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**ADVISORY COUNCIL ON
RADIATION PROTECTION**

CERTIFIED
ORIGINAL

Bureau of Radiation Control
Hampton Inn & Suites
Tampa Airport Avion Park Westshore
Tampa, Florida 33607

Thursday, May 9, 2024
10 a.m. - 3:10 p.m.

Reported by
Rita G. Meyer, RDR, CRR, CRC
Realtime Reporter and Notary Public
State of Florida at Large



1 ADVISORY COUNCIL MEMBERS PRESENT:

2 Mark S. Seddon, M.P., DABR, DABMP (Vice-Chairman)

 Nicholas Plaxton, M.D.

3 Adam Weaver, MS, CHP

 Joseph Danek, CHP

4 William W. Atherton, DC, DACBR, CCSP

 Kathleen Drotar, Ph.D., M.Ed., RT. (R) (N) (T)

5 Albert Tineo, MS, CNMT

 Luis A. Rodriguez Anaya, DPM

6

FLORIDA DEPARTMENT OF HEALTH STAFF

7 BUREAU OF RADIATION CONTROL:

8 James Futch, Environmental Administrator

 Clark Eldredge, Bureau Chief

9 Kevin Kunder, CNMT, RT(N), Administrator

 Camilla Guy, Environmental Specialist

10 John Williamson, Environmental Administrator

 Jason Nicholson, Environmental Manager

11

GUEST SPEAKER:

12

Javier Torres-Roca, M.D., Moffitt Cancer Center

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1 MARK SEDDON: Welcome, folks. Appreciate
2 everyone coming. And we want to start on time.
3 Close to it. Not too far. So expecting one
4 additional individual to come in about thirty
5 minutes, so let's go ahead and we want to start at
6 this end or with introductions.

7 Luis, do you want to start?

8 LUIS RODRIGUEZ: I'm Luis Rodriguez, a
9 podiatrist in south Florida.

10 ALBERT TINEO: Albert Tineo from Halifax
11 Health, Daytona Beach.

12 JASON NICHOLSON: Jason from the BRC.

13 KEVIN KUNDER: Kevin Kunder, Tallahassee
14 administrator for radioactive materials.

15 JOHN WILLIAMSON: John Williamson,
16 environmental administrator. Environmental in
17 Orlando.

18 JAMES FUTCH: James Futch, technology
19 administrator out of Tallahassee, Bureau of
20 Radiation Control.

21 MARK SEDDON: Mark Seddon, medical physicist
22 out of Orlando, Advent Health.

23 CLARK ELDREDGE: Clark Eldredge, bureau chief
24 for Department of Radiation Control, Tallahassee.

25 CAMILLA GUY: Camilla Guy, environmental

1 specialist, Radiation Control in Tallahassee.

2 WILLIAM ATHERTON: Bill Atherton. I'm a
3 chiropractic radiologist in private practice, Miami,
4 Florida.

5 JOSEPH DANEK: Joe Danek. I'm retired, but I
6 worked for Florida Power and Light, NextEra Energy
7 in their nuclear power program, power plant

8 ADAM WEAVER: I'm Adam Weaver, the RSO LSO and
9 other stuff at University of South Florida.

10 NICHOLAS PLAXTON: I'm Nicholas Plaxton,
11 nuclear medicine physician at Bay Pines VA.

12 JAMES FUTCH: We also have one guest who's
13 seated at the back, Mark Wroblewski. Rita, we'll
14 get that to you.

15 Mark is a former council member in the basic
16 x-ray machine operator position and he's thinking
17 about perhaps coming back again, since that position
18 is still vacant. I don't know if -- do you want say
19 anything about yourself, Mark.

20 MARK WROBLEWSKI: Well, no. Just hi everybody.
21 We're trying to make sure that I can be a board
22 member now that I'm also employed by the Florida
23 Department of Health. And so, there's -- there
24 could be a conflict there. We want to make sure
25 that there isn't.

1 MARK SEDDON: Okay. Welcome. Thank you. All
2 right. Very good. Thank you so much. Appreciate
3 everyone's introductions and then I think Kathy will
4 be coming in thirty minutes or so.

5 And so, James does now have the official lunch
6 order form.

7 JAMES FUTCH: Yes, we do.

8 MARK SEDDON: So that's the first, most
9 important order of business because apparently,
10 lunch is going to be a challenge today because it's
11 a very full house for the facilities.

12 Everyone should've received a copy of the
13 minutes via e-mail from Brenda. A copy are here for
14 review if you have any questions or comments.

15 Are there any, any comments or corrections that
16 were not forwarded to Brenda in advance of the
17 meeting? If not, can I have a motion to approve the
18 minutes as previously submitted?

19 ALBERT TINEO: So moved.

20 MARK SEDDON: Can I have a second?

21 LUIS RODRIGUEZ: Second.

22 MARK SEDDON: All in favor?

23 COUNCIL MEMBERS: Aye.

24 MARK SEDDON: Any nays?

25 (No response)

1 MARK SEDDON: Minutes are approved.

2 All right. Well, we'll jump over to our Bureau
3 update from Sir Clark Eldredge.

4 CLARK ELDREDGE: All right. As you may have
5 heard, I'm now the official Bureau Chief after
6 spending 13 months as the interim -- 15 months as
7 the interim.

8 As far as other personnel issues, we've been
9 averaging between -- we've had between eight and
10 eleven vacancies over the last, since the last
11 meeting in the bureau. Hiring has not been quite as
12 challenging as before, but some of it's been due to
13 internal stealing from each other, you know, but
14 we've actually been getting a few -- usually just
15 one, at least qualified person applying for jobs
16 these days when previously it was -- you had to
17 advertise, we'd advertise multiple times with no
18 qualified candidates.

19 One note for the -- for us as well as for the
20 state generally, we do have two national meetings
21 coming up. The conference radiation program
22 conference director's meeting starts next weekend in
23 Jacksonville and is there for a week. This is the
24 group of all the state programs. It's a group of
25 state programs and we -- they -- the group, itself,

1 does things like develop model state regulations for
2 states to adopt; they liaison, represent states in
3 front of national and international bodies. They
4 have, you know, representatives with IAEA, NRC and
5 we have official liaisons with NRC and -- they have
6 official liaisons with DOE, FDA, et cetera.

7 Then, of course, I'm sure most of you already
8 heard the HPS IRPA meetings are going to be the
9 second week in July in Orlando. So the Florida
10 chapter HPS will be involved with that as well as
11 are own agency has been asked to assist and present
12 some things. So Mr. Williamson is going to have the
13 joy of sweltering in the summer heat there as they
14 display some of our emergency response equipment.

15 The Orlando group just went through an audit of
16 their power plant surveillance program. Do you want
17 to talk about that a little bit, John?

18 JOHN WILLIAMSON: Crystal River and St. Lucie
19 nuclear power plants sent a representative audit
20 environmental, radiological environmental monitoring
21 program. Just for information purposes, there's
22 statutory authority for the Bureau to, to do
23 environmental sampling around the nuclear power
24 plants, so along with that statutory authority back
25 in the very beginning, Turkey Point went online,

1 even before that, in 1965, FPL decided that if they
2 had to pay the department to do monitoring, they
3 might as well pay the department to do all the
4 monitoring that was necessary required by the NRC.
5 That's the radiological environmental monitoring
6 program, REMP.

7 So on a periodic basis, the utility, as part of
8 their NRC license, they audit our program to make
9 sure that everything we're doing is in compliance
10 with the NRC. And the NRC audits the utility, which
11 of course they do every two years or so in the
12 monitoring program.

13 So last month, I believe, the utilities,
14 Crystal River and St. Lucie, sent representatives.
15 They looked over the means by which we collect
16 samples, how we analyze them, our record keeping
17 process, how we produced data in the quarterly
18 reports in the course of the utilities and they
19 found no issues on what we do. They actually liked
20 some things in particular.

21 We do have a lot of the turnover in the
22 laboratory, but we do have a good process for
23 training new chemists coming in. It also goes
24 without mentioning the pay raises for the chemists,
25 which we were able to implement last year

1 across-the-board to the chemists, really helped in
2 trying to make sure that we keep these people.

3 For our chemistry staff, we have three Ph.Ds
4 out of five chemists on the staff, which is the
5 greatest number we've ever had working in the
6 laboratory. And all of these persons, some of them
7 have been there a very long time, twenty plus years.
8 The supervisor is a Ph.D. chemist. And then the
9 young person, young chemist, we have a young chemist
10 is a Ph.D. as well. Hopefully we can keep them all
11 for a while and maintain that type of excellency
12 that we keep in the monitoring program.

13 JAMES FUTCH: I've got a question. So how many
14 other states have radio chemistry labs, if you know?

15 JOHN WILLIAMSON: I don't know specifically.
16 It turns out that in general, most radiation control
17 programs are divorced from their radio chemistry
18 lab. The radio chemistry lab, if they have it, is
19 under the Bureau of Laboratories, a completely
20 separate division. I personally, having been in two
21 programs that were associated with the Bureau, and
22 seeing what happened when you pull it away, you kind
23 of lose control over the quality aspects of the
24 laboratory if the people collecting the samples
25 aren't with the same group that's analyzing the

1 samples. There's a lack of accountability on the
2 laboratory when they don't have to report back to
3 the people who are responsible for maintaining the
4 environmental monitoring program.

5 There are total, there's probably only ten or
6 so radiation control programs that I know of that
7 have their own laboratories associated with the
8 Bureau. Most of the rest of them, as I said, are
9 separated and for the most part, only states that
10 have nuclear power plants have well funded,
11 routinely inspected radiation control laboratories
12 and we'll actually see that in one of the
13 presentations later.

14 JOSEPH DANEK: Nice job. Inspection of the
15 plants. Good job.

16 CLARK ELDREDGE: Putting it out there, talking
17 to CRCPD, maybe they ought to suggest to come up
18 with a guide, the state RAD program should have
19 control over the state radiation lab if there isn't
20 one now. Might be a good recommendation.

21 A budget update for the Bureau. Next year,
22 we're losing a quarter of our expense budget. Mind
23 you, it was a little fat due to the fact that we had
24 the remote offices. We used to have -- we have six
25 field -- five field offices, six field offices

1 around the state. We cut it down to four and then
2 we had people working from their home, so there was
3 a bunch of overhead for rent and electricity things
4 like that which we don't have anymore. We're not
5 sure yet how that's going to impact our future
6 abilities at this point.

7 Other than that, it's the time of year where
8 they're telling us to start preparing our
9 legislative proposals. So this actually changes to
10 our statutes, so advisers, if you all think of
11 anything, please submit it where you think we need
12 to look into additional authorities and stuff,
13 please let us know and we can bring it back to the
14 council in the future, how we work it.

15 So, all right. Anything else in my notes?
16 Other than generally, folks, I've got, you know, no
17 real problem areas at this point within the Bureau.
18 Things are doing well. Your last time, we did well
19 during our IMPEP and things are going well at the
20 lab. We are short in the calibration group right
21 now. We've had some key personnel retire. We are
22 getting a little gray in the hair across leadership
23 of the Bureau, but that's kind of natural. And we
24 will -- but the division's actually taking some
25 stuff to look at -- to look at, sorry. My brain's

1 drawing a blank on the two bit word for making sure
2 you have people to take over in the future when
3 people retire.

4 JAMES FUTCH: Succession.

5 ADAM WEAVER: Contingency.

6 CLARK ELDREDGE: Succession planning, thank
7 you. So the division is working to have us do --
8 working through succession planning exercises.

9 All right. That's it for the Bureau updates.

10 MARK SEDDON: Quick question. I know earlier
11 this year there was some changes suggested for
12 licensure. House/Senate bill --

13 CLARK ELDREDGE: He has an update.

14 JAMES FUTCH: I have an update. My section.
15 If we keep to the schedule, I may do it before
16 lunch.

17 MARK SEDDON: Okay. Very good. Any questions
18 for Clark? All right. Thank you, Clark.
19 Appreciate that.

20 I guess we jump over to John.

21 JOHN WILLIAMSON: So this is actually the same
22 talk I'm going to give next week at the Florida
23 Association for Food Protection at the annual
24 conference. So this starts as many things do. I
25 got an e-mail from the chair of this group asking

1 whether I'd be prepared to come and give a talk
2 about food safety and radiation. And she said, John
3 Richards with the EPA recommended you. And I'm
4 thinking, John Richards. You know, the next time I
5 see him, I'm going to burn your car because I really
6 didn't need to do this. So this is what happens
7 when you know somebody professionally and they say
8 that because of budget issues, they can't do it.
9 And you're not there to dispute it, so they say, but
10 this guy will be happy to do it for you, so getting
11 what they actually wanted is a little harder on
12 determining.

13 So let's just start with some basics. Most of
14 us are aware that there is some naturally occurring
15 radiation in food. Bananas, for instance, 15
16 becquerels per banana. Milk, 44 becquerels per
17 liter. Brazil nuts are high in Potassium-40 and
18 Radium-226. It's gotten to the point where there
19 are some health physicists who have even created a
20 term called the banana equivalent dose, which is
21 equivalent how many bananas you can eat in a
22 particular day.

23 We do have radioactive material naturally in
24 our bodies at pretty much a steady state. Just
25 because you eat one banana doesn't mean you're

1 increasing your radioactive content because you're
2 excreting out previous stuff. So it stays, in
3 essence, it's actually required because you can't
4 get rid of potassium in your body and one-tenth of
5 one percent of all potassium is radioactive
6 Potassium-40, with a half life of 1.2 billion years,
7 so it's not going anywhere any time soon.

8 What does this mean? It means we are actually
9 radioactive and we expose ourselves and others to
10 radiation. If you want to minimize the amount of
11 radiation that you're exposed to, never sleep in the
12 same bed with somebody else. You could stop eating
13 too, but that has a little more, you know, terminal
14 ends to it.

15 Some of the natural radioactivity that we find
16 in the body, obviously, uranium, thorium,
17 Potassium-40. Uranium-238 has a half life of 4.6
18 billion years. It's going to be around a while.
19 Thorium, half-life in the billions of years.
20 Potassium-40, 1.2 billion years. Radium-226, 1600
21 years. All these are in the natural decay chains.
22 Carbon-14 is produced in the upper atmosphere and is
23 naturally incorporated into our body, along with all
24 the other carbon. Tritium is incorporated in water.
25 Produced by cosmic ray spallation in the upper

1 atmosphere and then it comes down as water and then
2 we drink water. It's naturally incorporated in us
3 and it's also created through the nuclear power
4 process and that creates small amounts in the
5 environment.

6 And then Polonium-210, which is one of the
7 decay products in the uranium chain. Smokers, in
8 particular, have a lot of polonium in their body.

9 There's many sources of radiation in the
10 environment. There's the primordial, that's been
11 here since the earth was formed. It's given off by
12 the breakdown of rare radioactive elements.
13 Uranium, thorium and Potassium-40, all very, very
14 long half lives.

15 Cosmogenic, as I mentioned, made when particles
16 hit gasses in the upper atmosphere, creates
17 Carbon-14, tritium, Sodium-22. Man made. Nuclear
18 weapons fallout, nuclear power plant accidents and
19 nuclear power plant operation does contribute very
20 small amounts of it.

21 Short-lived isotopes we're really concerned
22 about would include Iodine-131. Exposure from
23 iodine can result in thyroid cancers, longer-lived
24 isotopes, Cesium-137, Strontium-90 in particular
25 forms. Nuclear power plant accidents, in

1 particular, produce a lot of those and there's still
2 some of those remaining in the environment from
3 power plant accidents and nuclear testing.

4 Where can we get contamination in the
5 environment of radioactive materials? Well, nuclear
6 explosion.

7 (Dr. Drotar Enters Meeting)

8 JOHN WILLIAMSON: Above-ground testing back in
9 the 50s produced a lot of nuclear explosions. A lot
10 of contamination in the environment. Nuclear power
11 plant accidents. Three Mile Island produced very
12 small amounts. Chernobyl produced very large
13 amounts. And Fukushima produced amounts smaller
14 than Chernobyl, but larger than Three Mile Island.

15 There's also possibilities of a radioactive
16 dispersal device, somebody deliberately introducing
17 radioactive material. Cesium137 is the form most
18 used, which is a salt easily disburseable and
19 dissolvable in water. Somebody can load that into a
20 cropduster and spray it on fields. Type of a
21 radioactive disbursement. You could have a dirty
22 bomb.

23 Another type of radioactive disbursement device
24 where you strap explosives to, you know, something
25 containing radioactive materials and you blow it up

1 and then disburses the material.

2 Probably the biggest hazard, immediate hazard
3 there is the explosion harming or killing members of
4 the public, but it also produces radioactive
5 material that would be disbursed and that's
6 primarily a public relations issue. The actual
7 danger from that is not much, but public perception
8 of radiation is that any radiation is deadly. So
9 you're going to get into these clean up issues when
10 you need to have massive clean up to clean up the
11 low background before anyone is ever comfortable
12 going back in those areas.

13 Other possibilities are rather remote. A
14 launch anomaly. And NASA used the terminology
15 because if they say explosion or accident, that has
16 bad connotations, so a launch anomaly involving the
17 launch of radioisotopic thermal electric generator.
18 These are the power sources they use on deep space
19 probes and also on the rovers we've sent to Mars.
20 There were these types of things we used back with
21 the Voyager back in the 1970s which are still
22 working their way beyond the solar system. They
23 were also used on Ulysses, Casini, Galileo, Pluto
24 New Horizons, the Mars science lab and the March
25 2020 launch. All of those had radioisotopic thermal

1 electric generators which are powered by Radium --
2 well, Plutonium-238 has an alpha emission. That
3 alpha emission is set up to create heat via a
4 thermal couple, which produces electricity.

5 Obviously, if these things were on board the
6 spacecraft and the spacecraft blows up on launch, it
7 is a possibility that you could have dispersal of
8 the Plutonium-238, which would be contamination of
9 the environment, which we'd have to worry about in
10 the food. And it's primarily citrus, but Viera in
11 Brevard County, which is about twenty miles away
12 from the launch, does have a lot of crops, green
13 vegetables growing in that area, which we can
14 potentially contaminate.

15 You can have an industrial accident. If you
16 had some type of nuclear medicine facility that had
17 a large industrial accident, it could disburse
18 short-lived nuclear medicine isotopes.

19 There was, as I mentioned earlier, there was a
20 large amount of above-ground testing of nuclear
21 weapons sent back in the 1950s and 1960s. This
22 resulted in considerable exposure to the people
23 downwind of the explosion. These people were called
24 down winders. Cesium-137 and Strontium-90 were two
25 of the isotopes really of concern for long-term

1 radiation exposure in the environment because they
2 have half lives of about thirty years. So
3 typically, we looked at ten half lives before we
4 were no longer concerned. So if an explosion took
5 place and it disbursed those two radioisotopes in
6 the environment, so on the order of 300 years before
7 they decayed out enough they're no longer of
8 concern.

9 The more immediate concern was Iodine-131,
10 which has a half life of eight days and it gives an
11 extreme dose very early on. There are people
12 affected in islands known to cause thyroid cancers.

13 Because of the Cesium and the Strontium in the
14 environment, particularly affecting infants through
15 the ingestion of milk products, the U.S. and the
16 USSR signed a nuclear test ban treaty in 1963 which
17 banned atmospheric testing. And since then, we've
18 actually seen a decrease in the amount of
19 Strontium-90 and Cesium-137 in the environment.

20 Amazingly, here we are nearly fifty years later
21 and we can still clearly see Cesium-137 in the
22 environment attributable to nuclear explosions in
23 the atmosphere.

24 Unfortunately, when we talk about the type of
25 monitoring that we do for food, it's really, really

1 minimal. We monitor around the nuclear power plants
2 because it's required by the Nuclear Regulatory
3 Commission's requirements. Turkey Point, sugar
4 cane, potatoes, corn and goat's milk. Except for
5 goat's milk, these are only done once a year. St.
6 Lucie, citrus and Levy, produce, if it's available,
7 which for many years, which it has not been.
8 Crystal River, citrus, watermelon and milk done on a
9 quarterly basis. Citrus and watermelon are only
10 done on an annual basis. It's not an awful lot of
11 testing if you're looking for somebody who's trying
12 to put material out there and they're not telling
13 you that they're putting the stuff out there.

14 Really, environmental monitoring really serves
15 as the trip wire. We're not doing this because we
16 think something is out there. We're really doing it
17 because it's required. But if something is
18 detected, maybe that's the sign that somebody
19 released something out there on a deliberate basis.

20 We do continuous air monitoring that are
21 collected weekly around each of the power plants.
22 So technically, those could serve as a trip wire
23 because we analyze those and we can be looking for
24 large amounts of radioactive material found on the
25 filters or in the ion cartridges.

1 The broad leaf vegetation we do are only
2 collected monthly. So you could technically have
3 six to seven weeks between collections on there
4 before you might be able to detect somebody had
5 actually had a release. And thermal luminescent
6 dosimetry, looking at the gamma dose levels in the
7 environment, that's collected on a quarterly basis,
8 so that's typically 90 to 110 days between
9 collections. It's not an awful lot of frequency to
10 make the determination whether somebody is releasing
11 material out there intending to poison or harm the
12 public by contaminating the food supplies.

13 There is the U.S. Environmental Protection
14 Agency RadNet program, which is a nationwide program
15 which has monitors, and there's 140 monitors. But
16 if you consider the size of the nation, or even the
17 size of the State of Florida, there's only five
18 monitors in the entire State of Florida. One in
19 Miami, Tallahassee, Tampa, Orlando, Jacksonville.

20 So you're trying to say you're covering the
21 entire state by virtue of having five monitors.
22 They do have continuous monitors and they're
23 actually hooked up to a continuous monitoring
24 network, so if one of the monitors does detect
25 higher levels of radiation, the EPA will know about

1 it because alarms go off. They're monitored, you
2 know, on a continuous basis. They actually have
3 specialists who go through and look at the data they
4 produce by these.

5 So if there's an accident, say for instance, a
6 nuclear power plant accident, we do have very clear
7 guidance on what we're going to be doing. The first
8 part is we're going to do everything possible to
9 make sure we protect the public from unnecessary
10 exposure of radioactive material.

11 So what do we do? We recommend store food and
12 feed. Feed and water for grazing animals within ten
13 miles of the event. Meaning if an event is at the
14 nuclear power plant, in that ten-mile EPZ circle,
15 we're going to make recommendations any grazing
16 animal in that, cows, goats, any other private stock
17 animals, they're put on stored feed and water, and
18 that, if possible, you bring them indoors and away
19 so that they don't have contamination in their outer
20 skin.

21 We'll recommend food embargo quarantines in
22 downwind sectors out fifty miles; further if
23 necessary. We coordinate with Florida Department of
24 Agriculture and local law enforcement to enforce
25 those embargoes. So we're essentially putting a cap

1 there's not going to be any food movement out of
2 those areas downwind, fifty-mile distance to try and
3 protect you.

4 This doesn't just protect the citizens of the
5 State of Florida. We're hopefully taking actions
6 that will actually protect industry, the entire
7 agriculture industry, from being blackballed
8 nationwide and being unable to sell anything. If
9 they see you're doing -- you actually have an active
10 means of protecting, determining if there is
11 contamination, then the other areas you can still
12 have an active thing. Whether that's actually going
13 to be true, considering the public's hysteria about
14 radiation, that might be questionable.

15 Other actions we can take, nuclear power plant
16 action, for instance, we can request assistance from
17 FRMAC and the Southern Mutual Radiological
18 Assistance Program sends out additional field teams
19 to help us do sampling of food products. We can
20 work with local agriculture agents to determine
21 where the likely food crops that are in, out in the
22 field now.

23 One thing that isn't -- that many people don't
24 know, the Bureau doesn't have records of what's
25 grown everywhere. We don't know where these things

1 are. Even the state Department of Agriculture
2 doesn't know every single area. The local
3 agriculture agents, on the other hand, usually are
4 well versed in knowing what crops are out in the
5 field; what's getting ready to come in and what is
6 in all the various places around the state. So you
7 need to get those kind of people involved when
8 you're doing these protective actions.

9 JAMES FUTCH: One question for you. When you
10 talk about the local agriculture agents, are those
11 county employees?

12 JOHN WILLIAMSON: Yes, they're usually part of
13 the county. Usually part of the county like the
14 UF --

15 JAMES FUTCH: UF, county extension departments.

16 JOHN WILLIAMSON: Yeah, county extension
17 agents.

18 We can also request the U.S. Department of
19 Agriculture, that's the DOE, the aerial measurement
20 system overflights to determine deposition.

21 Typically, when you go to DOE, you only have
22 two sites. They have a group at Andrews Combined
23 Joint Air Base in Washington, D.C. and they have a
24 group at Nellis Air Force Base out near Las Vegas.
25 Fortunately, however, DOE Region III based in

1 Savannah River site, has the capability to do AMS
2 as well, which means that we've cut the distance and
3 the time that it takes for a deployment to about a
4 third of what it takes Andrews. For instance, the
5 best AMS flights are run off of helicopter, so if
6 you're having to fly from Andrews Joint Base in
7 Washington, D.C., to St. Lucie, for instance, versus
8 Savannah River site flying a helicopter to there,
9 it's a much shorter distance. So those in DOE
10 Region III have much faster response capabilities.

11 And even more so, DOE Region III has a contract
12 with the Coast Guard flying out of Cecil Air Field
13 south of Jacksonville to use their fixed wing
14 planes, which means that, once again, in Florida, we
15 are fortunate we have resources that are much
16 closer. And being closer, they can get in the air
17 much faster and start making these assessments.

18 Yes?

19 JAMES FUTCH: John, I wanted to add one thing
20 to that. In addition to that, those DOE assets from
21 Savannah River actually train in Florida annually,
22 at that site in Cecil Field, and we've had occasion
23 with some of our state assets to work with them, so
24 they actually know a lot of the geography in at
25 least the northern half of the State of Florida

1 already, because we've actually flown with them.

2 JOHN WILLIAMSON: The ingestion planning zone I
3 mentioned, we do protective actions down to, fifty
4 miles downwind from where the site of it is. So
5 we're looking at everything that takes place in that
6 50 mile downwind. And we are really counting on
7 getting assistance from the local agriculture
8 agents, or the county tax collectors. You know,
9 obviously, county tax collectors are looking at
10 property and every single property is categorized
11 for what it's used for, right? So nobody's going to
12 have a commercial farm unless the county knows
13 they're having a commercial farm. One, there's a
14 tax benefit of having it as agriculture versus
15 commercial property. So that's one of the important
16 things is being able, when you look at your
17 ingestion planning zones, knowing who to contact to
18 get the information so that you can send people out
19 there to do your sampling.

20 The FRMAC, Federal Radiological Monitoring
21 and Assessment Center, is the chief U.S. government
22 agency organization to assist with radiological
23 emergencies. So the resources available, they have
24 monitoring teams with dosimetry instrumentation,
25 communications and transportation. They start

1 really by getting you deployment out of your local
2 radiological assistance program, which for us is
3 Region III, the Savannah River site. They have
4 about a six-hour timeframe, six to eight hours to
5 respond to an accident in the State of Florida.
6 They are two hours in wheels up from their site. So
7 they could technically be on site as fast as six
8 hours assisting the Bureau of Radiation Control with
9 doing response for an event.

10 FRMAC also has fixed and mobile labs for sample
11 analysis. Their mobile lab is what they call a fly
12 away lab. They use lightweight equipment that can
13 be put into aircraft and flown wherever it needs to
14 go. Their fly away labs typically have about a
15 24-hour response time. Their fixed labs, they use
16 the fixed labs at this -- the national laboratories
17 closest, which is the Savannah River site and
18 actually Oakridge. Pantex out in Texas. Lawrence
19 Livermore, Los Alamos, Panther site and Washington,
20 D.C. those are all fixed labs that can be brought in
21 to assist to do a sample analysis.

22 They have a NARAC, national atmospheric --
23 national atmospheric radiologic assessment center
24 which is located out in Berkeley, which provides the
25 ability to take radiologic -- to make radiological

1 dispersion plots.

2 You can actually make a phone to call them and
3 tell them the accident scenarios that happened.
4 They can put it into their computers and they can
5 determine where the likely contamination is going to
6 be. They also have consequence management home team
7 support, which they run out of Las Vegas. These are
8 people you can call on the telephone and get
9 assistance with predicting what type of accident,
10 what the accident conditions are and getting you
11 recommendations for what protective actions you need
12 to make.

13 FRMAC assets, as I mentioned earlier,
14 helicopter and fixed wing aircraft to measure ground
15 deposition and plume tracking. They have a federal
16 advisory team for Environment Food and Health, which
17 is the A Team. These are experts from the EPA, the
18 CDC, the Food and Drug Administration and the U.S.
19 Department of Agriculture that can help you
20 determine what protective actions might be necessary
21 to make sure the public is not unduly exposed to
22 radiation.

23 Then you have state monitoring teams and
24 radiation, mobile radiation labs that integrate with
25 FRMAC. So we take our field teams, we're expected

1 to be able to hold the fort down from anywhere from
2 24 to 72 hours and then as FRMAC brings their teams
3 in, we integrate with them to make -- to continue
4 our monitoring with larger efforts.

5 County responsibilities, I have already
6 mentioned we're looking at the local ag agents.
7 These are some of the things we necessarily need
8 them to do for us. We can't do this kind of work.
9 We only have about 70 professional personnel. Our
10 job is to collect samples, not to maintain a list of
11 where everything is.

12 So what the counties need to do, maintain lists
13 of the farmers, dairies, water supplies, slaughter
14 houses, seafood dealers, groves, food processors,
15 produce county maps, knowledge where it's grown.
16 This should be the local ag agents, helping
17 collecting samples if necessary.

18 We go out there, agriculture agents are well
19 known to the farmers that are out there. If the ag
20 agent goes out and starts collecting something in
21 the field, the farmer already knows who he is. He's
22 not going to shoot him. If we go out there and
23 start collecting, they think we're stealing their
24 food, their commercial product, and we might very
25 well have law enforcement issues. So making sure we

1 get those ag agents to help us out.

2 Coordinate help from the radio amateur -- this
3 is the RACES people. These are amateurs that use
4 ham radios. When you start getting far enough out,
5 unless you have satellite radios or some type of
6 monitored radio system that can cover statewide, you
7 may have difficult talking to each other. Pretty
8 much your cell phone networks are obviously going to
9 be jammed with everybody making calls to everybody
10 else. So RACES is, the ham radio operators are a
11 resource we've used in past years to aid us with
12 communications.

13 Things that we require the state to do. State
14 Department of Agriculture maintains a list of the
15 same things as possible. The one thing the state
16 does and the county doesn't, provide decision
17 makers. These are the people that can actually make
18 the decision to enforce an embargo. The Governor
19 has the right to make emergency declarations, which
20 gives him the right and he delegates it down to
21 people at the Division of Emergency Management, to
22 make the type of decisions on embargoing food from
23 the, you know, from a particular area or closing
24 roads or enforcing quarantine food from areas.

25 Other things we need the state to do, provide

1 additional field vehicles, if necessary. Coordinate
2 law enforcement activity and release public
3 information and rumor control. Most of all, it's
4 the state's responsibility to ensure public health
5 and safety in an emergency.

6 Additional actions that need to be taken.
7 Notifying the food processors. If there's an event,
8 if it's not an obvious one, like a nuclear power
9 plant accident, if it's a radiation disbursement, we
10 make a determination that some malicious agent did
11 this, we're going to have to make notifications to
12 the food processors so that they don't bring food in
13 that was contaminated and contaminate their
14 equipment as well. It's bad enough that something
15 out in the field is contaminated, but when you bring
16 it in and you contaminate the food processing
17 equipment, I mean, that's how we get e-coli
18 outbreaks. The food processing gets contaminated
19 and it spreads to food that was not originally
20 contaminated.

21 Initiate your food control strategies. How do
22 you control this event and make sure it doesn't get
23 worse than what you started with? Release timely
24 and clear public information. You can't hide this
25 occurring. Believe me, the first time that you do

1 this, it's going to hang you out to dry. And we
2 know if you're a food processor and you tell your
3 employees, we need to shut this down, there's been
4 an event and they ask questions on the event and the
5 first call they're going to make to their spouse is,
6 this just happened. Don't go buy any food. And
7 it's going to get out to the public really quick and
8 it's going to look like you were hiding if you don't
9 have clear public information was released. And
10 then you're going to have to make decisions, if you
11 have widespread contamination events, those farmers,
12 they have to go in and treat, you know, take care of
13 their, their animals.

14 You're going to have to make a determination
15 whether it's safe for them to go in, whether you can
16 provide escorts to them to get in, because there's
17 going to be other people who are claiming that they
18 have property in there who don't. Who are trying to
19 get in there for malicious reasons on their own,
20 whether it's looting or some other reason. So you
21 need to make sure you have law enforcement
22 coordinate with all that type of stuff as well.

23 Some of the really bad parts about this.
24 Coordinating how to destroy, dispose of embargoed
25 food, milk or animals. If you have a -- if you're

1 cows, say you have beef cattle and they eat
2 contaminated feed, is the public ever going to
3 accept beef from that cattle? You know, if it's
4 iodine, which they have an eight-day half life, you
5 can wait it out. But if it's particulates, Cesium
6 or Strontium, thirty year half lives, what are you
7 going to do with those cows? Are you going to dig a
8 hole in the ground and kill the cows and bury them
9 there? That's one possibility.

10 The U.S. Department of Agriculture has
11 essentially a portable furnace that they have. They
12 can put entire cows in it and basically take them
13 down to ash and then you have a much smaller amount
14 of material to have to worry about. That's all
15 something that you need to consider. What do you do
16 with, say, 20,000 gallons of milk that's
17 contaminated with radioactive material?

18 Suppose you manage to protect the cows
19 initially, but you need uncontaminated food or water
20 to serve them. Well, these are actions that the
21 farmers may not have the capability of taking care
22 of those things, themselves. The state needs to be
23 prepared to assist the farmers with those things.

24 Sample/recommend embargo of wild game,
25 migratory animal consumption. Wild animals don't

1 know that there's been an accident. They don't know
2 there's an embargo. Especially if you're looking at
3 wild fowl. They just -- they eat what they want and
4 then they fly to the next area.

5 Well, you can get significant body burns if
6 these animals are consuming contaminated feed and
7 going to other areas where they're taken by hunters.
8 So you need to have some means of determining how
9 you going to protect your hunters and other people
10 who consume wild game, migratory animals.

11 Ingestion pathway protective actions. These
12 are the actions we take to limit the amount of
13 radioactive material that people are being exposed
14 to, either in human food or in animal feed going
15 through the animal to human pathway. We can take
16 these prior to or after we know that the
17 contamination has occurred.

18 There's an expression called the derived
19 intervention level determined by the Food and Drug
20 Administration. It's the amount of material that
21 can be in food that's actually safe for human
22 consumption. Again, we get down to the question, is
23 there any level which the public is going to
24 consider safe for human consumption? And if it's
25 certain radionuclides, the public may very well say

1 that no, no level is safe. But that's why the
2 slides, like I showed initially where we talked
3 about there is natural radiation in food. And
4 whether it's one type of radiation or another,
5 radiation is in the end, radiation. So there are
6 safe levels of radiation in food. Perhaps we'll be
7 able to get that over to the public. But if not, we
8 have to be prepared to take actions on that.

9 So it is very, very clear that from a true risk
10 perspective, there are safe levels of radiation in
11 food and as long as the radiation levels are below
12 those preassigned levels, it is safe to consume that
13 food, okay?

14 So some of the protective actions. For milk,
15 for instance, you can remove the lactating animals
16 from the pasture. Put them in under covered areas.
17 Stored food, grain. You can withhold contaminated
18 milk, where you might have 20, 30, 40, 50, 100,000,
19 200,000 million gallons of contaminated milk.

20 You can store the contaminated milk to allow
21 decay. If you're looking at Iodine-131, eight-day
22 half life, can you store it long enough? That's 80
23 days where you don't have to worry about it. You
24 could go in to do the preserve milk types or, you
25 know, turn it into powdered milk and you could hold

1 it long enough.

2 In this country, because we have such a food
3 surplus, it probably won't happen. In other
4 countries where they don't have food surpluses,
5 things like that will probably end up having to
6 occur.

7 Fruits and vegetables, you can preserve --
8 remove it by washing the surface. You can also
9 preserve it. Essentially let it go through the
10 half-life decay until there's no radioactive
11 materials left.

12 Meat and meat products. Place animals on
13 uncontaminated food and water. Poultry products,
14 you can monitor it. Soils, idle or remove the
15 soils. Scrape the top layer in a widespread thing.
16 That's what they're doing in Fukushima. They're
17 removing the top lawyer of soil from hundreds of
18 square miles.

19 You can also do deep plowing. You can do
20 liming, which absorbs radioactive material and then
21 remove the liming. Grains, mill or polish it to
22 remove contamination on the outside. Water,
23 monitor. Cover open wells. Shut off contaminated
24 sources.

25 Food and shellfish, food move. Fish move. All

1 you can have is monitoring programs. You can't tell
2 fish there's an embargo going on. You can't do
3 anything.

4 Things like honey. All you can do is monitor
5 because you don't know where those bees actually got
6 their pollen from. Home gardens, recommend that the
7 owner stop consumption until their crops can be
8 tested.

9 So the protective action guides issued by the
10 Food and Drug Administration. The whole body, 500
11 millirem. Any organ, 5000 millirem dose.

12 The DIL is defined as the amount of
13 contaminated food that you can eat in the space of
14 one year that would give what that dose is. It is
15 important that each radionuclide and the DIL are
16 applied independently from other nuclides.

17 So it's 500 millirem for Cesium, 500 millirem
18 for Strontium, 500 millirem for Plutonium and so on.

19 The DILs include percentages of the type of
20 foods going to be in the diet, the amount of the
21 food typically eaten, the length of time a person
22 may be expected to eat it and the potential exposure
23 to contaminated foods of different members of the
24 population. Even with children, it's different
25 pathways.

1 We actually have a calculation spreadsheet that
2 we can use to calculate whether food exceeds the DIL
3 values. And it's simply, we count food on our gamma
4 detectors, looking for the amount of radiation by
5 the various isotopes in that food and we plug it
6 into the spreadsheet and it spits out whatever
7 portion of the DIL it is.

8 We can actually even calculate DILS by
9 measuring the concentration of radionuclides in the
10 soil. We can actually go out there, collect the,
11 say a one liter container of soil, bring it back to
12 the laboratory, analyze it and then plug those
13 radionuclide concentrations in and it will make
14 estimates on whether that is going to exceed the
15 DILS. If it does exceed the DILS, then you start
16 your embargo process, of course.

17 For years, there was no PAGs for drinking
18 water. We were expected to use the same standards
19 of drinking water uses on a day-to-day basis. In
20 2017, the EPA finally released a single PAG, using
21 the same values as the DILS. 500 millirem of total
22 dose in the space of one year.

23 Those are much higher than the normal levels.
24 For instance, the EPA values for normal drinking
25 water is about 4 millirem in any one year. And

1 that's looking at -- that's determined to be that
2 low because they expect you to get 4 millirem for a
3 fifty-year period. A DIL is 500 millirem expected
4 that you only get for one year.

5 So when have we ever used DILS? Well, because
6 of the Fukushima accident, the EPA used DILS based
7 on looking at the analysis of 1749 imported and
8 domestic samples of contamination from Fukushima.
9 Of those 1749, only three of them were found to
10 contain any detectable levels of radionuclides and
11 these were well below the established DILS.

12 A more incident specific, when we launched Mars
13 science laboratory, NASA and the BRC requested
14 guidance from the FDA on specific DIL for spinach
15 because it was not listed in the FDA guidance, and
16 we knew that that was the target of opportunity in
17 case there was an anomaly of that launch. And we
18 were able to get one and we were able to use, if
19 necessary.

20 That was Plutonium-238 for leafy produce,
21 specifically green vegetables, green spinach. And
22 the reason is because the Viera farms, which I
23 mentioned earlier, which are about 15-20 miles away
24 from the NASA facility. That is one of the things
25 that the Viera farm produces a lot of.

1 Imported food security. The FDA worked to get
2 the Health Security and Bioterrorism Preparedness
3 and Response Act of 2002. This was in response to
4 911 when we look at the whole security issues. And
5 it basically said that we had a way of protecting
6 the United States from food being brought in from
7 outside that might be contaminated.

8 The FDA conducts inspections and they collect
9 and analyze samples and they oversee the importation
10 of a whole variety of different types of food. Now,
11 if you consider the amount of food that's actually
12 imported in this country, I want you to think about
13 there's a single agency with one laboratory doing
14 the testing. How much food is actually tested?

15 So they actually do a targeted response where
16 they test food that is more likely to have had
17 issues, i.e., if there was some type of an issue.
18 Fukushima, obviously, was of great interest to them
19 because of the accident. They also used the Customs
20 and Border protection, who has large border
21 monitors. They can actually test entire sea lane
22 containers looking for radioactive material in bulk.
23 If you have a large amount of contaminated food in
24 bulk, you have a better chance of that being --
25 passing through one thing of grapes or something

1 that's contaminated.

2 Those large yellow things are the portal
3 monitors. That's what US CBP, the Customs Border
4 Protection uses to screen for food coming in.

5 FDA has a food emergency network, which is
6 their network of looking at contamination and how
7 they detect it in the food.

8 FDA has one laboratory in Winchester,
9 Massachusetts. They actually do analytical testing
10 on food products. They work with other teams,
11 including state and local laboratories who are part
12 of this network. And then FDA also works with the
13 other people, the EPA team, the advisory team, food
14 health and environment, if there is an event, on
15 what to do about it and how to protect the public.

16 FERN, Food Emergency Response Network, is that
17 FDA program, which actually is a consortium of the
18 FDA laboratory, which is the state and local labs to
19 actually be able to do food testing. The Bureau
20 participates in the FERN testing program, and this
21 is samples and reaction taken in the laboratory.
22 And one thing, only the tomatoes in those samples
23 were actually uncontaminated. All the rest of them
24 were contaminated and we passed our test on that.

25 So what does it actually take to do the type

1 testing that we're talking about here? This is from
2 our laboratory. If you want to do it, you need
3 multiple high purity germanium detectors. Each one
4 of these systems cost about \$110,000.

5 They require liquid nitrogen for cooling the
6 detectors. They have high resolution so you can see
7 very large number of radioactive isotopes in them.

8 Unfortunately, they only do for gamma emitting
9 isotopes, so things like Strontium-90, which is a
10 pure beta emitter which you can't see. You also
11 can't see Plutonium or things like Polonium-210.

12 It is non-destructive, meaning you're not
13 destroying the samples, which means you can take the
14 gamma testing first. And you can take that sample,
15 pass it down and you can do chemical analysis to
16 extract out the other things you're looking for.

17 It is very fast. In about two to four hours,
18 you can achieve limits that are close enough that
19 you know whether it presents a risk to members of
20 the public.

21 For things like Plutonium, Polonium, you need
22 to do alpha spectroscopy. Each one of these
23 chambers is \$15,000 a piece. You need to do
24 extensive acid digestion of your samples. So this
25 process takes typically, days to maybe even a week

1 to do a single sample, so it's very slow to use.
2 And you also have to use radioactive tracers,
3 meaning you have to put in something of the same
4 isotope -- sorry. The same element, different
5 isotope. Say if you want to test for Plutonium-238
6 and 239, you put Plutonium-242 in so you can
7 quantify the recovery.

8 Some of the issues to consider, obviously,
9 we're reactive, not proactive in most cases. We
10 only can really take action after we know something
11 happened. There could be terrorist contamination,
12 which could occur with a small chance of infection.
13 If they do crop dusting, for instance, they do crop
14 dusting at night. All you'd hear is the aircraft
15 going over the fields. Is the farmer going to know
16 that something took place? He may never know. He
17 may be selling contaminated tomatoes out there and
18 the public would never know it.

19 The laboratory capabilities are expensive and
20 scarce. The same labs that do part of the FERN
21 testing are the same ones that do environmental
22 monitoring. Only 25 labs participated in the latest
23 FERN test.

24 So I want you to think about it. If there's an
25 event and we actually know there's an event, the

1 forecast is there's going to be a half a million
2 samples collected. So you've got 25 labs, and you
3 have half a million samples to analyze. How is that
4 going to work?

5 Think about the alpha spec. It takes days to
6 weeks to do a single alpha spec sample, and you've
7 got a half a million samples that need to be
8 analyzed.

9 WILLIAM ATHERTON: You're going to have to
10 sample the samples.

11 JOHN WILLIAMSON: Yeah. It's going to take a
12 lot of very careful consideration of which samples
13 are priority.

14 DILS are protective, in the United States at
15 least. Most first world nations, you may not get
16 the public to accept any amount of radioactive
17 contamination in the food. States with nuclear
18 power plants have few opportunities to practice
19 doing ingestion pathway exercises. Once every eight
20 years is all we're required. If you don't have a
21 nuclear power plant in your state, there's almost
22 zero opportunity to actually do ingestion pathway,
23 unless you can talk one of the big federal agencies,
24 DOE or DHS, into bringing a federal exercise into
25 your state.

1 CAMILLA GUY: In slide 42 with the CP, CBP
2 monitoring, how much will that cost in terms of,
3 like, the bulk monitoring system, itself? Say for
4 facilities that do processing and they receive it
5 from farmers before, say a contaminated produce
6 enters a facility and gets mixed in with everything
7 else?

8 JOHN WILLIAMSON: You mean how much would it
9 cost to clean it or how much for the monitoring
10 system?

11 CAMILLA GUY: The equipment. How much is the
12 equipment, itself?

13 JAMES FUTCH: The same portable monitors for --

14 JOHN DANEK: Yeah. It is anywhere from
15 probably, depending on -- bigger is better. The
16 bigger the monitor you have, the more sensitive it
17 is.

18 CAMILLA GUY: Yeah.

19 JAMES FUTCH: Plastic simulator.

20 JOHN WILLIAMSON: Yeah. So you can go anywhere
21 from 5,000 to \$100,000, because part of it is bigger
22 is better, but also higher resolutions is better.
23 Higher resolution -- the higher your resolution, the
24 more expensive. Those germanium detectors I showed,
25 \$110,000 a piece. You can get a sodium iodine

1 detector for about \$5000. But a sodium iodine, the
2 width of its peak is 40. A germanium, the width of
3 its peak is one. So you can hide a lot things under
4 something 40KEVY, but you'd never see them. So is
5 it worth it to pay \$110,000? Maybe it is. But if
6 you have a half million samples, maybe you want to
7 screen first and see if there's anything in there,
8 and if you do find something in there, then you'd
9 screen it with the high resolution.

10 JAMES FUTCH: Yeah.

11 JOSEPH DANEK: At least detect it initially
12 with sodium iodine and then you can isolate the
13 stream.

14 MARK SEDDON: Right. The sensitivity of these
15 is limited based upon your container and everything
16 else, too. That's what you're trying to control it
17 for.

18 JAMES FUTCH: Usually for this set up, they're
19 looking for, you know, is there something there.

20 MARK SEDDON: Yeah.

21 JAMES FUTCH: And then they will pull it apart
22 and go looking and maybe look with something a
23 little more high resolution to see what it is.

24 JOHN WILLIAMSON: I don't know if you remember,
25 but DNVO, which was part of DHS, which was

1 originally the domestic detection office, they spent
2 a couple million dollars trying to see whether they
3 could develop a detection system that would be used
4 by CBP nationwide that would be able to be not just
5 detection, but detection and accurate determination
6 of the isotope, because the isotope makes a
7 difference.

8 If you've got a load of bananas going through,
9 you're going to get K-40. Do you care? No. But if
10 somebody is putting a load of bananas or a load of
11 ceramic tile and they're putting a nuclear weapon in
12 the middle of it, you need something that can see
13 that nuclear weapons emissions underneath the other
14 stuff. And they spent millions of dollars and in
15 the end, never could get something that would really
16 work without spending horrendous amounts of money.

17 Large germanium detectors, they require cooling
18 to temperatures like nitrogen and they're very, very
19 expensive. I mean, one for the laboratories a
20 hundred thousand dollars. If you want one big
21 enough to do this kind of work, it could be a
22 million dollars.

23 CAMILLA GUY: Thank you.

24 CLARK ELDREDGE: All right. I had a couple
25 questions here. A couple points I'd like to you

1 expand on because I've got a half a brain on these
2 things.

3 So when you're talking about instances like the
4 RTG exposure and things like that, the reality there
5 is what is actually the -- what is expected to be
6 the morphology, what happens to the material there,
7 because it's solid. It isn't expected to, like,
8 atomize or anything in the explosion or is it?

9 JOHN WILLIAMSON: Worst case scenario, within
10 the first forty seconds of launch, it goes up and
11 turns around. Immediately comes down and hits the
12 hard surface. The hard surface causes a fire hot
13 enough to destroy the uridium, graphite and
14 stainless encapsulation on it. Break the ceramic
15 alloys, Plutonium-238 and disburse it. It's like
16 the -- their typical odds on that happening, on
17 having that type of a launch is one in a thousand.

18 JAMES FUTCH: I was talking to Kelly, one of
19 the guys from Department of Energy about that when
20 we were on site monitoring for perseverance. He
21 reminded that was five solid rocket boosters on the
22 outside. Once you light them, you can't turn them
23 off.

24 JOHN WILLIAMSON: Right.

25 JAMES FUTCH: So his communication was the

1 rocket comes up, the payload ends up somehow on the
2 ground underneath the solid rocket boosters in some
3 sort of an accident. And that provides a lot of
4 additional thermal energy to your ablation package.
5 Not very likely, thankfully, but --

6 CLARK ELDREDGE: Then we've actually had, the
7 next thing you talked about materials getting into,
8 or contaminated materials getting to a processor and
9 contaminated it. We had that not related to food
10 before. The Jacksonville smelter.

11 JOHN WILLIAMSON: Yeah. In 2001, a steel
12 recycling plant near Jacksonville melted down,
13 probably ten millicuries Cesium-137 source.
14 Costs --

15 ADAM WEAVER: Didn't it come from a moisture
16 density deal?

17 JOHN WILLIAMSON: Well, that size probably. It
18 cost 10 to 12 million dollars to decontaminate the
19 facility and you melt Cesium, it volatilizes, ends
20 up, the majority of it going through the air
21 ventilation system. Gets trapped in the backhouses
22 where all the ash is. And then the rest of it gets
23 expelled out from the pipes, which could
24 technically -- not technically, in actuality, do
25 vent to the atmosphere. So if you had residents

1 who's near there, the possible residents could've
2 been --

3 JOSEPH DANEK: How was it identified? You
4 detected -- that you'd guys responded to it?

5 JOHN WILLIAMSON: They had a, on their smelt
6 bucket, they had a monitor on the smelt bucket.

7 JOSEPH DANEK: Okay.

8 JOHN WILLIAMSON: So they had been having a lot
9 of electrical storms and their conveyor belt
10 detectors had been going off and on. And they
11 thought it was another electrical issue and it
12 wasn't. They didn't know until it melted and came
13 out of the smelt bucket.

14 JASON NICHOLSON: Oops.

15 JOHN WILLIAMSON: Yeah.

16 CLARK ELDREDGE: Then we actually do, in this
17 country, have practical experience, so to speak,
18 with hunting restrictions. The Savannah River site.

19 JAMES FUTCH: Yeah.

20 JOHN WILLIAMSON: Yeah. Par Pond in 1970,
21 Savannah River site, had an overflow of one of their
22 reservoirs into the Par Pond area. They had
23 Cesium-137 contamination for a very, very long time.
24 And they actually, Savannah River Site, they --
25 because that had been prime hunting before the site

1 was ever built and historical basis, so they allow
2 hunters on certain parts of the property. And they
3 actually had to monitor the deer before they were
4 allowed to take them off site. Sort of self --

5 ADAM WEAVER: Unless they're getting road kill.
6 Same thing with road kill. When I was at FPL, we
7 always had to monitor the deers.

8 JAMES FUTCH: I remember someone in Savannah,
9 similar to what you were talking about, they were
10 out hunting and how many they could take or how many
11 they're allowed to, to deal with. And we were
12 involved in a federal FEMA exercise through the AMS,
13 assets at the federal level in South Carolina. And
14 so we had FHPs airplane with our detectors in it.
15 And one of the missions you would run was to see
16 what you could pick up in your mapping in that area.
17 Some of us didn't realize what was in that, the pond
18 leak area. And so would were expecting to see
19 discrete large sources that the Savannah River folks
20 had brought out of their facilities and left out,
21 Cobalt-60. And we actually detected Cesium-137 in
22 that area. We couldn't see it live when we were
23 flying like you could with the much larger source
24 like the Cobalt-60.

25 When we got back and everyone went back to

1 analyzing data and reducing maps, you could see it
2 quite clearly. So it's still out there. It
3 migrates through the biological food chain quite
4 well.

5 JOHN WILLIAMSON: Yeah. I'll throw FPL under
6 the bus.

7 JOSEPH DANEK: What's that?

8 JOHN WILLIAMSON: I'll throw FPL under the bus.
9 We use to do goat milk sampling near the St. Lucie
10 plant. We had one lady who had goats out there. We
11 would occasionally see Cesium spikes in the goat
12 milk. And, you know, of course members of the
13 public, they, of course, blamed that on FPL.

14 We asked her, she's is like, I can always tell
15 because their milk tastes rotten because they've
16 been eating the palmetto berries. Palmetto berries
17 are uptaking the Cesium from the atmospheric testing
18 forty some years earlier and the goats, being goats,
19 you know, they stick their snoots through the wire
20 mesh of the cage, of their pens and eat the palmetto
21 berries. Also Brazilian pepper.

22 JOSEPH DANEK: Yeah, Brazilian pepper, yeah,
23 that's a good one.

24 JOHN WILLIAMSON: Brazilian pepper is a trash
25 plant. Yeah. In Florida, we like to extinguish it.

1 Brazilian pepper uptakes Cesium-137 very, very well.

2 JOSEPH DANEK: Yeah.

3 JOHN WILLIAMSON: We use it as a marker because
4 it is a trash plant. Nobody cares if you remove the
5 plant, so we use it as a marker for the broad leaf
6 vegetation around the utility sites.

7 CLARK ELDREDGE: It's an invasive species in
8 Florida and should be eliminated on sight.

9 JASON NICHOLSON: Good luck with that.

10 JOHN WILLIAMSON: Yeah. We've actually had to
11 ask the utilities, please leave this here so we
12 don't have to pull the mangroves instead.

13 JAMES FUTCH: Take all of them. I had a
14 question for the council members. This is a -- let
15 me back up. So this is -- Clark and John have been
16 working for this outfit for a really long time,
17 including doing dose assessment and John's staff
18 works really up close with the chemistry. I don't
19 think I've ever seen all of this pulled together in,
20 in one presentation in such a comprehensive way. I
21 know it was, it was a lot of detail and facts. It's
22 a council with a lot of scientifically oriented
23 folks, so it's appropriate.

24 But all of this information John's going to be
25 giving, I missed the first part of this. You

1 probably explained you were going to be doing this
2 again for a food group next week I think.

3 JOHN WILLIAMSON: Next Thursday.

4 JAMES FUTCH: What was the, what was the, what
5 was the origin of how that came to be and what is,
6 what is the group's expectations, would you say?

7 JOHN WILLIAMSON: Well, I'm not really sure
8 because a friend of mine from the EPA --

9 JAMES FUTCH: You got volunteered.

10 JOHN DANEK: -- volunteered me to do it. And I
11 asked him what he was, what, what he was -- he
12 originally thought about presenting and he said,
13 yeah, that.

14 ADAM WEAVER: That's good.

15 JOHN WILLIAMSON: That was it.

16 JAMES FUTCH: This is crazy. I'm really
17 excited about this because this is one of those
18 areas that I think the average person doesn't have a
19 lot of knowledge of. Folks who handle our food
20 safety and are right up close and personal in the
21 industry producing it, marketing it, whatever it is,
22 they're crucial to, to -- that they understand this
23 if something were to happen. So I think it's a,
24 it's a marvelous opportunity.

25 JOHN WILLIAMSON: You know John Richards,

1 right? You know John Richards? He's the EPA guy.

2 JAMES FUTCH: Right. What I was going to ask
3 the council was, how much of this did you know? I'm
4 not trying to volunteer anybody to say they don't
5 know anything.

6 WILLIAM ATHERTON: Not a lot.

7 JAMES FUTCH: I'm just wondering how -- I think
8 this talk could be used in other places. In
9 Tallahassee, the Commissioner of Agriculture used to
10 be the senate president. His name is Wilton
11 Simpson, and he's on the radio every Wednesday,
12 relatively speaking, one of the local talk shows,
13 with just one of the local talk guys who happens to
14 know him and he loves talking about agriculture.
15 Before he was the agriculture commissioner. I think
16 that was probably one of his goals was to get to the
17 agriculture commission. He's a farmer up in north
18 Central Florida area.

19 I think this education -- this presentation or
20 some subset thereof, would be really valuable for
21 someone like that or, you know, some other decision
22 makers that many folks are out here may know. Not
23 saying John because he has to give it all the time.
24 But -- but I think, I don't know. What do you all
25 think?

1 KATHLEEN DROTAR: One of the things that I
2 thought was really interesting was the ten miles and
3 the fifteen miles. And then having things separated
4 so that you're aware of what was happening and it
5 was being monitored. And the cows were sequestered
6 outside the area or housed inside so that there's
7 protective measures that are there should something
8 happen.

9 And the other thing was when you would say, you
10 know, how much, you know, are people going to eat
11 this or consume things that they, once it gets out,
12 that there was contamination. And I immediately
13 went to in the grocery store where you have items
14 that have been irradiated and they won't touch them.
15 So, you know, just having the information that there
16 are levels that are safe I think is something that's
17 important, too.

18 WILLIAM ATHERTON: One other thing that I
19 always struggled with people asking me questions, is
20 just with different types of radiation that they --
21 it's hard to wrap your head around irradiation from,
22 you know --

23 JOSEPH DANEK: Contamination.

24 WILLIAM ATHERTON: Emitting radiation, so I
25 think that might be good.

1 JOSEPH DANEK: Contamination versus
2 eradiation. Contamination has radioactive material
3 in it.

4 WILLIAM ATHERTON: Yeah. The difference in
5 radioactive material and something being --

6 JOHN WILLIAMSON: Yeah, contamination versus
7 exposure.

8 JAMES FUTCH: If you'd like to see it, we have
9 an hour long radiation --

10 WILLIAM ATHERTON: No, no. I had a vague sense
11 of what you guys did, but it was nice to actually
12 see the specifics that, this lab here and this
13 testing here and this is how often we do this. It
14 was very interesting.

15 MARK SEDDON: For the DILS, do they differ,
16 based on standard environmental monitoring level
17 expectations versus what to expect for an event?

18 JAMES FUTCH: Well, I'm not sure if the DILS
19 hearing, but the question of I think what to do with
20 it once you actually have it, we usually think of
21 this in terms of EPA's long-term levels of applying
22 to various, you know, material.

23 I don't want to speak for John. What we
24 usually say internally are, these are the standards
25 now. And then when the crap actually gets here and,

1 you know, a lot of this to be dealt with, the agency
2 and the powers that be may revise those. Probably
3 upward.

4 MARK SEDDON: That's what I was thinking.
5 There would be some variability.

6 JOHN WILLIAMSON: Well, the FDA will tell you
7 the DIL is the DIL is the DIL is the DIL. It's
8 simply a level. They calculated it and it's a
9 specific value that food below that is safe to eat.
10 Food above that, the risk is higher than they're
11 willing, you know, it's 500 millirem a year.

12 MARK SEDDON: Right.

13 JOHN WILLIAMSON: In the United States, the
14 question is what is the public going to accept. If
15 people are starving to death, they're going to
16 accept food to the DIL.

17 MARK SEDDON: Right. Do they, do they vary or
18 change or adjust the calculation spreadsheets when
19 all the variables are there?

20 JOHN WILLIAMSON: No.

21 CLARK ELDREDGE: It's a very laborious process
22 or research process where they come up with
23 different models.

24 MARK SEDDON: Right.

25 CLARK ELDREDGE: It's like, you know, you deal

1 with -- yeah, they come up with different models
2 and stuff that's actually done in periodic, but it's
3 not --

4 JOHN WILLIAMSON: It is just like you do dose
5 assessment. It's exactly the same thing.

6 MARK SEDDON: I gotcha.

7 CLARK ELDREDGE: Yeah. They've revised the
8 DILS twice since I've been involved. Once, since
9 I've been doing --

10 JOHN WILLIAMSON: Well, the last revision was
11 in '98, so they don't do it very often.

12 CLARK ELDREDGE: Okay.

13 JOHN WILLIAMSON: You could say 2017, the EPA
14 water PAGs were --

15 JAMES FUTCH: How many decades did we go
16 through exercises with the standard question, what
17 do you do with the water? Okay. At least we have
18 some values.

19 CLARK ELDREDGE: Are the DILS still based on
20 ICRP 30? That period?

21 JOHN WILLIAMSON: If they haven't changed since
22 '98.

23 CLARK ELDREDGE: Yeah, they are. At some point
24 they may be updated to -- so, yes.

25 JOSEPH DANEK: Correct me if I'm wrong, in the

1 United States, we've never had an actual event take
2 place were you would be in a situation to implement
3 DILS in this whole entire program. If you look at
4 Fukushima, they have done it. They've done the
5 whole nine yards. There's more contamination,
6 remediation.

7 JOHN WILLIAMSON: Well, I mean there's never
8 been a domestic event, correct.

9 JOSEPH DANEK: Yeah. Versus Fukushima, they've
10 done all of it.

11 JOHN WILLIAMSON: They did use the DILS on
12 Fukushima food.

13 JOSEPH DANEK: Mm-hmm.

14 JAMES FUTCH: And I think -- any other
15 questions?

16 WILLIAM ATHERTON: I have a quick question. A
17 little bit on that thread. How does -- I don't know
18 if you know this, but the United States, the way we
19 deal with this, compared to other countries like the
20 European Union and Japan and other countries -- is
21 it -- do we do the same thing as they do or they do
22 the same as us or? Or you don't know.

23 JOHN WILLIAMSON: I don't know specifically.

24 WILLIAM ATHERTON: Just curious.

25 JAMES FUTCH: I think one thing that happened

1 in Fukushima was, there was a lot of practical
2 knowledge gained and the U.S. Department of Energy,
3 the AMS folks we've been speaking about, were out
4 there flying those systems in Japan to protect the
5 servicemen and women. And then later on, they left
6 some of those behind and they trained a lot of the
7 Japanese operators in how to use that. So I would
8 imagine there's a heavy influence from the U.S. on
9 what Japan was doing. I don't know about the actual
10 levels. I can't speak to that.

11 I will say this, Western Europe --

12 JOHN WILLIAMSON: Put it this way, I have seen
13 articles from Japan, translated into U.S.,
14 translated into English that talk about the safe
15 levels of radiation in food. In fish, specifically,
16 using the U.S. DILS. So I don't know what their
17 rates -- they may be based on IEA guidance that ties
18 back to the DILS. But I've seen the same values
19 expressed in their articles about their own food
20 products.

21 WILLIAM ATHERTON: So largely, it's a work in
22 progress kind of.

23 JOHN WILLIAMSON: Let's just hope we never
24 really have to implement any of it. The sampling,
25 on -- I can make up a lot of the stuff as I go. I

1 can't make up exigent factors, you know. Half a
2 million factors from a single event. Suppose it's a
3 multiple event; multiple states?

4 MARK SEDDON: Thank you. It was very good.

5 JOHN WILLIAMSON: You're welcome.

6 JOSEPH DANEK: Good job.

7 MARK SEDDON: All right. Okay. I guess we can
8 move on to more discussion on sampling &
9 decommissioning, Jason.

10 JOHN WILLIAMSON: Kevin.

11 MARK SEDDON: Kevin, I'm sorry. I got off
12 track. Kevin.

13 KEVIN KUNDER: Materials section update. I
14 went back and looked at the minutes from last
15 meeting. I guess there was a question I had
16 mentioned about a new licensing condition that would
17 be added to the medical licenses during the next
18 amendments, and it regarded annotating reports of
19 medical events and dose to an embryo/fetus or a
20 nursing child. And one of the things that they had
21 asked for is that -- required is identification
22 number, which could be Social Security number. And
23 Chantel brought up, you know, the infant -- not
24 infant, but the embryo or fetus not having that.
25 And it would be, it would be obviously the mom. You

1 know, that's what it -- that's how it's actually
2 worded and stuff. So she's not here, but that's
3 already going out there on the new amended licenses
4 and stuff.

5 The second thing from old business is our, our
6 inspection program of our program, IMPEP, the
7 Integrated Materials Performance Evaluation Program,
8 which is our RAM licensing program inspection by the
9 NRC and other agreement state peers that was last
10 June we had talked about and then they provide us a
11 report that they send off to their NRC management
12 review board, they call it the MRB. And the MRB
13 makes independent findings of radiation control
14 program adequacy and compatibility based on the
15 result from the IMPEP review and input from IMPEP
16 team members, MRB members, agreement state programs
17 and of course, us being the agreement state program
18 in the review.

19 Clark and I were supposed to travel to
20 Bethesda, Maryland to provide our input. However,
21 the impending government shut down at that time
22 turned into a virtual meeting and then at the last
23 minute, turned into a hybrid meeting. But we were
24 able to give our input and the MRB occurred October
25 5th, with the final report dated November 3rd of

1 last year. And it's available on their website,
2 which we have a link on our website, which is
3 floridahealth.gov/RAM.

4 The MRB findings for the performance indicators
5 of technical staff, staffing and training. Status
6 of materials and inspection program, technical
7 quality of inspections, technical quality of
8 licensing actions, technical quality of incidents
9 and allegations, and the sealed source and device
10 evaluation program, we were found satisfactory,
11 which is their top level. There was no issues
12 there.

13 The only one we had a problem, which is in
14 their new designation, they call it LROPE, which is
15 Legislative Regulations and Other Program Elements,
16 we were found unsatisfactory. Which is the rule
17 we've been trying to get through for the last
18 several years.

19 They closed three of our 2019 review
20 recommendations. They opened a new recommendation
21 to have us manage implementation of our
22 compatibility plan, to establish realistic timelines
23 and leverage senior management engagement to ensure
24 timely adoption of current and future regulations.

25 So in other words, we need to be on top of

1 working with legal in getting that through. But
2 accordingly, the MRB chair agreed with Florida
3 state, with the Florida agreement state program, be
4 found adequate to protect public health and safety
5 and not compatible with the NRC program. The MBR
6 chair agreed the next meeting would take place in
7 two years, which is kind of a half day, kind of how
8 you doing type thing. And the next full IMPEP is on
9 a regular schedule, which is four years out.

10 Staffing, last meeting, materials was down a
11 regulatory specialist. That person performs minor
12 licensing actions like adding and removing
13 authorized users. This was filled by Duane Moore.
14 Giovanni Manning left materials for the infamous
15 technology section. However, we were able to get
16 back a twice-retired Joyce Mackelroy to fill the
17 manager position for inspection coordinator
18 enforcement. So we're completely staffed at this
19 time.

20 Rule making, still in progress. It's back out
21 of our hands, back with the Department of Health's
22 general counsel's office. So still waiting. Can't
23 give you any estimated dates.

24 Statistics, as of last month, we had 1513
25 specific licenses; 234 general licenses for a total

1 of 1747. We averaged close to 200 licensing actions
2 a month, which is about three new actions a day for
3 each of our three evaluators we have. Which is
4 quite commendable considering some actions are new
5 licenses with hundreds of pages to read and possibly
6 several deficiency letters to send out and waiting
7 for missing information and close to 75 RAM
8 inspections a month that we processed and turned
9 into compliance or violation letters for our
10 licensees.

11 General license invoices were mailed out May
12 1st. And just a final thing, which is something we
13 started doing the last couple years, is there's a
14 Florida Statute Section 17.20 that requires the
15 state agency to assign delinquent accounts to
16 contracted debt collection agencies within 120 days
17 after the accounts are due and payable. So for the
18 first ten months of this fiscal year, so far our
19 section has referred greater than \$73,000 in
20 delinquent accounts to Transworld Systems, Inc.
21 Collection Agency, for which we recovered so far
22 just over \$30,000.

23 Medical events, we had just one. It was the
24 last quarter of the calendar year last year. It was
25 an HDR outpatient facility where the owner MD sold

1 to a larger practice and stayed on as the AU,
2 authorized user. However, the purchaser had not
3 applied for new license; brought in their own
4 treatment oncology information systems. However,
5 could not hook it directly up to the existing
6 delivery system due to the older XP operating
7 system, which required the site to utilize a sneaker
8 net.

9 They performed three breast HDR treatments,
10 each with ten fractions over five days. The first
11 patient went through all ten fractions without
12 anyone noticing, as a physicist failed to verify
13 treatment times and delivery doses.

14 Second patient and the third patient went --
15 got all eight fractions, came in for the last eight,
16 that's when they determined that they already
17 reached their prescribed dose, so they canceled the
18 last day of treatment.

19 The last one is the one they actually called in
20 to us as a medical event. At that point, it was
21 just a single medical event they called in and at
22 first glance, looking at the total numbers by our
23 regs, it is was not a medical event. However, we --
24 our investigation, we went back and said, okay,
25 since this happened, technically, you don't have a

1 radioactive materials license. Let's go back to the
2 very beginning. How many had you done? That
3 facility only had done three. We went and pulled
4 those. We found that first patient that got all the
5 way through and they were cited for operating
6 without a license and overexposure of a patient by
7 more than 40 percent over the prescribed dose.

8 Final thoughts that I have. This week, May 6
9 through the 10th of year, is Fusion Energy Week.
10 There's currently no research or development
11 currently being done in Florida. However, we expect
12 to see something soon. Within maybe next two to ten
13 years. There's currently greater than 50 companies
14 worldwide, with 28 of them in the U.S. at some stage
15 of development if we're looking at fusion for
16 energy.

17 Currently, we'll license them under part two,
18 with no plans for, like, a separate section like we
19 do for medical, for part six.

20 We authorized the tritium in activated
21 products. Required decommissioning costs in
22 bonding, bioassay programs considering depending on
23 if they're getting treated water or treated gas
24 because gas would be -- or the water would be a
25 bigger deal.

1 Public dose, to include air emissions,
2 environmental surveillance, a user responsibility
3 would be more for radiation protection, tritium
4 handling systems, waste management, but not the
5 actual fusion process.

6 We consider -- we have to consider the seismic
7 impacts of anything, but we'd also consider sinkhole
8 considerations, as well as the usual shooting fire
9 texts and warnings, all that stuff.

10 We're currently looking at adding two new
11 license categories, fusion for R and D and fusion
12 for our power production.

13 Last meeting, maybe the meeting before, we
14 talked about the NRC rule making process for
15 reporting nuclear medicine injection extravasations
16 as medical events. So last year, the NRC issued a
17 request for information and preliminary proposed
18 rule language with a 90-day comment period, which
19 was extended to 135 days.

20 Based on that feedback, the NRC revised the
21 definition of extravasation; removed the definition
22 of medical attention and changed suspected radiation
23 injury to radiation injury. And revised the
24 definition and made changes to the proposed revision
25 of Part 35 in the new sections.

1 We have a couple more weeks, June 11th is the
2 close of the agreements day comments period. We're
3 preparing our comments to be submitted to the NRC.
4 Mid June is the ACMUI, the Advisory Committee on the
5 Medical Use of Isotopes, their subcommittee, and
6 they'll send the stuff off to the commission. As
7 well as August 12th, they're going to have the
8 proposed rule and draft implementation guidances due
9 to the commission with the final rule
10 implementation, implementation guidance due to the
11 commission by March of 2026.

12 Proposed rule definition extravasation means
13 the unintentional presence of radiopharmaceutical in
14 the tissue surrounding the blood vessel following an
15 injection. And radiation injury means the
16 deterministic health effect to the area around an
17 injection site that can be attributed to radiation.

18 I looked up, there's been several studies out
19 there and it looks like whenever we, we do vena
20 puncture and we puncture the vein, it looks like
21 anywhere to 40 to 60 percent of those, you're going
22 to get some type of extravasation. So for nuclear
23 medicine, that's like every other patient that we're
24 going to have to be coming up with some way of
25 monitoring to make sure that it's not causing a

1 radiation injury.

2 Proposed rule procedures for evaluating and
3 recording extravasations for any administration
4 which extravasation can occur, the licensee must
5 develop, implement and maintain written procedures
6 to provide high confidence in extravasation that
7 results or has the potential to result in a
8 radiation injury as determined by a physician, will
9 be detected in a timely manner and reported in
10 accordance with reporting guidelines.

11 Required written procedures must address how
12 the licensee determines that the extravasation meets
13 the criteria for a medical event and how the
14 licensee documents this determination. And the
15 licensee must retain copies of the procedures.

16 They're working on a new reg guide, 8.16, which
17 is medical events and medical event evaluation and
18 reporting. Only required to report if the
19 administration results or will result in unintended,
20 permanent functional damage to an organ or
21 physiological system as determined by a physician.
22 Also provides guidance on what is patient
23 intervention. If the patient moves or dislodges,
24 that's on the patient, basically, and would not
25 necessarily be considered a medical event.

1 Let's see. Events associated with
2 extravasation, it discusses radiation injury as
3 defined as all deterministic effects reasonably
4 attributed to radiation as determined by a physician
5 must be reported, including radiation induced
6 erythremia. Any physician can make the
7 determination, but the licensee is the one who still
8 reports the events. And extravasations are not
9 reportable if they do not have a potential to result
10 in radiation injury.

11 Monitoring proceedings will be developed as
12 well for administration in which the extravasation
13 could occur. Monitoring proceedings for evaluating
14 and reporting extravasations are included in the
15 radiation control program director's letter and will
16 be available on the Adam system through NRC. And
17 the model procedures will also be added to a new
18 appendix, to Volume Nine of the new reg 1556.

19 And then the last thing I just want to make
20 note, which kind of covers all of us, and Chantel is
21 not here. She'll probably be the bigger one on this
22 one here, is under the previous leadership in the
23 Office of General Counsel, we were given special
24 permission to release records to requesters whose
25 names were listed on radioactive materials license.

1 That has gone away. We're going back to what the
2 statutes require. So all records, all requests for
3 copies of licenses, registration documents, anything
4 else, any other kind of documentation, it has to go
5 through the regular public records process. It's
6 real easy. You go to flhealth.gov/records. You go
7 there. There's phone numbers, there's e-mails.
8 There's a way for you to get on there and create an
9 account to log in whatever request that you want.

10 So that's just the last thing I got. But to
11 let you know, we do get a number of e-mails and
12 phone calls saying, hey, send us the latest copy of
13 an amendment or registration or whatever, these now
14 go through the public records. So
15 flhealth.gov/records.

16 That's all I got. Any questions?

17 MARK SEDDON: Is there any movement on -- I
18 know because, you talked before, trying to have,
19 like, some type of pre-approval list of those folks
20 who are authorized users or have been approved by
21 the state previously?

22 KEVIN KUNDER: Coming up with --

23 MARK SEDDON: You're talking about public,
24 public records requests?

25 KEVIN KUNDER: Right.

1 MARK SEDDON: Is there a way to obtain that
2 from the state rather than reaching out directly to
3 the facilities?

4 KEVIN KUNDER: Not at this time. It's not
5 something that we've actually put together.

6 MARK SEDDON: Okay.

7 KEVIN KUNDER: It's not something that we do.
8 Public records requests, we don't have the actual
9 record.

10 MARK SEDDON: Right.

11 KEVIN KUNDER: But we can look into something
12 like that.

13 MARK SEDDON: Some of that had been mentioned
14 before. That's something that could be possible.

15 KEVIN KUNDER: We haven't even discussed, you
16 know, x-ray, the radiation machine program where
17 they're getting things online now --

18 MARK SEDDON: Right.

19 KEVIN KUNDER: -- and doing things that way.
20 We haven't looked at materials yet. So there may be
21 some things that we might be able to do when we get
22 to that point.

23 MARK SEDDON: Okay. Very good. All right.
24 Any other questions for Kevin? Materials? All
25 right. Thank you, Kevin. Appreciate it.

1 KEVIN KUNDER: All right. Thanks.

2 JASON NICHOLSON: I guess I'm up next. I'm
3 Jason. I'm one of the environmental managers in
4 Orlando. I run a rent program. So I have literally
5 seen them tearing down this plant over the last
6 seven years.

7 I'm not Monroe Cooper, who was originally going
8 to give this thing. He's actually giving the same
9 presentation in Crystal River right now.

10 So, Jason. So we're going to go over what is
11 nuclear power, what sampling occurs around a power
12 plant and what is decommissioning. This is like the
13 very basic grassroots, not into-the-weeds version of
14 everything, so it's pretty easily digestible.

15 So for nuclear power, we all know it uses,
16 like, really nasty spicy rocks, right? Because how
17 do you make nuclear power? You've got to get water
18 hot, right? Boil it. Spin a turbine, it goes whee,
19 spins a generator, got electricity. Easy day.

20 So, basically, they start with the raw uranium,
21 and only about .7 percent of it is useful. Then
22 they refine it and get it all way up to a whopping
23 three to five percent and they add a whole bunch of
24 other coatings and claddings and then you come up
25 with your fuel that gets put in the rods and drop it

1 in the water, boom. Got a reaction. Makes heat.

2 Who knows what the other, like, 99.3 percent
3 becomes if --

4 JOSEPH DANEK: Waste.

5 JASON NICHOLSON: Depleted uranium. So, well,
6 on this, not that, that becomes a nightmare.

7 So the stuff that's used in a power plant can't
8 really be used for a nuclear weapon because it's not
9 enriched to a high enough of a standard. It's like
10 you could make a crude bomb with it, but none of the
11 stuff that blows a hole in the side of the earth.
12 So none of that.

13 Um, he used the wrong thing, but it's the same
14 concept where you have a neutron hits the atom, bam,
15 magic happens. It fragments off into two different
16 ones and another neutron is released and it just
17 creates a chain reaction.

18 JAMES FUTCH: There's one fix.

19 JASON NICHOLSON: In my version it was fixed.

20 JAMES FUTCH: This one got completely approved
21 by the department.

22 JASON NICHOLSON: I know. That's the craziest
23 thing.

24 JAMES FUTCH: Not a lot of uranium knowledge.

25 JASON NICHOLSON: What's funny, had I not

1 mentioned it, nobody probably would have caught it.

2 JAMES FUTCH: This audience would've.

3 JASON NICHOLSON: Yeah. Get stuff thrown at
4 me. Yeah.

5 So the big thing with nuclear power is the
6 cooling because that bad boy makes a whole lot of
7 heat. We're talking about 550, 600 degrees worth of
8 heat. And then the fun thing is they try to get the
9 water not to boil while they do it. So there's all
10 kinds of gee whiz stuff involved in that.

11 So there's three loops in the cooling system.
12 You have the primary, the secondary and the
13 tertiary. The primary is the really nasty water.
14 The secondary has very minimal contact with the
15 primary water, so it's much cleaner. And then the
16 tertiary is -- whoa, that was not expected. Is
17 what gets released back to the environment.

18 So if you think of like, I guess none of you
19 have been there, like St. Lucie or Crystal River
20 nuclear plant, literally, it dumps it into the ocean
21 or the Gulf. Big canal off of that one.

22 So the primary one is the water that gets to --
23 goes all the way around the reactor. It picks up
24 the heat from the rocks. It basically takes this
25 journey, you have a pressurizer that knocks it up

1 to, I think like it's 2200 PSI or something crazy so
2 it doesn't boil. Then it goes off screen over here
3 to a steam generator. Actually, it goes to a --
4 it's like a big heat exchanger. It's in the next
5 slide. But then it comes back.

6 We've got to do a low-level waste thing of the
7 primary coolant pumps from Crystal River. And like,
8 if you would have got in the tight V cast, it's
9 lethal, but standing outside of it, you can have a
10 nice conversation because the shielding of the tight
11 V container, so I thought that was pretty cool.

12 Here it goes. The secondary one. So the
13 primary comes over here, and then it's basically --
14 trying to think of the word.

15 JOSEPH DANEK: Condenser.

16 JASON NICHOLSON: Yeah, condenser. Yeah, it
17 goes in. Basically heats the other water so we can
18 go do nasty things, and then it spins a turbine.
19 The turbines are kind of cool because as the
20 pressure drops as it goes over each set of blades,
21 they're designed differently to operate at a peak
22 performance at the pressure. So the first one is
23 getting blasted by the full pressure, the steam, and
24 it loses energy and hits the next one; hits the next
25 one.

1 So if you ever see a picture of one, it's like
2 a long thing with all these fan blades and the pitch
3 is different on each set to compensate for the lower
4 pressure.

5 And then the tertiary is this one right here.
6 That's the water that comes from the environment,
7 goes through the plant and then comes back out into
8 the environment. On paper, it should be perfectly
9 clean. 99.99 percent of the time, we pick up
10 basically nothing. Every now and then, there's a
11 little tritium in it. Just, it's there. Nothing
12 you can really do about it.

13 There it goes. The containment building. The
14 big thing that, you all know what the minions are,
15 right? Parking thing minions. Yeah. So the
16 building that looks like a minion is the containment
17 building. They're about four feet thick of
18 reinforced concrete. The rebar in there is about
19 the size of your wrist. Then they have a layer of
20 steel on the inside.

21 The one at Crystal River, they're still trying
22 to figure out how they're going to take it apart
23 because they're so well built, they're designed like
24 an aircraft can hit them. You can hit them with all
25 kinds of stuff and it just kind of brushes it off.

1 So the last I heard, the plan is to basically
2 jack the whole thing up, start cutting sections and
3 lower it down, cut a section and lower it down, cut
4 a section and lower it down, but that might change.

5 So here's the fun part. The environmental
6 monitoring. Plants are required by the NRC to
7 maintain compliance with all their stuff with the
8 EPA and everybody else. We come in because we would
9 be doing it anyway, so they pay us to do it for
10 them. It's kind of a sweet deal. I think we're the
11 only state that does it.

12 JOSEPH DANEK: It's the only one I know.

13 JASON NICHOLSON: Yeah. And the plants
14 actually like it because we're a one-stop-shop.
15 We're easy to work with. They've always been nice
16 to me. We basically have all the toys to do it. It
17 started back in 1970 before they had the plants. So
18 there's data from when there was nothing here, all
19 the way up to today when you have the plant being
20 decommissioned.

21 And the thing we fall under is the ODCM, the
22 Offsite Dose Calculation Manual, which gets upgraded
23 every year.

24 This is not our location. It's Monroe's
25 location.

1 All right. So one of the big ones we do every
2 week, and there's only five actually, because CO7
3 got taken out by the last hurricane up there and
4 wasn't replaced because we're decommissioning. But
5 we do weekly air samples. They go on this little 47
6 millimeter fiberglass filter, take them back to the
7 lab, they analyze it.

8 We have five sites. The one's that control,
9 the top one is at our office; the rest are around
10 the plant. It's actually a pretty nice drive
11 because you're in the country. There's no traffic.
12 It's kind of a perfect job. They're doing these
13 little huts, and we have a big vacuum pump, but like
14 the filter sits out here.

15 When the plant was operational, it had an
16 iodine cartridge which went there and it goes
17 through the tubing through a gas meter like you have
18 on the side of your house, goes to a little
19 flowmeter so we can measure the flow, a valve to do
20 it and then off there is a big old pump we get from
21 Granger.

22 That's a map of the sites. So CO7 down here at
23 the bottom, Crystal River, it was downtown by the
24 water tower and their splash pad. It took about
25 four feet of water during the hurricane last year so

1 they decided not to replace it because the city
2 condemned the building, the shed it was in, which I
3 thought was funny. They put the official notice,
4 and it's a four foot by four foot shed. That got a
5 giggle out of me.

6 Has two of them right here. Like, one is on
7 each side of the plant. One when you come in the
8 plant and one is all the way up in Yankee Town,
9 which is right next to, I think Cracker Town is the
10 town next to it. I always thought that was funny.
11 Neat little places if you want to retire in the
12 middle of no where. Look at those. They're
13 awesome.

14 Direct radiation. So the TLDs, we have 16 of
15 them within the plant, twelve of them around the
16 plant -- twelve of them outside of the plant and
17 then one at our office. They're everywhere from
18 neighborhoods to, next to hotels. One of them is at
19 a boat ramp. Another one is at a beach. It's
20 pretty cool. We swap them out every quarter. They
21 get analyzed at the lab. We get a big old report
22 with all the data. That's what they look like.

23 Who knows what that little black thing is?

24 JOSEPH DANEK: TLD cage.

25 JASON NICHOLSON: Cricket cage. Literally, you

1 put crickets in when you go fishing to keep them as
2 bait. That's all it is is a cricket cage. They're
3 tied to a pole. Some of them have a little sign.
4 If it was bigger, you could see a map of them, but
5 they kind of go in a ring, around the EPZ and you
6 got the ones in the middle. I think they were
7 talking about getting rid of all the ones on the
8 outside, like in two years or something like that,
9 because there would be nothing left of the plant,
10 but none of that is finalized.

11 Let's see. Saltwater or water. We take three
12 water samples there that are just surface water. So
13 C14H, which stands for head, this is the head of the
14 discharge canal. You've got G for gulf. At the end
15 of the discharge canal, we actually do the intake,
16 which there should never be anything in it so it's a
17 nice comparison. You can see what the plant pulls
18 in and what the plant was releasing and then what
19 happens to it a mile down the, down the canal.

20 Let's see. And that's just a map of where
21 they're at. Kind of useless knowledge. But this
22 road is almost impassable right now because it took
23 a whole bunch of water and there's still trees,
24 giant boulders and kind of stuff washed out. It's
25 kind of a pain to get to it.

1 Ground water, we do 13 samples every quarter,
2 which is wells from about 20 to 40 foot deep that
3 are basically just in a circle around the plant. So
4 we pump water out of there. Each one gets pumped
5 out a gallon. We do a couple qCs; take them back to
6 the lab.

7 And then we got, okay, yeah, there we go.
8 That's basically what they look like. Just normal
9 environmental monitoring wells. That's a map of
10 them over there. They just circle the plant and
11 then there's some that are out along the canal to
12 grab the water there.

13 What's real fun is useless knowledge. Next to
14 Crystal River over here used to be an oil plant that
15 got converted into a coal plant. When they tore it
16 down, our wells are on, like, the line in between
17 them and two of them got completely demolished by a
18 bulldozer. And so they had to redrill them and
19 everything else in the same spot. That's like, yep,
20 that's good.

21 So drinking water, we do three drinking water
22 samples there. Which is literally, we go to the
23 designated location; turn the faucet. It's the same
24 water the consumers get.

25 C18 comes from the base of the well. There's a

1 valve. The other two is a hotel and Crystal River
2 City Hall. Grab the one from them. Hey, there's
3 the water tower in the thing.

4 So shoreline sediment. This one is kind of fun
5 because I get to tease my friends and say, I go to
6 the beach, because some of them are by the beaches.
7 The bottom one at Ford Island, C14G. It's just put
8 dirt in jug; take it to the lab; see what's in it.
9 Usually there's nothing. Every now and then,
10 there's something a little strange, but who knows
11 where it comes from.

12 Somebody getting it. There's the map with
13 three of them.

14 This is my thing, because I grew up in the
15 Panhandle fishing, so I like to fish. And I joke
16 with people that I got -- I went to college, joined
17 the military and then worked for the state to go
18 fishing. So we have two samples we do. We do them
19 every quarter. We do the intake and then the
20 discharge canal. It's not as good at St. Lucie, but
21 there are some pretty big fish in the discharge
22 canal because it's warm. We do it in the spring and
23 fall when the Gulf is still chilly. The big fish
24 come in there. It's pretty cool.

25 That's Mark, one of other managers with, like a

1 black marker or something. There's a boat ramp at
2 the very end. That's small. I've had ones like
3 that I cut into four pieces and used as bait to
4 catch something bigger. So it's all fun.

5 Broadleaf vegetation. We go get Brazilian
6 pepper. We have one that is -- our office is the
7 control site and then we have two of them there at
8 the plant. One is when you drive in and one is
9 right next to the plant. And I think we've been
10 doing in the same spot every since it's been done.
11 So it's a nice comparison.

12 Hey, there we go. Brazilian pepper. Who likes
13 the way that stuff smells?

14 We do food crops. We get citrus and the
15 watermelon one. I like the watermelon one because
16 we get to go to a watermelon farm and yes, we've
17 been getting it for years and years and years. But
18 the guy literally recognizes me at this point when I
19 come up, so it's pretty cool. Usually we end up
20 with some extra snacks for the lab because somehow
21 we always buy too much.

22 All right. So now we're going to get on to
23 some of the decommissioning stuff. Crystal River
24 basically ran for about forty years up until 2009,
25 had a little bit of an accident when they were

1 cutting a hole in the side of the containment
2 building. Long story short is, you have about 300
3 of these cables that circle the containment and put
4 it under tension because everybody knows concrete
5 loves to be compressed, right?

6 The original estimates from an engineering firm
7 was to de-tension 65 of them and each one of those
8 takes a lot of time and a lot of money. And the
9 utility was like, ah, we don't like that plan. Had
10 their own engineers redo it and they got it down to,
11 like, 40 something. And when they did it, they got
12 it down to, like, 23. And it basically, you had big
13 chunks of the building that were fully tensioned,
14 parts that weren't, concrete delaminated and it
15 basically hit a point where it was not economical to
16 rebuild it because they would have to redo the whole
17 containment structure and that would just be -- I
18 think the lowest estimate was like 800 million. The
19 most expensive was like 3.4 billion, so they decided
20 to decommission it because honestly, it's kind of a
21 small plant.

22 All right. So there's two types in DECON where
23 you basically, you clean everything up. And then
24 you can reuse the land, which is what they're going
25 for. But most of them start out first in SAFSTOR,

1 which is where you just let everything sit there
2 because what's radiation do as it sits? Decays. So
3 they let it sit. A lot of the danger got minimized
4 just because some of the short-lived isotopes,
5 they're not a problem anymore. There's some
6 long-lived ones that still are, but that's a whole
7 another thing.

8 They kind of do two at once sometimes because
9 you can leave parts of the plant to sit and then you
10 can start taking other stuff apart. So they had
11 parts of the plant that were basically, they're not
12 touching while they were pulling stuff out on the
13 periphery, like the back-up generators and a lot of
14 the pumps and stuff that weren't contaminated.
15 Their generators were actually brand new. They put
16 them in during that outage, so they had millions of
17 dollars in these big 12 cylinder commercial diesels
18 they ended up selling for pennies on the dollar to
19 go out to like Montana for some mine or something
20 like that years later.

21 That's just different plants and their
22 decommissioning status around the U.S. So that's
23 how many of them are currently never coming back.

24 Spent fuel storage. They're put in a thing
25 called an ISFSI. It's basically a concrete box that

1 holds radioactive material forever because we really
2 have no where to put it right now, so it gets to
3 hang out there.

4 Yeah, ISFSIs. Basically, they're kind of neat
5 because it's like a concrete coffin. They have a
6 door that opens on the side. And the spent fuel
7 is -- after it cools down in the pool for about a
8 decade, it goes in this stainless steel cast that's
9 just slid in. Has these little holes they can
10 actually put like a forklift in and lift it up.
11 There's an x-ray thing that goes in and they can
12 check the integrity of the container. So it's kind
13 of fun.

14 I don't know the exact cost of what Crystal
15 River cost because I know there was negotiations
16 between the companies, the NRC, the utilities and
17 everybody else, but the gross estimate is 300 to 400
18 million. That's a whole lot of money in my book.

19 All right. That's not the best picture, but I
20 thought it was really neat that the reactor was cut
21 into three pieces underwater. So basically, they
22 had the reactor vessel. They took all the piping
23 that was around it that was really contaminated, put
24 it in it, filled it full of mortar, put the whole
25 reactor in a pool, filled it with water, cut it in

1 pieces and then put it in these big containers that
2 are -- I think I looked up the weight, 635,000
3 pounds each. So they're pretty beefy. Like, the
4 chains were massive that were holding it. And they
5 had all the welding cribbage and stuff on there. It
6 was kind of neat. We got to go on the barge and see
7 it and there's not many people that can say I've
8 stood next to a decommissioned reactor cut in pieces
9 on a barge sitting in a canal at a nuke plant, so
10 it's kind of fun.

11 What else do we got? Yeah. Everything had to
12 be -- it's kind of crazy. It all had to be in its
13 Type B container, and then covered and then chained
14 and then strapped and then it was welded. So you
15 could pretty much take that barge and flip it over
16 and nothing would move. It's probably sitting on
17 the bottom of the Gulf of Mexico by now.

18 I don't think he has a good picture. There was
19 one of them that the chain was actually, to save
20 weight, it was made out of carbon fiber.

21 JOHN WILLIAMSON: That's the next slide.

22 JASON NICHOLSON: The next one? Or the Kevlar,
23 had the Kevlar chain. That was cool because you
24 could go up and touch the links and they feel all
25 soft and you see the weight rating for it and

1 destroys all the steel chains that were around them.
2 So it was kind of, I don't know. I thought it was
3 neat.

4 That is Monroe Cooper. I am not him, but he's
5 the one that prepared it -- although I think there's
6 a little bit of resemblance. I am just not wearing
7 my glasses.

8 Any questions? I know you probably want to get
9 to lunch. I can blab about this thing all day
10 because I just think it's neat.

11 JOSEPH DANEK: The only comment I have, and you
12 sort of pointed it out with St. Lucie, but the rent
13 programs for -- St. Lucie, Crystal River, they're
14 all very similar in their, their requirements
15 through the -- those calculation manuals, as you
16 point out, which is federal regulations are
17 required, required by federal regulations to have.
18 Very similar rent programs that do their facilities.

19 JASON NICHOLSON: Yep.

20 MARK SEDDON: All right. Any other questions
21 for Jason?

22 NICHOLAS PLAXTON: I have a question. Like the
23 decommissioning of the power plant. But like, how
24 many power plants are being built? Are there any
25 being built or no? Do you have any idea on that or

1 not?

2 JASON NICHOLSON: Zero.

3 ADAM WEAVER: Not in this state.

4 KEVIN KUNDER: Not in this country.

5 JASON NICHOLSON: They just finished the one in
6 Georgia, brought it online.

7 JOHN WILLIAMSON: Vogtle II is ready to go
8 online.

9 JASON NICHOLSON: Yeah. It's -- just due to
10 whatever.

11 JOHN WILLIAMSON: Money. It's all about money.

12 JASON NICHOLSON: Yeah. They're grotesquely
13 expensive. Like 14 billion dollars. So if you
14 think about it, how many megawatts of power it
15 produces, gigawatts, like however you want to scale
16 it, you can go over it for a 50th of cost, build
17 combines like a gas plant that has a staff of 12 per
18 shift instead of 400 and make power way cheaper.

19 JOSEPH DANEK: But there are, there are nuclear
20 reactors, small. I forget the term.

21 JASON NICHOLSON: Yeah, the SMRs. They're cute.

22 JOSEPH DANEK: SMR, modular reactors are much
23 smaller, less to operate, less cost. But I hate to
24 say, but politically, it's not -- depends what, you
25 know what I'm getting at.

1 CLARK ELDREDGE: There are several companies
2 developing those. New Scale is one of them.
3 There's big folks behind them. Those are the carbon
4 neutral type, you know.

5 JOHN WILLIAMSON: It's still debatable whether
6 reducing the scale is going to produce economic
7 benefits because although the scale is smaller,
8 they're still expensive. They don't produce as much
9 power.

10 The biggest thing right now is that there are
11 two sites, one which was decommissioned -- it was
12 turned off. Not decommissioned -- about ten years
13 ago that the company, there was a company trying to
14 bring it back to life. And then there's another one
15 that was never activated.

16 JASON NICHOLSON: Bellefonte.

17 JOHN DANEK: Yeah. After 35 years. Somebody,
18 a company is trying to bring it to life. And
19 that's, that's the only really new things. Vogtle
20 II in Georgia is the only new plant that's been
21 built in the last thirty some years.

22 JAMES FUTCH: I think if you look at the, the
23 history of nuclear power, and Joe worked in it for
24 many years. You know far more than I do. They got
25 a reputation because there was essentially one off

1 at every site and they started out with a
2 standardized reactor, but then by the time you built
3 the whole plant, utilities didn't know how much it
4 was going to cost. You started in with, oh, it
5 going to cost a billion dollars. And then every
6 single one of them cost a whole lot more than that.
7 So most companies are going to shy away from that
8 investment, given that kind of a conflict.

9 What's changed things, I think, is that folks
10 who were concerned about too much carbon in the
11 atmosphere are starting to realize that you're not
12 going to get there with geothermal and solar power.
13 You could certainly get there with more oil and gas
14 and coal, but that's not, that's not the pathway
15 that, that they want to take.

16 Nuclear is the only thing they are left with
17 that can produce power at scale and has done so.
18 It's, it's -- if you look at the track record, it's
19 the safest kind of electricity production. If you
20 look at the carbon output, you can look at the
21 carbon input that it takes to, you know, pull the
22 ore out and make all the components. A lot of that
23 is the same for a lot of plants.

24 So I think they're either going to be forced
25 to -- and that's what is causing some of these

1 companies to look at two pathways. One smaller,
2 theoretically, modular reactors that are more
3 standardized, so every site doesn't have to be
4 specifically engineered and built. Maybe reduce the
5 cost. That way maybe you can operate it at scale.
6 Who knows.

7 The other side of it is, safer reactors that
8 don't require human intervention to shut down the
9 reaction and keep the plant safe from a cooling
10 perspective. That's a little farther into the
11 future, but I think that's what -- wasn't Bill Gates
12 one of the inventors of those outfits?

13 JOSEPH DANЕК: TerraPower.

14 CLARK ELDREDGE: It's actually the state
15 standard, the small nuclear ones, some of those
16 designs, it's easier to make -- to cool down
17 naturally without, without intervention.

18 The other option, the other thing they're
19 doing, of course, is extending the licenses and life
20 of current operating plants, because they're finding
21 that reviewing the internal corrosion of the
22 systems, they're holding up better than the original
23 design specs. And that's -- Turkey Point is up to
24 80 years now they're licensed for?

25 JOHN WILLIAMSON: Well, they were and then they

1 weren't.

2 CLARK ELDREDGE: They were and then they
3 weren't?

4 JOHN WILLIAMSON: Now they're back and trying.

5 CLARK ELDREDGE: What now?

6 JOHN WILLIAMSON: They're trying to get the
7 additional twenty.

8 CLARK ELDREDGE: Okay.

9 JOHN WILLIAMSON: I think they needed an
10 environmental impact statement.

11 CLARK ELDREDGE: Because the mechanical testing
12 and monitoring of the system showed it was good.

13 JOSEPH DANEK: They have coupons on the reactor
14 vessels.

15 CLARK ELDREDGE: Right. The coupons, exactly.

16 JOSEPH DANEK: And they -- yeah. They're
17 constantly monitoring and testing and it's still
18 good. It's still solid.

19 JAMES FUTCH: I wanted to thank Jason and John,
20 both, actually for being here today; giving you a
21 chance to do that. Thank you.

22 (Applause)

23 JAMES FUTCH: And we are a couple minutes late
24 actually getting to lunch start time. So anybody
25 who put in an order before, please proceed over and

1 hopefully we'll find a spot. And we have a Dr.
2 Torres-Roca from Moffitt coming at 1:30. Hopefully
3 we'll get back by that time.

4 (Proceedings recessed at 12:01 p.m.)

5 (Proceedings resumed at 1:30 p.m.)

6 MARK SEDDON: I hope everyone had a great
7 lunch.

8 We have Dr. Torres-Roca from Moffitt Cancer
9 Center.

10 JAMES FUTCH: If I may, for just a second.
11 Dr. Torres-Roca is here today. I've been trying to
12 bring this in for a landing about a year and a half,
13 two years. We talked about this a long time ago at
14 my request.

15 Dr. Torres-Roca practices at Moffit in
16 radiation oncology. Also has affiliation with
17 University of South Florida in the clinical side
18 of -- I mean the academic side of things. And he
19 has been involved with a group that's in a couple
20 different institutions, and the subject involves
21 genomic adjusted radiation therapy dose or
22 radiotherapy dose.

23 And I ran across it, I think I started talking
24 to Will Gibbons, who's the RSO who's talked to us
25 before, after having read some papers. I think it

1 was in Lancet in 2021 or something like that.

2 And I'm gonna stop talking in a second, but I
3 just wanted to thank him for being here today
4 because I've very much been looking forward to this
5 particular topic. And just a little bit of
6 background. We've talked a little bit and hopefully
7 you've met him already. We have some folks from
8 different facilities, Halifax, we've got Barry
9 University, Keizer University, University of South
10 Florida. Bay Pines -- I still call it Bay Pines
11 Medical Center -- nuclear power industry and Florida
12 Power and Light and chiropractic radiology with
13 Dr. Atherton. And that's us.

14 DR. TORRES-ROCA: I'm actually going to stand
15 over here so that everybody can see me.

16 So I am, by training, a radiation oncologist
17 and I have been at Moffitt for a little bit over
18 twenty years. But I also have a background in
19 genomics and I spent years in labs of immunology and
20 genomic labs before I trained in radiation oncology.

21 And essentially, what I have been focused on
22 doing for the last twenty years, is sort of to
23 develop a new paradigm to treat patients with
24 radiation, where we use biology to sort of optimize
25 our radiotherapy doses and our radiotherapy

1 approaches. And I don't have to tell you guys, but
2 I think it's important always to sort of like, you
3 know, remember that radiation therapy remains the
4 most common single therapy utilized in cancer
5 patients in the world. Approximately -- depending
6 on which country's numbers you're looking at, if
7 you're using the U.S. about 60 percent of all cancer
8 patients receive radiation at some point during
9 their diagnosis and their cancer journey. And, you
10 know, and it remains a very important curative, you
11 know, approach.

12 There have been estimates that of all patients
13 we treat and all patients that we cure, you know,
14 for -- that have cancer, the reason we cure them, 50
15 percent of the time, is surgery, but 40 percent of
16 the time is radiation. So this is why we use still
17 radiation, because it's very effective and it's also
18 very cost effective.

19 So sometimes, you know, people forget about all
20 these things because all the emphasis of money and
21 research really is on the chemotherapy and the
22 immunotherapy, but if we actually learned how to use
23 radiation a little bit better, and we actually
24 improve our consultations by four percent or five
25 percent, and you basically sort of, like, resolve

1 that equation across a million patients that receive
2 radiation every year, you're talking 40,000
3 patients, 50,000 patients that would have better
4 outcomes, you know, every year. And that's about
5 the equivalent of, you know, just eliminating breast
6 cancers. Breast cancer kills about 40,000 women in
7 the United States every year.

8 So that's sort of the impact that we would have
9 and very often people forget how important this
10 field is, clinical speaking.

11 So anyway, feel free to stop me and hopefully I
12 have the right thing here. Yep.

13 So I have disclosures. Usually in academic
14 talks, we always say, hey, you know, I have some
15 financial disclosures here. I have patents and
16 stuff. And then these are -- I have many
17 collaborators that have been associated with this
18 work, but the two main collaborators are up here,
19 Stephen Eschrich who is, for many years, the head of
20 computer science at Moffitt and director of
21 bioinformatics. He's my partner in crime in
22 developing a lot of the models that I will discuss
23 today.

24 And then Jake Scott, who is now a professor at
25 Greenland Clinic, and Jake was my resident, and he

1 and I sort of developed sort of the second part of
2 the technology. But there's been a -- and then
3 Michael Kattan was a very well known cancer
4 biostatistician who's done a lot of clinical models
5 that are used particularly in prostate cancer; has
6 been very much associated with a lot of this work.

7 So the idea is that today, the way we treat
8 patients with radiation, is using a one size fits
9 all. So generally speaking, what we do is we treat
10 patients with standard doses that have been
11 developed over time, you know, and basically, that's
12 what we do. So the fundamental assumption is that
13 every patient has the same opportunity to benefit,
14 you know, from radiation.

15 And we know that cancer is highly
16 heterogeneous. Cancer is the most biologically
17 heterogeneous disease that we treat in humans. And
18 this idea that everybody has the same likelihood of
19 response or benefit from radiation is really wrong.
20 We all know that from clinical experience, but we
21 haven't replaced, you know, that idea and that
22 approach of how we treat patients because we haven't
23 replaced it, because the current paradigm sort of
24 works.

25 So that's really sort of the background of how

1 I began thinking about this. And one of -- I'm not
2 going to go through the details, but essentially, we
3 developed a technology that we call the
4 radiosensitivity index, which is a molecular
5 diagnostic that assesses gene expression for ten
6 specific genes. And basically has been trained to
7 predict the cellular radiosensitivity initially in
8 tumor cell lines and then eventually validating
9 patients. And so the RSI proposes that
10 radiosensitivity is not homogeneous, which is the
11 current assumption in the field, but rather, that it
12 is heterogenous -- sorry. I'm having trouble here.
13 Okay.

14 But rather that it is heterogenous, right? And
15 so therefore, you know, the potential of benefit for
16 each patient from radiation is different. So if we
17 start thinking about the idea that radiosensitivity
18 is heterogenous, then you can imagine that if you
19 give the same dose of radiotherapy to a patient that
20 is resistant, you know, and the same dose of
21 radiotherapy to a patient that is sensitive, that
22 although the dose that's coming out of the machine,
23 that physical dose that we can measure very
24 accurately, is the same, right? The actual
25 biological dose that each of those patients is

1 actually receiving is different. And so this is
2 sort of the genesis of the genomic adjusted
3 radiation dose, which is really a qualification of
4 the biological effect of the biological dose that
5 each patient is actually, you know, sort of
6 receiving when they get radiation, and that's
7 essentially, those are the few papers that we have
8 in the labs at oncology.

9 So then the idea is if all this is true that
10 then all of a sudden, you can quantify the clinical
11 benefit, you know, of each patient, you know, from
12 the radiotherapy; and therefore, you know, you can,
13 you know, sort of figure out that this is actually
14 specific to certain biological subpopulations.

15 In other words, that the clinical benefit of
16 radiation is not uniform and as we start
17 understanding who are the patients that benefit more
18 than others, this is something that you can use, you
19 know, in your process of designing the optimal dose
20 for your patients.

21 So the idea is that, you know, biological
22 phenotypes always have a distribution, right? And
23 so I always make the comment that nobody would think
24 about starting a shoe company and only make a size 8
25 shoe. Nobody would do that, right? Because you

1 would fail as a shoe company because, of course, we
2 all have different size shoes. Well, but what we're
3 doing in radiation is that we're just prescribing,
4 you know, a size 8 shoe for every single patient,
5 you know, even though, you know, there is a very
6 well known biological heterogeneity that we still
7 cannot quantify.

8 So the idea is that, you know, we propose that
9 giving this same approach to everybody is a very
10 inefficient solution to treating patients that are
11 highly different in their likelihood of response to
12 radiation.

13 So just very quickly, this is how we developed
14 the, sort of the technology that is the floor of, of
15 all these things. We use sort of assistant biology
16 approach to identify genes that were good at
17 predicting radiation response in cell lines.
18 Through a process of analysis, we identified the
19 biological network that included these ten genes,
20 and then we proceeded to actually train the model,
21 you know, using these ten genes. And this was
22 originally published, you know, about fifteen years
23 ago, you know, with -- in collaboration with
24 Dr. Eschrich.

25 And this algorithm, this gene expression

1 algorithm has been sort of fixed since then, and I'm
2 not going to go through the data, but this is the
3 most validated, most clinically validated radiation
4 sensitivity model out there in the field, and it's
5 not me saying it. This is the EORTC, which is a
6 European research organization. They published a
7 consensus statement a few years ago saying that the
8 RSI had, you know, sufficient, I think, sufficiently
9 validated to derive level one evidence for their use
10 in the tailored dose approach, you know, in some
11 populations. And the last time I checked, there's
12 about 21 different analyses across multiple disease
13 sites in over 5,000 patients validating RSI as a
14 biomarker of response to radiation, you know,
15 predict the clinical outcome of patients treated
16 with radiation.

17 So the idea is, of course, that if everybody is
18 different in terms of their response to radiation,
19 then the biological doses of radiation that we're
20 delivering when we're delivering uniform physical
21 doses are very different. So we think we're
22 treating patients homogeneously, but in reality,
23 we're not treating patients homogeneously. And I
24 think the idea, again, is that what comes out of
25 this here is very homogeneous, but what happens in

1 the patient is very heterogenous.

2 And I know there are clinicians in the group
3 and all clinicians have seen this. These are three
4 patients, treated homogeneously, same dose of
5 radiotherapy but with very different outcomes. No
6 toxicity here and then significant toxicity and
7 then, of course, that's an example of normal tissue
8 toxicity. The same is true with tumors where you
9 have quite a bit of heterogenous response to
10 standard doses of radiotherapy.

11 Essentially, what we did is that we integrated
12 our model into the linear quadratic model. I'm not
13 going to go through it extensively, but the idea is
14 that by integrating our estimate of radiosensitivity
15 for each individual patient, we can derive an actual
16 genomic dose using the standard, the standard
17 equation for effect that comes sort of from the
18 radiobiology textbooks and then when we plot, you
19 know, a modeling experiment where we have patients
20 that normally receive 45 grade, others 60 grade and
21 others 70 grade.

22 So physically, these guys are getting treated
23 to a higher dose than these guys, but then when you
24 convert to the biological dose, you see this very
25 large heterogeneity sort of in the distribution of

1 where it's, yeah, it's true, most of the blue is
2 down here. Sort of on the low end of the, of the
3 bar. You still see GARD, you know, you still see
4 blue over here, on the higher end, and some patients
5 that are treated lower doses end up with higher GARD
6 than some patients that are obviously more
7 radioresistant, but that get higher doses
8 physically.

9 So the idea here is that we cannot always
10 assume that giving a higher dose results in a
11 higher, you know, biological effect. You know, very
12 often, the radiosensitivity plays a very important
13 role in that biological dose that we're calculating.

14 JAMES FUTCH: Doc, one question.

15 DR. TORRES-ROCA: Go ahead.

16 JAMES FUTCH: So the numbers on the bottom of
17 the GARD, those are GARD indicis values. That's not
18 grade or anything like that.

19 DR. TORRES-ROCA: So this is GARD. By the way,
20 GARD is unitless. There's no actual, you know, unit
21 for, whereas this is, of course, grade. But when
22 you actually put all these things into equations,
23 the units cancel out. So GARD is technically
24 unitless. But basically, we have a spread here that
25 goes from one to a hundred and we only have

1 basically three blocks of doses here. But yet, look
2 at all the heterogeneity that we can solve once we
3 include the biologic.

4 So this is the paper that was being discussed.
5 Initially, essentially, what we decided to do is,
6 okay. You know, can we really test this idea. It's
7 prescribing using this information, a better
8 approach, you know, for patients, and again, we
9 prescribed using physical dose, but we are making
10 the argument that the biological effect is more
11 important and this was an analysis that we did in
12 over 1600 patients across, you know, a bunch, seven
13 or eight disease sites and again, you know, if you
14 look at it here -- let me point here where we need
15 to go right here, yeah.

16 So the physical dose here, sort of lines up
17 right here has a radio of one. So the physical
18 dose, basically does not predict the outcome of
19 patients. So the dose we actually delivered to the
20 patients tells us nothing about what's going to
21 happen to the patient. But actually, the GARD
22 actually tells you, predicts for both the overall
23 survival and the recurrence risk of the patients.

24 In other words, the biological dose tells you
25 more than the actual physical dose that you're

1 delivering. So we made the argument that as a
2 prescription parameter, it is superior to the
3 current standard of care, which is just to use, you
4 know, the physical dose.

5 So we think that by integrating this technology
6 into our field, we really transform the field of
7 radiation oncology into a field that is biology
8 driven, that allows the personalization and the
9 genomic prescription of radiation dose into
10 patients.

11 So some of the things that we -- so this is
12 what we're trying to solve. So this is our, sort of
13 our, you know, shoe size distribution, right? This
14 is basically 8,000 patients. The RSI measure grand
15 by disease side, higher the RSI is resistant, lower
16 RSI is sensitive. So actually, if you look at this,
17 for the clinicians in the room, sort of glioma,
18 sarcoma, melanoma sort of talk, are the more
19 resistant histologies and that's consistent with
20 what we think. And then at the bottom here you have
21 cervical cancer, oral, pharynx, head and neck, which
22 are highly rated curable, sort of at the bottom of
23 the list, the most sensitive of the cancers that we
24 treat.

25 But the key thing here is we don't have a

1 single rate of sensitivity. It is very
2 heterogeneous. We have three fold, four fold
3 differences between the most resistant and the most
4 sensitive, you know, when you look at patients at
5 the most personalized level. So then this idea of
6 giving everybody the same dose, by definition, is
7 not optimal. It might be optimal for a population
8 and it might be -- it was really smart when it was
9 developed back in the 1930s, but it's really a
10 problem when you start sort of realizing that there
11 is all this significant heterogeneity, this idea of
12 giving the same dose, just doesn't make any sense.

13 So a lot of people ask me, okay, so how do you
14 do this? How do you actually use this technology to
15 prescribe patients? And there are a number of
16 different ways in which you can use this technology.
17 But you can just prescribe to GARD target. So
18 basically, you can define an ideal GARD target where
19 the clinical outcome of patients is sort of
20 optimized and instead of prescribing the standard
21 physical dose that you give everybody, you can try
22 to calculate what is the dose that will deliver that
23 biological dose.

24 So instead of delivering 60 grade, 70 grade,
25 you say, oh, I want to deliver a GARD 30 or I want

1 to deliver a GARD 40. What is the dose that I have
2 to give this patient in order to do that? So I will
3 show an example of that.

4 Another approach is that, you know, sometimes
5 reaching a GARD target may be difficult or maybe,
6 you know, may interfere with normal tissue toxicity
7 and there are other ways in which we can calculate,
8 you know, changes in the outcome of the patient that
9 are predicted by a model, you know, if you use GARD,
10 right? So we can use GARD as a continuous variable,
11 rather than, you know, just a standard single
12 target. And then, of course, because now you can
13 predict the outcome of patients and you predict the
14 clinical benefit of patients, you can use this to
15 actually design clinical trials that are more
16 effective, more efficient, that can be completed
17 quicker and that have a better chance of being
18 positive and moving people forward. And I think
19 that's one of the more exciting, you know,
20 applications of this technology.

21 So here's a way to prescribe the GARD target.
22 This is, you know, this is an example in non-small
23 cell lung cancer. So this is the distribution of
24 RSI in about 1600, you know, patients with non-small
25 cell lung cancer. Again, kind of like my model with

1 significant heterogeneity. It is unlikely that
2 would be a single dose that would be best for
3 everybody. And then if you treat everybody with
4 standard dose 60 grade, you get the same
5 distribution, not surprisingly, with GARD, it's just
6 the same. You basically have, you know, a very
7 large distribution, three, four fold differences
8 between the most resistant and the most sensitive,
9 right? GARD is, you know, the other way around.

10 So when you then look at the clinical outcome
11 of patients, then you notice that if you -- that the
12 patients that meet this threshold of GARD 33 or
13 above, have a superior outcome than the patients
14 that were biologically under dosed, that had a lower
15 dose of GARD. And so then if you, instead of
16 prescribing a standard dose, you use GARD, and then
17 you try to estimate the optimal dose for each
18 individual patient, you can actually calculate for
19 each member of the population, the ideal dose for
20 each patient, which is represented by this blue line
21 here. So it's anywhere from 20 grade to about 100
22 grade.

23 But then, of course, we all treat these
24 patients uniformly, so the actual dose received by
25 all these patients, as you can see, there are only

1 very few patients that are actually on the line of
2 their optimal dose. Most patients actually receive
3 much more dose than they needed or much less dose
4 than they're -- that they needed.

5 So not surprisingly, given the same dose of
6 radiotherapy results in, you know, up to 75 percent
7 of patients receiving either more or less dose than
8 they actually need. And, of course, that is
9 something that should interest a, you know, council
10 of radiation safety.

11 So this is the same data, but represented in a
12 different way. Again, this is sort of like, you
13 know, the distribution of the dose that we have, you
14 know, calculated and then this is sort of the window
15 of what the standard dose is, in the setting of
16 post-operative radiation, and this is sort of in the
17 setting of definitive, the range is a little bit
18 different because these patients have not had
19 surgery, but here it's anywhere from 30 to 120
20 grade.

21 So there are some patients that are predicted
22 to have such resistant tumors that maybe we
23 shouldn't be treating them with radiation, or maybe
24 these are the patients that may be good candidates
25 for carbon ions or maybe good candidates for carbon

1 protons if we can take advantage of the biological
2 advantages of those approaches. So that was sort of
3 prescribing GARD target.

4 Another way is we develop these tools and these
5 thermograms that actually help clinicians understand
6 if you have the RSI and the GARD for a particular
7 patient, well, what can I do for this patient?
8 There is no guideline or no GARD target that I can
9 get to. And critically, in that study, we did show
10 that GARD and radiation, the interaction was
11 significant, so we're actually predicting the
12 benefit of radiotherapy. It's not that we're
13 predicting the outcome. We're actually predicting
14 and quantifying the radiotherapy benefit that each
15 patient derives.

16 So we developed these approaches where you have
17 sort of a, you know, a distribution of the GARD that
18 patients get, you know, distribution in a biological
19 distribution. And let's say you have a patient that
20 you give standard dose and achieves a GARD of 15 and
21 this is, let's say, an endometrium patient. We are
22 estimating that this patient will have a 75 percent
23 of survival at five years, but if you can push the
24 dose a little bit to, say, achieve a GARD 20, then
25 we can quantify that this patient can have an

1 improvement of three percent. And again, for a
2 single patient, maybe not that great, but again, if
3 you're designing a clinical trial, this is the kind
4 of thing that you can then, you know, power
5 appropriately and you may find, you may look for the
6 subset of patients that are more likely to benefit
7 from your intervention.

8 And again, you know, the idea here is that two
9 grade, is always two grade, is always two grade in
10 the physical realm. But when you enter the
11 biological dimension, you know, the impact of two
12 grade is very different for each individual patient.
13 And adjusting GARD for each individual patient is
14 very different. Sometimes you can adjust GARD, no
15 problem. Some other times, patients are too
16 resistant and you have to really, you know, up the
17 dose.

18 So then, you start thinking about this and you
19 say, oh, now you're biologically optimizing. You
20 can push the dose to the tumor and so forth, but
21 what about toxicity? So then what happens is that
22 then you have a competition between optimizing the
23 dose to your tumor, right, and then the normal
24 tissue toxicity of your, of your additional dose, if
25 you're giving additional dose, but certainly, if

1 you're decreasing the dose, right, then you're,
2 you're going to be decreasing toxicity.

3 So the idea is, is that you start thinking
4 about all these things. Each patient also has a
5 different toxicity box to achieve their optimal, you
6 know, their optimal dose.

7 So sometimes, pushing the dose will increase
8 the risk of side effects; and therefore, can, you
9 know, increase the risk of -- sorry, this is going
10 too fast.

11 So sometimes it can -- pushing the dose may
12 increase the risk of side effects for individual
13 patients to the point where it's not worth it, you
14 know. But sometimes it is.

15 Basically, you can develop all these models to
16 combine both what we predict the tumor optimization
17 is doing with normal tissue and you can develop
18 approaches to penalize the changes in toxicity for
19 each individual patient.

20 So we've developed this penalized tumor control
21 probability model based on our biological
22 information, and you can use these models to then
23 design clinical trials. And so this sort of
24 approach, this is all in silico, but we decided to
25 say if our models are good, do we predict, you know,

1 what actually happened in real life? Do our models
2 actually predict what actually happens in real life.

3 So this is a famous clinical trial that was
4 conducted by the RTOG in lung cancer 0617. And
5 basically, patients were randomized between 60 grade
6 and 74 grade and everybody thought that 74 grade was
7 going to be better. Everybody. People were already
8 treating to 74 grade at standard institutions and
9 everybody was surprised to find that actually, 74
10 was not better; it was actually worse. So this was
11 actually a shock to the team, to the radiation
12 oncology world because again, everybody is coming
13 from the perspective, everybody has the same
14 potential to benefit from radiation. So if you give
15 a higher dose, so of course, they're going to do
16 better, right? Yet they didn't do better.

17 So then we asked our model what would happen in
18 this kind of setting and we basically used our
19 biological distributions to run this -- this is very
20 sensitive. And so essentially, you know, our model
21 predicts that 74 grade was actually going to result
22 in no improvement of outcome of patients. And this
23 is actually the actual trial here, one year, local
24 control, you know, for each arm. And this is our
25 prediction, you know, by our model, aligning within

1 the confidence intervals for both. And then this is
2 the two year local control, sort of again, aligning
3 within the confidence interval of what actually was
4 seen. So our predictions of what actually happened
5 were actually accurate.

6 But the key thing here is when we look at,
7 well, why the 74 grade failed and when you actually
8 look at the distribution of our optimal dose, the
9 patients that are predicted to benefit from 74 grade
10 sort of are at the end of this first mode of
11 distribution, but just before the second mode of the
12 distribution. So you actually have only a minority
13 of patients, about 18 percent of patients, that are
14 predicted to be, to benefit from this increase in
15 dose, but the other 82 percent of the patients,
16 basically, are just getting more toxicity, right?
17 Because these guys, I already optimized. And these
18 guys are still under optimized. But now you've
19 exposed them to 74 grade and more toxicity and that
20 explains why uniform optimization did not work in
21 this particular case.

22 But our model predicts that if we actually
23 identify these patients and we deliver them 74
24 grade, there's a significant opportunity for
25 improvement. And then if you expand a little bit

1 and then you say, we're going to deliver 45 to 80
2 grade, you know, there's potentially a ten percent
3 difference in what these patients can do.

4 So again, our model predicts that there is an
5 opportunity that we're missing out by not giving
6 optimal doses of radiotherapy to these patients and
7 it's not small. I remind you, five, ten percent of
8 a million patients, fifty to a hundred thousand
9 patients that we could be curing more. You know, if
10 this were immunotherapy, this technology would be
11 worth, you know, 20 billion dollars. But it's
12 radiation, so nobody cares.

13 So, but anyway, but that's okay. Because I'm
14 actually a doctor and I care about, you know, how my
15 patients do with radiation. Okay.

16 So the last thing that I'm going to finish
17 here, is the -- this idea that you can use biology
18 to actually design clinical trials that are more
19 likely to be successful. And this is a problem in
20 our field. It's been twenty, thirty years since
21 we've had a positive, you know, clinical trial in
22 radiation oncology, right? I think since the
23 combination of chemo radiation versus radiation, I
24 don't think we've had a positive trial. What we've
25 had is a lot of negative trials and equivalent

1 trials in our field and that costs a lot of money,
2 right? And I think, you know, it's an important
3 thing how we can move this quicker.

4 So one way we can optimize dose is there are
5 some disease sites that GARD predicts are under or
6 overdosed. And so, it might be possible to still
7 identify uniform strategy where you treat everybody
8 the same and that, you know, and that you can
9 improve the outcome of patients. And I'm going to
10 show you an example of that in a moment, in soft
11 tissue sarcoma, which is one clinical trial we have
12 ongoing, you know, at Moffitt.

13 But in most disease sites, in most situations,
14 you know, it is -- we need a personalized approach.
15 So in most disease sites, GARD predicts that there
16 is no uniform approach that would include -- that
17 would improve the clinical outcome and that we
18 really need to, you know, generate a GARD for each
19 patient before making the decision. And we have two
20 clinical trials ongoing at Moffitt, you know, with
21 that approach, I will, you know, discuss in a
22 moment.

23 So this technology is set up at Moffitt. We
24 can order the RSI at Moffitt, you know, and a report
25 is generated. It's only available under clinical

1 trials right now, but this is set up in the CLIA
2 laboratory, so it meets all the regulatory
3 requirements for a laboratory developed test. And
4 we currently have three studies that are funded that
5 are looking at validating GARD as an approach to
6 change the outcome of patients.

7 So I've already sort of, I've already sort of,
8 you know, explained that GARD can predict what will
9 happen to the patients, you know, and once the
10 outcome is done, but can we actually change the
11 outcome of the patients by using this information in
12 a prospective way so that we improve the outcomes of
13 patients.

14 So I'm going to show you just one example,
15 because we have early data. So this is from soft
16 tissue sarcoma. And this is very similar to a tumor
17 control probability curve to a TCB curve. But this
18 is actually GARD. So this is, essentially, the
19 distribution of GARD when patients are treated to
20 standard dose. So very, a very common approach in
21 soft tissue sarcoma, 50 grade given preoperatively.
22 So this is basically what we get when we look at,
23 you know, the distribution that we have generated
24 for GARD.

25 Now, 50 grade has been shown to result in an 18

1 percent response rate. And so basically, if you
2 look at your distribution, and you look at the 82nd
3 percentile, right, in your GARD, you say these are
4 the patients that are more likely to respond, and so
5 your GARD target is 22.1, right? So that's how you
6 would model this.

7 So then, if you increase the dose to 70 grade,
8 this curve will shift to the right. And then now
9 all of a sudden, you have a, you know, you have
10 approximately 60 percent of the patients would --
11 are predicted to achieve this target.

12 And so basically, we designed a clinical trial
13 saying that dose escalation in preoperative, you
14 know, sarcoma, from 50 grade in 25 fractions to 70
15 grade in 25 fractions, would actually increase the
16 response rate three times to the standard dose. And
17 we had two, two hypotheses going. Because
18 obviously, the hypothesis is dependent on this
19 initial, what the baseline is. So 18 percent is
20 what we had at Moffitt. But the actual reported
21 response rate in the literature was actually closer
22 to 8. So it was a range between 8 and 18.

23 So basically, our hypothesis was, we're going
24 to improve it three fold, which can be anywhere from
25 26 percent to, you know, 60 percent. And basically,

1 we said we're going to design it on the lower end in
2 terms of power calculations and so forth.

3 And so we actually have in this trial, as we
4 did already, 15 patients. 13 patients have gone
5 through resection. And at this point, we have 8 of
6 the 13 have achieved more than 95 percent necrosis,
7 which was the definite response that was identified
8 for a 62 percent response rate, you know, that
9 compares with our prediction of 58 percent. Two
10 patients developed metastatic disease, you know, and
11 did not go to surgery.

12 So this is the interim analysis and we have met
13 the early, you know, termination threshold. So
14 essentially, we don't have to finish the trial
15 because the way we have designed this trial using
16 GARD basically allow us to, you know, say it's going
17 to be between 26 and 60, but we said, but we're
18 going to power it to 26. It came out on the higher
19 end of that; and so therefore, we have met the early
20 termination, and we basically are done with this
21 trial in two years after only 15 patients.

22 And I think that that's the idea is that now
23 you can design clinical trials, you know, with this
24 information, you're more likely to be successful and
25 to know the answer quicker. So I think in many

1 ways, this is a new paradigm for radiation oncology,
2 with now prospective validation of GARD.

3 I think the key idea here is that we, you know,
4 radiosensitivity is heterogenous, we provide an
5 approach, a molecular diagnostic that allows to
6 resolve, you know, that heterogeneity of
7 radiosensitivity. We have designed and developed an
8 approach to calculate the biological dose received
9 by patients, you know, and we have shown that that
10 approach actually outperforms the standard approach
11 of physical dose and that this allows you to
12 quantify the clinical benefit of patients from
13 radiation and immuno level and allows you to design
14 clinical trials using this information that are more
15 likely to be, you know, successful.

16 And so, I think that that's almost it, but we
17 think, obviously, that this is the future of
18 radiation therapy. You know, that this approach of
19 one size fits all is biologically imprecise.
20 Physically very precise, we know exactly what we're
21 doing physically, but biologically is imprecise and
22 it is suboptimal for the majority of patients. GARD
23 resolves all those problems, you know, and allows
24 the field to move forward into, you know, precision
25 in volume.

1 That's it. I'm happy to take questions. I did
2 it in half an hour so that -- (laughter).

3 MARK SEDDON: Thank you.

4 WILLIAM ATHERTON: Is the sensitivity and then
5 the GARD all calculated based on the DNA of the
6 tumor or the patient or both or --

7 DR. TORRES-ROCA: So it is calculated on the
8 RNA of the tumor.

9 WILLIAM ATHERTON: Okay.

10 DR. TORRES-ROCA: Right? So it's really a
11 metric of the tumor sensitivity there and so part of
12 what we do is that we require a biopsy to be at
13 least 50 percent or more tumor. A lot of people ask
14 me is RSI predictive of toxicity and the answer is,
15 I don't know. This is not being looked at
16 extensively because there aren't good cohorts of
17 data that have assessed, you know, toxicity from
18 radiation that also have genomic information that
19 would allow me to calculate RSI. So that's the main
20 issue.

21 There is -- it has been looked at in at least
22 one study, and in that one study, it was not
23 associated with toxicity, okay? At least the tumor,
24 you know, RSI was not associated with toxicity.

25 MARK SEDDON: So what's involved in trying to

1 implement something like that? Just to characterize
2 RSI for patients. I mean, it sounds like clinical
3 trials. How involved is it to set up a lab and do
4 that type of analysis?

5 DR. TORRES-ROCA: So, yeah, there's obviously a
6 laboratory component and then there's all kinds of
7 regulations surrounding the laboratory component of
8 that, right? And then there's the integration into
9 the clinical trials and then the relay of the
10 information occurs through sort of electronic
11 systems, right? And then, of course, there's all
12 the regulatory components of the actual clinical
13 trials, right?

14 MARK SEDDON: Right.

15 DR. TORRES-ROCA: And then, you know, but the
16 larger implementation then also includes a business
17 dimension because then you have to find, you know,
18 you have to develop the data and the case that this
19 is something that should be reimbursed. And so
20 because until, you know, you convince the Medicares
21 of the world this is something that is important and
22 that should be reimbursed, then it's not, it's not
23 going to get out of my Moffitt, you know, sort of
24 laboratory, right? And so I think it's very
25 complicated because depending on your audience,

1 you're talking about different things, right? And
2 everybody's got a hurdle to offer you. You know, in
3 the clinic, they're different than in the
4 laboratory. They're different than at the FDA.
5 They're different from, you know, sort of the, you
6 know, large, you know, insurance groups and then, of
7 course, they are different from the actual users,
8 right?

9 So I think it's an interplay of all the people
10 that are involved that you have to convince to, you
11 know, move this forward. But it starts with the
12 science and if you're really addressing it. So I
13 think we've got that covered, but the other parts
14 we're still working on.

15 JAMES FUTCH: We talked previously and also
16 listening to you today, we talked about the ten
17 genes in the, working in the network, and you've got
18 it, you've got the data to relate the index to an
19 outcome for a particular kind of tumor. If you go
20 back to clinical use, kind of where I think Mark had
21 started to go, if it's you met all the requirements,
22 when it comes down to taking a particular patient,
23 you've got to have that genetic information for this
24 particular patient.

25 DR. TORRES-ROCA: Correct.

1 JAMES FUTCH: How difficult is that? I know
2 nothing at all about laboratory testing, Lab Corp.
3 and all the rest of it. Is that an expensive
4 proposition?

5 DR. TORRES-ROCA: No, no, no. We do this all
6 the time for, for like, this is a molecular
7 diagnostic and we do molecular diagnostic for a
8 number of things in clinical medicine, right? So we
9 sequence tumors all the time to decide on targeted
10 therapies, whether patients should get immunotherapy
11 or not and there are different ways of looking at
12 that. And then, you know, there are other --
13 there's the famous Ungo type DX, you know, which was
14 the original molecular diagnostic, which is
15 basically a test that determines whether a patient
16 should get chemotherapy or not in breast cancer,
17 right? And so, that -- it's a -- so medical
18 oncology is doing this, right?

19 There are companies that are -- I sit on the
20 board of advisers of a company that there -- their
21 business is to sort of collect all information that
22 has been gotten for a particular patient and then
23 filter that so that the clinicians can understand
24 it, right? And so filter that through a school base
25 algorithm. The clinicians say, okay, this patient

1 is a good patient for this drug or this drug. It's
2 just that we're not doing it in radiation.
3 Radiation is still not in the era of sort of genomic
4 medicine. And so it's a -- I think the potential,
5 you know, for the optimization of radiation by using
6 these approaches, you know, is quite significant.

7 But it's not difficult. We're doing it all the
8 time. The difficult part is setting everything up
9 so that then people can use it, right?

10 So you have to solve all the issues,
11 regulatory, reimbursement issues and so forth and
12 then you got to get users to use it and all that
13 costs money.

14 KATHLEEN DROTAR: So with GARD, you're
15 establishing an optimum dose for the patient. Then
16 when it comes to the treatment planning, itself, are
17 you using the normal methods for that, establishing
18 like a dose at death or --

19 DR. TORRES-ROCA: So what happens in treatment
20 planning is that there is an additional module where
21 we integrate all of our algorithms. So basically,
22 you have a normal treatment optimization, you know
23 it's all physically optimized, right?

24 KATHLEEN DROTAR: Right.

25 DR. TORRES-ROCA: And so it's physically

1 optimized to whatever the instructions, the
2 physicians gave, right? In case of respecting the
3 normal tissue constraints or, you know, achieving
4 the dose you want to achieve.

5 But then what we do is we have an additional
6 dimension, which is the biology for each tumor, and
7 so basically, we can run an algorithm behind that
8 that basically optimizes the outcome of the patient,
9 right?

10 So we use our normal realms and say we can
11 develop this alternative plan for that patient,
12 right? And this is the predicted outcome. This is
13 the predictive improvement for your patient if you
14 were to use this, right? And so then we put it up
15 for the physician to do. That would be sort of in
16 the way we're envisioning it. So it would be sort
17 of separate of the treatment planning.

18 KATHLEEN DROTAR: Right.

19 DR. TORRES-ROCA: So basically, the way would
20 be like, you have a treatment, you know, you have a
21 treatment plan with all your contours and
22 everything. That would be exported into a module,
23 biological condensation. That module receives that
24 information, the biological information on that
25 patient. And then basically can -- will run

1 whatever, you know, disease side algorithm we have.

2 And then we'll say, hey, this patient actually
3 can get a really big boost in their outcome if you
4 do this or sometimes you say, oh, you know, this
5 patient is too resistant. We're not going to do
6 much, so you either treat this to standard of care
7 or you don't treat. You leave it to the patient --
8 to the physician.

9 KATHLEEN DROTAR: So do people want those
10 higher doses where you're seeing -- because you had
11 like nine, you know, and a hundred, are you going up
12 to those and how you offset those?

13 DR. TORRES-ROCA: No, no, no. So one thing
14 that's important that I remind everybody, is that
15 all of our models sort of are developed with
16 patients that were treated within the standard
17 range.

18 KATHLEEN DROTAR: Okay.

19 DR. TORRES-ROCA: So I always caution people
20 about sort of the, anything that is outside the
21 range, because we really don't know, right? Because
22 we really don't have data in that, you know, that
23 set up. So these are all extrapolations that may be
24 right, may be wrong. But we're predicting outside
25 of the standard range. So we're -- but what's

1 interesting is that I gave a talk to the carbon ion,
2 you know, international group in January, you know,
3 the people from Japan and from European -- they all
4 came to, you know, Jacksonville, to the Mayo. So I
5 actually pulled some of the old lung cancer data for
6 carbon ions, and it was fascinating.

7 I don't have that slide here, but basically, if
8 you took our optimal dose predictions with the dose
9 escalation that they did, and they went all the way
10 up to equivalent doses of like 110, you know, back
11 in the day, right?

12 And so, actually, their local control reported
13 was almost like linear with what we predicted. It
14 was kind of like scary of how close it was. It's
15 obviously not direct validation, but I thought it
16 was kind of interesting.

17 KATHLEEN DROTAR: Thank you.

18 DR. TORRES-ROCA: I mean, I think there's a lot
19 of opportunity for carbon ions, right, riding that
20 higher end of the resistance.

21 KATHLEEN DROTAR: You were talking about back
22 in the day, but way back in the day, everything was
23 erythema dose and everything's reaction.

24 DR. TORRES-ROCA: Now that's really, really,
25 back in the day.

1 (Laughter)

2 KATHLEEN DROTAR: I'm old.

3 JAMES FUTCH: Kathy was at the controls, right?

4 DR. TORRES-ROCA: That is really, really back
5 in the day, right? And so it's interesting that you
6 mentioned that because --

7 KATHLEEN DROTAR: It was based on the patient.

8 DR. TORRES-ROCA: Yep. Because I, you know,
9 there was actually some heterogeneity based on that
10 because you would treat patients to -- until the
11 breast would get red, for example.

12 KATHLEEN DROTAR: Right.

13 DR. TORRES-ROCA: But I always, I always asked
14 the residents, so why do we now, of course, now it's
15 changed, but I tell them why, why, why do we do 50
16 grade for a breast cancer, right? And they go like,
17 oh, because of the NSABE BO whatever it is, 06, so
18 forth, Bernie Fischer, you know, that was the study
19 that established breast reconstruction therapy. I'm
20 like, but why did Bernie Fischer design his trial
21 with 50 grade? Where did that come from?

22 And they -- and, and the residents look at me
23 like, I don't know. And I said, well, it comes back
24 in the day, in the 1930's and 40's, breast
25 conservation was sort of practiced in Europe,

1 particularly France, and they developed this
2 approach to treat patients until the breast got red.
3 And so that was the breast erythema dose. That was
4 the real definition of red ED. You know, we figured
5 out 50 grade was about the dose you need to get to
6 that point. I said, that's the science our field is
7 based on is oh, the breast got red. Okay, we gave
8 enough.

9 So that's -- and that's still what we do today.
10 Because we still do 50 grade and then now, of
11 course, there are alternative approaches that were
12 developed by testing against 50 grade, right? So
13 now we do like the Canadian approximation, whatever
14 it is, is 60 fractions, right? But it was tested to
15 be the same as 50 grade. So that's a -- it's still
16 the basis again, is not biology. It's really
17 empiricism, right?

18 KATHLEEN DROTAR: Yeah.

19 DR. TORRES-ROCA: But that's before your time
20 too.

21 KATHLEEN DROTAR: Oh, thank you.

22 DR. TORRES-ROCA: I've read all those papers
23 and I know for a fact that that's before all of our
24 time.

25 MARK SEDDON: How many other centers are doing

1 research in this area?

2 DR. TORRES-ROCA: So it's a good question. So,
3 so obviously, the main hub is Moffitt, but Cleveland
4 Clinic is involved with my, my colleague, Jacob
5 Scott over there. And then there are centers that
6 have been doing analyses of RSI. So there's a group
7 in Hong Kong that has done probably the largest RSI
8 analysis, triple negative, in all of breast cancer,
9 over a thousand patients. And then there's a group
10 in -- sorry. That's in Korea. In South Korea, of
11 course.

12 And then there's a, there's a group in Hong
13 Kong, you know -- I don't want to make any political
14 statements, but you know, it doesn't take me a lot
15 to do that -- but there's a group in Hong Kong that
16 just tested RSI in samples of Phase III clinical
17 trial in nasopharynx. I think the paper is coming
18 out and the results were really good.

19 There are -- there is one grouping Manchester
20 that has been in England that has been looking at
21 RSI in bladder and prostate cancer. The data in
22 bladder is mixed. They had one study that was
23 positive; one study that is probably is a bit more
24 powerful that was negative. And then, then they
25 have data in prostate cancer that apparently is

1 good, but hasn't been published yet.

2 And, and then there are, and then there are
3 other groups that I know are publishing. There's a
4 Chinese group and there's a, in Sweden as well that
5 has published about this and University of Kansas is
6 also. So there's a lot of people. And my Italian
7 friends as well. So there's lots of people involved
8 in this.

9 MARK SEDDON: Very good.

10 NICHOLAS PLAXTON: I had a question.

11 DR. TORRES-ROCA: Yeah.

12 NICHOLAS PLAXTON: I can see how you would
13 capture the people that are just underneath the
14 regular dose. Are you using it at all to decrease
15 the dose that you're giving?

16 DR. TORRES-ROCA: Well, so that's obviously one
17 of the big uses is that, you know, is to decrease
18 the dose. But I think most physicians will be
19 scared of doing that, right? And they will -- are
20 required, they will need to trust this and then I'm
21 pretty sure that decreasing the dose will have a
22 higher scientific hurdle, right? So it will require
23 a probably, at least a good Phase II randomized
24 trial, right? But you know, that's something that
25 we can anticipate in the future. But there's a lot

1 of opportunity for optimization just in the range,
2 right? And so we can -- that's what we aim to, you
3 know, get started, right, is that in that range and
4 there are a lot of clinical decisions that we make
5 that sometimes are like, well, I don't know. We'll
6 give them.

7 I already show you that the decisions we make
8 about physical dose, they don't matter, right?
9 Because physical dose doesn't predict the outcome of
10 patients, right? Even if we do more or less. You
11 know, in the normal whatever decision making we did,
12 to justify a little bit more, a little bit less had
13 no impact on the outcome, but it was really that
14 biological impact.

15 But, yeah, I mean, there is a lot of interest
16 in dose deescalation. In oral pharynx cancer, HPV.
17 So uniform dose deescalation was shown to be a
18 failure already. And actually, I didn't show that,
19 but we actually, we did a genomic clinical trial
20 design of their design and we predicted it was not
21 going to work, but we did it before the results came
22 out. But it's going to -- we didn't publish it, so
23 anyway.

24 But there's also opportunities sort of in
25 breast cancer, like triple negative breast cancer is

1 one disease that it's kind of odd, generally
2 speaking. And the standard, the guidelines, the
3 standard radiotherapy guidelines is you treat those
4 patients with, you know, sort of whole breast
5 radiation. Then you give them a boost to sort of
6 the tumor bed. And so that's a, you know, and
7 that's sort of standard. But we have found that if
8 you're sensitive to radiation, then you don't need
9 the boost. Those patients do extremely well with
10 just standard dose and that is actually one of the
11 trials we're doing at Moffitt, is just eliminating
12 the boost. And we predict that about 50 percent of
13 triple negative breast cancer don't need the boost.
14 And again, that's not like a crazy, we changed the
15 world kind of thing, but you've got to start
16 somewhere to get some of these things, you know,
17 lined up, right?

18 And then, but then we also, you know, but there
19 are other subsets of patients that actually need
20 more than the boost. And we're actually designing a
21 dose escalation trial, GARD directed dose escalation
22 trial that's actually going to be a Phase II that's
23 going to be run by the NRG. So that's still in the
24 political, you know, discussions. It's been
25 proposed and it's going through committee and

1 committee. But it hasn't been rejected yet, so
2 maybe, maybe in a year, we'll get it running again.
3 We'll see how it goes.

4 But, yeah, I mean it's a -- so there's
5 opportunities for, you know, sort of both. But, you
6 know, I mean, the sarcoma, the sarcoma results are
7 very persuasive. I almost like, I actually ran the
8 calculations for the PI, like three years ago. And
9 I sort of forget about the trial, because I said
10 there's no way we're going to improve sarcoma
11 response rates three fold. But I designed it and I
12 completely forgot. And then, like, you know, three,
13 four months ago, he said, hey, do you remember those
14 calculations you run for me? And I'm like, no. And
15 then he showed me, look. And I'm like, oh, yeah.
16 And then, look, it's lining up exactly as these
17 calculations and I was like, no, no, no, it was
18 wrong. Do it again. Show me the data. And it's
19 lining up, right?

20 And that's really the most persuasive of all
21 the data because it's the idea that you can actually
22 develop a testable hypothesis. And even, even if it
23 doesn't work, at least you're going to learn
24 something. Which is what I always say, you know,
25 maybe there are better ways. I'm sure there are

1 better ways than this, but, you know, there's no way
2 that what we're currently doing should suffice with
3 what we know today, right?

4 That's a prescription approach that was
5 developed in the 1930's. Very smart in the 1930's.
6 Not so much in the 2020s. That's my view.

7 MARK SEDDON: All right.

8 DR. TORRES-ROCA: All right.

9 JAMES FUTCH: I'll talk to you after. All
10 right. Thank you.

11 MARK SEDDON: Thank you, Doctor.

12 (Applause)

13 DR. TORRES-ROCA: All right.

14 MARK SEDDON: I think we have Camilla doing the
15 machine.

16 CAMILLA GUY: Yes. So thank you, everyone.
17 I'm going to be giving the machine updates instead
18 of Lisa Gavathas could not be here today. She's the
19 new environmental administrator --

20 CLARK ELDREDGE: Interim.

21 CAMILLA GUY: Interim, I'm sorry. It's not
22 official yet. Soon, hopefully. But, yes.

23 So in terms -- I'm going to just start with the
24 quarterly reports for all of the payments overall.
25 So the first quarter, we had to start slightly later

1 than expected because all the renewals were not sent
2 out due to processing from a third party that we
3 were using.

4 CLARK ELDREDGE: What is this?

5 CAMILLA GUY: That was next.

6 JAMES FUTCH: What you're talking about is the
7 data from the E-payment system or overall?

8 CAMILLA GUY: Yeah.

9 JAMES FUTCH: Just E-payments.

10 CAMILLA GUY: Yeah, I was going to mention it
11 in the second quarter, because it posted initially
12 in February.

13 CLARK ELDREDGE: Oh, you're talking about the
14 actual --

15 CAMILLA GUY: I'm going by quarter.

16 CLARK ELDREDGE: Quarter, okay.

17 JAMES FUTCH: Okay. You said you were doing a
18 quarterly report, didn't you? We'll be quiet.

19 CLARK ELDREDGE: Never mind us. Just say
20 renewals went out late this year.

21 CAMILLA GUY: Renewals went out late this year,
22 so no -- payments weren't really coming in as much,
23 but inspections were being done.

24 We ranged about 1242 inspections out of the
25 2000 that were supposed to be and that just rolled

1 over into the next quarter. Second quarter we did
2 receive a lot of more paper checks than expected, so
3 we ranged about \$2,402,000 in total. And overall,
4 like in compliance, that was like 89.8 percent, so
5 I'm happy about that. Where -- because I deal with
6 enforcement violations; things like that. That's
7 less stress for me in facilities overall.

8 And then ranging into the third quarter, when
9 we had the online payment system posted where you
10 can actually pay, not just look at what fees you owe
11 and things like that. That we showed -- James
12 showed that last meeting for everyone, that showed
13 that fees are going to be posted up there. Payments
14 are coming soon.

15 Well, in February, February 20th, it finally,
16 like, launched. It did have a credit card fee of
17 like two --

18 CLARK ELDREDGE: Two-and-a-half percent.

19 CAMILLA GUY: Two-and-a-half percent charge if
20 you wanted to pay with card or you can still mail in
21 a check. A lot of people are happy about that that
22 were late. So that was good. And overall, I
23 e-mailed you, there were 802 total transactions for
24 payment and 952 revenue items. Some people owed a
25 little bit more or their previous years never paid

1 or say e-mailed a check. The mail system is not
2 efficient. Even if you mailed it, it's not on you
3 or us if we receive it because it gets lost. Things
4 get lost in the mail. As long as the checks weren't
5 cleared, that's all that matters to me.

6 And in total, that was \$97,501.02, and that's
7 including the convenient fees as well.

8 And overall for the third quarter, we -- which
9 is from January to March, that's an 80.9 percent in
10 compliance. We're still trying to play catch up
11 because during the renewal season, it was a lot of
12 going back and forth, printing; things like that, so
13 a lot of inspections were not entered but they were
14 completed, thankfully.

15 And I have an example for the online payment
16 system. This person is not in compliance. They
17 have a violation of fees due for years, okay? But I
18 just wanted to show overall, even it tracks -- it
19 updates within a two-day turnaround time to update
20 in the system. You can do e-check or credit card
21 and pay like that. So that's just a brief example.

22 And overall, for the online system, there is no
23 bulk pay. So say you have multiple facilities,
24 like, HCA, Baptist, those type of hospitals, larger
25 facilities, unfortunately, you're going to have to

1 go through each and every JR number and pay each one
2 individually. That may change soon. But for
3 billing purposes, if you want to pay online, it
4 might be easier just to send in a check and break it
5 down like that.

6 And you can view your machines in total and
7 make edits by still filling in the 007, that is not
8 electrically, but in the future, we hope to have it
9 done. That is still pending, if possible. We thank
10 technology, James' team for getting all this in play
11 overall. We were the test dummy for materials
12 possibly next. So they've had less of processing on
13 their end as well.

14 That is all for payments and things like that.
15 Am I missing anything?

16 CLARK ELDREDGE: There was something in there,
17 but it slipped out of my head.

18 CAMILLA GUY: It can come back later. For
19 enforcement purposes, I've had three medical events
20 since we last met and one overexposure. The
21 overexposure was they did a weighted dose.
22 Thankfully, it was rectified. There's no issue with
23 the physician.

24 The medical events, the first one was a wrong
25 patient plan. It was caught immediately, but with

1 it being the wrong patient plan, it's still a
2 medical event. It shouldn't have happened. We're
3 working on that.

4 I've had an overexposure with a pediatric
5 patient. It was more so for their reproductive
6 organ. It was supposed to be protected and was not,
7 so that is under investigation as well.

8 And then the last one, a saline leak happened
9 during, for a mammo treatment and they're
10 investigating why the balloon, itself, leaked.
11 Everything, I have all written statements of what
12 occurred on their end. It's now on the back end of
13 finding out what happened and why.

14 And next, for mammo, the FDA rule for breast
15 density law is going to be in effect in September,
16 what changes, and at the same time, the state rule
17 will expire the same day.

18 That is all I have for mammo. Nothing new. No
19 medical events, thankfully, outside of that.

20 And we lost Clark as bureau chief. We have
21 Lisa Gavathas as interim and we are hunting for a
22 AF2 specialist, Regulation 2 specialist, and we have
23 interviews next week for environmental consulting.
24 We have two people interviewing for that. So
25 hopefully, we will have a full staff. Yeah. We're

1 catching up, Kevin.

2 Other than that, in total, I have 20,842
3 facilities. 285 of them are new facilities. So we
4 are receiving, people are registering like they're
5 supposed to. And say they're not in -- we've caught
6 somewhere, they are on the materials side. And
7 inspectors let us know, hey, they are having change
8 as well. They help them register them. So I'm
9 thankful for the inspectors, what they're doing as
10 well in catching things.

11 Overall, that's all I have. That's all I have.
12 Are there any questions or concerns? Okay.

13 MARK SEDDON: Thank you, Camilla. Now it's
14 James.

15 CAMILLA GUY: Do you want the clicker? Pass it
16 down. Thank you.

17 JAMES FUTCH: Just a second, everybody.

18 MARK SEDDON: What's your timeframe right now
19 on investigation?

20 CAMILLA GUY: Other than the wrong patient
21 plan, I've been doing about a two-month turn around
22 time. Once I get everything in, look it over, go
23 back and forth with getting additional information
24 that I need and then writing letters of if it's
25 approved or we consider to go further.

1 The overexposure that -- the wrong patient
2 plan, sorry, they, unfortunately, went bankrupt and
3 were bought out and lost their RSO. So it was going
4 back and forth trying to, trying to contact them so
5 I can get updates and have everything changed also
6 in their system. You have to have an RSO. You need
7 to tell us within seven days. If you don't, that's
8 a problem because every, um, seven days, you need to
9 review all your reports and if you have no RSO, who
10 is checking that if you're still running your
11 machines entry patient, so --

12 MARK SEDDON: Yeah.

13 CAMILLA GUY: Okay. All right. Thank you.

14 JAMES FUTCH: Okay. Technology section
15 updates. I will start with the vacancies.
16 Programmer analyst has been vacant for eight or nine
17 months or so. We have a candidate identified as
18 going through the human resource process and
19 hopefully have them employed by the end of May. So
20 then we can start working on projects like
21 E-payments and successors to E-payments.

22 We also have a vacancy in our administrative
23 section, the person who does the travel, the
24 purchasing, the laser registrations. That position
25 is also vacant. It's gone through a couple

1 advertisements, not a whole lot of takers. So
2 hopefully, we'll see some good news in the coming,
3 coming months.

4 Let's see what else we have here. Oops. Not
5 that, that's for sure. This is troubling when you
6 touch your touch screen. Let's see.

7 CAMILLA GUY: Do you want to borrow the mouse?

8 JAMES FUTCH: That's okay. It is the time of
9 year again when we're doing our annual CE approver
10 report to the American Registry of Radiologic
11 Technologists. We continue to be functioning as a
12 CE approval state. I think having just been
13 reauthorized last year for five years, which is a
14 magical term for those of us in, in the retirement
15 drop system, we -- the questions look to be the same
16 as before, so we shouldn't have any difficulties
17 supplying the necessary information to keep the
18 national folks happy.

19 We have been informed that the Department of
20 Health's website is going to be updated and from the
21 scale -- I don't know how much of this we've shared
22 internally, but it sounds like a pretty significant
23 overhaul. I think it's, by the amount of outside
24 contractor involvement that we've seen through the
25 web section of our, of our central Department of

1 Health, it may look very different. And we have,
2 just this past couple days, finished an evaluation
3 of all of our Bureau of Radiation Control page
4 assets and determined which ones we're jettisoning
5 and which ones we're taking to the new website.

6 Actually, that proved to be somewhat useful
7 because there was a lot of unlinked, old versions of
8 Kevin's red guides and Clark's old information
9 notices and things like that, which people like Adam
10 probably still had links to from ten years ago.

11 ADAM WEAVER: Yep. You can still find them
12 sometimes.

13 JAMES FUTCH: Why is Adam applying on an
14 application that's not been approved for ten years
15 to use? That's why. So some little house cleaning
16 that's going to happen there. That's a good thing.
17 We're not able to really even tell you remotely what
18 the new site will look like at this point.

19 CLARK ELDREDGE: I probably shouldn't say this
20 in public, but you see certain flashy sites these
21 days that really don't tell you much, and I've got a
22 fear that that's what we're going to go to. Because
23 the actual current site is very functional. It
24 provides information in a very effective manner.
25 And we need to be providing information in an

1 effective manner rather than a lot of scrolling
2 graphics and glitz, you know.

3 JAMES FUTCH: Next topic -- no questions on
4 that.

5 Council vacancies. We have two members whose
6 terms are expiring in the month of May. And we've
7 gotten the materials from them -- that's Dr. Plaxton
8 and Dr. Cognetta, who couldn't be here today. We've
9 gotten the materials from them that we need to
10 submit for consideration by the State's Attorney
11 General's office to reauthorize for another term.
12 Thank you very much, Dr. Plaxton, for wanting to
13 participate. And the same for Dr. Cognetta.

14 We have three positions that are vacant, which
15 is kind of timely because Mark was the, the basic
16 machine operator position, which has been vacant
17 since Mark was in it. It's very hard to fill that
18 position. There's only 3500 or so basic machine
19 operators in Florida. It can be filled by a
20 physician who employs a basic machine operator, but
21 that's -- we've gone through Florida Medical
22 Association and the PA society and gotten no
23 responses.

24 So we're going to see if Mark's got the
25 interest. You've heard this before. We're going to

1 have a conversation.

2 The radiologist assistant position, same story.
3 If anybody knows of a radiologist assistant that
4 would like to serve out of the 36 active folks that
5 are out of the State of Florida, three of whom used
6 to be in the position, we'd be more than happy to
7 listen to that. Anybody who wants to apply for that
8 position, you can go to the council page and click
9 on the application and submit yourself, if you're in
10 that position.

11 And I should have explained, that's a member of
12 the public position. Dr. Cognetta is in one of
13 those. We have another one, that one we actually
14 have very good prospective candidate in a name and
15 an application, and that package is almost ready to,
16 to submit through Clark and have him take a look at
17 it. And that lady is a nurse practitioner currently
18 with the University of Florida who has expressed a
19 desire and seems to be a good candidate, from my
20 perspective anyway.

21 So anyway, to sum it up, if you know of an RA,
22 let us know.

23 Enforcement data. Let me pop over here for a
24 second. This is a summary of, in this case, since
25 July 1st, this is information on enforcement cases,

1 investigations. Cases active, we had 68 as of July
2 1st, the beginning of this fiscal year. Last July.
3 Since then, through really yesterday, we've opened
4 44 new cases; closed 55.

5 When I say we, this is through my office, some
6 from Kevin, some from Clark. These get submitted
7 into the Division of Medical Quality Assurances
8 system for evaluation and then prosecution. So
9 current cases as of today is 57 cases. That's
10 actually 50 individual Rad Techs; three employers.
11 And the balance of that is people having more than
12 one case open against them. So that's why it's 57.

13 And this is a breakdown for what it looks like
14 in terms of type of infraction in no particular
15 order. The licensure fraud from -- when folks come
16 through, this is one of the professions that is not
17 fingerprinted. So you report what you want to
18 report. And what happens is sometimes people don't
19 tell us about crimes that are in their past. And
20 then they go to work at a hospital or other facility
21 that's licensed by AHCA, the Agency for Health Care
22 Administration. And the background screening that
23 they do at the facility shows a crime and then it
24 goes to AHCA and we have to do this whole, grant an
25 exemption to the person so they can continue working

1 in that profession if we, if we feel they don't
2 present a threat to public health and safety.

3 And honestly, sometimes people, you know, it's,
4 it's things that happened 20 years ago. Maybe they
5 forgot to tell us, I don't know. But we, we
6 routinely will submit them to MqA to evaluate for
7 possible discipline because technically, they
8 committed a fraud in obtaining a license without
9 telling us because they have to answer yes or no to
10 background history offenses. So long way to go for
11 three cases out of the fiscal year that we're in
12 right now.

13 The next three are just straight discipline,
14 convicted for a crime against a person. Conviction
15 of a some other type crime. The category 11 there,
16 those are the ones that have been acted against by
17 the national registry. And then because of that,
18 they violate one of the discipline standards in the
19 Florida Statutes that says, being acted against by a
20 national registry or another state jurisdiction.
21 And then we have to evaluate whether or not to take
22 the same action against them.

23 The next couple are the unlicensed activities
24 that are reported either by our inspectors or
25 sometimes straight to MqA by fellow employees,

1 disgruntle ex-spouses, who knows. And that's where
2 the three employer cases are and the six operator
3 cases.

4 The next one is final order non-compliance. So
5 you've come through one of these others, you've been
6 through prosecution, you've been found to, to need
7 discipline. It's been imposed by the department and
8 you're supposed to do certain things. Sometimes
9 it's a fine, sometimes it's something else and you
10 have failed to do that.

11 So this is coming back again for another round
12 through the legal system on our side to make them do
13 what they were supposed to have done the first time.
14 So they're in non-compliance with their final order.

15 And then the largest category, of course, is
16 unprofessional conduct. It's the largest category,
17 but because it's pretty much everything including
18 the kitchen sink that you may have done in the
19 course of your practice, that is actionable. So you
20 committed some sort of a sexual -- doesn't
21 necessarily have to be one that resulted in the
22 legal system. Maybe the facility fired you for
23 unjustified touching in such a way that the
24 department also feels that needs to be disciplined.

25 Falsified records in the profession, surprise

1 surprise, six different ways to either steal drugs,
2 in the next category. Be working while impaired
3 with drugs. Have been referred to the department's
4 impaired practitioner provider because of your
5 impairment and you have now not complied with their
6 recommendations for treatment or withdrawal from
7 practice. So 12 of those in the fiscal year.

8 And then just every other kind of
9 unprofessional conduct. Eleven of those. And then
10 I love it when Kelly puts two down, however many it
11 is, unknown. I usually attribute these to, hey,
12 this just came in. We're still trying to figure out
13 exactly what this is, you know, and properly
14 categorize it. Otherwise, it will go into other
15 after unknown.

16 But trust me, there has to be a statute some
17 place or we can't take discipline against them.

18 Any questions about the enforcement situation?

19 CAMILLA GUY: For the impaired program that
20 they have --

21 JAMES FUTCH: Right.

22 CAMILLA GUY: -- how do they, like they -- does
23 each facility have their own processing, where their
24 nurses --

25 JAMES FUTCH: They certainly do. When it

1 leaves the facilities level, and either the person
2 self-reports -- there's two organizations. One is
3 just for nurses, we call it IPN, Intervention
4 Project for Nurses. And the other one you see here
5 is Professional Recovery Network, that's PRN, for
6 the other professions. The statutes that these
7 operate underneath say basically, if you
8 self-report, the facility does something, maybe
9 fires you for some impairment, you can self-report
10 to one of those organizations and by law, we can't
11 take any action against you. In fact, they will not
12 tell us that somebody is with them as long as
13 they're in compliance.

14 CAMILLA GUY: Okay.

15 JAMES FUTCH: So they'll do an evaluation with
16 an addiction physician. He'll say alcohol abuse,
17 you know, whatever it is, et cetera. And then
18 they'll come up with a plan of action, contract they
19 have to sign. It usually involves monitoring for a
20 period of five years, drug testing. And if it's a
21 really bad case, then they require you to attend not
22 just outpatient, but perhaps inpatient care.

23 It's a very costly thing and people sometimes
24 also don't comply because they can't afford it
25 anymore.

1 Any other questions on that? All right.
2 Enforcement data, what's next? Let's see. Oh.
3 Legislative updates.

4 So the legislative session just happened and
5 there are a number of bills that came out that
6 affect a variety of professions in many different
7 ways. And the way I'm going to handle this one
8 today is, the Department's Division of Medical
9 Quality Assurance, has a website here at this
10 address, which I will show you. This is it. If you
11 didn't know about it, it's an excellent place to go
12 and find out what's going to affect your particular
13 profession or all professions if you're licensed by
14 the Department of Health. And you can actually
15 search it. You can go back to previous years and
16 say when did that -- how did that get started, and
17 you know, what effect did it have.

18 These are the House and the Senate bills. In
19 order to get to this site -- let me just show you
20 one of them. Controlled substances sounds
21 interesting. That's a pretty short one. It will
22 show you a little short snippet about the summary of
23 the bill's effect. It will give you a direct link
24 back to the legislative sites to find out more
25 information, and will tell you the effective date,

1 it tells you a little more information.

2 Oh, yeah, this was a huge bill. I think this
3 particular one was one of the ones that the Senate
4 president was very much in favor of this year
5 because it had some very meaningful things to -- in
6 health care.

7 So you can see the summary. This one is quite
8 extensive. It talks about limited licensure for
9 recent graduate assistants, et cetera, et cetera, et
10 cetera. I'm not going to go into that. It's not
11 our area, but I wanted to show you this site.

12 The process here is that not all the bills that
13 passed both houses of the Legislature have made it
14 to here yet, and that's because the way the process
15 works is, it hasn't necessarily been signed by the
16 officers and presented to the Governor yet and so
17 certain clocks haven't started ticking yet. When
18 that happens, he can either veto it or allow it to
19 become law without his signature. Once it becomes
20 law, either with his signature or without it, then
21 MqA will put it on this page.

22 And so, for example, if you were -- let's see.
23 I think this is the page here. This is a list from
24 the Governor's website that shows all of the
25 bills -- and I know you can't see that, but trust

1 me, it shows all the bills and various dates about
2 when they were presented and Governor's date to act
3 on it; what the outcome was. The ones in red were
4 the ones that were vetoed.

5 So once it gets presented, it will end up here
6 and then they'll end up on the MqA website.

7 So there are two bills that are of general
8 interest to many professions, and one of those
9 that's not yet here and it's not yet on the other
10 site, if you go back to the legislative site, you
11 will see -- let's see. Senate bill, bill actions.
12 Okay.

13 This Senate bill, this is the Senate site. And
14 this page shows you the history of what happened to
15 this particular bill all the way through; various
16 other tabs if you want information about it.

17 But what I wanted to show you about it is at
18 the very end here where it says ordered, enrolled
19 here, that means it passed both of the chambers and
20 it's on its pathway now to go through the rest to
21 the Governor's office, eventually.

22 This line right here that says signed by the
23 officers and presented to the Governor, this is the
24 part that hasn't happened to these other two bills
25 that I wanted to mention. One of them is this one

1 here: Senate Bill 1600, and the other one is this
2 one here, this is House Bill 975.

3 This particular one implements -- right now in
4 Florida, there are not required fingerprinting for
5 all professions. In fact, it's relatively few
6 professions. You know, doctors; people such as
7 that. This particular bill implements it as the
8 subject, you can see there, that's the legislative
9 summary. And a subset of this information, perhaps
10 all information, will be when this finally gets
11 through to the MqA site through the Governor and
12 through the MqA site, this is where they'll build
13 that from which you'll see on the MqA site.

14 But this bill implements required background
15 screening, which means fingerprinting, for a lot
16 more professions. So your facilities that employ,
17 for example, medical physicists right here, medical
18 physicists are in there, opticians, physical
19 therapists, et cetera, et cetera. This will be
20 coming, coming to those as well.

21 The Rad Techs are not in this. This is, this
22 is another one that -- this is one that affects the
23 ability to become licensed in Florida through
24 endorsement. They don't list the professions here,
25 but this one also has a great deal -- a large number

1 of professions, and the Rad Techs are not in this
2 one, either. And I think that's where I'll leave
3 it.

4 Any questions about --

5 CLARK ELDREDGE: The Rad Techs were originally
6 in this one.

7 JAMES FUTCH: Yes.

8 KATHLEEN DROTAR: One of the reasons we're not
9 included in that is because the radiologic
10 technologists that we have already have statutes for
11 endorsement.

12 CLARK ELDREDGE: There were actually -- the
13 bill actually eliminated all endorsement options.
14 It just made a standard one for everybody to, quote
15 unquote, simplify it. The problem with that, Rad
16 Techs, now, okay. But, yes, there were, there were
17 concerns about how it was --

18 KATHLEEN DROTAR: It would have affected all of
19 our graduate students because that's how they
20 enrolled. It was a requirement for employment for a
21 number of, for like three out of the four years
22 prior, that was a, you know, a glitch. Anyway, it's
23 not there, so we were happy.

24 JAMES FUTCH: So that's, I believe, all I have
25 unless I've forgotten something. Anybody tell me?

1 MARK SEDDON: I have a question.

2 JAMES FUTCH: Go ahead.

3 MARK SEDDON: So I know we brought up before in
4 the past, fluoroscopy for speech-language
5 pathologists, and we can't say it's something that's
6 under consideration as far as how we work around
7 that. It's also come up recently, actually it may
8 be timely since we are considering adding a nurse
9 practitioner to the council. I know we have the,
10 twenty years ago was that PAs were given sort of an
11 exemption for fluoroscopy when you had the -- was it
12 about twenty years ago we had the whole thing with
13 the courts and Attorney General involved. Do you
14 remember that?

15 JAMES FUTCH: I don't.

16 MARK SEDDON: You don't? It wasn't you. It
17 was a conflict between supervision where a PA or the
18 person who works underneath the radiologist was
19 allowed to do everything they can do by the Board of
20 Medicine but yet regulations from the department
21 says only practitioners can do fluoroscopy. There
22 was actually a court ruling.

23 JAMES FUTCH: Yeah. Actually, let's move on to
24 new business. I think Kathy had something to --

25 MARK SEDDON: Sure. I'll wait.

1 JAMES FUTCH: No, no, it's fine. No more
2 questions about the technology stuff.

3 So from my perspective, and you may have been a
4 court case but from my perspective, the PAs and the
5 nurse practitioners, when I first started, we were
6 not considered to be underneath Chapter 468's
7 exemption, if you will. That applies to doctors, in
8 terms of yes, you can use x-ray, if you are a
9 physician without having to be licensed as a
10 technologist psychologist. But in going through
11 inspections where we would find people, PAs, nurse
12 practitioners, we would, we would site and this
13 percolated up through the two societies. Mostly the
14 PAs society.

15 And the lawyers at the time, looked at our
16 definition of licensed practitioner, which was, you
17 know, like a paragraph long and noticed that there
18 was, in addition to a list of allopathic physician,
19 osteopathic physician, chiropractic physician, et
20 cetera, et cetera, et cetera, the very end of that
21 definition said or someone who is otherwise
22 authorized by law to practice medicine.

23 And they looked at it and said, well, you've
24 just listed all of the people who are actually
25 authorized by law to practice medicine in a variety

1 different disciplines of medicine. And what does
2 that mean? What does those who are otherwise
3 authorized by law to practice medicine. And they
4 said, oh, let's ask the Board of Medicine, and let's
5 ask the Board of Nursing.

6 And we asked it in the context of working for
7 radiologists. And what the boards respectively said
8 was, yeah, that means PAs and that means nurse
9 practitioners.

10 Now, that's the 30,000 word summary of what was
11 a multi-year process whereby somebody tried to go to
12 the Legislature and got the Legislature to try to
13 define things differently and they were not able to
14 secure any sponsors, I guess, to do that.

15 They, themselves, went to us and asked us to
16 make that clarification; make that determination.
17 And we said, by us I mean the Department of Health.
18 And we said at the time -- Clark wasn't there yet,
19 but we said, we can't interpret statutes. We're
20 sorry. If it's a regulation, yeah, but we don't
21 interpret statutes. We're not allowed to do that.

22 Those particular folks who -- well, it's more
23 involved than that. But that's how we came to the
24 place where to this day, if you go in and an
25 inspector sees the physician assistant performing

1 fluoroscopy, we don't cite for that. If they see a
2 nurse practitioner, they probably won't. But they
3 may ask does your written protocol cover that. And
4 honestly, we haven't kept up with all the ways that
5 nurse practitioners have changed since 2000 or
6 whenever that was, 2004. They may not have written
7 protocols anymore. I don't know.

8 We used to encourage them to put x-ray on the
9 written protocol if their protocol physician wanted
10 them to do what it was they were doing. Of course,
11 now we have the, what do we call, the autonomous
12 nurse practitioners. So we're not going to cite for
13 that.

14 That's how that came to be. But you see that
15 there was a, there was a statutory hook --

16 MARK SEDDON: Right.

17 JAMES FUTCH: -- that appeared to, I mean,
18 logical common sense, what else could that mean? I
19 mean, we couldn't -- could you all think of what
20 else that might mean? Otherwise authorized by law
21 to practice medicine. You just listed all the
22 people that practiced medicine. That was pretty
23 obvious.

24 I think it would be, let's just say, if
25 speech-language pathologists would somehow end up in

1 that definition, then clearly, the outcome would be
2 the same.

3 I will also say that as we know, one opens --
4 well, that's a -- that's above my pay grade and it
5 requires more money than my pay grade to have that
6 happen. And sometimes, when you ask for a statute
7 to be open for one purpose, a whole lot of stuff
8 comes in. It has other effects, you know.

9 But in terms of the speech-language
10 pathologists, I mean we have council meetings coming
11 up if -- I don't know how to make it happen. It
12 seems logical from my perspective that they know
13 quite a bit about how to do the swallowing study and
14 what they want to see and all the rest of it.

15 I'm not a practicing tech. You guys are, one's
16 a medical physicist so you know far more about it.
17 if I could make it so, I would probably do so if the
18 council were to vote on that at some point in the
19 future. But even if they were, it's not going to
20 change anything because of the way the law is
21 written.

22 Now alternatively, you know, some professions,
23 in their practice acts, they get things put in there
24 that says something to the effect of notwithstanding
25 the effect of any other statute to the contrary,

1 yes, we can use x-rays for swallowing studies.
2 That's how dentists are able to administer x-rays
3 and dental hygienists are able to administer x-ray.
4 Notwithstanding the clause in those statutes.
5 Sometimes it's a little more direct than that. It
6 will say, notwithstanding Chapter 468 part four to
7 the contrary. That's how that works.

8 MARK SEDDON: Okay.

9 JAMES FUTCH: Yeah.

10 MARK SEDDON: All right. Thank you.

11 Any new business then I guess. Kathy.

12 KATHLEEN DROTAR: So if you remember a couple
13 of years ago, the council recommended that the
14 Department of Health adopt the plastic standards,
15 the ASRT practice standards for the standards that
16 were to apply to technologists in Florida.

17 Since that time, there have been a few changes
18 and --

19 JAMES FUTCH: You mean the radiologist
20 assistant.

21 KATHLEEN DROTAR: The radiologist assistant
22 changes have been updated and some of the
23 requirements for the registry have also changed.

24 So what we've -- what I wanted to put out was,
25 if the council wanted to look at the new standards

1 and apply them to the, to the -- what is it, our
2 regulations.

3 JAMES FUTCH: Yeah. So when it comes to
4 radiologist assistants, this was a nationwide push
5 by AART in many states several years ago -- 2005 or
6 6.

7 KATHLEEN DROTAR: 2010.

8 JAMES FUTCH: Maybe a little bit later. And in
9 Florida, it was a major project for the Florida
10 radiologic society. Dr. Peterson is not here.
11 Dr. Scheckman is not here. Those are the two
12 members who are here because of FRS nominations in
13 the past.

14 When that came in, in 2005, because there was
15 -- a radiologist assistant is a physician extended.
16 It's not one based on the Board of Medicine, it's
17 not one based on the Board of Nursing, but it is a
18 physician extender for the radiologist, which is why
19 FRS was supportive of it.

20 The -- I'll spare you all the history of it.
21 For a long time because of reimbursement, perhaps
22 other issues, it maybe wasn't as popular as we -- as
23 everybody thought it would be.

24 Nevertheless, when it became law back then, the
25 statute was written so basically, it was kind of

1 hard coded. You come in by endorsement with a
2 national license from AART as a radiologist
3 assistant and the scope -- I forget the exact
4 wording, but the scope of practice is, is that to
5 which the AART -- I think it was ACR and one other
6 group, might have been ASRT, have agreed to for the
7 profession.

8 So we had to kind of cobble some stuff
9 together, and it was a brand new profession, and
10 AART came out with a very detailed, specific
11 practice standard. I mean, one you could actually
12 read and figure out what you were able to do.
13 Unlike most of them, which are somewhat amorphous,
14 kind of allowed to have some wiggle room and
15 interpretation.

16 And not only was it specific in terms of, like
17 down to the duty, this particular kind of
18 fluoroscopic procedure, it gave a level of
19 supervision which was personal, general or direct
20 for each individual procedures.

21 Since then, I think the industry or at least,
22 ASRT and AART, have moved to a more generalized,
23 more typical practice standard, which talks about an
24 overall level of supervision. I forget. I haven't
25 read it in a long time. It's either general or

1 general as decided by the, you know, the supervising
2 radiologist. Kind of like, kind of like the PA.

3 Yes, the PA can do these things with the appropriate
4 training and skill and supervision as provided by
5 the supervising physician.

6 So we've -- I've always been open to changing
7 that. But what has, what has delayed it is the
8 practice standard at the national level was, was
9 combined together. So you have a practice standard
10 which has general duties for all the different
11 medical modalities, so for the radiographer and the
12 radiologist assistant, et cetera, et cetera, even
13 the therapist. This is the general duties and then
14 here's the specific things that the radiologist, for
15 example, can do.

16 So that, getting that implemented and replacing
17 the current one, what I really need to make this
18 work, is a practice standard specific to the
19 radiologist assistants. So we can say, okay, we're
20 not touching any of the other professions. They've
21 got their own practice standards. We're going to
22 just touch this one and replace it with this.

23 It will probably still be a two-year process,
24 maybe three or four if it's Kevin's rules, but it's
25 doable and it's worth starting, and I'm fully

1 supportive of it and I'm sure Clark would be, too.

2 But what's happened recently is that Kathy
3 believes she can actually get this, this kind of
4 specific document that we need --

5 KATHLEEN DROTAR: Yes.

6 JAMES FUTCH: -- which should make it a lot
7 easier.

8 KATHLEEN DROTAR: I'll be happy to get that.
9 And just to, FYI too, the radiologist assistant is
10 an AART, who then has a Bachelor's degree and post
11 Bachelor's level for the RA. And last year, we had
12 37 in Florida. I don't know what the number is this
13 year, but it was 37 last year. It was the most of
14 any state in the United States.

15 JAMES FUTCH: We just went through talking to
16 MqA. I'm sorry. We're over time. We just went
17 through, we actually got a brand new one, like last
18 week or the week before. I think we're up to 38
19 now, whatever it is. And he actually got licensed
20 with the wrong, wrong length of time.

21 KATHLEEN DROTAR: Yeah.

22 JAMES FUTCH: Supposed to match him up to his
23 current RT license. Somehow he had one license
24 that's renewing in the even years and one license
25 renewing on the odd number years instead of having

1 them at the same time, but they're fixing that.

2 KATHLEEN DROTAR: Good.

3 JAMES FUTCH: That's it for my perspective. So
4 I very much thank you for working on that. And that
5 will be great if we can, if we could do that.

6 KATHLEEN DROTAR: I'll get it to you this week.

7 MARK SEDDON: All right. I think we're at --
8 almost out of time. We need to pick a date for next
9 meeting. So let's look at the calendar in the back
10 here. Do you know what we're targeting?

11 JAMES FUTCH: Usually we go middle of
12 September, I think. Second or third week of
13 September. Something like that.

14 CAMILLA GUY: I shoot for September.

15 MARK SEDDON: Last week of September?

16 JAMES FUTCH: It's always usually, nine times
17 out of ten it's May and September. Once in a while
18 we have to push it to October, but we try and stay
19 in the second and third week of September.

20 MARK SEDDON: Does anybody have any issues with
21 the second or third week of September?

22 KATHLEEN DROTAR: No, not now.

23 MARK SEDDON: Not right now.

24 JAMES FUTCH: Well, that's the point. We plan
25 ahead. Now usually -- so if we say -- I don't know.

1 This is the council deciding where you all want to
2 meet. We've been doing Tampa for a number of years.
3 We used to go back and forth. Everybody seem
4 comfortable with Tampa? We traditionally pick a
5 Tuesday or Thursday. So if we look at the second
6 week, we're talking the 10th or the 12th. Does
7 anybody have any specific reason to pick one or the
8 other? Any college-related stuff, any society
9 meeting related stuff?

10 ADAM WEAVER: I don't know football schedules
11 yet.

12 JAMES FUTCH: Don't know the football schedule
13 yet?

14 WILLIAM ATHERTON: I like the 12th better only
15 because it's a Thursday.

16 JAMES FUTCH: Does somebody want to make a
17 motion?

18 MARK SEDDON: Do you want a motion for
19 September 12 as a --

20 WILLIAM ATHERTON: I move the 12th, yeah.

21 KATHLEEN DROTAR: Second.

22 MARK SEDDON: All in favor?

23 ALL: Aye.

24 MARK SEDDON: All right. There we go.

25 September 12 is the targeted date for the second

1 meeting of the year.

2 All right. If there are no more questions,
3 comments or any other business for the council, then
4 we'll go ahead and adjourn.

5 (Proceedings concluded at 3:10 p.m.)

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1 CERTIFICATE OF OATH

2 STATE OF FLORIDA:

3 COUNTY OF ORANGE:

4

5 I, RITA G. MEYER, RDR, CRR, CRC, do hereby certify
6 that I was authorized to and did stenographically report
7 the foregoing proceedings; and that the foregoing
8 transcript is a true and correct record of my
9 stenographic notes.

10 I FURTHER CERTIFY that I am not a relative,
11 employee, attorney or counsel of any of the parties, nor
12 am I a relative or employee of any of the parties,
13 attorneys or counsel connected with the action, nor am I
14 financially interested in the outcome of the action.

15

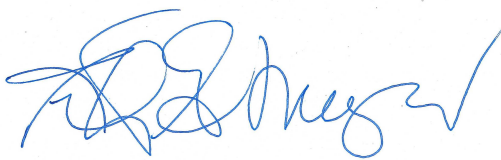
DATED this 31st day of May, 2024.

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RITA G. MEYER, RDR, CRR, CRC

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DRAFT

	59/24 60/6	135/18	147/16	99/15
ADAM	60/11	135/21	148/13	JOHN
WEAVER:	60/18	136/1	149/7	DANEK: [3]
[8] 5/7	60/22	137/10	150/12	46/13 55/9
13/4 50/14	93/25	137/15	151/2	94/16
52/4 55/13	96/13 97/1	141/7	156/20	JOHN
93/2	97/4 97/7	141/12	156/24	WILLIAMSON
150/10	97/10	JAMES	157/14	: [51]
174/9	97/14	FUTCH:	162/6	4/14 8/17
ALBERT	141/19	[74] 4/17	162/23	10/14
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