be tolerated and will be cause for
11 immediate ejection from the meeting.

12 If you feel you've been threatened, please
13 let me know or tell one of the other NRC people in the
14 room. We all have name tags on, so that we can
15 immediately take care of the situation.

16 A few minor housekeeping issues.
17 Bathrooms are back in the lobby. The exits are
18 positioned on either of these two sides. There's a
19 door to go to the outside there and another one over
20 here.

21 While cameras are permitted, please don't
22 obstruct the view of other audience members and be, I
23 would say, judicious with your amount of flash at
24 times, and if you would be so kind to please silence
25 your cell phones at this time.

1 At this point, I'm going to recognize
2 representatives from a few elected officials in the
3 audience tonight. With us, we have representatives
4 from both Senator Schumer's office and Senator
5 Gillebrand's office. We also have a representative
6 from Congresswoman Lowey's office, and we also have
7 with us Ms. Manna Jo Greene from the Ulster County
8 Legislature.

9 Any other elected officials who'd like to
10 stand to be recognized at this time? Granted, there
11 will be a later opportunity for you to give prepared
12 remarks or to speak after the NRC's presentation? Any
13 other elected officials who'd like to stand at this
14 time to be recognized? I can bring the microphone to
15 you.

16 All right. Hearing none, let me now
17 introduce the NRC staff assembled on the dias. First
18 we have Dan Collins. Dan has been on temporary detail
19 as the -- all right. One more elected official.
20 Sorry, Dan. We have Pat Keegan, who's with
21 Representative Lowey's office.

22 Okay, back to Dan. Dan has been on a
23 temporary detail as the Deputy Regional Administrator
24 of Region I since December of 2017. He joined the NRC
25 in 1998 as a project manager in the Office of Nuclear

1 Reactor Regulation. Since that time, he has held
2 positions of increasing responsibility including
3 senior project manager in the Division of Licensing
4 Project Management, NRR; Chief, Licensing Project
5 Branch, NRR; Chief Research Reactor Licensing Branch,
6 NRR; Deputy Director, Division of Nuclear Material
7 Safety, Region I; and Director, Division of Nuclear
8 Material Safety Region I.

9 In 2016, he was appointed to his current
10 position of Director of the Division of Material
11 Safety, Security, State and Tribal Programs in the
12 Office of Nuclear Material, Safety and Safeguards.

13 Next we have Jimi Yerokun. Jimi is the
14 Director of the Division of Reactor Safety in Region
15 I. He has been with the NRC for almost 30 years.
16 Jimi started in Region I as a Division of Reactor
17 Safety inspector, and then as a project engineer in
18 the Division of Reactor Projects, before being
19 appointed as the Senior Resident Inspector at Maine
20 Yankee, where he served from 1993 to 1997.

21 In 2010, he was selected for the position
22 of Deputy Director of the Division of Construction
23 Inspection in the Region II Office, and was later
24 appointed as the Director of that division. In 2016,
25 he moved back to Region I as the Deputy Director of

1 the Division of Reactor Safety, and was later named
2 the Director of that division in 2017.

3 Next we have Brian Haagensen. Brian's
4 career in nuclear power spans over 44 years, ten years
5 of service in nuclear submarines in the Navy; 22 years
6 of nuclear services consulting; and 12 years of
7 service at the NRC. He currently serves as the senior
8 resident inspector at Indian Point.

9 Prior to his current position he was a
10 resident inspector at Millstone, and prior to that he
11 was an operating licensing examiner in Region I.

12 Finally, we have Jay Collins. Jay is a
13 Senior Materials Engineer in the Office of Nuclear
14 Reactor Regulation. He served in the U.S. Navy for
15 six years on nuclear submarines, and has worked at the
16 NRC since 2001. His primary focus at the NRC is
17 reactor pressure vessel head penetrations, say that
18 three times fast, and reactor coolant system welds.

19 He has a Bachelor and Master's degree in
20 Nuclear Engineering from the University of Illinois at
21 Urbana-Champaign. Thank you very much, and let me now
22 turn it over to Dan for the NRC's opening
23 presentation. Thank you.

24 MR. DANIEL COLLINS: Thank you, Brett. Is
25 this on? Okay, thank you. Thank you Brett, and I'd

1 like to thank everybody for attending the meeting
2 tonight. I know it takes a lot for you to not -- it's
3 a little bit too much -- I know that you're all taking
4 time out of your busy schedules to attend this. But
5 I know also that the subject matter is near and dear
6 to your hearts, so I appreciate everybody showing up.

7 We'll try and be brief with the NRC
8 presentations tonight. First, we're going to start
9 off with Brian Haagensen, the Senior Resident
10 Inspector at the site, who will do a presentation on
11 the NRC's assessment of the licensee's performance for
12 the calendar year 2017, and then following that Jay
13 Collins will do a presentation on the NRC's review of
14 the repair that Entergy did for the penetration number
15 three of the Unit 2 reactor vessel head.

16 And then following that, we'll open up the
17 floor for questions and statements by members of the
18 public. So without any further delay, I'll turn it
19 over to Brian.

20 MR. HAAGENSEN: Good evening. My name is
21 Brian Haagensen. I'm the Senior Resident Inspector at
22 Indian Point. I supervise the resident inspector
23 staff on a daily basis, and we ensure that the NRC
24 inspection program is carried out effectively and
25 efficiently at the site. We would also be the people

1 responding to any activities or events at the site.

2 I'd first like to introduce the folks that
3 help me. You've met our first, our admin assistant
4 who frankly really runs the office, Diane Hockmu
5 (phonetic). She's out at the table as you came in
6 taking the sign-ups. I don't know what we'd do
7 without Diane.

8 I'd ask at this Point the other two
9 residents, Andrew Seawee (phonetic) and Justin Vasquez
10 to stand. Andrew is the resident inspector, Unit 2,
11 and Justin is the resident inspector at Unit 3. All
12 of us live within the immediate vicinity at Indian
13 Point. We work full-time at the site.

14 As a background for the inspection
15 program, our inspection program is risk-informed and
16 requires thousands of hours of independent inspection
17 to confirm plant safety and verify the licensee
18 addresses/identifies problems. We carry out many
19 routine baseline inspections under the NRC's reactor
20 oversight process.

21 We have unfettered access to Indian Point
22 on a 24-7/365 basis. We can walk around the site
23 without any kind of escort or whatever, and we can
24 attend plant meetings or events as appropriate. We
25 also have the ability to view Entergy internal

1 documents when necessary.

2 We also have specialists from our regional
3 office who are not with us tonight, and also from
4 headquarters, our NRC headquarters in Rockville,
5 Maryland. They come out periodically to conduct
6 inspections and audits at Indian Point, and at all the
7 other plants in Region I. They are experts in their
8 specific areas, including health physics, engineering,
9 security, emergency preparedness and operations.

10 Next slide. The basis for our 2017
11 assessment of Indian Point is a combination of the
12 Unit 2 and Unit 3 inspection results and performance
13 indicators. This year, we've put in more than 8,400
14 hours of independent inspection activities. It
15 represents 243 separate baseline inspections.

16 For example, when maintenance is
17 conducted, sometimes we'll take a look at the
18 maintenance activity. When they conduct testing of
19 equipment to verify the equipment is still in good
20 shape, we'll be out there watching the various
21 surveillance tests.

22 When a storm's coming and we've had our
23 share this winter, we were out there taking a look at
24 preparations for adverse weather and storms. If a --
25 I don't think we've had a hurricane here in a long

1 time, but Superstorm Sandy came the residents were on
2 site, verifying everything was in good shape.

3 We also monitor operator performance in a
4 simulator. The operators have a lot of work to do to
5 maintain their proficiency and their training, and
6 we'll go in there and verify that they're competent,
7 safe and competent operators. We'll also take a look
8 at the emergency preparedness drills when they occur
9 and verify that Entergy has the ability to execute
10 their emergency plan.

11 That's pretty much the day-to-day stuff.
12 As far as the regional specialists go, our 2017 last
13 year team inspections included a triennial fire
14 inspection, where they came out and they took a look
15 at fire protection on site and what would happen if a
16 fire were to break out.

17 We look at -- they came out and looked at
18 problem identification and resolution. We rely on the
19 licensee to identify and fix their own problems. We
20 come in and we'll take a look to make sure that
21 they're doing what they've committed to. We took a
22 look at the post-Fukushima requirements and how
23 Entergy is meeting those, and the other teams came out
24 and did operator licensing exams.

25 So there's a whole group back in Region I

1 that takes a look at how the operators are maintaining
2 proficiency. We also conducted baseline inspections
3 into some specialty areas like the spent fuel storage,
4 to make sure that the spent fuel, the dry cask storage
5 pad is being maintained and operated safely. Health
6 Physics, Security and something called in-service
7 inspection, which is really just compliance with the
8 various ASME Code requirements that ensure that the
9 margins to safety are maintained.

10 Next slide. The reactor oversight process
11 was designed back around 2000, 1999-2000, and it
12 provides an action matrix framework to determine the
13 appropriate level of NRC oversight. It's a
14 predictable, objective agency response to licensee
15 performance.

16 The reactor oversight process takes a
17 graded approach, and provides for additional
18 inspections and oversight for declining performance,
19 or if there are any risk-significant inspection
20 findings. The process uses two inputs: inspection
21 findings and performance indicators.

22 Primary in this are inspection findings,
23 and this would be in the form of findings or
24 violations, the first assessment input. Each finding
25 is assessed to assure that the performance deficiency

1 is more than minor and has an objective level of risk
2 significance.

3 We have three different colors for
4 inspection findings, green, yellow and red. Obviously
5 going from green, which is a very low safety
6 significance, to yellow, which is low to moderate
7 safety significance, and red which is a serious safety
8 problem. The risk assessment that we use is based on
9 a probabilistic risk assessment model the industry and
10 the NRC has developed over the years.

11 It's the most objective and most accurate
12 way of assessing risk in an industrial facility like
13 Indian Point. In addition to our inspection results,
14 we also have something called performance indicators,
15 which are effectively metrics. They have objective
16 threshold criterias and they measure acceptable
17 performance, again characterized by green, yellow and
18 red.

19 For example, we have 22 separate
20 performance indicators that we do as our baseline at
21 the resident staff, and many others that are completed
22 by the regional specialists. Examples of what this
23 looks like is unplanned shutdowns. There's thresholds
24 for if you have an unplanned shutdown, if you get
25 above a certain number in a certain period of time,

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1 you could go from green to white.

2 Safety system availability and reactor
3 coolant identified leakage. Those are -- I won't give
4 you all of them, because it would take too long. But
5 those are the kind of things that we monitor, we
6 track. The licensee reports, we verify accuracy and
7 they're used in our regulatory scheme to determine
8 where the licensee falls, Indian Points falls in what
9 we call our action matrix.

10 As you can see in the slide that just left
11 the screen, there's a matrix there where you combine
12 them and we get to the bottom line and regulatory
13 response.

14 In 2017, all performance indicators at
15 Unit 2 and Unit 3, and these are the metrics again,
16 came out green. The performance indicators were
17 updated and reportedly reported on a quarterly basis,
18 and we verified each one to be accurate.

19 In addition to the performance indicators,
20 there were eight different findings identified through
21 our inspections, and these were documented in our
22 quarterly inspection reports and in the team reports.
23 All inspection findings are assessed to have a very
24 low safety significance or were green.

25 I'd like to go ahead -- next slide. I'd

1 like to transition now. That's our performance
2 summary. I'd like to transition now to a new topic.
3 This is reporting on the reactor vessel O-ring leakage
4 that I think many people have heard about. This is
5 what it kind of looks like.

6 The reactor vessel is -- what you see
7 there is a, the chemical deposits of boric acid that
8 have leaked out around the O-rings. The O-rings seal
9 the reactor vessel and the reactor vessel head. They
10 provide a very, usually a very effective seal.

11 At Indian Point, both units experienced
12 leakage from the reactor vessel head flange this year.
13 This leakage required both units at various times to
14 shut down for repairs and O-ring replacement. Unit 3
15 shut down in June; Unit 2 shut down in December. The
16 evidence, there's a lot of ways we measure, we can
17 detect this but this has usually proved positive when
18 you see a white chemical deposit coming out of the
19 side of the reactor vessel.

20 The chemical deposit is boric acid and
21 it's used as an additive to the reactor coolant system
22 for reactivity control. When the boric acid leaks
23 out, the water in the reactor coolant system flashes
24 to steam and what gets left behind are these white
25 chemical deposits.

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1 As you can see from this, the amount of
2 leakage, and this occurred over a fairly long period
3 of time, several weeks, the amount of leakage was very
4 small. The area above the white chemical deposits is
5 the reactor vessel head, and the area below is the
6 reactor vessel itself. It's like a pot with a lid on
7 it.

8 Next slide. I'm not going to spend too
9 much time on this slide, but this slide shows an
10 engineering cut-away of how this O-ring seals the
11 reactor head flange to the reactor vessel itself. The
12 little dark circle there shows where the O-rings get
13 installed, and these O-rings basically get crushed
14 when you reassemble the reactor and you tighten down
15 on the studs.

16 The O-rings are actually not designed to
17 work at the same time. The first O-ring is designed
18 to hold pressure. The second O-ring is really a
19 backup. So if the first were to fail, then you shift
20 over to the second. So it's a spare that's always
21 installed.

22 The reactor -- any leakage that goes
23 through the reactor vessel O-rings, and this is a
24 mechanical joint, so it will leak out as you saw on
25 the previous slide, and there's a leak off line that

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1 it can go through that will trigger a temperature
2 detector and tell you you've got leakage through the
3 inner O-ring.

4 At that Point, you valve in the outer O-
5 ring. These O-rings are about one inch in diameter.
6 They're self-energizing, meaning that they push back
7 against the forces that are trying to crush them, and
8 they've got silver compound around the outside which
9 is malleable. So as you squish the reactor flange in
10 the vessel, it crushes down and takes up for any
11 inconsistencies in the seating surfaces.

12 We also monitor for any leakage using
13 daily unidentified leak rate measurements that look
14 for the amount of reactor coolant that's lost from the
15 system, and we also monitor continuously for any
16 unexpected reactor containment sump level rise
17 indications.

18 So if it does leak out from the outer --
19 if it leaks out from the inner O-ring, it just goes
20 down to this tank that's at the bottom of Containment,
21 and it's all contained. If it leaks out through the
22 outer O-ring, then it will go out into the Containment
23 atmosphere and you'll pick it up through some of these
24 other methods. There's also a leak-off line there,
25 but that's not always as effective.

1 There's also fan cooler units which are
2 like giant air conditioners inside Containment, and if
3 the leakage is going into -- if the leakage has to go
4 into Containment, it will condense out in these fan
5 cooler units and you'll catch it in some detectors
6 that are looking for the amount of condensate that
7 comes out of the fan cooler units.

8 So we've got multiple ways, many of them
9 continuous. In other words, we're looking at it all
10 the time. Others that are frequent like on a daily
11 basis, and then when all else fails, Entergy will go
12 in and take a look, a visual look at the reactor
13 vessel and look for these little traces of boric acid.

14 The amount of leakage on both units that
15 was detected was a very small fraction of the
16 allowable tech spec limit. Technical specifications
17 are the primary way in which we regulate Indian Point.
18 It provides very specific requirements and thresholds.
19 But because these numbers were tiny fractions of what
20 the tech spec limit was, and because Entergy as soon
21 as they found these O-rings were leaking they shut
22 down and took immediate action to replace them, we --
23 they continued on. They were able to restart and the
24 total amount of shutdown time was not all that much.

25 Next slide. This is a picture of what the

1 O-rings actually look like when they're installed on
2 the reactor vessel flange. They're installed with
3 little caps and then you set the flange down on the
4 reactor vessel itself with another set of grooves that
5 are about the same dimensions as the grooves that the
6 O-rings are in. And then you crush down, you torque
7 down on the -- there are 54 studs that go around the
8 reactor vessel, and that's how you apply the
9 mechanical force that seals the head to the vessel.

10 Unit 2, during the spring 2018 refueling
11 outage, they had to, let's see. So we said that there
12 were two sets of leak events that caused the units to
13 be shut down and repaired. For Unit 2 during the
14 recent spring refueling outages, Entergy performed
15 repairs on the Unit 2 reactor vessel flange mating
16 services.

17 They had a -- they took laser mapping
18 measurements and determined that there were some
19 irregularities in the outer O-ring grooves. They weld
20 repaired those surfaces, reinstalled the O-rings and
21 they're looking, they're holding just fine. We've not
22 seen any evidence of leakage since the restart in
23 April of this year.

24 For Unit 3, Entergy is planning to do the
25 same inspection with laser mapping to take a look at

1 any irregularities on the flange seating surfaces
2 during the next refueling outage in March of 2019, and
3 each time they disassemble a reactor they install new
4 O-rings to make sure that the O-rings are -- you know,
5 they don't reuse the O-rings.

6 At present, the inner O-ring on Unit 3 is
7 leaking, has leaked by, the outer O-ring is holding
8 pressure. So we're looking at that very carefully,
9 and at greater frequencies than we do when both of
10 the O-rings are holding. Entergy's actions have been
11 prompt, conservative and proactive. They immediately
12 shut down each unit as soon as the leak was identified
13 and they promptly fixed the flange leaks without
14 waiting for the leaks to get any worse.

15 So in summary, in 2017 -- next slide,
16 please. Both units operated safely, and in a manner
17 that met all safety cornerstone objectives.
18 Therefore, the NRC's assessment is that both Unit 2
19 and Unit 3 operated within Column 1 or the licensee
20 response column of the action matrix for all of 2017.

21 Because of that we planned and have been
22 conducting our comprehensive baseline inspection for
23 calendar year 2017. Thank you very much. I'd like at
24 this Point to turn it over to Jay Collins, who came up
25 here from our Rockville, Maryland office to talk about

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1 Penetration 3.

2 MR. JAY COLLINS: Thank you. Thank you.
3 My name is Jay Collins. Once again, I'm a senior
4 materials engineer in the Piping and Head Penetration
5 Branch. We're going to talk about an indication of
6 cracking and through the weld through Head Penetration
7 No. 3 at Indian Point Unit 2.

8 Next slide, please. So you saw this
9 picture before. It's a picture of the upper head.
10 What you're seeing here is the head surface itself
11 that's exposed to air, and those are the penetration
12 nozzles themselves going through the vessel head at
13 the top.

14 Another way to look at this is on the next
15 slide, if you cut that in half, this provides a
16 picture of what is the upper head when there is
17 reactor coolant underneath it. So where you're seeing
18 the blue there, that's under normal operation. That
19 would have reactor coolant there. The red is the head
20 area.

21 The penetration nozzles have the control
22 rod drive mechanism sitting on top of them, and they
23 move and support the control rods that go into the
24 vessel. So that's the purpose of what we have those
25 penetration nozzles for, and why we have holes in our

1 reactor vessel head at this Point.

2 If you look at the upper right hand
3 corner, you'll see a cutout of the inside surface of
4 the upper vessel head, and you'll see where there is
5 the coolant, the blue at the wetted surface. There's
6 the nozzle, the gray area, and the head material, the
7 red. What holds these components, the nozzle to the
8 head material is that yellow weld area. It's called
9 a J-groove weld, and it is the area in which the crack
10 was actually eventually found.

11 Above the weld between the head and the
12 nozzle material is an annulus region. There's nothing
13 that would prevent leakage from going up that area.
14 So if you look over to the left-hand side of the
15 picture, you'll see a cutout of what it looks like on
16 the top of the head, where the nozzle is connected to
17 the head, and in between there, in between the nozzle
18 and the head, the red and the gray, that's annulus
19 region where leakage can come out if you have leakage
20 through the weld itself, and it will actually come out
21 to the top of the nozzle onto the air.

22 Next slide, please. So now if we take a
23 cutaway verison of the actual nozzle itself, we can
24 see what is the head and the nozzle basically with the
25 J-groove weld there on the very bottom. Now what

1 we're trying to show on this is the number of
2 inspections which are required to be performed by the
3 licensee looking for any type of cracking within this
4 particular nozzle or weld area.

5 So the first type in green -- yes, you can
6 see it well enough there on the slide. On green on
7 the top is the bare metal visual inspection. So
8 that's when they're looking at the top of the head,
9 and they're looking for corrosion products on the top
10 of the head, as well as to that annulus region between
11 the head and the nozzle, to see if there's any
12 indication of leakage.

13 If you notice the red section there that
14 takes up the whole nozzle area, that's a volumetric
15 inspection that is performed on that entire area that
16 can evaluate that entire portion of the nozzle, to see
17 if there is any cracking whatsoever within that area.
18 Then you have the blue lines, which are on the
19 surface.

20 Those are surface exams which we perform on the
21 surface of the nozzle within those areas, to be able
22 to determine if there's any surface indication of
23 cracking. So the type of cracking that we're talking
24 about here is primary water stress corrosion cracking,
25 and it requires an environment for it to occur. It

1 requires a susceptible material, and it requires
2 tensile stress.

3 So the reason these are located within
4 this region is because the weld itself is the item
5 which is generating this tensile stress. The reactor
6 coolant is providing the environment, and the material
7 unfortunately in this case called Alloy 600 is a
8 susceptible material.

9 If we go to the next slide, we'll look at
10 the actual information from the Unit 2 head exam
11 during 2018. So the bare metal visual and volumetric
12 examinations were performed on this head. The bare
13 metal visual examination identified possible nozzle
14 leakage. The volumetric exams found no indication of
15 any cracking in the nozzle materials.

16 As well, the bare metal visual of all the
17 other nozzles identified no other indications of
18 leakage, and the volumetric exams of the nozzles of
19 all the other nozzles on the head identified no
20 cracking. The volumetric leak path identified in --
21 sorry, an anomaly. The volumetric leak path is a
22 backup examination to our bare metal visual exam, and
23 helps reinforce when we're seeing something up there
24 if there's a potential for leakage in that annulus
25 region. That's what it does when it's doing the

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1 inspection.

2 So then the licensee took the opportunity
3 to look at the J-groove weld surface, to be able to
4 determine if there was a surface crack on the J-groove
5 weld. They performed liquid dot penetrant (phonetic)
6 and eddy current examinations and did find cracking.
7 So this is where they have identified that they have
8 a leak through the weld that was causing an indication
9 on top of the head.

10 If we go to the next slide, you can have
11 an opportunity to look at what the bare metal visual
12 indication was on top of the head. So this is a
13 little bit difficult to see potentially, but what
14 we're looking at once again is the nozzle going onto
15 the top of the head surface.

16 So this is only about four inches in
17 diameter as far as the actual penetration nozzles
18 themselves. But if you notice in between there in
19 that annulus region and coming up slightly onto the
20 nozzles is a white deposit. That white deposit is the
21 boric acid crystals, which was talked about in the
22 earlier item with the J-groove welds.

23 This boric acid deposit is very small for
24 the amount of leakage that is there, and gives us an
25 indication of the amount of leakage which is there,

1 plus it's white in deposit. If it would have caused
2 significant corrosion of the head material of the red
3 head material from the previous slide, then we would
4 have seen a discoloration of this white deposit, and
5 we would have seen some type of additional corrosion
6 products on top of the head.

7 By being able to have this type of
8 indication, white and small in size, this is what
9 we're looking for to be able to catch effectively any
10 type of cracking through the weld material at an early
11 stage before it has any chance of causing a structural
12 integrity issue.

13 If we go to the next slide, so actions at
14 Indian Point Unit 2. Through those examinations, they
15 verified the location of the indication. All
16 indications were in the weld material. They found
17 that leakage was caused by an axial flaw in the weld,
18 and then they repaired by a weld-only type repair.

19 So once I was getting to the Point that
20 this cracking mechanism requires a susceptible
21 material, a tensile stress and the environment. So in
22 order to repair it, they isolated the actual cracked,
23 susceptible surface of the weld with a new material,
24 an Alloy 52 material. This material is highly
25 resistant to primary water stress corrosion cracking,

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1 and provides an isolation boundary so that there would
2 be no further cracking and no further leakage from
3 this particular component.

4 This type of repair has been done at
5 numerous nuclear power plants across the fleet, over
6 20 for this specific type of application, and it's
7 been done -- one of the first ones performed was in
8 1997.

9 Now if we go to the next slide, you'll get
10 a better picture of the onlay-type repair that I'm
11 talking about. Once again, you've got gray for your
12 penetration nozzle; you have red for your upper head
13 material. Yellow is your J-groove weld. Now green is
14 the weld onlay. So this is actually 360 degrees
15 around, right. We've got a round tube. We've got a
16 360 degree round J-groove weld keeping it attached to
17 the head material.

18 The weld onlay itself goes 360 degrees
19 around the weld and covers every potential spot at the
20 weld surface that would be in contact with the reactor
21 coolant system. Therefore, it provides an effective
22 isolation boundary and prevents any potential cause
23 for cracking of this type of mechanism in the future.

24 However, the crack itself it still left
25 within service. It's still left within the weld

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1 itself. So there's still other potential mechanisms
2 that the crack might grow. So this is called through
3 fatigue is about the only possible way at this Point
4 that we're evaluating, and we're analyzing the amount
5 of fatigue growth that this could have over the
6 remaining lifetime of the examination, the duration of
7 the proposed alternative for as long as they would
8 like to have the repair.

9 And what you find is that the head itself
10 does not have enough thermal cycles to really
11 significantly grow something due to fatigue in this
12 type of structural weld-type like environment.

13 So if you go to the next slide, the NRC
14 staff reviewed the licensee's inspection plan and
15 determined that the flaw was repaired effectively.
16 The leak path was isolated. No additional cracking of
17 the repaired flow due to primary water stress
18 corrosion cracking, and structural integrity was
19 ensured for the upcoming cycle of operation, which was
20 the duration of the relief request provided to the
21 NRC. The NRC found the repair provides reasonable
22 assurance of public health and safety.

23 Go to the next slide. So NRC inspectors
24 at the plant also performed examinations of the repair
25 activities, as well as the initial inspections

1 themselves. They verified that all of these
2 inspections were performed, all of the repair
3 activities and the subsequent inspections performed on
4 the repair itself were all performed in accordance
5 with the ASME Code and the requirements of the actual
6 repair relief itself.

7 Therefore, we believe that they ensure
8 structural integrity of the head for the next
9 operating cycle, which is the -- once again, the
10 duration of the proposed alternative.

11 The final slide. So the NRC has
12 determined that Indian Point Unit 2 reactor pressure
13 vessel upper head has adequately been inspected and
14 repaired not only by this repair but by the full suite
15 of inspections that have been done. The NRC staff
16 will document the NRC review of Entergy's license
17 event report and any associated enforcement action in
18 a future inspection report.

19 This is what happened in 2018 versus 2017,
20 which is the annual assessment here. That concludes
21 my presentation.

22 MR. KLUKAN: Thank you. At this time, I
23 would like to -- before we enter into the public
24 comment portion, an opportunity for elected officials
25 or the representatives thereof to offer any prepared

1 remarks or statements at this time. I know we had one
2 individual, Ms. Manna Jo Greene indicated she would
3 like to give a prepared statement. Do we have any
4 others?

5 (No response.)

6 MR. KLUKAN: Okay. Ms. Greene, you are
7 up.

8 MS. GREENE: Thank you very much for this
9 opportunity. I am Manna Jo Greene. I am an Ulster
10 County legislator and I have been an elected official
11 for 13 years at one level or another.

12 But I am also the environmental director
13 for Hudson River Sloop Clearwater, and will be
14 speaking in that capacity, although I must say that
15 the legislature probably would agree with a lot of
16 what I have to say, and I will try to be as brief as
17 possible.

18 We have -- this is a different year than
19 all the more than decade that I've been coming to
20 these hearings. Because Indian Point has a closure
21 gate of 2020 and 2021, that does not mean that the
22 inspections and the fact that the plant is aging and
23 suffering signs of aging, you know, the next two to
24 three years are still a very critical period.

25 But we are also beginning to think about

1 the safest possible decommissioning of the facility,
2 adjust transition for the workers at the facility, and
3 ultimately possibly in the long term site reuse.
4 There is an Indian Point Closure Task Force and I've
5 been observing, we've been observing that process and
6 recently commented on their one-year report and their
7 -- they hired a consultant called DL English to do a
8 site reuse.

9 And it occurs to us that it's really
10 difficult to evaluate site reuse because of the
11 following deficits. First of all, we don't yet know
12 Entergy's decommissioning plan. We don't have the
13 Algonquin Pipeline risk assessment. The report did
14 not consider questions that we have about clustered
15 dry cast storage versus hardened on site storage,
16 which is distributed and (inaudible).

17 There was very little acknowledgment of
18 the potential for the canisters that are used for cry
19 cast storage to leak or crack, or even the integrity
20 of the casks that they are set into. There was no
21 acknowledgment at all of high burn-up fuel and the
22 fact that that uses in which uranium and means that
23 the fuel will have to stay in the pools longer.

24 And no acknowledgment of climate change.
25 I appreciate that the storm of the past year was

1 included in this report. But we've seen 11 foot storm
2 surges and we know that it's likely that by the turn
3 of the century, we will see a six foot rise in sea
4 level due to climate change. Very little
5 acknowledgment of that.

6 We also believe there needs to be a
7 baseline characterization of radiation on site in air,
8 in the soil, in the groundwater and what is leaking
9 into the river at the perimeter and in concentric
10 circles for the community to have a baseline and then
11 ongoing monitoring.

12 The other thing that was significantly
13 missing is -- are the dangers of offsite transport,
14 and then I want to really stress the importance of the
15 institutional memory that the workers at Indian Point
16 have decommissioning. They have been for many years
17 now loading the reactors, unloading the reactors and
18 putting that highly radioactive spent fuel into the
19 fuel pools, and then since dry cask storage first from
20 Unit 1 and then Unit 2, and I believe probably Unit 3
21 as well into dry cask storage.

22 So they have knowledge and experience, and
23 should there be a problem, they're not going to have
24 to be rummaging through a manual to figure out what's
25 what. They know from real life experience, and if

1 there's any way we can prevail upon Entergy, whether
2 they ultimately sell the facility to a so-called
3 decommissioning expert, or whether they maintain the
4 facility through decommissioning, that they maintain
5 these valuable workers.

6 I think that's really critical. Those who
7 are not ready to retire and not retained should have
8 a very specific transition plan. I only have a couple
9 more quick points, and one is that the NRC authorizes
10 a citizen oversight board. We've been meeting for
11 over a year to try to define whether you authorize a
12 citizen advisory board, and we've developed model
13 legislation for what we're calling a citizen oversight
14 board, that would also include access to independent
15 experts to review the decommissioning process.

16 I want to say that we strongly oppose the
17 Shimkus (phonetic) bill, and strongly support the
18 Stranded Act to bring funding to communities that area
19 de facto nuclear waste storage sites. The last
20 comment I'd like to make is that the post-shutdown
21 activities report. It's inconceivable to me that the
22 NRC does not need to approve it. It only needs to be
23 submitted.

24 So we're going to be looking very closely
25 at rulemaking , and I thank you very much for your

1 attention.

2 MR. KLUKAN: Thank you.

3 (Applause.)

4 MR. KLUKAN: Okay. We're now going to
5 turn over to the public comments. So unlike in
6 previous years, I'm just going to -- we're going to
7 level right now. So we have it looks like 22 people
8 signed up to speak. It is right now 7:48. That gives
9 us, and I'm preemptively, magic wand, we're going to
10 9:30, okay.

11 There's no reason why if everyone adheres
12 to a three minute speaking time that we can't give
13 everyone an opportunity who registered to speak a
14 chance to do so. Just 20 seconds I'm going to take of
15 this time. The reason I come here, and this is a
16 volunteer assignment for me. I don't have to be here.
17 This isn't part of my normal duties.

18 But I come here because I believe it's
19 critical to the NRC mission to have public engagement,
20 and getting people an opportunity to have dialogue
21 with the NRC. Fundamental to that is hearing from
22 everyone who comes here to be, you know, heard. So I
23 ask for your assistance in masking that happen.

24 So you'll see here a clock. It's going to
25 count down from three minutes. At zero, I'm going to

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1 interrupt you. Even if it is mid-sentence, I am going
2 to cut you off, and that is out of no disrespect to
3 you, but it's simply so that we have enough time to
4 get through everyone who signed up to speak this
5 evening, which we should be reasonably capable of
6 doing, especially if we extend the meeting time to
7 9:30.

8 I would ask then as well is that there
9 will be no back and forth. So bundle all your
10 questions within that three minutes, and I will ask
11 you if you ask a question are you done and then the
12 NRC will respond if it so chooses, but you don't get
13 to go back and forth to extend your time beyond the
14 three minutes.

15 I wish we could have those type of
16 dialogues, but time simply doesn't permit. So I ask
17 out of fairness to everyone else that you please
18 bundle all your questions together, and then the NRC
19 staff will respond once your three minutes are up. Or
20 sooner if you finish with your questions before the
21 three minute time. Don't feel the need to take all
22 three minutes if you don't have to.

23 So we have -- are you with me on this?
24 All right. That was enthusiastic. All right. So
25 first up, again we're going to put the numbers, as I

1 said, up on the screen and with our, what we thought
2 was the spelling of your names. So first up is number
3 83, Michelle Lee.

4 MS. LEE: I'm trying to remember whether
5 it's Beethoven's Ninth, I think, not Fifth. (Singing)
6 You music lovers? Fifth okay, not Ninth. That's all
7 I could think of. Alloy 600. Gosh, that rings a bell
8 from well over a decade ago, doesn't it? O-ring
9 deterioration.

10 That's happened over and over and over
11 again. These are new O-rings, and every time you have
12 a new O-ring, gee, you know, you go through your
13 inspection report and there's another new O-ring with
14 a leak issue. Boric acid, again we have been there
15 before. Or cracks that nobody suspected and welds.
16 Oh gosh, how many weld issues do we see?

17 I'm at the Point where I almost don't know
18 what to say, because there's clearly an enormous
19 wealth of knowledge and engineering expertise that's
20 brought to bear when these problems become emergent.
21 I think I and most people, you know, even who have
22 opposed the reactor, believe that you certainly don't
23 want a major accident.

24 But we -- is there anybody that's
25 beginning to connect dots with these aging reactors

1 that are having all the normal evidence of aging, in
2 many, many, many different systems. Your core premise
3 for safety is that there is redundancy, and there is.
4 But what happens when you start seeing cracks in every
5 single layer of those redundant systems?

6 Having gone now for over 15 years since
7 9/11, when I got involved in this, I see over and over
8 and over again in the Indian Points reports and in
9 inspection reports with the other aging reactors,
10 including those in New York and elsewhere, over and
11 over and over again I see safety-related systems as
12 well as many of the ancillary systems, having the
13 problem.

14 But it's okay. It's a green finding
15 because there wasn't a meltdown or a coolant accident
16 or whatever. Yea, and we're going to fix that
17 problem. Then in the next layer on another date
18 there's another problem in another one of those key
19 systems. But that's a fixed and that's a problem.

20 Then you get to the third level of
21 redundancy in some other system. At what Point does
22 somebody take a broad look at this and say you know,
23 at some Point those cracks are going to line up, and
24 I'm sure as you well know from engineering you have th
25 Swiss cheese issue, of at some Point that hole is

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1 going to go through.

2 I just urge you with a reactor that's old
3 enough to -- and that's theoretically shutting down,
4 that there's going to be an incentive to cut corners,
5 and I really hope you are really on the job the next
6 four years.

7 MR. KLUKAN: Thank you, thanks. Okay.
8 Next up we have No. 87, Simon -- one of my eyes is
9 bad, so I assume that Klinebart (phonetic).
10 Klinebart, all right. And again, I apologize
11 profusely if I mispronounce any of your names.

12 MR. KLINEBART: Great pronunciation, thank
13 you. A quick comment, a little bit outside the NRC's
14 mandate, but I have a question for the NRC. This may
15 not be your issue, but I would just like to see, as we
16 go through this shutdown, according to Wikipedia, New
17 York City and Westchester get about 25 percent of
18 their power from Indian Point.

19 It would be nice to see a discussion of
20 where that power is going to come from or suddenly New
21 York City and Westchester won't need it anymore. Like
22 what those sources will be and what those effects will
23 be. Now for the NRC members, there's a lot of
24 discussion of leak detection. So can you just talk
25 about how many pressure sensors there are in the

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1 reactor vessel and like where they are and why those
2 aren't giving you better indications, without like
3 having to see, you know, the salt deposit?

4 MR. KLUKAN: I understand. Do you have
5 other questions, or is that your only question,
6 because I'm not -- the clock does not stop. I'm in no
7 way trying to be disrespectful. But it's not stopping
8 for anyone? So do you -- if you have others, I would
9 bundle them up now and ask the NRC staff to write them
10 down and then they'll answer them all at once.

11 MR. KLINEBART: Okay, well one more. Just
12 with those O-rings, why aren't both of them compressed
13 all the time, with some leak detection in between, you
14 know, just like keeping that redundancy just as a
15 matter of course? I'll take my answer.

16 MR. KLUKAN: Okay, thank you. I
17 appreciate it.

18 MALE SPEAKER: As far as the pressure
19 sensors go, there are a very large number of pressure
20 sensors, more than 20. I'm not sure that I can count
21 off the top of my head because there are many
22 different places, many different systems and so
23 there's a lot of ways we have of measuring changes in
24 pressure, and that's one of the ways we measure when
25 the O-rings leak.

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1 MALE SPEAKER: Yeah. Now the question
2 about the O-rings, as to why, why both O-rings are not
3 compressed at the same time. Actually, both O-rings
4 are compressed at the same time when you have the head
5 on the vessel. The matter is the inner O-ring is
6 exposed to the reactor pressure boundary. So there's
7 a leakage through that first O-ring. It's collected
8 in between the O-rings and the collection system.

9 So that then the second, the outer O-ring
10 becomes the one then that's exposed to the reactor
11 pressure boundary. In effect, you have two O-rings.
12 One's the backup to the other. Both are compressed at
13 the same time, but one serves first and then the other
14 is the inner one and the first one should leak back.

15 MR. KLUKAN: Next up we have No. 92, Jean
16 Gene Shaw. And again, I would ask that -- and this
17 goes for the NRC staff too, to state your name before
18 you start speaking, just for the sake of the
19 transcriptionist later on, so we make his or her job
20 a little easier. Anyway, you're up.

21 MS. SHAW: I'm Jean Shaw. I'm ceding my
22 time to Gary Shaw.

23 MR. KLUKAN: Thank you.

24 MR. SHAW: Thank you. My name's Gary
25 Shaw. I'm with the Indian Point Safe Energy

1 Coalition. I had an introduction that I will skip
2 through so we can get through these, because most of
3 my questions refer to what's coming up when from the
4 NRC, when generation stops.

5 First, once the plants stop generating,
6 what is NRC's responsibility? My understanding is
7 that Entergy has two years after closure to file a
8 decommissioning plan. What is NRC's responsibility to
9 oversee and manage that plan? Does NRC have any
10 approval of the company if Entergy decides to sell the
11 license? What NRC standards would be required, and
12 which -- if Entergy sells it, who's responsible for
13 the storage of the high level radioactive wastes?

14 If Entergy or a new owner selects the Safe
15 Store schedule, which is 60 years of decommissioning,
16 will NRC have a presence throughout that process? The
17 plant currently uses 2.5 billion gallons of Hudson
18 River water for cooling each day. How much water will
19 have to be used to keep the spent fuel cool for the
20 five to ten years that will be needed after removal
21 from the reactors?

22 In 2017, there were more leaks related to
23 O-rings in the reactor lid of Unit 2. In April of
24 2018, leaks were discovered in Unit 2. Were they also
25 related to the O-ring and you've already said that

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1 they are. When the AIM pipeline was installed just
2 off the center of Indian Point 3, NRC simply bowed to
3 FERC's judgment that it was safe.

4 New York State conducted a risk assessment
5 and the state has not shown the results to the public.
6 Has NRC asked to see the risk assessment, since there
7 will be more years of generation and an indefinite
8 time of storage of high level radioactive waste? If
9 not, why not? It is my understanding that NRC
10 recommends the citizens advisory board for
11 decommissioning. Indian Point has recommended a
12 citizens oversight board since New York State is a
13 deregulated market.

14 Does NRC object to having state
15 legislation that involves a broad range of elected
16 officials and knowledgeable citizens, (off mic) and I
17 have copies of this. I would like to get written
18 responses.

19 MR. KLUKAN: All right, just so -- that's
20 for the record. Mr. Shaw asks that he entered some
21 written questions and would like a written response.
22 Thank you.

23 MALE SPEAKER: So Mr. Shaw, in the
24 interest of time we will provide a written response
25 with the meeting summary for tonight.

1 MR. KLUKAN: Okay. So next up we have
2 Frank Fraley (phonetic), No. 98.

3 MR. FRALEY: Good evening. My name is
4 Frank Fraley, and I'm the president of SHARE New York.
5 SHARE is a non-profit coalition of organizations
6 including community groups, local chambers of commerce
7 and churches committed to ensuring the continued
8 supply of reliable, clean and affordable electricity
9 for all New Yorkers.

10 The rigorous and ongoing assessment done
11 by the U.S. NRC again found that Indian Point is a
12 safe and well-run facility. For several decades,
13 Indian Point has been a critical piece of New York
14 State's electricity, generating over 2,000 megawatts
15 of power.

16 Indian Point has safely provided 25
17 percent of the electricity for the Lower Hudson Valley
18 and New York City. The electricity generated by
19 Indian Point 24 hours a day, seven days a week for
20 over 90 percent of the year has provided reliability
21 to the electrical grid and it is carbon-free energy.

22 The safety and reliability of Indian Point
23 is a testament to the talent and dedication of the
24 over 1,000 highly skilled workers at the plant, and
25 the investment of the plant's owner of more than one

1 billion dollars to strengthen and enhance the
2 facility. We are fortunate to have this safe and
3 secure source of power in our region for another three
4 years. Thank you.

5 MR. KLUKAN: Thank you very much.

6 (Applause.)

7 MR. KLUKAN: Next up we have No. 82. You
8 don't look to be Rob.

9 MS. MALONE: No, I'm not Rob. I'm
10 changing places with Rob.

11 MR. KLUKAN: All right. Can Rob just
12 raise his hand to confirm this ticket exchange? All
13 right, fantastic. Can you state your name for the
14 record?

15 MS. MALONE: Yes. I'm Deb Malone, the
16 executive director of the Hudson Valley Gateway
17 Chamber of Commerce. We're located in Peekskill. The
18 Hudson Valley Gateway Chamber of Commerce and its 512
19 members knows the important role that a clean and safe
20 power source plays in supporting the economy.

21 Businesses need affordable electricity to
22 operate and expand. Indian Point has supplied this in
23 a clean, reliable and safe manner for years.
24 Replacing Indian Point's 2,000 megawatts of power will
25 mean turning to fossil fuel plants that belch soot and

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1 toxic emissions.

2 Our economy will take a hard hit without
3 Indian Point, providing more than 140 million in
4 income a year to local families. These wages support
5 about 2,800 more jobs in our communities. Few
6 businesses in the area have known the impact Indian
7 Point has made in our local economy. The Nuclear
8 Regulatory Commission conducts safety inspections of
9 every nuclear plant in the country, and Indian Point
10 has long been the most scrutinized.

11 These inspections have all reached the
12 same conclusion, that Indian Point is a safe facility,
13 one of the safest in they country and Indian Point
14 should receive its license renewal for the remaining
15 three years of operation. Indian Point is more than
16 just a safe energy source. It is the key to driving
17 economic growth while attaining New York State's
18 emissions goals.

19 While I know it is unlikely that Indian
20 Point will operate beyond the dates planned or closure
21 in 2020 and 2021, I strongly support its continued
22 operation until that time so we maximize all of the
23 benefits the plant provides until then. Thank you
24 very much.

25 MR. KLUKAN: Thank you.

1 (Applause.)

2 MR. KLUKAN: Next up is No. 89, John
3 Ravitz (phonetic).

4 MS. ALLEN: So I'm not John either.

5 MR. KLUKAN: Can John raise his hand?

6 MS. ALLEN: John had to leave. Nope, John
7 is -- you are John Ravitz, right? Okay, good. Okay,
8 then please state your name for the record.

9 MS. ALLEN: Okay, cool. My name is Amy
10 Allen, vice president of the Westchester County
11 Association, and I'm here to express our support for
12 Indian Point Energy Center. Indian Point is a
13 significant source of power, putting out over 2,000
14 megawatts of electricity for the homes and businesses
15 in Westchester County, and responsible for 11 percent
16 of all power used in New York State.

17 Westchester County runs on Indian Point.
18 Its reliable power to hospitals, schools and offices
19 throughout the region has allowed Westchester to grow
20 economically. Industry is attracted to the
21 affordable, reliable power. Indian Point supports
22 approximately 3,300 jobs in Westchester, and up to
23 40,000 jobs statewide.

24 The New York Independent System Operator,
25 current and past New York City mayoral administrations

1 and the Charles River Associates have all concluded
2 Indian Point is safe and is necessary to maintain
3 lower electric rates and clean air in the region.

4 The Westchester County Association is
5 focused on promoting economic development in
6 Westchester, and encouraging businesses to grow
7 throughout the region. Westchester and all impacted
8 communities deserve a real plan for our economic and
9 environmental health following Indian Point's closure.
10 We only have three years. Thank you.

11 MR. KLUKAN: Thank you very much.

12 (Applause.)

13 MR. KLUKAN: Okay. No. 15, we have
14 Herschel Spector.

15 MR. SPECTOR: Thank you. My name is
16 Herschel Spector. My comments are not directed
17 towards the NRC but -- can you hear me -- but rather
18 the environmentalists and economists in this audience.
19 I'm holding up the press release that Governor Cuomo
20 issued back in January of 2017, and in that press
21 release, I quote "Replacement power will be in place,"
22 and it adds "no carbon emissions."

23 That was back in January. In December of
24 that year, the New York Independent Systems Operator
25 issued a report. There were two main conclusions

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1 about that report. First, we're not going to get any
2 electricity for Upstate New York. The transmission
3 blocked, prevents that. So anything you hear about
4 new generation upstate or better transmission,
5 conservation, it's irrelevant. It's not going to
6 deliver one electron to this area.

7 Any new generation in this area is going
8 to be done within the Lower Hudson Valley and New York
9 City. So that was the first thing. We're not getting
10 any upstate stuff, no wind turbines, no solar, nothing
11 from upstate or Long Island. The second thing that
12 this NISO report said, that Indian Point will be
13 replaced by gas. When they replace this by gas, this
14 is what happens.

15 Indian Point is very large facility, over
16 2,000 megawatts. It operates 90 percent of the time.
17 If you replace that with gas, you will produce so much
18 carbon dioxide it will completely overwhelm the
19 state's rev program (phonetic). Everything we've all
20 done as environmentalists to protect the environment
21 is wiped out.

22 Furthermore, the carbon dioxide that will
23 be released will be in the atmosphere for a thousand
24 or more years. So we have a serious issue. It was
25 never debated when this stuff came up. Three men in

1 a back room decided for all of us. It's wrong. Thank
2 you.

3 (Applause.)

4 MR. KLUKAN: Thank you very much. Next up
5 we have 91, which was originally Amy Allen. She
6 confirmed to me that she's donating it to Eric Eller.

7 MR. ELLER: That's me. I am Eric, excuse
8 me. My name's Eric Eller. I'm president of the
9 African-American Men of Westchester, an elite group of
10 men of African-American descent who serve Westchester
11 County as corporate leaders, doctors, judges, public
12 figures and community leaders.

13 Indian Point's safety, safe operation is
14 vital to reducing reliance on fossil fuels. When
15 Indian Point goes offline, there will be significant
16 pressure to replace this carbon-free facility with
17 power from fossil fuel plants, which are
18 disproportionately located in African-American and
19 other minority communities.

20 A study commissioned by the New York City
21 Department of Environmental Protection found that
22 Indian Point's closure would cause carbon emissions to
23 increase by up to 15 percent, and noxious oxide
24 emissions to increase by seven to eight percent in
25 both the city and the state.

1 The New York City Department of
2 Environmental Protection reports that air pollution in
3 New York City is a significant environmental threat
4 that contributes to an estimated six percent of annual
5 deaths. The New York State Controller added that the
6 cost of -- cost to treat asthma has increased in
7 recent years, eclipsing 1.4 billion annually and
8 impacting minority communities most.

9 The absence of Indian Point power
10 threatens the health and welfare of vulnerable
11 populations, particularly in minority communities.
12 The state must make a plan to mitigate this
13 significant risk. For 40 years, Indian Point has been
14 a good neighbor to Westchester. The plant has donated
15 more than one million annually to Westchester Valley,
16 excuse me Hudson Valley charities, and provided more
17 than 2,000 jobs within the region.

18 Three years will pass very quickly. In
19 the meantime, please grant Indian Point a short-term
20 license for the remainder of its operating period.
21 Thank you.

22 MR. KLUKAN: Thank you very much.

23 (Applause.)

24 MR. KLUKAN: All right. Next up is
25 Catherine Skopic, No. 100.

1 MS. SKOPIC: Thank you for your report.
2 My names is Catherine Skopic and I am Chair of
3 Shutdown Indian Point Now. And for the sake of our
4 members, New York City, Buchanan, Tarrytown, the whole
5 Northeast, I speak on a couple of issues.

6 One, I would very much like to see a
7 complete plan for the decommissioning of Indian Point.
8 I would like to see a time line with costs and
9 details. I would like to see that made public for all
10 of us as soon as possible. The vision that many of us
11 have in our group, Shutdown Indian Point Now, is for
12 a just transition, and Manna Jo mentioned this as
13 well.

14 This would be for a retain-retrain program
15 for workers. Retain those workers who wish to
16 continue to work and who have the valuable information
17 to get the job done. Retrain workers who do not,
18 retrain them for renewable jobs, solar installation,
19 wind turbine care and so forth.

20 I'd also like to see the schools. As a
21 former school teacher, I'm very concerned about the
22 tax base for schools, that Buchanan should have some
23 plan where over a period of years they have the
24 support that they need. I do have a question. I have
25 a question about the spent fuel pools. I would like

1 to know how many rods are in Pool 1 and Pool 2 at this
2 time, because I know they are grossly overcrowded, and
3 they have to be moved in dry cask storage or something
4 ASAP.

5 I would just like to make a comment in
6 response to the previous speaker, and this is a
7 reminder, that nuclear does produce CO2. Not only CO2
8 in this area, but the mining of uranium is highly CO2-
9 producing. In the mining process, in the yellow cake
10 preparation, in the transportation of it to its site,
11 it's very highly CO2-intensive. So although you may
12 not have the CO2 here because of nuclear power, it's
13 going up into the atmosphere somewhere. So this is
14 very important to keep in mind.

15 Lastly, I'd just like to say a reminder.
16 I'm sure you're probably aware of Diablo Canyon in
17 California, and they all got together, the utility.
18 They decided to invest in energy efficiency, battery
19 storage and renewable energy. All of these
20 stakeholders sat around the table and decided that
21 they would close early.

22 They were not up for renewal of their
23 license until I believe '24-'25, but they decided to
24 close and become 100 percent renewable energy by 2030.
25 I would like to ask that we close early, that Indian

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1 Point close, consider closing 2019 or 2020, so that we
2 can get out of here safely without any problems before
3 more metal fatigues. Thank you.

4 MR. KLUKAN: Thank you.

5 (Applause.)

6 MALE SPEAKER: Ms. Skopic, just briefly.
7 With respect to your question about the number of fuel
8 elements in the spent fuel pools, the Unit 1 spent
9 fuel pool is completely empty. That's the unit that
10 was previously decommissioned, you remember that? So
11 that leaves the Unit 2 and Unit 3 pools, and we'll
12 have to get you those numbers just to make and verify
13 for 2 and 3. Right.

14 MS. SKOPIC: I would appreciate that. I
15 have a card.

16 MR. KLUKAN: So we'll actually -- assuming
17 this information is publicly available and if we're
18 giving it to you, I assume it is. We'll actually post
19 this as well to the meeting summary page, along with
20 the questions, the responses to Mr. Shaw's questions
21 as well, okay? So all of this, we'll add it to the
22 list.

23 Okay. Next up, thank you very much, is
24 No. 13, Thomas Corey (phonetic)

25 MR. CAREY: Good evening. It's actually

1 Thomas Carey.

2 MR. KLUKAN: I apologize.

3 MR. CAREY: Good evening everyone. I want
4 to thank you for the opportunity to speak tonight on
5 the very important issues regarding Indian Point
6 Energy Center. I am Thomas Carey. I'm the president
7 of the Westchester-Putnam Central Labor Body, and I'm
8 also a business representative of the Plumbers and
9 Steamfitters Local 21 based in Peekskill, New York.

10 Hundreds of the members that I represent
11 were involved in the construction of all three units
12 at Indian Point, and today hundreds more are involved
13 in the day-to-day operations, maintaining Units 2 and
14 3 in a safe and efficient manner, while providing
15 millions of man hours to building trades craftsmen and
16 craftswomen, as well as the utility workers on site.

17 On a personal note, I am proud to say that
18 I come from three generations in my family to have
19 worked on the original construction of all three
20 units, from my grandfather, my dad, my uncle, brother
21 and my late sister.

22 If some of you are old enough to remember,
23 PASNI (phonetic), then NIPA, now Entergy, you will
24 remember the plants, these plants were extremely
25 viable to this community for close to eight decades,

1 providing well-paying jobs to thousands of local
2 families, alleviating the tax burdens, whether helping
3 local schools, libraries, hospitals, colleges and many
4 community activities.

5 PASNI, NIPA and Entergy have been
6 fantastic neighbors. Not only are these good-paying
7 jobs, but they're always safe jobs. As a former
8 worker myself at all three plants, I can say that
9 safety is the number one priority at all three
10 facilities. The announcement of the closure of Indian
11 Point is to say the least devastating. I am a member
12 of both the local Governor's Task Force and the local
13 task force, and we're working diligently to ease these
14 burdens.

15 Tom Cogden (phonetic), our town supervisor
16 Linda Pugliese, Buchanan Mayor Theresa Knickerbocker,
17 School Superintendent Joe Hockriter (phonetic) members
18 of the realtors associations, business groups and many
19 civic groups as well as our elected officials have
20 really stepped up to pursue a safe shutdown, while
21 doing everything to protect the workers and taxpayers.

22 I have been a Town of Cortlandt resident
23 my entire life, living comfortable within a mile of
24 the plant. I speak on behalf of my members, my family
25 and myself that we are proud to work at Indian Point,

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1 and we will continue to keep it a safe and viable
2 nuclear power plant that it has been.

3 I would like to add that the weld repairs
4 that were completed on the reactor head were done by
5 none other than the fine craftsmanship of the United
6 Association of Steamfitters, and I would like to see
7 the plant run another 20 years. I believe by then we
8 may have an equal replacement energy source. Thank
9 you very much.

10 MR. KLUKAN: Thank you.

11 (Applause.)

12 MR. KLUKAN: All right. Next up is Ms.
13 Jackie Dressler, No. 19.

14 MS. DRESSLER: Hello everyone. I'm her.
15 To everyone at the NRC, I'm speaking on behalf of
16 David Amram (phonetic). "I wish I could be there in
17 person to thank all of you from the NRC for having
18 this meeting, to give all of us who live with their
19 families in this beautiful part of the country, a
20 chance to express our appreciation and concern for the
21 future, and looking forward to continue working with
22 you.

23 "We are overjoyed that we have avoided
24 another Fukushima Daiichi or a Three Mile Island
25 catastrophe, and are grateful for your wise decision

1 to terminate the plant before the plant terminated us,
2 as well as the lives of the 30 million people who
3 would have died of radiation poisoning trying to flee
4 a meltdown while being stuck in the biggest traffic
5 jam in history.

6 "Now we have the new issues of
7 decommissioning the plant, having safe containers and
8 safe storage, and avoiding a gas-fired power plant.
9 They need to be planned and we are willing to help in
10 any way we can.

11 "We need to have the assurance for the
12 creation and acceptance by you to have a responsible
13 community oversight committee, and I'm sure you would
14 find all the members a pleasure to work with, and find
15 that they are committed to interacting with you in a
16 healthy and intelligent way.

17 "Our concerns have nothing to do with left
18 or right wing policies. We are concerned about having
19 a healthy place for our children to leave. Pete
20 Seeger often said for the bird to fly successfully,
21 the right and left wing must work together in harmony.
22 That's the harmony we all look forward to sharing with
23 all of you at the NRC.

24 "Please let all people who have business
25 ventures in the area know that we share their pride in

1 living in a beautiful place that people come from all
2 over the world to see. These visitors to the Hudson
3 Valley come every year to spend their time and their
4 hard-earned money visiting one of the most beautiful
5 places on the planet.

6 "If the Hudson Valley became a nightmare
7 like the catastrophe at Fukushima Daiichi, the
8 tourists would go elsewhere. Any developer will tell
9 you that the real estate values of Three Mile Island
10 will never become what they could have been. Death by
11 radiation is not appealing to investors, and genocide
12 is bad for business.

13 "I travel all over the world as a
14 composer, conductor and musician, and everyone whom
15 I've ever met who has been to the Hudson Valley
16 comments on what a special place it is. Let's all
17 work together and keep it that way. Respectfully,
18 David Amram."

19 MR. KLUKAN: Thank you.

20 (Applause.)

21 MR. KLUKAN: Thank you. So next up we
22 have number 85, Fred Polvieri (phonetic).

23 MR. POLVIERI: Hi, I'm Fred Polvieri. Do
24 you have the risk assessment that was issued by the
25 Governor's Commission on the pipeline? If so, will

1 you release it to the public? Can Entergy pass off
2 the decommissioning to a company with smaller pockets,
3 and if so, what happens to the taxpayers? Do we foot
4 the bill? Does the federal government foot the bill,
5 or do they have enough money set aside for that?

6 Thirdly, when are you going to get the
7 decommissioning strategy, and will you release it to
8 the public as soon as you get it? So I'd like to say
9 one more thing. I know I'm not supposed to say this,
10 but I'm going to say it anyway. When I was in high
11 school, my favorite play was "An Enemy of the People"
12 by Henry Gibson.

13 Now I know no one here knows that, but you
14 may have seen the film "Jaws." The first half of Jaws
15 is an enemy of the people, and I can't believe so many
16 people are rooting for the shark. Thank you.

17 MR. KLUKAN: Thank you very much.

18 (Applause.)

19 MALE SPEAKER: So with regard to the risk
20 assessment, we do not have a copy of that to release.
21 We don't have that. Your second question was?

22 MALE SPEAKER: Decommissioning strategy.

23 MALE SPEAKER: Okay, the decommissioning
24 strategy. The licensee has not yet prepared and
25 submitted that to the NRC. When it is submitted it

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1 will be public, and there will be a public meeting to
2 discuss that.

3 MR. POLVIERI: The Entergy (off mic).

4 MALE SPEAKER: So if the -- if Entergy
5 were to want to sell the unit to another entity for
6 decommissioning, they would have to submit an
7 application to the NRC, and for that license transfer,
8 and that would require NRC review and approval, and it
9 would subject to the same public process that any
10 other license amendment would be subject to.

11 MR. KLUKAN: All right. Thank you again.
12 Next up we have Peter DeWolfe, No. 96.

13 MR. WOLF: Good evening. Just for the
14 record, it's Peter with the middle D and the last name
15 Wolf(e). There are three areas of major concern that
16 I have.

17 The first is this period between now and
18 the actual closure of the plant, because you basically
19 have a plant that was originally built with a 40 year
20 life that's now 45 years old, and there's not a great
21 deal of incentive for the owner-operator to put in any
22 more money than they're obligated to do so. So we are
23 reliant on the NRC to make sure that the plant is
24 absolutely safe.

25 The second thing is the decommissioning

1 process itself, and people have spoken about this. So
2 this citizens oversight board is very important,
3 because we need to be able to see what the plan is,
4 how it is to be implemented and have some way of
5 monitoring it.

6 But the thing I would like to talk about
7 most is the third issue, which is nuclear waste.
8 We're gradually going from an era of nuclear energy
9 production to an era of nuclear waste. The nuclear
10 waste will be there before, during and after the
11 decommissioning. We know that there is no national
12 repository as was envisioned originally, and there's
13 not likely to be one in the foreseeable future.

14 We also know that it is very difficult and
15 dangerous to transport nuclear waste. The waste is,
16 as you well know, much more vulnerable than the actual
17 fuel in the reactor, both because of its nature and
18 the amount of the radioactivity, and because it's not
19 protected by the reactor dome.

20 We also are very concerned about the type
21 of storage facility, and the question I'll have for
22 you at the end is what mechanisms do you use to judge
23 the safety of these dry cask storage. In addition of
24 course, we're concerned about the fact that there
25 seems to be an overabundance of fuel rods actually in

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1 the reactors and not moved to dry cask storage. But
2 we understand that there are safer means than the
3 Holtech (phonetic).

4 So the question is what mechanism do you
5 have to judge dry cask storage, not only the casks
6 themselves, the transportation from inside the reactor
7 to the cask and also the spacing between the dry
8 casks? Thank you very much.

9 MR. KLUKAN: Thank you. So sir just
10 briefly on that, for each of the dry cask systems that
11 the NRC has approved for use, there is a detailed
12 engineering evaluation done prior to the NRC approving
13 them for use for dry cask storage, and that includes
14 looking at the number of fuel assemblies that would be
15 in each one, the separation.

16 Then when it comes to actually licensing
17 the use of a specific facility, the licensee has to
18 designate, which the NRC reviews, what we call a Hall
19 path, which is the transportation path from the
20 reactor -- from the spent fuel pool facility out to
21 where the pad is. The pad itself receives an
22 engineering design as well and design review.

23 MALE SPEAKER: So Mr. Wolf, I know it
24 wasn't a question, but I can't help but try to respond
25 to your first comment. That has to do with your

1 concern with (inaudible) enclosure, you know, safety
2 of operations at the site. The feedback I have for
3 you is that on the last few bundles is removed from
4 the reactor vessel, the NRC's reactor oversight
5 process, which is the oversight that will provide for
6 inspection activities, will continue as we typically
7 have done.

8 The residents will be on sites as they
9 have been, and we will continue our inspection
10 activities as long as the plant has an operating
11 license. So that's -- I want to make sure that that's
12 something you're aware of. The final two year left,
13 is two years or three or whatever is left, has no
14 bearings on the oversight inspection so that we have
15 to do and we'll continue to do such inspections.
16 That's the feedback to your first comment. Thanks.

17 MR. KLUKAN: Thank you. Next up we have
18 -- oh, I lost my place in line -- Ms. Maggie Coulter,
19 No. 97.

20 MS. COULTER: Hi. My name is Maggie
21 Coulter, and I'm an associate staff attorney at
22 Riverkeeper, one of the signatories to the Indian
23 Point closure agreement.

24 I have a comment and a couple of questions
25 for you. The New York Independent System Operators

1 December 2017 report concluded that Indian Point's
2 energy capacity shortfall could be replaced without
3 building new power plants, for example by using energy
4 efficiency.

5 If we use the updated 2018 Gold Book
6 estimates, there is likely to be no shortfall at all.
7 We could conclude that there would be no shortfall at
8 all, and when they prepare their next report that's
9 what you will see. No new power plants are needed,
10 even without energy efficiency, and we of course hope
11 that any new energy sources in the region would be
12 built with renewable energy.

13 So here are my questions. Does the NRC
14 concur with Entergy's position that a license
15 amendment is necessary to split off parcels possible
16 for site re-use from the site, and has such a split
17 ever occurred at any other decommissioning nuclear
18 power plant?

19 Finally, you listed eight green findings
20 in your previous presentation, but only discussed two,
21 and would you mind listing what the other six were?

22 MR. KLUKAN: Thank you.

23 MALE SPEAKER: So I'll take the first part
24 of that. So depending on whether or not a parcel of
25 the land is part of the license footprint, it may

1 require a license amendment, and obviously if it's
2 part of the license footprint, right. So particularly
3 if it's described in the updated final safety analysis
4 report.

5 MALE SPEAKER: In 2017, there were eight
6 findings. We found a problem with pressurizer code
7 safety valves being in inoperable condition, and that
8 was documented in our first quarter report. We found
9 a failure to maintain a flow channel gate closed in
10 accordance with the containment procedure.

11 We found a failure to complete Milestone
12 6 corrective actions, which was -- let's see -- I'll
13 have to look that one up. Milestone 6. That's on the
14 cybersecurity program, okay. We had a series of
15 milestones and they had not completed on of those --
16 some of those corrective actions to the extent to
17 which we had expected.

18 We found a failure to detect an attempted
19 penetration of a protected area barrier. This was on
20 a -- again, I'm going to refresh my memory because
21 that's not my finding, but that was on an exercise
22 where they were probing their -- give me one second
23 here. I just want to make sure I get this right.

24 Now, this was -- they have an intrusion
25 detection system that's around Indian Point. They

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1 test the intrusion detection system and it failed one
2 of the intrusion tests, right. Yeah. We found a
3 problem with some component misalignments following a
4 scheduled maintenance that should have been properly
5 aligned.

6 We found an inadequate alternative post-
7 fire safe shutdown procedure, and we found a failure
8 to maintain the B5B mitigating strategies on some of
9 the -- the B5B equipment is the equipment that they
10 would use in the event that they had to be onsite
11 basis an accident where, for example, they were to
12 have a terrorist attack with an airplane or something
13 like that.

14 They maintain this equipment to respond to
15 those kinds of events, and they weren't maintaining
16 the equipment as they had committed to. We also found
17 -- we also had opened an inadequate control of floor
18 drains to minimize groundwater contamination. That
19 had been open since 2016.

20 MR. KLUKAN: We'll actually also as well
21 put that, whatever we can release of that publicly,
22 we'll add that as an attachment just so -- for those
23 of you who weren't able to capture that writing it
24 down.

25 MALE SPEAKER: It's all documented in

1 detail in the inspector reports.

2 MS. COULTER: And then you didn't respond
3 to one of my other questions, which was if -- are any
4 current decommissioning plants undertaking a license
5 amendment to split off any parcels? Do you know if
6 that's occurred or has occurred?

7 MALE SPEAKER: So it has been done, but
8 Bruce, was that part of a decommissioning or was
9 separate?

10 MR. KLUKAN: Bruce, you thought you were
11 going to escape speaking tonight, no.

12 MALE SPEAKER: Yeah, partial site
13 releases. It's in 10 C.F.R. 50.83 is the regulation.
14 It could be done during operation or during
15 decommissioning. It is frequently done in
16 decommissioning when the plant wants to shrink the
17 land area that they don't need anymore. But there are
18 some -- they have to request an amendment to do that
19 if it's, as Dan said, in the license.

20 MS. COULTER: Thank you.

21 MR. KLUKAN: Thank you. All right. Next
22 up we have No. 88, Tina Voltspar (phonetic). Well
23 there we go, all right.

24 MS. VOLTSPAR: Hi, how are you? Okay. So
25 I have one question to you, and now that you know that

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1 there's an outstanding risk assessment of the AIM,
2 that's the Algonquin Incremental Market Pipeline,
3 which runs 105 feet from the backup electrical source
4 at Indian Point.

5 Now that you know that Governor Cuomo has
6 spent \$250,000 on this risk assessment, will the NRC
7 get ahold of that risk assessment and judge the safety
8 of having the gas pipeline so close to the plant? And
9 what I'm asking you sir is if -- would you be willing
10 to assume the responsibility of safety with that
11 pipeline next to that nuclear power plant?

12 This is from somebody who lives, you know,
13 within a half a mile of the plant.

14 MALE SPEAKER: So thanks for the question.
15 So let me try to put it in several pieces. The
16 question regarding the NRC's interest on the hazards
17 or the risk created by this pipeline is one that we
18 have reviewed. As you well know, the plant, like all
19 other plants, they are required to have an assessment
20 that justifies operations regarding all (inaudible)
21 external hazards or plant events that could occur.

22 So when the license or this pipeline issue
23 came up, the plant did a safety evaluation to assess
24 the impact of a rupture or whatever could happen to
25 the pipe, as to how that would impact safe plant

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1 operations. They did a review that we had a chance to
2 review as well. We've done some additional reviews,
3 although it did not --

4 The end result of the reviews the licensee
5 did was it did not present any additional risk beyond
6 all those other external hazards that they had
7 reviewed and considered.

8 NRC did its own reviews as well and found
9 the licensee's assessment or conclusion that although,
10 you know, a potential rupture is additional hazards it
11 does not present an increase in risk from all external
12 hazards that have been reviewed. So that matter, I
13 think we are okay with the current analyses that's
14 been done on our reviews.

15 The other piece of it that you bring up is
16 the fact that the -- the state or the governor has an
17 outstanding risk assessment that was done, and I'm not
18 sure -- maybe I'll ask Danny -- if that's something
19 we'll have an interest in looking at or we've had a
20 chance to look at it. I'm not sure what that --

21 MALE SPEAKER: I don't believe we have a
22 copy of that.

23 MALE SPEAKER: No. We have not seen that.
24 The governor has not shared it with the Nuclear
25 Regulatory Commission, and I don't expect that we

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1 probably would review it. My guess is that that's
2 something that looks at the probability of the gas
3 line rupturing as opposed to the impact on the plant.
4 The other thing I would tell you is that the --

5 MS. VOLTSPAR: Actually, I'm going to jump
6 in here, because we've -- I've been foiling, trying to
7 get a copy of it. The reason that they say it's
8 because there is critical safety information. So then
9 when you just outlined to the Riverkeeper attorney
10 that some of the equipment for possible terrorism
11 strike and that kind of thing is not being well-
12 maintained.

13 Right there is a big red flag to anybody
14 who's really following the gas pipeline next to the
15 Indian power, you know, next to the nuclear power
16 plant.

17 MALE SPEAKER: You know, for the loss of
18 a nail, the shoe is lost. The loss of a shoe, the
19 horse is lost, etcetera, etcetera. I think we've all
20 heard that, okay. What we had was one finding on one
21 pump at one place at one time. There's far more
22 equipment that goes into the ability of Indian Point
23 to maintain safety.

24 The fact that we find one problem in one
25 pump at one time is -- and it immediately gets fixed

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1 while not what we would hope, is something that
2 doesn't really impact safety.

3 MS. VOLTSPAR: Well, I would just hope as
4 a favor to me and my community, that you would take a
5 look at that risk assessment with the evaluation that
6 you're doing for the public safety measures at Indian
7 Point.

8 MR. KLUKAN: Thank you very much.

9 (Applause.)

10 MR. KLUKAN: Okay. Next up we have
11 Marilyn Eley (phonetic), No. 90.

12 MS. ELEY: Thank you. I have two
13 questions for the NRC that I'd like to present for the
14 public record tonight, and because they're two short
15 questions I would like to take one minute respond to
16 Mr. Herschel Spector and to others in the audience
17 including Frank Fraley, Deb Malone, Eric Eller and Amy
18 Allen.

19 It is unfortunate that many people in this
20 audience are operating on out of date information.
21 Indian Point has already been replaced in regard to
22 the electricity that it generates. You have no
23 further to look than the 2018 Power Trends report from
24 the New York Independent Service Operators.

25 You can also go to the hearing that was

1 done last January in Albany, and find across the board
2 all the electricity professionals in this state
3 stating very clearly that Indian Point is no longer
4 necessary to our grid. In fact, baseload power makes
5 it very difficult. It's anathema to a flexible grid
6 that requires generation that can go on and off when
7 needed.

8 Indian Point does not have an on and off
9 switch. It's 24-7. It worked well in its time, but
10 it's time has passed.

11 (Applause.)

12 MS. ELEY: Now my questions for the NRC
13 people that are here have to do -- the first one has
14 to do with hot cell technology. I understand that the
15 pools will not be required to be maintained once all
16 of the fuel assemblies are on the pad in overpacks,
17 and as we know, life in this world has its problems.
18 So there will surely be problems in things that break
19 down, things that happen and overpacks that have to be
20 overpacks with the dry concrete, the concrete storage
21 casks that have to be replaced.

22 How available is the hot cell technology,
23 where is it, where will it be located, how will it
24 operate and will it be on site at Indian Point, first
25 question. The second question, what is for the record

1 scope of the NRC involvement in decommissioning? What
2 is it exactly that you will be supervising?

3 My understanding is that you will not be
4 supervising the whole process but only parts of it.
5 What are those parts, and at the end of the process,
6 what is it exactly that you have to sign off on and
7 what are your standards for saying this is the clean,
8 radiologically speaking and safe and green for the
9 public to use? Thank you.

10 MR. KLUKAN: Thank you very much.

11 (Applause.)

12 MR. KLUKAN: Am I carrying this over to
13 Bruce?

14 MALE SPEAKER: Yeah. So we'll address the
15 second question first.

16 MALE SPEAKER: Once the plant permanently
17 ceases operation, my name's Bruce Watson for the
18 record, sorry. Once the plant ceases operation and
19 the fuel's removed from --

20 MALE SPEAKER: What's your title?

21 MALE SPEAKER: I'm Chief of the Reactor
22 Decommissioning Branch. The NRC continues to provide
23 oversight of the facility. We do that through
24 licensing and the inspection program. So we will
25 revise the license to make sure the fuel is protected,

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1 and then once the fuel is moved to the spent fuel --
2 from the spent fuel pool to the dry storage, it will
3 also have its own license and safety requirements.

4 We will continue to inspect the plant
5 throughout its remainder of lifetime. We will
6 continue to inspect the plant to ensure that the plant
7 is cleaned up within the time frame required by the
8 regulations, which is 60 years to complete a
9 decommissioning. We will continue to inspect it and
10 do confirmatory surveys at the end to make sure they
11 are compliant with our requirements for release of the
12 site.

13 All decommissioning sites in the United
14 States have been released for unrestricted release so
15 far. There are regulations for restricted release but
16 no one has ever chosen those, and I doubt that Entergy
17 will choose the later either. So the release criteria
18 is 25 millirem per year plus the implementation of the
19 ALARA program.

20 We have completed decommissioning at ten
21 power reactors in the U.S., and all of them have been
22 decommissioned with a release of about a few millirem,
23 typically one to three millirem per year. So it's
24 right at natural background. So that's the basic
25 process and the requirements for unrestricted release.

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1 The inspection program will continue until
2 we terminate the license. We will continue to inspect
3 the spent fuel until that license -- the fuel is
4 removed and that license is terminated.

5 MS. ELEY: Is that for all of buildings on
6 site or just some of the radiological buildings on
7 site? That was really the question.

8 MALE SPEAKER: In most cases, the entire
9 site is decommissioned with the exception of the spent
10 fuel facility, which is left behind, the dry storage
11 facility. That will be under its own license and will
12 be inspected.

13 MS. ELEY: No, that's not my question. My
14 question is there are many ancillary buildings on
15 site. My understanding is that you will have purview
16 over only those that are dealing with the radiological
17 material. Is that true or not true?

18 MALE SPEAKER: We license the facility and
19 make sure that all the radioactive material is
20 removed. If there's other hazardous materials, those
21 may fall under somebody else's jurisdiction like the
22 EPA or other people, other regulators. But we will
23 make sure that the radiological component of the site
24 is cleaned up.

25 Whether it's in the reactor building or

1 any of the buildings on site, and ensure those meet
2 the requirements for unrestricted release.

3 MS. ELEY: So if there is no radiology
4 involved, you will not be supervising those, that,
5 parking lots and other buildings, the training center?

6 MALE SPEAKER: We will ensure that the
7 radioactivity on the site is removed and meets the
8 requirements. That means all buildings, all
9 facilities, the land, the soil, the water, whatever's
10 associated with the facility, to make sure it meets
11 those requirements. So it's the entire site.

12 MS. ELEY: This is a different answer.
13 Thank you.

14 MR. KLUKAN: Thank you, all right. So
15 there was one other question on hot cell technology.

16 MALE SPEAKER: Yeah. So if we could just
17 clarify Ms. Eley, is the hot cell technology you're
18 talking about technology for disassembly of the dry
19 fuel storage canisters?

20 MS. ELEY: My understanding is that you
21 will not require the company to maintain the fuel
22 pool, that you will be using another technology after
23 all of the fuel assemblies are in dry cask storage.

24 MALE SPEAKER: Right. So once all of the
25 fuel is out of the pool, they would require a license

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1 amendment to be able to essentially decommission that
2 pool, and they would have to drain it and
3 decontaminate it.

4 MS. ELEY: My question is should something
5 happen and it probably will in light of this world, my
6 question is what will you do if you have to remove the
7 steel canister from the overpack and put it in another
8 dry cask? How will that be done? You no longer have
9 access to a pool.

10 MALE SPEAKER: That's right. So at this
11 point, the NRC has not yet received an application for
12 approval of any kind of a canister that could be used
13 to transport, so those are some issues that are still
14 being worked on by the industry.

15 MS. ELEY: Do you have any time line for
16 that?

17 MALE SPEAKER: I do not.

18 MS. ELEY: And is it likely that the fuel
19 pool will be decommissioned before that is in place?

20 MALE SPEAKER: I don't know the answer to
21 that, and that's in part because the licensee still
22 needs to develop their decommissioning plan and the
23 associated time lines.

24 MR. KLUKAN: Okay, thank you. So next up
25 is Mr. Al Samuels, No. 11.

1 MR. SAMUELS: Good evening, and thank you
2 again for doing this. Sitting here tonight and
3 realizing the time line between now and the closure of
4 the facility, and looking back at ten years of
5 advocacy for Indian Point, it's sort of an interesting
6 moment.

7 I look upon Indian Point as the
8 representative of the business community of Rockland
9 County, as a member of the -- and I in no way am
10 representing the Regional Council. But I had the
11 privilege of serving on the Mid-Hudson Regional
12 Council, which is dedicated to the economic growth of
13 the entire region.

14 I had the privilege of being the chair of
15 the Inhibitors Task Force, when eight years ago we
16 were asked to define what is the economic vision for
17 this community, the community of the Hudson Valley.
18 Indian POINT was not on our list. Indian POINT was on
19 the list of benefits that we had that will help move
20 us forward.

21 For the time that we have been in
22 existence for eight years, what Indian Point has
23 produced, directly and indirectly in this community,
24 has helped to make our region perhaps the strongest in
25 the state. You gentlemen and the people who you

1 represent, the NRC, the organization, have for ten
2 plus years determined that Indian Point is safe.

3 I'm glad to hear that my partner is
4 considered safe, and I do believe that with the 2017
5 report and the short time that Indian Point will
6 continue to operate and be our economic development
7 partner, which benefits everybody in this room,
8 everybody, even though some folks won't recognize it,
9 but the economic opportunity is there for everyone.

10 That maybe you'll let my partner retire
11 with dignity. You knew where I was going, sir, and
12 then that dignity would be represented in that short-
13 term license renewal. I think that it's the right
14 thing to do. You've proved that it is the safe thing
15 to do, and I would hope that you would agree to do it.
16 And again, I thank you very much for all that you do.

17 MR. KLUKAN: Thank you.

18 (Applause.)

19 MR. KLUKAN: Next up we have No. 95,
20 Richard Webster.

21 MR. WEBSTER: Hello. I'm Richard Webster.
22 I'm the legal director at Riverkeeper. I have a
23 couple of comments first of all on the reactor
24 oversight process. I've been to a few of these
25 meetings. I find it kind of surprising that the first

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1 level of violation is called green. That tends to
2 imply to people that that's good.

3 In fact, a green finding is not good I
4 think you'll agree with me, and we should try to avoid
5 green findings. So I think perhaps a different color
6 might be a good idea.

7 Second of all, I think when you have eight
8 green findings it would be a good idea to go through
9 all eight in the presentation, rather than having
10 somebody from the audience have to ask, and then have
11 sort of a very quick rundown, because I think, you
12 know, one of the reasons for these meetings is to talk
13 about what happened in the last year.

14 So I think that would be a very nice thing
15 to do. But I do thank you for providing that
16 information to us, and look forward to reading the
17 inspection reports and finding more out about those
18 issues.

19 I've had an exchange of correspondence
20 with the NRC on the head leakage. I think the issue
21 that worries me is not so much the repair that's been
22 done, which is good for two years I think; it's the
23 other penetrations.

24 You said that basically the conditions
25 there for cracking through weld cracking at all of

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1 these nozzles, my understanding the nozzles were
2 inspected two years prior, and then within the two
3 year operating cycle, the leakage occurred, and so it
4 was found on visual inspection.

5 So one of my questions is why don't you
6 expect leakage to occur at another nozzle during the
7 operating cycle?

8 I further understand that any leakage
9 across the reactor coolant boundary is a violation of
10 the license. Generally, if I run a stop sign, I
11 expect to get a ticket. But it seems like when the
12 industry runs a stop sign, provided it doesn't hit
13 anybody, it doesn't get a ticket.

14 So I wonder if you can comment on for
15 these violations, which you assess as not safety-
16 significant, shouldn't there still be some regulatory
17 consequences? Because I think otherwise the
18 incentives for the licensee are just to, you know, not
19 inspect often enough and say oh, it wasn't really
20 safety-significant so it's okay.

21 Now I see my time running down, so let me
22 try to quickly ask a second question about the O-
23 rings. My understanding is NRC's safety philosophy is
24 generally based on defense in-depth, that's with
25 redundant systems. But I think what we're seeing with

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1 these O-rings is that you had a redundant system, the
2 second O-ring, and it failed.

3 You said that it failed for a number of
4 weeks. What is the permissible length of time to have
5 both O-rings failing? Thank you.

6 MR. KLUKAN: Thank you very much.

7 (Applause.)

8 MALE SPEAKER: So you had several
9 questions in there, and I want to make sure we try to
10 get the right folks to address your questions. The
11 first one you had that had to do with assurance that,
12 you know, based on inspections that were done for the
13 head penetrations this year, why don't we expect to
14 have leakage through, you know, that next cycle.

15 I'm going to ask that Jay responds to
16 that, and I'll take the other questions you had.

17 MR. JAY COLLINS: Thank you. Jay Collins,
18 once again senior materials engineer. So the
19 inspection program that we have for the upper vessel
20 head is, I guess it's too difficult to go back to the
21 slides. But looking at that slide as far as the
22 comprehensive inspections that we have, is an
23 opportunity to identify cracks or leaks before they
24 become safety significant.

25 So the leakage that was actually found at

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1 Indian Point in that outage was the actual indication
2 that allows us to find it before it becomes a problem.
3 That's what we're expecting to see if there's a leak
4 through the weld. We have that opportunity to be able
5 to identify that, because we've looked at what is the
6 actual leakage through that component, and analyze the
7 safety significance of what a leak through that
8 particular weld would cause.

9 Therefore, we find that the bare metal
10 visual inspections are an adequate inspection to be
11 able to ensure safety for the plant, due to this type
12 of leakage. That is in conjunction with the
13 volumetric exams of the nozzles. So as far as the
14 plant and the possibility of additional minor leakage
15 identified in these components, because they do have
16 this potential degradation mechanism.

17 That is a potential, but that is also why
18 the inspections are there and are required, is to be
19 able to identify it before it becomes a safety-
20 significant issue. That along with the proactively
21 looking for the cracks as best we can through the
22 items.

23 MALE SPEAKER: Thanks, Jay. Let me -- so
24 let me take the second question. The second question
25 had to do with -- there was leakage across the reactor

1 RCS pressure boundary. Why is that a violation? So
2 it's a very good question actually. But let me tell
3 you this. During the time of the last outage, when
4 this leakage or this head penetration leak was
5 discovered, we had an inspection going on.

6 We inspected the licensee's activities, we
7 got in finding the, you know, the crack, the fault in
8 the weld that caused the leakage through the RCS
9 pressure boundary, and you are right. The expectation
10 is that there's zero leakage across the RCS pressure
11 boundary. So we did an inspection in that, and the
12 results of our inspection, which will include, you
13 know, the characterization of any resulting violations
14 or regulatory requirements, that would be the subject
15 of the next inspection report, where we would document
16 the results of our inspection.

17 So my Point is yeah, we're still reviewing
18 that Point you raised because it really is a good one.
19 We're going to inspect the leakage across the RCS
20 pressure boundary. So that's a forthcoming inspection
21 report. We dispose of that answer to that question
22 you posed.

23 You had the third question had to do with
24 the O-rings, about you know, defense in-depth, you
25 know. We had two O-rings, one is a backup to the

1 other. As you know, the head, you know, the reactor
2 pressure head, you know, to the (inaudible), that
3 joint is the flange connection where you have the O-
4 rings.

5 So to have a leak through that is not
6 considered to be a reactor pressure, you know,
7 boundary leak. Actually, it's the flange connection.
8 So you expect -- although you don't want any leaks
9 through that, the likelihood of flanges to leak
10 exists. So what we discussed earlier would be during
11 plant operations, you know, the requirement to have a
12 good understanding of all leakages that's going on,
13 the ones you can identify, and the limit that is
14 imposed in the tech specs for all identified leakage.

15 You know, you have so much you can allow,
16 after which the licensee is required to take actions
17 which could involve shutting the plant down to
18 identify those leakages and deal with it. So my Point
19 is the leakage through the O-rings is, while it's not
20 desired, is not -- it does not violate the technical
21 specification requirements for what's allowed for
22 total leakage, you know, during plant operations.

23 MR. WEBSTER: My question actually was how
24 long is leakage through both O-rings onto the outside
25 of the pressure vessel allowed, and just a little

1 comment on the inspection regime. I guess I had
2 always rather hoped that the inspection regime was
3 designed to prevent license violations.

4 But what you're already saying is the
5 inspection regime isn't designed to prevent license
6 violations. It's designed to prevent safety-
7 significant license violations, is that right?

8 MALE SPEAKER: As far as for the reactor
9 vessel head leakage in this particular item, that
10 leakage, that component has been analyzed by the NRC
11 for the long-term inspection requirements for it. The
12 establishment of the requirements was made by the ASME
13 Code, a consensus body, the American Society of
14 Mechanical Engineers, Boiler and Pressure Vessel Code
15 Committee.

16 They came up with the recommendations for
17 it. The NRC evaluated it and made requirements to
18 mandate those inspection requirements, and we analyzed
19 what the potential for leakage through this very
20 component would be as far as a concern for safety, for
21 looking at the comprehensive inspection program.

22 So yes, for this particular component as
23 identified, the bare metal visual is supposed to be
24 able to catch that particular indication of leakage
25 prior to it becoming a safety-significant event.

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1 MR. WEBSTER: And how long is the two, to
2 have the two O-rings leaking visibly onto the reactor
3 head? How long is that allowed to take place?

4 MALE SPEAKER: I understand your question.
5 Thanks for asking. We don't have a specific set time
6 for how long both of the O-rings can leak before they
7 have to do something. The quick answer on this one is
8 that minor amounts of leakage through mechanical seals
9 is really not a safety problem.

10 Mechanical seals have a tendency over time
11 to break down and have small amounts of leakage, okay.
12 However, everybody understands that this is not an
13 optimum situation, and when it happens we will talk to
14 Entergy and frankly we didn't have to talk to Entergy
15 on this. They took proactive action and immediately
16 shut down the plant and took care of the problem. So
17 it's kind of a hypothetical in terms of how long could
18 it go before it becomes a violation.

19 MR. KLUKAN: Thank you for your questions.
20 Next up -- I'm very close to this, we have Jessica
21 Rolfe, Roffe, No. 99.

22 MS. ROLFE: I'm sorry, too short for this.
23 Hi. My name is Jessica Rolfe. I'm the director of
24 Advocacy and Engagement at Riverkeeper, and I also
25 just wanted to go on the record and say that we, along

1 with many other people here, oppose bringing any new
2 fossil fuel plants online in response to the shutdown
3 of Indian Point.

4 We don't have to have an either/or
5 situation as my colleague, Maggie Coulter pointed out
6 and a number of other people have said of the NISO
7 (phonetic) study and the new numbers that we have. So
8 it's really a false dichotomy that people are
9 presenting as if we have to go for dirty fossil fuels
10 in response to closing down this plant.

11 Also with regard to the decommissioning
12 process, I'd like to reiterate the question that keeps
13 getting asked. How is it actually possible to go
14 forward with a valid decommissioning plan without
15 having the risk assessment about the co-location of
16 the AIM high pressure fracked gas 42 inch pipeline
17 right next to Indian Point?

18 I know you said there was a safety study
19 done. But there's no standard for this. There is no
20 other situation where there's a 42 inch high pressure
21 frack gas pipeline running this close to a nuclear
22 power plant. So any studies that were done, and we've
23 all seen the studies, right? They were all on the
24 back of an envelope which, you know, I might work for
25 somebody's phone number in a bar or something, but

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1 doesn't really work when you're talking about the
2 actual safety of five million people and evacuation
3 route around a dangerous pipeline and a dangerous
4 Indian Point nuclear power plant.

5 So I think without that as a baseline, how
6 do we ever get to putting together a real
7 decommissioning plan is a question that you all have
8 to answer, and a lot of people in this room and beyond
9 this room deserve that answer from you.

10 Along those lines, I'd also like to know
11 under the Safe Store option regulation, the
12 decommissioning process can take up to 60 years, and
13 particularly in light of the fact that you already
14 know the community has many concerns around the length
15 of that and the stagnancy of the property during a
16 decommissioning process, I'd like to know how it is
17 that you -- that you are prepared beyond basic
18 regulatory requirements to actually engage and
19 incorporate community and community participation into
20 your decisions on how it moves forward?

21 How do you incorporate, needs, concerns,
22 interests of what the community is looking for in the
23 decision-making process that you're going to
24 undertake, not the least of which would be to move
25 forward with a decommissioning process that would take

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1 20 years, not 60 years, and which would also help to
2 provide for jobs and economic development in this
3 area?

4 (Applause.)

5 MR. KLUKAN: Thank you.

6 MALE SPEAKER: So I think in the interest
7 of time, we will provide answers to that in the
8 meeting summary. We'll provide answers to your
9 questions regarding the risk assessment and the
10 decommissioning process in the meeting summary.

11 MR. KLUKAN: Okay. Next up we have David
12 Morse, No. 81.

13 MR. MORSE: Hello. My name is David
14 Morse, and I'd like to start by just piggybacking on
15 what Mr. Spector said. I actually happen to have with
16 me the NY ISO study from December 2017. This is the
17 one that Riverkeeper likes to reference when they
18 claim that Indian Point can be shut down without
19 natural gas, and I will definitely be reviewing the NY
20 ISO 2018 report.

21 In this report, they propose two
22 scenarios. The first scenario, which is the one where
23 no additional generators are added, and my comments
24 are mostly for the people in this room, not the NRC.
25 When they outlined this scenario, if we do nothing 100

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1 megawatts of additional generation in Zones G, H, I or
2 J must be added by 2021.

3 2022 it's got to be doubled, and by 2024
4 you need 300 megawatts. 2025 you need 400 megawatts
5 in Zones H, I or J, which is the New York City area,
6 where they won't be building. Zone G you'll need 500
7 megawatts and it goes up to 600. So if -- NYI indeed
8 had their estimates off by 600 megawatts, looking out
9 to 2026. I'll be pretty surprised, but I have a
10 feeling that will not be the case.

11 The second scenario, where they don't need
12 any additional generation, is the one where they build
13 the Bayonne Power Uprate. They build the CPV Valley
14 Energy Center, which is the one with the nice bribery
15 scandal with PERCOCO (phonetic), and that's also the
16 one where they build the Cricket Valley Energy Center,
17 all of which are natural gas, and the scenario where
18 one of the previous presenters spoke of, you know, if
19 you get rid of Indian POINT, you need to have power
20 plants that you can turn off and on. There's a name
21 for that. They call those fossil-driven peaking
22 plants.

23 So if we actually want renewable energy on
24 the grid, instead of Indian Point what -- then they
25 need to actually make it happen, because if nothing

1 gets done, those gas plants come online. That's it.

2 MR. KLUKAN: Thank you.

3 (Applause.)

4 MR. KLUKAN: All right. Last of the
5 registered speakers is Rob DeFrancesco.

6 MR. DeFRANCESCO: Yes, good evening
7 gentlemen. In addressing you this evening, I'd like
8 to take a moment to acknowledge the decades of
9 remarkable work by the Indian Point team, many of whom
10 are here this evening. I'd like to focus your
11 attention on three essential facts.

12 First, Indian Point is unequivocally safe.
13 Safety is the foremost concern for the professionals
14 at Indian Point. They retrain continually and
15 exercise constant vigilance day by day, hour by hour.
16 They have unparalleled privileges to intervene as they
17 see fit, to prevent any potential risk. Entergy is
18 one billion dollars in upgrades, have assured that
19 Reactors 2 and 3 have received the highest safety
20 ratings by the NRC, and every year that Entergy has
21 owned them.

22 These facts belie the histrionics and
23 misinformation from Indian Point's opponents. This
24 facility is not only run well, it is run in an
25 exemplary way. Which leads to my second point.

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1 Indian Point deserves to have its license renewed.
2 Even though the operating units will close by 2020 and
3 2021, Indian Point could run safely for another 40
4 years.

5 This plant has undergone the most
6 protracted license renewal process in the history of
7 the NRC, and no nuclear plant has been more thoroughly
8 reviewed, scrutinized and critiqued in the history of
9 our country if not the world, and that's a good thing,
10 because we trust the NRC and applaud you for the work
11 you do without bias to keep us safe, together with
12 Indian Point's team. Year after year you've given
13 this plant a green light because it's earned it.

14 Finally, for all that Indian Point has
15 meant to our communities by safely generating reliable
16 zero emissions baseload electricity for decades, let's
17 also remember what an economic powerhouse it is. This
18 plant directly employs 1,000 great people in great-
19 paying jobs. It provides \$1.3 billion in economic
20 activity to our counties, 1.6 billion to New York
21 State, over \$1 million a year to Hudson Valley
22 charities.

23 The facts are clear. Indian Point is a
24 crucial source of energy, economic vitality and
25 community strength. I thank the NRC once more for its

1 work with the Indian Point team to ensure that this
2 essential facility will continue to operate safely and
3 securely for another three years. Thank you.

4 MR. KLUKAN: Thank you.

5 (Applause.)

6 MR. KLUKAN: So by my watch it's 9:11 and
7 I made two promises this evening. One you heard me
8 say, which was that we will go to 9:30 and I'm going
9 to honor that, and they're probably going to get mad
10 at me but I'm going to honor it. And then the other
11 one is one I made earlier to Ms. Jackie, when she
12 asked if we run out of normal speakers, registered
13 speakers, can I speak again because I'm going to give
14 prepared remarks for someone else, thinking I'm never
15 going to have to honor this because that has never
16 occurred before.

17 But I am in that position to honor it. So
18 Jackie will be up next. Again, we're going to go
19 through three minutes up until 9:30. 9:30 we're
20 cutting it off. I'm going to give priority to those
21 who have not spoken already. So if you haven't spoken
22 already, just line up and we'll get through as many of
23 you as we can, and then we'll go from there. All
24 right. But you're up, three minutes.

25 MS. DRESSLER: Thank you very much Brett.

1 I actually really appreciate that we have this
2 opportunity to speak. I just wanted to reference the
3 article that Maggie Coulter had done. There's some
4 really important topics in here that we need to make
5 sure are covered regarding the radiological
6 contamination on the site, and also obviously
7 protecting our workers, making sure that they're
8 having jobs.

9 I mean 20 years is a long time. That's
10 -- many of the people are young and they're going to
11 continue working at Indian Point in decommissioning.
12 I also feel that one of the most important things here
13 -- actually, I'm not even sure that it's actually in
14 this article, but I have been really involved in the
15 AIM pipeline issue.

16 This is a pipeline that has a shutoff
17 valve in Houston, Texas, that I hope to God someone's
18 watching that video if there's a rupture, okay. A
19 high-pressure power pipeline landing at Indian Point
20 is a very dangerous thing. We are all very concerned
21 that taxpayer money has been used for a risk
22 assessment.

23 Your risk assessment was done on a paper
24 napkin and the Governor is not releasing this risk
25 assessment. We really feel that you need to take this

1 into serious consideration, okay? Thank you very
2 much.

3 (Applause.)

4 MR. KLUKAN: Well thank you. Okay. This
5 is kind of uncharted territory for me. I'm happy,
6 don't get me wrong. You've done me a great mitzvah.
7 So anyone who has not -- anyone who hasn't spoken who
8 would like to speak?

9 (No response.)

10 MR. KLUKAN: All right. People have
11 already spoken who would like to say more stuff.
12 Choose between the three of you which goes first.
13 You're standing up sir, so go for it.

14 MR. SPECTOR: All right. Herschel Spector
15 again. I want to thank this lady here for pointing
16 out that more updated information may be available on
17 the 2018 Power Trends report. I will read it. If
18 that report says that indeed there is enough capacity
19 to replace Indian Point, I want to you go to beyond,
20 and I'll give you a reference.

21 What NISO has said is we can take all
22 these various plants, all gas, and replace Indian
23 Point. But what they didn't tell you, those plants
24 were originally intended to replace the aging plants
25 in New York City. Now right now New York City, 41

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1 percent of their plants are beyond the point where
2 they should have retired years ago, and that goes up
3 to around 41 percent by 2026.

4 So what they've done is to steal -- rob
5 Peter to pay Paul. They're taking the plants that
6 originally were going to deal with the aging
7 infrastructure in New York, and say oh, we'll put them
8 on Indian Point. But what they don't address is how
9 do I deal with the closure of Indian Point and
10 simultaneously deal with the aging plants in New York?
11 That they don't put in their report. So you have to
12 do both, both.

13 MR. KLUKAN: Thank you.

14 MS. GREENE: Manna Greene again. I have
15 a question about high burnup fuel. It's my
16 understanding that that means that the -- those fuel
17 assemblies which Indian Point has been using to
18 prolong the life of the fuel rods in the reactor.
19 Once they are put into the fuel pools, they're much
20 hotter and it takes longer, and I --

21 In terms of accelerating any form of
22 decommissioning, it seems to me that they really, from
23 the reading I've done, they really have to be in the
24 fuel pools at least ten years. So could somebody
25 please comment on high burnup fuel?

1 MALE SPEAKER: So thanks to Brett for
2 bending the rules. So we have this question that we
3 look around and -- I really, we really don't have --
4 I don't have any specific answer to your question, and
5 I'm not sure that any of my colleagues, you know. But
6 what I promise to do is we'll get back to you on the
7 response to that question.

8 I had to have it with the minutes of the
9 -- with the transcript for the meeting or I'll touch
10 you after the meeting. I'll get some information from
11 you so I can make sure we can get back to you with a
12 response to the question.

13 MS. GREENE: I strongly recommend in my
14 written comments, which I will send electronically so
15 that they can be shared, I strongly recommend that you
16 look at the work of Robert Alvarez, who was an advisor
17 to the Department of Energy on this topic.

18 MR. KLUKAN: Thank you. And again,
19 whatever comments we share back to individuals, we
20 will also append, in response to questions received
21 here tonight, we'll append to the overall meeting
22 website. It's now getting to be a large document, but
23 you get my point. All right.

24 MS. GREENE: Thank you.

25 FEMALE SPEAKER: Demand for electricity is

1 going down, contrary to most popular knowledge. It's
2 expected to continue to decline up until 2028. When
3 you talk about replacing Indian Point, you're not just
4 talking about generation. You're talking about
5 conservation, you're talking about efficiency and
6 you're talking about improved transmission.

7 This was all put in place starting in
8 2012. The Governor put in a plan that has resulted in
9 5,273 additional megawatts of electricity of power
10 that are now in our grid. We have so much
11 electricity, a lot of it from baseload plants like
12 Indian Point.

13 But that electricity is wasted and goes to
14 ground, because it cannot be sold. We have a surplus
15 of electricity, not a deficit, a surplus of
16 electricity. We also have ways, very easy ways like
17 demand response, when large users cut back the need
18 that they are having for either refrigeration,
19 elevators, whatever, for a small payment, to help us
20 reduce peak load. That is how the Independent Service
21 Operators are managing peak and bringing it down.

22 They have overestimated peak load for the
23 last three years, and I'm going to say it one more
24 time. Our demand for electricity is going down
25 because of our efficiency and conservation. That's a

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1 really good thing. We are getting the same amount of
2 work. We're getting the same amount of work with less
3 electricity.

4 What the Governor did when he put in these
5 -- and NISO did when they put out their request for
6 proposals back in 2012, what they said was we want
7 this on line by 2017, and that is indeed what has
8 happened. So you can look at the two scenarios that
9 they laid out, and I think it's very easy to see that
10 what we really need is to keep fossil fuels and
11 uranium in the ground.

12 Despite what everyone in here keeps
13 saying, nuclear power is not carbon-free. No method
14 of generating electricity is carbon-free. Low carbon,
15 yes. No carbon, no. It is not carbon-free because of
16 what it costs in terms of money and carbon in order to
17 produce the fuel.

18 That fuel, that uranium, that gas, that
19 oil, that coal all needs to stay in the ground if we
20 are not going to overwarm this planet, if we are not
21 going to pass on more of a deadly heritage to children
22 in the form of high level radioactive waste, that I
23 don't hear anybody applauding Indian Point addressing.
24 Thank you.

25 MR. KLUKAN: Thank you. I mean so how

1 about you and then Miss, and then I'm sorry.

2 (Off mic comment.)

3 MR. KLUKAN: Oh no, I'm perfectly -- no,
4 and then Mr. Webster after her or as time permits.
5 Okay, great.

6 FEMALE SPEAKER: I'll be short. I do want
7 to talk about the waste, and I really believe that
8 everyone in this room is very sincere about everything
9 that they're saying, and it's not particularly
10 disagreeable except for where they're wrong. But none
11 of it really matters when you get down to the waste.

12 The high level radioactive waste has to be
13 watched forever. Nobody knows what to do with it yet,
14 and it makes no sense in the whole wide world to make
15 more. It doesn't matter if we agree on where to put
16 it or how to store it. There's too much of it, and
17 what are we going to do? Just say (sound).

18 We'll just keep on going until we run out
19 of oh well. That's not okay. It has to be stopped
20 before there's more. It just doesn't make any sense
21 at all, and politics, who cares? Economy, who cares?
22 That's all imaginary. Radioactive waste is real and
23 it's here. No more. Enough. Thank you.

24 MR. KLUKAN: Thank you. All right. Could
25 we -- she's been wanting to speak for like a lot.

1 (Off mic comment.)

2 MR. KLUKAN: You sure? Okay. You're
3 being very good, thank you.

4 MALE SPEAKER: I just wanted to talk on
5 this point. The question that I had raised before
6 dealt with technology, that I want to know how the NRC
7 is going to evaluate the future techniques for the
8 storage of radioactive waste.

9 In addition, I am hoping that there's some
10 kind of a mechanism where they can use artificial
11 intelligence and robotics and sensors and other high
12 level technical advances in order to protect the
13 public against the storage of this nuclear waste that
14 will be on for an indefinite period of time. Thank
15 you.

16 MR. KLUKAN: Thank you.

17 FEMALE SPEAKER: I'll try to make this
18 quick. Met with your former Chairman Burns a few
19 years ago in a meeting --

20 MR. KLUKAN: You can just hold it.

21 FEMALE SPEAKER: Got it.

22 MR. KLUKAN: All right.

23 FEMALE SPEAKER: In Westchester County,
24 and I want to know if your regulatory process has
25 changed since then, because as of a few years go, you

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1 don't seem to be evaluating the interaction of forces
2 of climate change with your entire scheme. You don't
3 look at in terms of increased freeze-thaw cycles.

4 You're not looking at it in terms of re-
5 analysis of the materials which may have met design
6 specs in the 1970's and 1980's, but those design specs
7 and the fabrication methods and so forth were all
8 done, you know, putting aside the aging, with the
9 perception that historic weather patterns would
10 continue.

11 Additional stressors, of course, include
12 the precipitation and moisture, corrosion and so
13 forth, and microbial processes. So I just wonder if
14 how you are or if you are still not considering that
15 in your regulatory evaluation at every single phase,
16 including things such as O-rings and bolts and welds
17 and pipes. Thank you.

18 MR. KLUKAN: Thank you.

19 MR. JAY COLLINS: Jay Collins, senior
20 materials engineer again. So this isn't a
21 comprehensive answer to each one of your specific
22 identified questions as far as the environment, but as
23 part of the license renewal activities and our aging
24 management program, we do make an assessment of the
25 aging degradation effects, and we do look at what the

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1 environment can do to cause those effects or cause
2 them to be additionally aggravated, if you will, and
3 the possibility of sea water effects on stainless
4 steel is a particular issue that is identified as far
5 as the types of cracking that can be available.

6 So there are aspects where we are trying
7 to look at the environment as far as the different
8 degradation mechanisms as we go forward through
9 research and also experts that we work with with the
10 international community, in looking at what are the
11 possible new degradation mechanisms that we need to be
12 looking for in the future as it goes along.

13 It's not a complete answer for what you
14 have, but it is the answer as far as our activities
15 within this region, to make sure that we're being
16 proactive and that we're trying to address these
17 degradation mechanisms as they come along.

18 MR. KLUKAN: Okay. So I have 9:27, so Mr.
19 Webster will be our last speaker, and then after he's
20 done, we'll wrap it up.

21 MR. WEBSTER: I just want to say Nancy
22 Vann (phonetic) just came. So I just want to give my
23 time to her. But I just want to say one thing, which
24 is I hope that there are multiple views on whether
25 Indian Point should close.

1 It is closing, so I hope that as a
2 community we could all come together and push for a
3 prompt decommissioning, because this site will be
4 locked up for 60 years unless and until the community
5 pulls together and pushes for a prompt decommissioning
6 which would be good for the towns, good for the
7 workers and good for the environment.

8 (Applause.)

9 MR. KLUKAN: All right, our last speaker.

10 MS. VANN: I wanted to say that I'm very
11 disappointed at the amount of oversight the NRC has
12 displayed when nuclear plants are decommissioning. We
13 are asking our state government to pass legislation
14 for a citizens oversight board, so that we have the
15 kind of oversight of the decommissioning process that
16 we really need.

17 We need to make sure that there are the
18 kinds of canisters, that we need canisters that not 5-
19 8ths to a half inch thick like they use here in the
20 United States, but that are 12 to 19 inches thick like
21 they use in Europe, that can be inspected, that can be
22 moved if there is ever a place to move them to.

23 That there will be an oversight for the
24 possibility of terrorist attacks in places like Indian
25 Point. That there will be oversight of the safety of

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1 the water, safety of the air, that there will be --
2 that proper reuses of the -- of the environment around
3 the plant, not building things that are inappropriate
4 to be built there, and that there will actually be
5 somebody watching what is going on.

6 That that you would let whoever owns the
7 plant be doing the monitoring, instead of having an
8 independent body doing it; that you would let
9 canisters and the -- and the overpack be lined up as
10 bowling pins for any kind of -- you know that Indian
11 Point was considered to be a terrorist target. To
12 line up the canisters, to line up the overpack as
13 bowling pins for terrorist attacks, instead of
14 demanding that they be used as with berms around them,
15 instead of demanding that there be additional safety
16 because of the 42 inch high pressure gas pipeline that
17 runs next to it that has no security in that area.

18 You could drive a truck full of fertilizer
19 onto the pipeline and explode it, and there would be
20 a 4,000 foot -- there would be a 4,000 foot blast
21 radius. What would that do to the canisters that are
22 at Indian Point after it's decommissioned? What would
23 it do to the spent fuel as it's still in the fuel
24 pools?

25 What would happen if the canisters start

1 to leak and there is no fuel pool to repack them into
2 safer storage once they're all packed into the -- into
3 the storage, and the fuel pools are decommissioned?
4 What type of oversight is there from the NRC? We find
5 it completely inadequate, and we are calling on our
6 state to enact a citizen oversight board because it
7 impacts not only the area of the actual -- the actual
8 communities where it's located, but I live in
9 Peekskill.

10 My house is 4.8 miles away from Indian
11 Point. My property values will be affected by what
12 happens at Indian Point, regardless of the fact that
13 I've never gotten tax breaks from Indian Point being
14 there, that I'm never going to get tax breaks from
15 fuel storage in my community.

16 But we need to have proper oversight. We
17 need to have proper care taken of our environment,
18 regardless of where in Westchester County, regardless
19 of where in New York State we live. If something
20 happened at Indian Point, it would make New York City
21 uninhabitable for 240,000 years. The half life of the
22 plutonium as you well know is 24,000 years.

23 That would mean a melt down of our -- of
24 our entire financial system in our country, in our
25 state, in our cities and in our world. We need better

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1 oversight whether Indian Point is functioning, whether
2 it is in the decommissioning process and after it is
3 decommissioned.

4 I call the NRC out for not having proper
5 regulations to ensure that for the next 240,000 years
6 that area is overseen by proper government regulation,
7 and that the NRC does not insist on citizen oversight
8 and community oversight of those areas for the people
9 who live here, and for the world. Thank you very
10 much.

11 MR. KLUKAN: Thank you.

12 (Applause.)

13 MR. KLUKAN: Okay. So thought. This
14 concludes the meeting. If you don't feel the need to
15 stay here to hear what I have to say, but there are
16 feedback forms outside if you have any ideas for how
17 to improve this meeting for next year. I just want to
18 say personally I was thinking, while others are
19 speaking, not that I wasn't listening to you, on how
20 to say this without sounding patronizing.

21 So if I do end up coming off patronizing,
22 I apologize. But like you engaged a level of
23 discourse while ardently arguing on behalf of your
24 positions and your conclusions regarding one side or
25 the other, in a way that was nonetheless respectful

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1 and civil to each other. That, you've made me very
2 proud to be here tonight, and so I really thank you
3 for that. Thank you. So good night everyone.

4 (Whereupon, the meeting was concluded.)
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