# ADVISORY COUNCIL ON RADIATION PROTECTION 

Bureau of Radiation Control Hyatt Regency International Airport Hotel Marisel Conference Room Orlando, Florida

Tuesday, October 6, 2015 10 a.m. - 3:15 p.m Reported by

Rita G. Meyer, RDR, CRR, CBC, CCP Realtime Reporter and Notary Public State of Florida at Large

ADVISORY COUNCIL MEMBERS PRESENT:
Mark S. Seddon, Vice-Chairman, MP, DABR, DABMP
Armand Cognetta, M.D.
Patricia M. Dycus, BS, RRA(R) (M), RDMS
Kathleen Drotar, M.Ed., RT. (R) (N) (T)
Chantel Corbett, AS, CNMT, RT (N), RSO
Efstratios D. Lagoutaris, D.P.M.
Rebecca Coffey McFadden, RT (R)
Brian Kent Birky, Ph.D.
Mary Bridget Hart, M.D., ABIM, ABNM
Paul Burress, CHP
William W. Atherton, DC, DACBR, CCSP
Timothy R. Williams, M.D.
Matthew Walser, PA-C, ATC

DEPARTMENT OF HEALTH STAFF
Cindy Becker, Bureau of Radiation Control
James Futch, Bureau of Radiation Control
Brenda Andrews, Bureau of Radiation Control
Yvette Forrest, Bureau of Radiation Control
John Williamson, Bureau of Radiation Control
Jerry Bai, Bureau of Radiation Control
Charles Hamilton, Bureau of Radiation Control

A GENDA
PAGE
Welcome and Introductions . . . . . . . . . . . . . . . . . . . . . . . . . . . 4
Approval of May 12, 2015 Minutes ........................... 5
New Member Introductions ........................................ 6
Bureau Presentations: Bureau/Division Update ....... 15
Bureau Presentations: Inspections ..................... . . 25
Bureau Presentations: Environmental ................... . 43
Bureau Presentations: X-ray Machines ................. 65
Bureau Presentations: Radioactive Materials ......... 83
Bureau Presentations: Technologist \& CE Program ... 114
MQA Update . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 118
Old Business ................................................ . . 149
Next Meeting . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 149
Adjourn . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 160
Certificate of Reporter . . . . . . . . . . . . . . . . . . . . . . . . . . 162

MARK SEDDON (Vice-Chairman): I guess we'll go ahead and get started.

Welcome to Orlando. This is the Advisory Council on Radiation Protection. We're still waiting on Dr. Hart and Patty. I believe they are on their way.

So we'll go ahead and go around the room and make introductions.

I guess we'll start down -- Dr. Williams?
DR. TIMOTHY WILLIAMS: Tim Williams, radiation oncologist, Boca Raton.

DR. WILLIAM ATHERTON: Bill Atherton, chiropractor, Miami.

JERRY BAI: Jerry Bai, Bureau of Radiation Control, Field Operations.

DR. ARMAND COGNETTA: Armand Cognetta, dermatologist, Tallahassee.

REBECCA McFADDEN: I'm Becky McFadden, PACS administrator, radiology technologist from Ocala, Florida.

PAUL BURRESS: Paul Burress, health physicist, Tallahassee.

MATTHEW WALSER: Matt Walser. I'm a physician assistant, orthopedics, Gainesville, Florida at the University of Florida.

BRENDA ANDREWS: Brenda Andrews, Radiation Control.

JAMES FUTCH: James Futch, Bureau of Radiation Control.

MARK SEDDON (Vice-Chairman) : Mark Seddon, medical physicist from Orlando, Florida Hospital.

CINDY BECKER: Cindy Becker, Bureau of Radiation Control.

CHARLES HAMILTON: Charlie Hamilton, Bureau of Radiation Control, Radioactive Materials Section.

GAIL CURRY: Gail Curry, Department of Health, Medical Quality Assurance, Tallahassee.

CHANTEL CORBETT: Chantel Corbett, Fusion Physics, nuclear medicine technologist out of Tampa.

YVETTE FORREST: Yvette Forrest, Bureau of Radiation Control, Radiation Machine Section.

KATHLEEN DROTAR: Kathy Drotar, radiology, therapy member and I'm from Keiser University in Sarasota.

DR. BRIAN BIRKY: Brian Birky, Florida Industrial and Phosphate Research Institute out of Bartow.

DR. EFSTRATIOS LAGOUTARIS: Efstratios Lagoutaris, podiatrist, Jax Beach, Florida.

MARK SEDDON (Vice-Chairman): Thank you. I All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
guess we'll go ahead and do the approval of the minutes from the last meeting from May 12th. I believe Brenda e-mailed those out to everyone over the summer.

BRENDA ANDREWS: Yes.
MARK SEDDON (Vice-Chairman): And everyone received a copy? Do we have any comments on the minutes from the previous meeting?
(No Response)
MARK SEDDON (Vice-Chairman): I'd like a motion to approve the minutes.

DR. TIMOTHY WILLIAMS: Move to approve.
CINDY BECKER: Second.
MARK SEDDON (Vice-Chairman): All in favor?
ALL: Aye.
MARK SEDDON (Vice-Chairman): Any nays?
(No Response)
MARK SEDDON (Vice-Chairman): No nays. All right. The minutes are approved.

I believe we have four -- three currently here -- four new members. James will go ahead and introduce them.

JAMES FUTCH: I wanted to thank all of you, the new folks, for being here and making it through our extended process.
(Dr. Hart enters the conference room)
JAMES FUTCH: As you know, the Surgeon General, in the last appointment period, changed the guidelines somewhat and it became a little more in-depth a process for every term, not just the initial terms. So we do what we usually do, went to the societies and associations; asked for nominations and very happy, we've got great cooperation from the societies and associations. And I think we have some really wonderful candidates this time. And again, I just wanted to thank you.

I'll let Dr. Hart settle in.
That was the second test, was trying to figure out how to get into the building from the superhighway that circles the airport terminal.

DR. MARY HART: Yeah.
JAMES FUTCH: So we've just gone around the room and done introductions and if you're ready, if you'd like --

DR. MARY HART: I'm settled, yes. So I'm Mary Hart. Dr. Hart. I've been in nuclear medicine for twenty-six years. I'm an internist as well.

I'm currently the Chief of Nuclear Medicine at the Bay Pines VA and I've been there two years. I have ten years military service.

I've practiced at MD Anderson and a few other places and I've always been the Chairman of the Radiation Protection, the Radiation Safety Committee for many years. And I've always been a real champion for lowering radiation doses. I've worked with pediatrics a lot in the past. Obviously, I'm on the other spectrum of life now with veterans, but -- so I'm very happy to be here and I've worked with quality for a long time, since $I$ was in the military, actually, so I'm thrilled to be a part of this. Interesting. Thank you.

JAMES FUTCH: Glad to have you. I would just spend a few moments for the newest folks.

Becky McFadden -- I will fill in a little bit. If I get it wrong, jump right in. You're with Monroe?

REBECCA McFADDEN: Monroe Regional Medical Center.

JAMES FUTCH: That's in Ocala, right?
REBECCA McFADDEN: Yes.
JAMES FUTCH: And as I remember from the phone calls, you're a PACS administrator at this point, which is --

REBECCA McFADDEN: That is correct.
JAMES FUTCH: -- that was very interesting,
finding out all the information you have at your disposal --

REBECCA McFADDEN: Right.
JAMES FUTCH: -- from all the stuff that comes through.

For Dr. Birky, you mentioned FIPR. I'm not sure if everyone understands what FIPR is or your international dealings. If you'd take a moment to --

DR. BRIAN BIRKY: I'm not sure I understand what FIPR is, either.
(Laughter)
DR. BRIAN BIRKY: We were an independent state agency and we were established thirty-seven years ago. And in 2010, we were moved from being attached to the University of South Florida to being within the University of South Florida, which is a totally different thing.

And then when the whole rearrangements took place to form Florida Polytechnic University, we were moved within that university. So now we're an institute within a very small and new university in the state system. That's a huge difference for us.

Mainly, what we have been doing in the past is phosphate industry research and the research that All Good Reporters, LLLC (321) 285-2324 www.AlfGoodReporters.com
affects all the stakeholders, not just the technology for the industry, but the environmental people, public health. That's why I came in to the public environmental health.

JAMES FUTCH: Thank you. Chantal is a part of the newest group, but actually has one whole meeting, right, under your belt?

MS. CORBETT: Yep.
JAMES FUTCH: And Chantel and I think actually met several years back. Probably at a Florida nuclear medicine technologist meeting in Orlando or Kissimmee I guess.

MS. CORBETT: Yes.
JAMES FUTCH: I was actually very impressed.
They invited me to talk. I'm like, okay. We'll see how you like this. We were talking about the new types of technologists that you had approved a few years back. And that's a very active group.

MS. CORBETT: Yes.
JAMES FUTCH: Your vendors, I see a lot of the societies, HPS, AAPN around the state and FNMT is a very robust, very active group.

MS. CORBETT: Yes. FNMT, we usually have an average of 350 members attend at the annual meeting. So the Southeastern Chapter Society of the nuclear
med usually attends about 125. So they are usually very impressed with the Florida chapter because we're a very active chapter.

JAMES FUTCH: Yeah. Speaking of a number of Florida Health Physics Society for a number of years, we'd kill to have 350 members, not just 350 people attend an actual meeting. That would be pretty good.

And one more person was Matthew? And I just wanted to say -- we've got a spot over here, John.
(Mr. Williamson enters the conference room)
JAMES FUTCH: Matthew, we've saved the best for last. You kind of glossed over the important part of your resume.

Would you like to tell them what you do for the University of Florida on the athletic side?

MATTHEW WALSER: Yes. So I'm a physician assistant. I work in the orthopedics department at UF. I've been there for almost nine-and-a-half years now.

Before I did that, my former life I was an athletic trainer. I was an associate head football athletic trainer for the University of Florida. I decided that -- I was just telling Paul earlier that I decided fifteen years ago or so, twelve years ago All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
that I didn't want to get on to a bus on Friday nights before football games with a bunch of 18 to 22-year-old thugs when I was 60, so I decided go back to PA school. And so since that time, I still work with all our athletic teams at UF, just in a broader sense. I'm no longer there day-to-day, but I do cover many different athletic events. I'm there for all the home football games on the sidelines.

I work more as a medical operations guy for football on the Saturdays in Gainesville. If somebody needs an x-ray or MRI or any other medical service, home - home team - or away, you know, I'm kind of the go-to guy. So that's what I do on Saturdays. Don't look for me because I'm one of 90,000 people there. But you may see me, if somebody does go down on the field, I walk out on to the field out to the numbers on the visitor's side. So that's my role there.

I also teach an Intro to Radiation class for our PT school at UF. It's my own class. From May until December. It's usually about fifteen lectures and I just give them kind of the introductions to radiology. And it's a very broad-based foundation for them to gain knowledge in radiographs. They
have direct access, once they graduate as DPTs, any patient, apparently, can go in and see them like a physician, and they can order an x-ray or an MRI. So, you know, they need to make sure it's part of their curriculum to get some basic knowledge. I've been doing that for about six years now.

JAMES FUTCH: And you'll notice that we sat the University of Florida employee right next to the Florida State University employee.

MATTHEW WALSER: We've already agreed to disagree.

JAMES FUTCH: And at half time, I mean lunchtime, we're going to bring the balls in, set them in the middle of the room. Just kidding.

By the way, way to go on Saturday. Not that you personally did anything with it, but I think Mississippi left the state with a tail between their legs. Hopefully there's no Old Miss grads in here.

Back to Becky --
REBECCA McFADDEN: Yes.
JAMES FUTCH: -- Monroe. Tell us a little bit more about what's going on because you're right down the road from Matthew, basically.

REBECCA McFADDEN: Right. Well, basically, I serve at Monroe as the PACS administrator. I'm also
one of the managers in radiology.
I've been serving on the advisory board for the CTAE radiology program for the past ten years. And I also serve on our Radiation Safety Committee for the hospital.

So I'm one of those PACS administrators who's engaged in the radiology department rather than in the IT side of it. So it opens me up to a lot of different areas within the department, as well as the radiation safety and keeping the school and everything intertwined with our facility.

So by doing that, I, you know, I do get to get out of the office quite a bit because I'm also doing Leadership Ocala, and I think that's what you're really interested in. I'm part of that. I think they have Leadership Gainesville as well.

But that group of people, it's from various different types of businesses. So in my profession, I know a lot of health care workers, but by being in part of the Leadership Ocala in Monroe supporting that, it gives me an opportunity to get out in the community with local businesses and other professionals who aren't necessarily in the health field, and kind of engage in conversation there and see where we fit in in the community as far as the

## facility.

Monroe was owned by the county for many years and just this past year, we were acquired by Community Health System, which is now the largest health care system. So we're going through a little bit of a transition this past year. But things are looking really good. So it's a little bit about what I do there.

JAMES FUTCH: Thank you. We appreciate it.
REBECCA McFADDEN: Mm-hmm.
JAMES FUTCH: And John, since you're the only person in the room that hasn't introduced themselves.

JOHN WILLIAMSON: I don't know anyone else.
JAMES FUTCH: You've got to get here on time, man. .

JOHN WILLIAMSON: John Williamson. I'm the administrator of the environmental group of the Bureau of Radiation Control.

JAMES FUTCH: And you'll be hearing a little bit from each of our administrators in just a little bit.

MARK SEDDON (Vice-Chairman): All right. I guess move on to the Bureau presentations.

All right. I believe Cindy is up first.

CINDY BECKER: Yep, I am up first.
Welcome. I'm glad we all get the chance to get together and I am really--I'm awed by everybody's -- the new members, the variety of things that you've done and you've accomplished that you're involved in. I think that's really going to contribute to the group and I'm glad we're here.

And since we do have the new members here, I know some of you have been here many, many years and have heard what we do and know what we do, but I thought it would be a good time for each of us to kind of go over a little bit of what we do in each section of the Bureau. So I'm starting kind of with an overview and we'll try to be as quick as possible so we won't take up the whole meeting, but -- so I will start.

Let's see. As an overview, our division is made up of four bureaus, and we're one of those bureaus. The other three are the Emergency Medical Oversight, the Bureau of Preparedness and Response and Public Health Pharmacy. And we were put into this group about three years ago. Many of you might remember we started in the Division of Environmental Health. That division, during a re-org, got downsized to a bureau.

So there is a Bureau of Environmental Health, but that left us without a place to go. So this division is fairly new. It was made, like I said, about three years ago and it pulled these different bureaus together.

I kind of like the funny stuff of Godzilla, but in kind of little bit about the history of how we came about, of course, in 1954, Congress passed the Atomic Energy Act. And then the first Godzilla movie was also released.

JAMES FUTCH: No connection at all.
(Laughter)
CINDY BECKER: And we actually started over in Jacksonville in 1960. So there's a picture way back of the building, Board of Health.

And in 1964, then we had the first A bomb by China. Florida became the seventh agreement state with a formal signing ceremony.

We had the Statewide Emergency Network was established and the registration of $x$-ray machines began. Way to go, Yvette. You were around for that.

YVETTE FORREST: And we're still doing it now.
CINDY BECKER: I love this picture. Especially the clothes and the hairdo. But this is actually
some staff that we had back in the day, 1968, doing some sample testing at our environmental lab. And that building is still there.

JOHN WILLIAMSON: No, that's Jacksonville.
CINDY BECKER: Okay. This is 1971. This is one of our HPs monitoring our radiation levels. And this is near Cape Kennedy during one of the Apollo rocket launches. Love the hat. We don't wear hats anymore.

The section. We're now called Bureau Sections. We used to be called programs, but they decided to rearrange our titles, too so we now have five regulatory sections. We have Environmental Radiation Section, which John Williamson leads. We have the Technology Standards and Continuing Education. That would be James Futch. We have the Radioactive Materials section, which is Charlie Hamilton. The X-ray Machine section, that's Yvette, and the Non-ionizing Radiation is again James. And that's probably our smallest program. I don't talk too much about that. We try not to anyway.

The Bureau sections. We also administer eight operational programs within those sections, and that is emergency response, power plant surveillance, pre and post mining -- down in the Bartow area; low
level waste transportation.
We do radiochemistry; surveillance. We have, of course, our inspection program, which Jerry leads over there, and our training and quality assurance, which Jerry also is the administrator for that section.

And they are all going to talk a little bit more on these in depth. I'm trying to give a real brief overview.

JAMES FUTCH: Not the best choice of background.

CINDY BECKER: Color schemes there. Okay. You can't read all that, but the stars represent where we're located around the state; where our staff are located. And Jerry will talk a bit more about the telework situation that we have going on with staff, our inspection staff. So some of the stars represent those staff and others.

Our main offices are still, of course, Tallahassee has our administration and our radioactive material section and James and his staff.

And then over in Orange Park, which is a suburb of Jacksonville, is our x-ray machine registration program. And Orlando has our environmental section All Good Reporters, LLLC (321) 285-2324 www.AllGoodReporters.com
there. And then the rest is a bit scattered as far as where our telework inspection staff are located. We still have one county that works with us, and that's Polk County, imperial Polk County as they say. We have Tom McNally, who will be retiring in February. So it's kind of the last county holding out as a county program.

Broward County is still listed there saying Broward. It actually became a part of Miami, which Jerry may talk briefly about. That county gave up their program to us just a few months ago.

This is -- they will have org charts when they go into their sections, but this is how we're layered there. And of course, we're in the Emergency Preparedness Community Support Division, but it's under the department, the Deputy Secretary for Health under Department of Health.

And then it shows the field operations. It shows our five programs there.

And that already starts with Jerry's program.
Does anybody have any overall concerns or questions?

I did want to briefly mention that we did have an NRC, Nuclear Regulatory Commission Impact it's called. It was an audit of our program and that was
a few months back. They audit all the agreements of the programs. We're in agreement because NRC actually gives us all the reg materials to take care of all the licensees. So we do that for the NRC. There's thirty-seven states that do that instead of the NRC and we came out with flying colors on that. Every indicator that they looked at came out the highest rating, which was satisfactory. So we had that audit.

We also had internal audit for the first time of our x-ray program. And that's still in draft. We haven't seen the final report or I could've passed that out, but it's still in draft. So they looked at things like are you past due on x-ray inspections and, of course, yes, we are because we're down some staff.

One of the things I wanted to mention, which they will mention as well, is recently, July lst actually, we had to downsize once again, as happens, across the state and, of course, the Department of Health did downsize quite a bit and we lost -- we used to have 100 FTE positions. We now have 92.5. So we've lost some inspection staff, some evaluators; some support staff. So we've had to kind of rearrange what we do and try to make up as
much as we can.
And that's all the changes I know right now. It's a bit quiet in Tallahassee. I'm hoping it stays that way.

JAMES FUTCH: The session is coming earlier this year.

CINDY BECKER: That's true. That is true.
JAMES FUTCH: Starts in January instead of two months later like they normally do. And also, we've got the Tallahassee activity, because reapportionment is still going on. Not that it affects us at all, but it does affect the town and the Legislature. So there, I think they are in session next week.

REBECCA McFADDEN: Can I ask a question with regards to audits?

CINDY BECKER: Sure.
REBECCA McFADDEN: You mentioned an internal audit and I may have missed this, but the other audit that you had, was that an internal audit or who would audit you as far as your registrations and different programs?

CINDY BECKER: Okay. The Nuclear Regulatory Commission is mainly concerned about radioactive materials, so they are going to be the auditor of
our reg materials and anything we do with them, which means our emergency response activities, somewhat with the lab functions, but mainly with how we evaluate our reg material licensees and how we inspect them and how we train our own staff; the competency of our staff and our licensing actions. That's done by the Nuclear Regulatory Commission every five years.

REBECCA McFADDEN: Okay.
CINDY BECKER: And that's a requirement with all states that have an agreement with NRC.

REBECCA McFADDEN: Okay.
CINDY BECKER: And the internal audit, we have an investigator with the General Counsel's office within the state government. They pick a program and every year or maybe two or three times a year, depending on how extensive the program is, and they audit the program. So that's the internal audit $I$ was talking about.

They decided to focus only on the $x$-ray machine program since we had just had our audit of our radioactive materials program. And they had never audited our bureau at all. Ever. So it was our turn.

REBECCA McFADDEN: Okay. Thank you for
clarifying. I'm just -- you were saying you were audited. I wasn't sure who was actually doing the auditing.

CINDY BECKER: Right.
MARK SEDDON (Vice-Chairman): Does the CRCPD have any recommended standards for programs as far as staffing and things like that?

CINDY BECKER: The CRCBD won't get too much into that. The NRC does. Now, the NRC dictates, you know, how many staff you have to have for a competent reg materials program, but as far as the CRCBD, no, they're more of a guidance organization, not a regulatory. They do have committees that will suggest regulations, state regulations, and they will put out those suggested state regulations.

MARK SEDDON (Vice-Chairman): I've seen those. I was curious if they have any recommendations on this much equipment they will recommend this many inspectors, this much inspection team.

CINDY BECKER: No, I think it's because states are so unique. I mean, we do similar things, but we are unique and the type of medical community and industrial and academic communities that we have, so --

MARK SEDDON (Vice-Chairman): I guess Jerry?

JERRY BAI: Okay. Before I jump into this first slide, just a general how the Bureau is organized.

You notice she said we had 92 employees and you noticed that inspections is not even a section underneath that Bureau, right? We've got more than one third of the staff in the inspection business and we're not even a section.

What it is is inspections is sort of like the field staff for all the sections. We are part of the x-ray, we are part of the materials, we're part of the environmental.

So what you have is the programs out of Tallahassee, Orlando and Orange Park, they do all the paperwork and registrations, licensing; everything else. And the people that do the footwork are all the inspectors and investigators located all over the state. And that's what we are.

So we're not really a section. We're part of all the sections, and that's how it's organized. Just the state of Florida is just so geographically huge. And that's how we manage it and we find it more efficient that way.

Which means that we are sort of like a tie in to everything. You know, x-ray specializes in
x-ray. They know all about the x-ray. Materials knows all about the materials. Environmental knows all about incident response and the phosphate industry and all this other stuff and the power plants. And then we work with them. So we're a jack-of-all-trades.

The core mission. The inspection staff are, of course, charged with inspections, materials inspections and x-ray inspections mostly. But any time there's an allegation, we're in charge of those investigations mostly.

We also work with a lot of other agencies. When the Feds, federal agency, FDA inspections, if the FBI has an incident, the Port Authority, anybody else, we're usually the ones that go out there. Environmental session, for instance, has a 24/7 and they can't travel quickly from Orlando to, let's say Miami, but we have personnel in Miami that can respond.

We also do the practice exercises. CR -- CDC and what are those, $M \mathbb{R}, \mathrm{MRCs}$ ?

CINDY BECKER: MRCs, Medical Reserve Corps.
JERRY BAI: RVCs. Don't ask me what those acronyms stand for. But we also do the practice exercises for the power plant. We pretend like
everything is going wrong and we run around in the vans and we work with environmental setting up our command posts and everything. So that's basically what we do.

There's generally five inspection areas that make up the Bureau, which means there's five managers out there. But we don't necessarily have offices. We don't have offices. I don't have an office. My inspectors don't have an office. There's one little office where we share with X-ray, but they all work from home. So there's no state office space that we can walk into. Their office is inside their -- whatever room they set up with their computers and they operate out of there. They park their state vehicles there. They go out and do the inspection or the investigation, they come back to the home and do their computer paperwork and that's basically how it runs.

TQA, based out of Tallahassee, that's our quality, all the other stuff except inspections. They do the QA, the number crunching, that kind of stuff, with the help of other Tallahassee personnel.

And let's see. Yeah. They monitor for the training needs. Develop, facilitate and track Bureau staffing. Develop and maintain the SOPs and
they provide the QA numbers.
How many inspections? The inspectors -- each individual has performed, we have an SOP, written SOP. It's huge. And it spells out exactly what an inspector does. So the inspector shouldn't be going off on their own.

A lot of you guys have encountered inspectors at facilities. If you've been at an x-ray facility or a nuclear medicine facility or industrial radiography facility, you've encountered the inspectors. Usually you don't see anybody from a program office. You might talk to them on the phone, but you don't see them. We're the guys that go out and see on a routine basis at these facilities.

And we're the group that generally puts together the SOPs, so if there's something that we do or something that we don't do when we're at the facilities, my group would be the one you might want to communicate that to and we'll work with the programs to modify that.

Inspectors: Primary point of physical interaction with the public. We perform, what, 17,000 inspections annually? If you count up all the RAM, mammography, investigations, MQSA
inspections, it comes out to about 17,000 pieces of paper we generate at 5,000 different facilities annually. So a lot of people see the inspectors. So we're usually the ones that they grieve to about regulatory issues and stuff.

We're the eyes and ears. We -- our job is to go out there. We see it, we hear it, and we communicate it back to the programs and they make decisions on where to go from there. And as I said, we train across all sections.

Just to tell you what that picture is, that's an industrial radiography x-ray unit, in case you were curious.

I'll just describe the pictures here first.
That's a cargo ship. A port authority, I believe, called us out there. So the break guys went out on the boat and went over to the ship and waved their meters around.

That's a train. And I believe -- I'm not sure what that last picture is. Discussing certification requirements with a nuclear medicine technologist.

We're also usually between the programs and inspection staff, if there's a question by the facilities about requirements, we're usually the ones they often call up. Because when we go to the All Good Reporters, LLLC (321) 285-2324 www. AlfGoodReporters.com
facilities, we leave a card there. And when they're looking for a number to call, nuclear medicine always has that posting, right? All right. So it's usually either us or environmental that they call because that's the number that they find first.

So we field a lot of calls and usually I just brush it off on to the program so they can answer it for me.

Field operations represents the Bureau's front line. They interact with the regulated communities and the public on a daily basis and respond to a multitude of radiological health issues that become increasingly complex.

Increasingly complex. You know, every year there's a couple of new things that pop up on the radar. They just keep inventing new ways to use radiation. Whether it's an x-ray machine, whether it's materials use, medical and industrial. Constantly. And we have to constantly generate new types of codes for what it is that we're seeing once we figure out what it is.

Let's see. And the scope of radiation use is huge. This is just -- this isn't everything. This is just a sampling of what an inspector might deal with, you know. Everything from industrial to
medical, to radioactive materials versus x-ray generated, therapy, diagnostic, nondestructive testing, investigations; technology certification. All right. Like I said before, every inspector works out of their home. They're teleworked. And they are all equipped with a vehicle. Inside the vehicle is a fully equipped emergency response kit. They got their little box of meters, they got their duffle bag with all kinds of swipes and the rubber suits and boots and masks and that kind of stuff.

So if there's an event, the idea is that they can all respond. All it takes is a phone call. We're all equipped with communications equipment; cellular phones, and we jump inside the car and we can be on our way.

As you can see, they are grouped to population densities. You can see where, like, nobody lives in some of those areas.

JAMES FUTCH: There's a complete wasteland between Pensacola and Tallahassee. There's nothing there. Absolutely nothing.

JERRY BAI: As you can see, it's got one star. It's sort of like the Capitol, right?

But, yeah, each inspector is a fully equipped office unto themselves and a response point.

And for emergency response and as well as logistics for performing inspections, this is the most efficient method that we can come up with.

Yeah. Supposedly, we can respond within thirty minutes. So far, that's proven true. Inspections to and from home. I'm not sure what -- yeah, he's surveying him. They are all state inspectors. So that's not real, so --

These are just images. By far, the most work we do is actual inspection of x-ray units.

Cindy mentioned that we were short on staff. Here's the thing: When NRC came in to audit us, the state, we have a priority list. Our priority list puts certain types of activities on top. So when NRC comes in and they wanted to scope us out, we came out roses. Really, really well. In fact, we're one of the finest states as far as the results go. Stuff that they can't actually say on their reports but they can say off to the side.

So because of that priority list, materials is always up there. And the majority of the work that is not on the top priority list happens to be for x-ray inspections. So x-ray inspections gets hit because they're not up on the priority list.

When we have a shortage of staff, it's x-ray
that has to pay that. So, unfortunately, when they cut the number of inspectors, we've had shortages of thousands of assignments, literally, at this point. It always shows up on x-ray. And it's just an outright number crunching statistic is what it is. And once we get backed up, it hard to catch up, because not only do you have still have to deal with the incoming, you have all these delayed inspections, overdue inspections sitting there, you know. We don't even have enough for the incoming assignments.

So our audit was fantastic with NRC. And then with the Attorney General, not so hot, because all they looked at was x-ray. They didn't look at all the other stuff that we do, right? And that's simply because inspections could not do it.

But anyway, this is the last image. This is me about fifteen years ago. You can tell. I had a full, dense set on top.
(Laughter)
JERRY BAI: But, yeah, radioactive materials inspections surveying a portable gauge.

Is there any questions about what we do?
REBECCA McFADDEN: What are the credentials of the inspectors?

JERRY BAI: Oh, jack-of-all-trades. When we hire, we look at -- you know, those stars on the map. We look at where there's a gap. The biggest gap that we need to fill. And then we hire based on where the person lives, you know. You can't just drive to work, grab the car and go. You have to literally leave from your home. So that's the first requirement. Location, location, location. Right? The other one is, well, what credentials? Okay. All kinds of credentials. What we have is, we've got people with a background in emergency response. We've got people with engineering backgrounds, health physics background, medical physics background. We've got nuclear technologists, x-ray technologists, all kinds of backgrounds out there. What do you call those nukes on the sub left the military? We got a bunch of those. We've got guys who used to blow up bombs in Nevada. We've had all kinds of credentials.

It's whoever is best qualified at the time. But nobody -- I'd be happy if they had one or two of those credentials. But the other five, six, seven, eight credentials are going to have to be trained anyways.

REBECCA McFADDEN: Okay.

MARK SEDDON (Vice-Chairman) : Is there a minimum frequency that you're required to do your inspections?

JERRY BAI: For $x$-ray or RAM?
MARK SEDDON (Vice-Chairman): For x-ray.
JERRY BAI: Every state is going to be different. For the state of Florida, yeah. I believe those are inside the rules for the inspections.

JAMES FUTCH: It's actually in the statute. JERRY BAI: Yeah.

DR. ARMAND COGNETTA: Once a year.
JERRY BAI: So medical would be, standard is about two years for most diagnostic medicals therapy would be one. And there's a bunch of other categories.

MS. CORBETT: What kind of penalties do you have when you don't meet those criteria?

JERRY BAI: This one is better served with the x-ray program, but in my experience, remember, we're the eyes and ears. All we do is just do a report and give it to the program. The program, they administrate all the nasty notes and stuff like that over to you if you get cited. Same thing with materials. But in my experience, unless you do
something that is willful or that actually harms somebody, usually not too much.

Same thing with materials, historically. What materials has done versus what you might encounter if an NRC inspector comes in there. NRC, the Feds don't do anything small. When they cite you, man, they cite you and you're going to feel it. Us, we've been very, very nice. Our fees are really, really low. And our citations don't bankrupt anybody.

CHARLES HAMILTON: More for the RAM inspections is based on health and safety and hazard of the use that goes anywhere from at least six months for, like, large radiators, four million curies, up to ten years for general licenses. Outpatient nuclear medicine is three years. Hospital's, two years. And that's based on -- NRC has a guidance of what they require, but our frequency is a little more restrictive, but in the ballpark what they do.

Also, we always do a pre-license visit for inspections. We do an initial inspection at six months to make sure you're on the right track before we wait two or three years to go back. And also, if they've had, like, a number of violations or a fine, we'll escalate the inspection frequency for a cycle
or two until they get back.
DR. MARY HART: If you have either a piece of equipment or a personnel who aren't following regulations, do they give a period of time for mediation to come back? Is that the --

JERRY BAI: For x-ray, we usually give about ninety days, unless it's a serious event. I mean, somebody's got a dial x-ray unit with a hand dial timer and the thing just doesn't turn off on its own, we would ask them to cease and desist at that point. We will call up the x-ray program, let them know what we're -- and the x-ray program might ask them to stop operations at that point. But if it's not a serious health issue, ninety days to have it fixed.

Materials, they are required to send out a letter thirty days from the date of last contact with the facility by the inspector. They have to send out a letter. And then as far as the response --

CHARLES HAMILTON: I mean the regulatory frequency is ninety days, but we have internal policies where notice of violations for a radioactive materials license, due to the electronic paperless system, we're able to get, usually get the
notice of violation letter out within about seven days of the inspection. Per our guides, we have to get it out within thirty days, but we try to get it out as quickly as possible. That's usually about seven days.

Then we give them thirty days to respond to the letter. What are your corrective actions, what are you going to do to make sure it doesn't happen again and give us the approximate date when you're in compliance.

And then if we don't get a response from them, we will send a twenty-day letter, a ten-day letter and then we start calling them and e-mail. So we attempt to get everything corrected as quickly as possible.

MARK SEDDON (Vice-Chairman): All right. I believe we have Dr. Schenkman is actually on the phone, who is our normal chair. I think she wanted to say something.
(Dr. Schenkman appearing by phone)
DR. RANDY SCHENKMAN: Hello?
MARK SEDDON (Vice-Chairman): Hey.
DR. RANDY SCHENKMAN: Hi everybody. How are you?

ALL: Good.

DR. RANDY SCHENKMAN: I apologize for not being able to be at this meeting. I had to go to Denver for something else, but I hope you have a very, very good meeting and I will definitely be at the next meeting. And I miss you all. I'm sorry I'm not there.

BRENDA ANDREWS: We miss you too.
CINDY BECKER: We miss you too.
BRENDA ANDREWS: Can you hear them?
DR. RANDY SCHENKMAN: Have a wonderful day everybody. And safe travels on your way home.

ALL: Thank you.
BRENDA ANDREWS: Thank you, Dr. Schenkman.
DR. RANDY SCHENKMAN: I'm thinking of you. Bye.
(Phone hangs up)
JAMES FUTCH: I think she felt a little guilty for not being here. Just a little.
(Laughter)
MARK SEDDON (Vice-Chairman): All right. Anymore questions for Jerry?

PAUL BURRESS: I have a question, of course, for Jerry.

MARK SEDDON (Vice-Chairman): Paul?
PAUL BURRESS: You guys don't really do
commissioning inspections, right? We leave that to the vendors; is that right?

JERRY BAI: Commissioning?
PAUL BURRESS: When a machine -- what I found out at the university is a lot of the equipment that we bring in has to be inspected before it's ever used, but medical x-ray devices and stuff, it seems like we leave training, initial testing, everything to the vendors. Is that correct?

JERRY BAI: Yeah. For x-ray, immediately after they receive the paperwork, that is thrown in for a due date within a three-month period. One quarter. But we don't make the facilities wait.

PAUL BURRESS: They can start using the equipment right away.

JERRY BAI: But materials does.
PAUL BURRESS: Yeah.
JERRY BAI: If you have a materials license, we have to do a previsit to make sure that all the safety stuff is in place, shielding, badging, all that kind of good stuff. And we'll do a previsit to make sure, you know. We don't want you to start operating without a licensed technologist in place.

PAUL BURRESS: It seemed funny to me that if you're going to use something for research, you have All Good Reporters, LLLC (321) 285-2324 www.AlfGoodReporters.com
to wait, but if you're going to apply radiation to humans, we just trust the vendors. And I understand you're understaffed, you can't get out there in time to keep somebody from not being able to see patients.

What I wonder is, are there any states that are going to that, sort of a pre-commissioning inspection before you see a patient, or is the failure rate zero? When you guys go do the initial inspections three months after it's installed, are you finding any violations?

JERRY BAI: I think the last time we looked at the statistics of violations of new facilities, new installs versus existing installs, it actually was about the same statistically. So we just don't find that there's greater violations with new installs. New installs mean it might not be a new machine. Some of these units --

PAUL BURRESS: Right.
JERRY BAI: -- outlast us.
DR. BRIAN BIRKY: When you mentioned a 30-minute response time, that was verified?

JERRY BAI: Thirty-minutes response time is how long it takes us to get inside the car from that phone call. Because remember, this is a 24//7
thing. We actually have personnel, just in case it's something at 2 a.m. in the morning, all right, on Sunday night.

We have personnel located around the state that are required to have their phones on and they need to answer at 2 a.m. on Sunday night, if necessary. And they might not be the most appropriate location wise, because they are in the general regions, those regions, that's how they're located.

But most of the stuff we can go ahead and respond to during regular office hours unless it's, you know, you have a plane crash that was delivering pharmaceuticals, we might want to send somebody out there right now because there's people, you don't -we don't want the highway being shut down because emergency response doesn't know what to do.

CHARLES HAMILTON: We do that.
JERRY BAI: Yeah. Within thirty minutes. If I'm in the middle of an inspection, they call me because I'm the closest person there, I will pack my stuff up, throw it in the trunk and be inside that car in thirty minutes, on my way to the location.

DR. BRIAN BIRKY: Do you do some kind of periodic drill on that to make sure people do respond?

JERRY BAI: What they do is periodic phone calls. They do a call down to see if we respond to that phone call.

MARK SEDDON (Vice-Chairman): Any other questions? No? All right. We'll move on to John? I believe you're up next.

JOHN WILLIAMSON: Thank you, Mark. Hopefully we have the whole 250-slide deck loaded. That will stand between us and lunch.

I'm the administrator of the Environmental Radiation Section located in Orlando. There's a number of core missions that we have. I could read the slides, but you can read them also, plus I'm going to talk about - Cindy earlier showed that there were a number of core missions, six of those eight core missions belong to the laboratory, to the environmental group.

We do a lot of things beyond the core mission-helping out with training throughout the state. By training the Medical Reserve Corps throughout the state for population monitoring we provide a lot of technological expertise. When a government agency calls and asks, I want to do this, what type of instruments should I buy, we can provide guidance on that as well.

Yes, they do pay our staff to go out and fish. Part of our environmental monitoring for nuclear power plants is we have to collect fish, either on a quarterly or semiannual basis, depending on which plants, depending on their off-site calculation manual, which is their environmental guidance document that they have to file with the Nuclear Regulatory Commission for how they are protecting the environment. But we also have to collect a variety of other environmental samples: Soil, beach sand, sediments, crabs, aquatic grasses, vegetation, some type of a broad-leaf vegetation, some food crops, air samples and water samples. All on various basis of time.

Water samples, for instance, St. Lucie we collect a water sample every single week. The other plants, Turkey Point, Crystal River and Crystal River, we also collect monthly and quarterly water samples.

Air samples, there are eight air stations around Turkey Point, eight around St. Lucie and six around Crystal River. Those have both particulate. They collect your betas and the iodine cartridge to collect your radioactive iodines. Those are changed out once a week. The samples are brought back to All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
the laboratory and we process those samples. So I think I've actually got a slide in here. Over the course of the year, we do about 2,000 to 3,000 samples from around the nuclear power plants.

We do low-level waste inspections. Every single generator in the state of Florida who generates low-level waste is being shipped off to a low-level waste disposal treatment or storage facility, it's required to have that shipment inspected before it ever leaves the premises.

They call us. They are supposed to give us 48-hour notice. Sometimes they don't. We send an inspector to the site. We inspect it for the Department of Transportation compliance with low-level radioactive waste transportation.

Last year, fiscal '14-15, we did 237 inspections. If you think about it, that's essentially one every single working day of the year on average.

Most of these go to either Clive, Utah, which is an Envirocare facility in Utah where they do burial. We just started to see a few of them going to Waste Control Specialists in Texas, which is now also a burial site. And an awful lot of it goes to one of the facilities in Tennessee where they do
waste processing.
This is pictures of some of the various types of material that we have. These are steam generators from St. Lucie. This was, I believe -this is a cask containing spent resin. These are sea land containers. This is from St. Lucie, it is the reactor heads that they shipped off from there.

We have a pre and post mining program which looks at the phosphate areas. There are two large phosphate areas in the state of Florida. One up near Fort White north of Gainesville; the other one is the whole Bartow area. We've been doing monitoring of this for about thirty years now.

This all started because back in the 1970s, there was a red book and a yellow book published respectively by the EPA and at that time, the Florida Department of Health and Rehabilitative Services, that essentially said that houses built on post phosphate mined lands had higher instances of radon inside the houses. So they started up a work group to look at whether the state should do anything about this, and the recommendation of the work group was to start up a monitoring program to look, before it was ever mined, and then to look at
the land after it was reclaimed and see whether there was a significant difference in the background radiation levels.

After thirty years, we have 170,000 plus data points. What we have found, it's kind of hard to say. So all this data, $I$ can say generally, in post-phosphate mined land, the radiation level is higher. That's generally. On a specific basis, you can point to this one and point to this one and you can't make any predictions at all. None. We continue to monitor.

We have taken over 200,000 gamma survey measurements and 250,000 total analyses. Every twenty-acre plot. Every six months, the mines turn in what they're going to do to us both mining it and reclaiming it. And we break it down to twenty-acre plots.

On that twenty-acre plot, we do a walking gamma survey with a meter. We go dig a hole. We have a drill rig. We take a six-foot core sample. We take samples at one, two, three, four, five and six feet. We take them back to the laboratory. We dry them. We put them in a sealed can. We let the radon ingrow for thirty days and we count the Radium-226 based on the ingrowth.

And we also take air samples and water samples. We do 160 water samples a year and we do alpha tracks and ambient TLDs for ambient gamma radiation around the areas.

One thing that we have noticed an awful lot. When we started this program thirty years ago, there was probably twenty some mining companies and now there are two. And we expect that over time, as things continue to tail off, that consolidation may even go down to one mining company.

This is a picture of the drill rig that we use. Our drill rig has been in business since 1989. Hopefully we're going to be getting a new one this year because we found when you run something that long, when you break it, nobody makes the part anymore. Somebody has to hand make that part. It's no longer made as part of an industrial process.

Nuclear Power Plant Emergency Response. Jerry talked about it a little bit; Cindy talked about it a little bit. There are now two operating reactor sites in the State of Florida. Two reactors in St. Lucie; two in Turkey Point. Turkey Point is building an additional two reactors down there. Between 2022 and 2024, they may actually be in operation. We'll see.

Every single year, there are nuclear power plant exercises at Crystal -- sorry, St. Lucie and Turkey Point. Every other year, one of them is graded. So this year, we had St. Lucie graded. Next year would be Turkey Point is graded. For the plant, the Nuclear Regulatory Commission grades them. For our response, FEMA, Federal Management Agency grades us on our response. How well we can send field teams out. Whether they can take the samples appropriately. Whether they know what they're doing when they take the samples. The radio communications that they report them back to the Emergency Operations Facility. Whether the people in the Emergency Operations Facility can do the dose assessment and make predictions on whether they need to evacuate or shelter in place or administer KI to the members of the general public.

Whether the operations officer can keep a handle on all the dose -- all the emergency dose stuff as well as what the field team are seeing in the field. Whether that changes what your protective actions are to the members of the public and then what the long-term consequences are. How you're going to be working with your teams. All that is graded by FEMA for us.

We have a couple different vehicles that we use on that. We have a sample prep vehicle. Converted 3500 Chevy cargo van. What we did is this is a miniature laboratory. It's where we take samples from the field. We take them into this van and then we put them into the appropriate containers to be counted in the mobile lab. Because those of you who have anything to do with the counting room, know you don't take open samples into your counting room because if you do that, soon your entire counting room background tends to be getting higher and higher. So this is our means of making sure that the laboratory, the mobile lab, doesn't have open samples that they can spread contamination.

We have a field team trailer. We carry all of our instruments, all the equipment to outfit the field teams in this trailer. It's 16 by 8 foot, seven-foot interior ceiling. Actually got a bench inside. When the field teams are dressing out and you can imagine how lovely it is to dress out, preparing to go out in 90 degree or 95-degree temperatures. It's bad enough having to go out there to do the sampling, but when we make them dress out, put on all the rubber booties and stand out in the sun, they really get upset. So we take
them inside an air-conditioned trailer so you can sit down on the bench and get dressed out, then you go outside.

Some of the power plant drills and exercises we've done just the past six months really. Turkey Point, FEMA evaluated exercise in February. We had a St. Lucie off-year exercise where we actually had an opportunity to take our teams, and FEMA has put together a program where you can transmit all of your data instead of having to do it by radio. You open up the laptop with an air card and you simply type your data in that you did for your field measurements, and then it goes into a database maintained by FEMA. So the people in the EOF can open up and look at the same database. They can see realtime as you're collecting your data.

So it eliminates all those transcription errors that you can have over the radio, plus it frees up the field teams not to have to worry about the radio as much to transmit fourteen different data points for every sample collection, especially if you're talking about GPS measurements, you have lots and lots of room for error.

The one thing that we found on this program is that you have to use the negative for the longitude
here because if you don't, you end up plotting all your points in China. And that is a learning point. And we've done national exercises with this program. And if you see a lot of data points out in China somewhere, you know exactly what they did. And it's one of those learning things, but once you learn to use it, it's much, much, faster to be able to collect your data and report it.

We also did a Black Pearl population monitoring exercise the day after the St. Lucie exercise. We've done three population monitoring exercises in the state of Florida now. This is essentially looking at -- members of the general public, if they think that there's a possibility they were contaminated, they're probably going to want to go somewhere. And if you don't provide somewhere for them to be screened, they're going to go to your health care facilities and they're going to say, I'm contaminated with radiation. You need to take care of me. And those who work in health care facilities know that you don't really have the resources to do this. Most of your plans are to build things in your parking lots and push them all out there because radioactive contamination is not, by itself, a life-threatening problem. It's not even a medical
emergency really in any sense, unless they have embedded radioactive material or they have internal contamination.

So the state has been working with the Medical Reserve Corps. to set up population monitoring centers in, say, a high school gyms or community centers where we can set up equipment and have trained personnel to screen people for radioactive contamination. Hopefully by doing this, we will relieve the burden on all the medical facilities and leave them to do what actually is necessary, which is treating people with real injuries.

We also did a national-level exercise in South Carolina in July. It was 105 degrees on some of the days. I don't know who would possibly schedule an exercise in the field teams in South Carolina in July, but they did it. And as part of that same exercise, we also had a Wings aerial measurement system.

The Department of Energy has a group called AMS, the Aerial Measurement System, where they can send helicopters and airplanes with radiation detection flying over the land to determine whether there's deposition. We've also done exercises where we look for elicit radioactive sources, i.e.,
somebody steals a source like happened down in New Mexico with that Cobalt-60 source and whether they are taking it somewhere to use it for a nefarious purpose. You can actually flow over them with an aircraft and if you're close enough, you can actually see the source from the aircraft and then you can radio in. We've done a lot of work with that. That was also part of the Wings exercise that we did in Sumpter.

They also have the joy of having pilots flying in like a Cessna 182 at about a thousand feet. A thousand feet is very, very high. There's no air conditioning in the plane. So the pilots just love doing that particular exercise.

We do a lot of training for first responders. We provide training free of charge to first responders. If you think about the number of people that we train, which is a thousand to two thousand a year, and typically we do, most of those are eight hours of training. Typically, a training provider will charge you about 400 to $\$ 500$ per hour for training. So if you do the math, we're saving our first responder agency somewhere between \$300 and $\$ 600,000$ a year in training costs.

Here's a list of some of the organizations
trained in fiscal year '14-15. You see we go all over the state. Most of it is fire rescue. We also do a lot of training for emergency management and some police agencies as well.

When there's a lost, stolen or abandoned source, sometimes these sources end up places they shouldn't be. Like melted down in a steel recycling mill. And when that happens, we run the response out of our Orlando office. We can actually deploy our mobile laboratory.

The airplane crash that Jerry talked about, that's this one. The FedEx crash in Tallahassee in 2001, I believe. This was the Ameristeel up in Baldwin, just west of Jacksonville. They melted down a Cesium source. We respond to about 120 incidents a year involving radioactive materials.

Essentially, if there's any allegation of radioactive materials being involved in it, we will do a response. And this can be to the extent the space aliens are bombarding me with cosmic rays and you need to come out and figure out why they're doing it.

And, yes, I am not kidding about that. We have people who call with that and they're we spend usually two inspectors out, not just one, but two to
investigate and make sure. We've had people impregnated by space aliens. We've got people who are being irradiated. We've had cases where the neighbors were shining laser beams into their house. James can tell you all about that one.

People who got free fly ash from a power plant to coat their property with and afterwards, the radiation was causing all types of ill effects, so they want us to come survey it and figure out what to do.

Laboratory services for identification and analysis of radioactive material, fiscal year '14-15, 4700 samples received; almost 6,000 analyses. That incorporates power plant surveillance, pre and post mining, inspection and radioactive instance.

Population monitoring. We talked a little bit about this with our population monitoring exercises. For about, since 2008 was our first training and we started really full time in, like, 2010, we've been doing somewhere between six and twelve, maybe fourteen trainings a year around counties in the State of Florida.

The Medical Reserve Corp., which is part of the County Health Department, it's a group of
volunteers. The coordinators call us. They ask for a training to be presented in their area. We go out typically on a Saturday. We provide eight hours -actually, seven-and-a-half hours of radiation training. The first four hours of it is didactive training in the morning. It's essentially awareness level for radiation preparedness. What this meter is, what basic radiation units, dose versus exposure, contamination. Everything that they need to meet the OSHA requirements for hazard awareness. Then in the afternoon, we bring them back and we have a series of practical exercises that we've set up where we actually let them go and survey a bullet dummy for radioactive contamination to look at a variety of different types of dosimetry. Know how to read that dosimetry for their dose; to look at various types of equipment to be able to measure contamination versus exposure. Just to become familiar with how you would actually use these instruments to measure radioactive contamination on members of the public.

We also talk about the CDCs model for radioactive -- how to monitor the public for contamination, which is the CRC, Community Reception Center.

If you're interested, if you Google Community Reception Center, you can actually download a free program from the CDC and it actually walks you through a simulation of what a Community Reception Center looks like. And the nice thing about their model is that it has a whole bunch of very short videos, probably none more than about twenty-five seconds. It talks about how to quickly do something. How do you take a shower and remove contamination? How do you use a survey meter quickly? What happens if somebody is surveyed twice and they still show that they're hot. You assume it's internal contamination.

And then it also has a series of fact sheets and guides and other things attached to it. So it's essentially an all-in-one package that the CDC put together for how you can have a community set up a Community Reception Center and be able to monitor the public for contamination.

And once again, the whole emphasis of this is to make sure that your resources and your medical facilities are treating people who are truly injured and not people who think they are injured because they have radioactive contamination.

We do NASA space launch support. Ulysses,

Galileo, Cassini, the Mars Science Laboratory, Pluto New Horizons, which we got a lot of press about recently because it finally made it out there. I was on the launch team for Pluto New Horizons January 2006, and this year it finally made it out there. The Mars Science Laboratory. The big rover, the Curiosity rover, a number of us were doing that.

And the reason for that is that each one of those launches has an RTG, a radioisotopic thermal generator on board that provides power to the actual probe. That RTG is powered by Plutonium-238. So in case there's an anomaly, and that Plutonium-238 is dispersed, we actually have field teams out who can go out and do monitoring, make sure it's not going to cause effects upon the public. We also make recommendations for protective action if necessary.

PRND training and exercises, this is preventive radiological nuclear detection. The idea of this is if you can detect the source before somebody explodes it, you saved an awful lot of money. You saved an awful lot of public panic. So we actually have teams with specialized equipment that we send out before special events and in some cases, an intelligence-driven event where the police may have intelligence that says somebody is intending to set
off an RDD or an improvised nuclear device. We will actually send these teams out, either on ground or we can also do it from the air with our mobile radiation detection system, looking for these radioactive sources. And we do a lot of training with the Florida Highway Patrol and Fish and Wildlife Commission, to work with them so that they understand the basics of doing this. We also work with the Department of Energy to make sure we can go out and do this.

And then there's a couple of events every single year, that we actually go out and do special event monitoring. The Coke Zero 400 races in Daytona. The Daytona 500 series of races; oftentimes of Blue Angels air shows. Monitoring also done at Sebring.

If, for instance, one of the sports teams in Florida makes it to the finals, there's been monitoring the NBA finals, there's been monitoring at the Super Bowls, there's been monitoring at the World Series. If there's a special event that's large enough, that it would possibly have a threat against it of a RDD or an RND, there's going to be monitoring. We had teams monitoring at the Republic and National convention twenty-four hours a day for
about five days straight.
Some of the events we've done, December 2014, Department of Energy training with FWC and FHP. There was a very, very large aerial exercise in the Tallahassee area. We had the U.S Army involved with it. Fish and Wildlife Commission. The Department of Energy. Oakridge National Labs. The Bureau of Radiation Control. That all took place in January. We had about forty-five separate missions planned involving a variety of red teams with radioactive sources, either in fixed locations or in buildings, moving on the roads.

We also did PRND monitoring at Daytona 500. We did a display at the Capitol for the lawmakers and we did monitoring at the Coke Zero 400.

Radiological source support for other agencies. We have a license. We have a lot of different radioactive material; different sources that we've collected from a variety of ways. Most agencies that do PRND missions or training, don't have a license for sources, which means the only thing they can typically have are your little button sources.

Button sources don't typically work more than about five to ten feet away. So if they're trying to train their first responders to know how to react
when their meter suddenly goes to the red zone, you know, 15, 20 mR per hour or higher, you really can't do that with button sources. So they contact us and we will send out trained source handlers to go take our sources out there, deploy them properly, provide the training, and make sure that no one has anymore exposure than necessary for the use of those sources.

Thank you. Are there any questions?
MARK SEDDON (Vice-Chairman): No? I guess not.
DR. BRIAN BIRKY: Comment, not a question. But I just wanted to say for disclosure, that the pre and post-mining team is based out of our institute in Bartow. And it's a very important mission that they have.

A few years ago, the Army Corp. of Engineers conducted an area-wide environmental impact study for the whole phosphate mining region in Central Florida, which is a big region, and they used the information from the pre and post-mining program. It was very important that they had that baseline to tell what the real effect, radiologically was, so thank you for having the program in the first place.

And also I want to thank John, his laboratory, we send samples to his laboratory periodically, and
they take care of us and give us good results. So thank you for that.

JOHN WILLIAMSON: And one thing about that particular program. Until recently, there were approximately 330 square miles of formerly post-mining phosphate land in the state of Florida that were on the EPA superfund list for surveying and possible remediation, and within the last two years, the Department of Health and the Department of Environmental Protection have signed an agreement with the EPA, turning all of those lands over to the state rather than having EPA do it.

And you might say, well, is that a good thing? Well, since EPA wanted to do fly overs and wanted to use what we consider onerous restrictions on that land, there would be a number of housing subdivisions as well as other commercially developed areas that may have been marked for remediation based on a fairly restrictive guidance. To the extent that it probably would've bankrupted the United States to actually remediate all of the lands.

So EPA agreed to turn those lands over to the state, based on the program that we have for phosphate mining already, which essentially, we're
looking in using the guidance from the National Committee for Radiation Protection, which is before we do anything, it has to be greater than 100 milligram a year above normal background for that area. And most lands in Florida our background is like 5 to 6 microR per hour, which is almost an order of magnitude below those that you find in areas of Colorado, for instance.

So the levels that we're looking at before we would ever even consider remediation are still lower than most backgrounds you would find in most of the western United States. That's something that we're real happy we managed to get done with EPA.

MARK SEDDON (Vice-Chairman) : All right. Thank you, John.

I believe we're going to do a change of schedule somewhat. Do we need to talk about lunch first?

BRENDA ANDREWS: We can. Last time we went to the restaurant next door, McCoys, and everybody seemed to like that, so we figure we would do that again. It's quick, it's easy, it was good. Do you want to do that at 12?

MS. CORBETT: Yeah, sure.
BRENDA ANDREWS: Did you all want to talk about
the travel packets now since we've got a little time?

MARK SEDDON (Vice-Chairman): I think we're going to move on to Yvette. We're going to move on. We're going to rearrange. Yvette is going to go next instead of Gail and talk about the x-ray machine section.

YVETTE FORREST: Since we're going with me before lunch instead of after, if you guys fall asleep now, I know it's me, not what you guys ate.

We're going to talk briefly, just a few minutes about the x-ray machine section so you know a little bit about us. I'll share a little bit.

Some fast facts about us. We have nine full-time employees that work out of the Orange Park office. Currently, we have about 50,000 x-ray tubes in the state of Florida. And we're going to bump up that next figure. We're currently in a renewal phase for the x-ray machine programs. October 28th, all machines in the state of Florida have to be reregistered for the upcoming period and we just sent out 19,368 renewals. So that's currently how many facilities are in the state of Florida. So that figure right there is bumped up a little bit. $\$ 2.6 \mathrm{million}$ in fees were collected for the

Fiscal Year 2014/2015.
DR. MARY HART: What are the fees for? Like, inspections?

YVETTE FORREST: Fees -- that's a good question. The fees are for the actual tubes that are in the facilities. A dental tube is \$11. Accelerated different types of machines have a different fee attached to them.

DR. MARY HART: To be inspected.
YVETTE FORREST: It's not -- we don't charge them. Your fee includes your inspection.

DR. MARY HART: Okay.
YVETTE FORREST: Yes, ma'am. Core business processes. What we do out there is register your radiation machine tubes. We create the workload Jerry was speaking at. That is handled in house. We distribute the workload distributed quarterly to the inspector field offices and they go out and inspect each facility.

We enforce radiation machine section program requirements; conduct investigations. Those would be medical event investigations. And we collect the fees that I just spoke of.

We issue registrations within ninety days. That's new facilities that have come into the state All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
or existing facilities that are adding tubes.
We insure that all violations are corrected within ninety days. Those would be violations that our in-the-field team inspectors have cited during an inspection. Those violations come back into the program office. And we ensure that those are corrected within ninety days that we spoke about earlier.

We perform medical machine investigations. Medical machines are self-reported by our facilities and we're the team that goes out from our office to investigate those.

We assure 90 percent of all RAD machine inspections, inspected meet safety requirements.

This is a nice visual aid that kind of gives a breakdown and a quick bird's eye view of what machines are in the state of Florida. As you can see, the largest portion of our machines are dental. Next is medical. And then you can see the rest of the breakdown there.

Our primary function is to register x-ray machines, and we do that very well -- 22,000 of them to be exact. We collect fees and we issue x-ray regulations. We coordinate with the ERCI staff; with Jerry's team.

And our next big function that we haven't spoken today of yet is we manage the agreement with the FDA for mammography inspections. That's coordinated out of our office as well.

The next big thing we do is vendor registration. All vendors that work and operate in the state of Florida have been to be registered. That's done with our office.

We inspect equipment calibration and distribution. All the equipment that our inspectors use that Jerry was speaking of that the field team has, that's done in our office. We make sure that all of the field teams, that they have the equipment that they need.

We're the source expert and point of contact for public registrants, bureau staff, machine registration and enforcement issues.

Back to medical events. That's a big deal for us. I'd like to spend a little bit of time for that, if we may.

Reportable medical events. This year alone, we've had thirteen thus far this year. Facilities delivering radiation therapy are required to report medical events to us. And what categorizes a medical event? Two things. Dose delivered by wrong All Good Reporters, LLLC (321) 285-2324 www.AllGgoodReporters.com
mode of treatment, wrong treatment or wrong treatment site. Or, dose of radiation that differs greater than a total of 30 percent of the prescribed dose in a week or 20 percent of the total prescribed dose.

That is what gives you a medical event. And we've investigated thirteen thus far this year. And we're hoping we don't see anymore. That's very high.

DR. MARY HART: It's not just treatment, it's diagnostic as well.

YVETTE FORREST: Yes, ma'am.
Instruments and equipment. We make sure the inspectors have what they need when they need it. Currently, the state has 39 Unfors units, 5 Accupros; 39 complete inspection kits total. That's the list of all the things our program office makes sure the inspectors have.

This is a nice little picture of a kit Jerry's team, that's what they carry.

DR. MARY HART: What's an Unfors unit?
YVETTE FORREST: An Unfors unit, that's the inspection kit.

DR. MARY HART: Okay.
YVETTE FORREST: Yes, ma'am. That's just the
machine they use when they go out and do their inspections.

This is my contact information. We are in Orange Park. If you ever need us for anything, we'll be more than happy to answer any questions about the program office or what we do.

MARK SEDDON (Vice-Chairman): All right. Did we have any questions for Yvette?

DR. MARY HART: I have a question. I don't know who can answer it. There's been a lot of discussion over the past two years about using low-enriched Uranium versus highly-enriched Uranium and I think a year ago, I guess it was 2014, supposedly CMS wasn't going to pay for doses that were -- you had to have a certain percentage from LEUs, which is much more expensive. So that's why the modem generator is a target.

Is there -- that's sort've been dropped and I just wondered the state or who could answer that. Because it affects a lot of our contracts with the pharmaceutical vendors and some of them are pushing to use more LEUs -- well, just that it's more expensive. You know, it's better.

For those who don't know the transport, when they feel as though the highly enriched uranium
could be a target for you know, for --
JERRY BAI: Terrorists.
DR. MARY HART: Yeah, for terrorists, stealing when it's in transit. Is there anybody who can answer what's going on with that?

MARK SEDDON (Vice-Chairman): I know the vendors, because we asked some of our firm's vendors, they've been still meeting or moving towards meeting the requirements for the LEUs, you know, standards out there. And as you say, they are passing along some of the costs, potentially, to the customer. I'm not sure that we have any -- it's not a Florida regulatory --

DR. MARY HART: Yeah, there's no requirement yet. So we're -- I mean, the VA has decided that, at this point, not to purchase a large percentage of LEUs.

But, okay. So I think it's kind of dead in the water. It's probably a lot of push back, I'm guessing.

MARK SEDDON (Vice-Chairman): I think the vendors, I know Triad and Cardinal are still doing --

DR. MARY HART: Yeah, they all provide it.
MARK SEDDON (Vice-Chairman): Right.

DR. MARY HART: But if you don't purchase, it doesn't matter. I mean, they are pushing because I think their margin is a little higher. But, yes, they absolutely provide it.

Who's the other physician? I wasn't here for all the introductions.

MARK SEDDON (Vice-Chairman): Dr. Williams is the radio oncologist.

DR. MARY HART: Okay.
MARK SEDDON (Vice-Chairman): And Dr. Schenkman, who called in, is a radiologist.

DR. MARY HART: Okay.
MARK SEDDON (Vice-Chairman): The question I have, Yvette, you mentioned most of your facilities are dental. What type of dental inspections are performed?

YVETTE FORREST: Dental inspections are performed every five years.

MARK SEDDON (Vice-Chairman): Okay. What do they do during -- I know the dental machines from a physicist's perspective are different to task because of the way they're designed. Do you guys do any actual testing on them? Physical measurements?

JERRY BAI: Yeah. Mm-hmm. It's not as long as a radiographic or flora.

MARK SEDDON (Vice-Chairman): Right.
JERRY BAI: The vast majority of the inspections are medical, though, because of the frequency difference. Between five versus two years. It's not so bad. Dental are pretty easy. Simpler tests.

CINDY BECKER: What did you want to know what was tested?

MARK SEDDON (Vice-Chairman): I'm curious. MS. CORBETT: What data are you testing?

MARK SEDDON (Vice-Chairman): What are you testing?

JERRY BAI: If we're talking about an oral unit, which is the vast majority of those, we would check to see, well, most of the units are fixed MAKV. The only variable is time on the technique. So basically, we test for reproducibility on the units.

We test that they haven't modified the minimum SSD, source-to-skin distance. Every once in a while, something breaks and they try to rig it with something.

We also test for minimum half-value layer is in the beam. We also test for collimation. That end of that cone, you know, it's pretty rare to find one All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
that's been modified, but it's been found. That end of the cone when that -- it's supposed to be that big. Better be that big. You don't want, you know -- that thing -- and then we also check for other safety issues.

They need to view of the patient when an exposure occurs, so either mirrors or whatever. Extension, remote switches are not allowed.

That's pretty much most of it right there. We look for other little things, you know. You can't have bare wires hanging out there kind of things.

MARK SEDDON (Vice-Chairman): It's sort of become the last couple years or so, an area of concern just for the public exposure to radiation of dental x-rays. The ACR and the Dental Association, ADA have been looking at some position statements on it. I was curious what the state does since it is the number one piece of equipment in the state. JERRY BAI: Yeah. I think the predominant violation we might find for a dental machine would be reproducibility violation on those.

MARK SEDDON (Vice-Chairman): Right. I know most dentists seem to have upgraded their equipment over the last ten years to the lower-dose digital. JERRY BAI: Those dental machines are very
hardy units.
MARK SEDDON (Vice-Chairman): Yeah.
JERRY BAI: You'll find an SS White that is older than you out there. They are all over the place. These old GE units made like military tough and weigh a ton. As much as your car maybe. Or there's tons of them out there. They don't break. No moving parts. No rotating anode.

MARK SEDDON (Vice-Chairman): Okay.
CINDY BECKER: I have not heard that before about the concern about the society, you were saying that was ACR was coming out with a position statement?

MARK SEDDON (Vice-Chairman): There's a position statement coming out from the ADA and the European dental, whatever their association is, just addressing public concern. Because there's been public concern about pediatric grade exposures in the last few years. Pediatric is where you get the majority of your dental x-rays for the most folks. That's why --

JERRY BAI: Well, since we are constantly going out with the field, you know, field staff and seeing what's out there, because I don't think there's any real source to see what the trends are -- I don't
know of any. But just constantly talking with the guys, the things that are moving is everybody's getting rid of film. Everybody is getting into the digital, including in medical. Radiomedical. CR screens, full-field digital. Same thing with the dental. All they have to do is purchase that little thing that plugs up to their computer and everything is digital imaging. It's really quick.

The other thing that is moving as far as machines is everybody wants to -- they love those SEF units and those are getting more and more complicated and the new ones are so good. The old ones, they used to rotate the patient. Sit in a chair and the patient rotates. The new ones, they're going into a linear full digital that does the scans now. Those are getting very popular. And we're seeing a lot of that.

Those are things that are moving in the dental.
Head units, SEF and lots of digital versus film. Nobody likes chemicals anymore.

MARK SEDDON (Vice-Chairman): Right. No.
JAMES FUTCH: Jerry, I had a question.
Many years back, we had new technology. The hand-held dental x-rays units were introduced. We had to modify regulations to accommodate those. In
my doctor's office, most of my dental experience, of course, they have, I think, five or six exam rooms with fixed machines and one hand-held dental, which seems to always be experiencing battery issues and difficulty working.

What do you see in terms of the hand-held dental populated --

JERRY BAI: That's one of the new technologies now. They are getting more and more manufacturers. And x-ray program has been dealing with this issue.

They started off, the first units would be that they put out is a hand-held, looks like a Star Wars gun. You hold this Stormtrooper rifle looking thing. And you just stand up there and you just shoot. And it's really good if the dentist needs to do field work literally out in the field, whatever.

They are getting more and more popular, you can see, because of the convenience. And they had a shield. The thing is that it's a battery pack that has to charge that thing and that makes it very heavy no matter what. And the only thing that staves off gamma radiation is the thickness of an attenuator between you and whatever that gamma radiation source is, right? Whether it's scatter or most of it being scatter.

And then we started seeing other units. Not just for dental. I believe x-ray was, x-ray program was looking at for other -- I mean, why not shoot a chest x-ray with one of these? Why not start using it for veterinary? Why not use it for industrial? Where you have to take nondestructive test images in the field like on a pipe, at a site. But with the x-ray portable. And they are literally handheld. We're -- constantly.

YVETTE FORREST: It's all over.
JERRY BAI: Looking at this stuff. But it's getting more and more popular. As technology starts to advance, battery power, just the size of the units, they are able to make them smaller and lighter, constantly, and it's coming out and there's a demand for it out there. So updating our regulations, which is very difficult to do.

KATHLEEN DROTAR: Did we talk at one of the last meetings about the exposure from those handhelds and the operator being more at risk because of, because of the dose?

JERRY BAI: Yeah. I think we did some internal testing. They would send us -- they sent the x-ray program one of the machines to try out. And we had some of the Bureau staff try to measure it. There's
just a lot of variables that we found if you were the operator of that unit and how much does that unit weigh?

YVETTE FORREST: Depending upon the manufacturer, they weigh, it varies, but it's a few pounds.

JERRY BAI: Yeah. They are pretty hefty units. You're supposed to do this (indicating). I don't know if you've ever tried that. And you're supposed to do it again and again and again. Well, you know, one of the heftier guys maybe. But if you're a small person, it would probably just tilt over. But there's a lot of variables. It's very dependent on if you use the units correctly. Just like a lot of the radiation stuff.

DR. ARMAND COGNETTA: Is there a requirement that they be locked up at night or like x-ray machines?

JERRY BAI: No.
DR. ARMAND COGNETTA: Maybe that would be -JERRY BAI: Not that I'm aware of.

YVETTE FORREST: No, sir, there's not.
JERRY BAI: I believe there's, a lot of the units, I believe there is a key that you can remove.

YVETTE FORREST: Typically, the newer units
have a special code that you have to administer before.

DR. ARMAND COGNETTA: On each unit?
YVETTE FORREST: Yes, sir.
DR. ARMAND COGNETTA: That makes sense.
MARK SEDDON (Vice-Chairman): The operators are exempt from the technologist's departments?

JAMES FUTCH: Yeah.
JERRY BAI: If it's for dental use.
JAMES FUTCH: All the dental operators have an exemption in the dental licensing statutes.

DR. MARY HART: An exception of what?
JAMES FUTCH: From having to be certified as an x-ray tech. Some states certify dental radiographers. The dental statute in Florida has certification for dental radiographers, but for dental hygienists, there's some special categories they don't have to be fully licensed as a dental radiographer. And then, of course, the dentist, himself, is also exempt. We never see any applications. We don't handle the requirements for any of the dental personnel who take x-rays.

MARK SEDDON (Vice-Chairman): I think some of the new technology, I know for TMJ, it's almost like a CT of the head being performed now. I don't know
where that would fall in in the realm of dental versus medical.

JERRY BAI: There's also a transition taking place. You used to have these nickel sources that would -- pain analyzers or whatever material analyzer units and sniffers, basically chemical sniffers and stuff. And they all used a source inside of them. But those, I'm finding, are disappearing. They are switching over to x-ray source. Hand-held x-ray source.

So you would stick this thing to the wall and shoot and it will tell you what kind of metal and what density and all kinds -- do an analysis of it. There's a lot more of these units out there. And because they are x-ray and not with materials rules, it's just a lot more friendly as far as regulatory wise. We're -- that's happening.

DR. ARMAND COGNETTA: You don't regulate them?
JERRY BAI: They are under -- well, they are supposed to -- I'll let Yvette.

YVETTE FORREST: I'm sorry. I couldn't hear what he said.

JERRY BAI: The hand-held analytical x-ray units, paint analyzers and metal analyzers and -YVETTE FORREST: I believe all of them fall
under the Program office.
JERRY BAI: They are supposed to.
JAMES FUTCH: And to extend the question to the operators of the x-ray devices that are used for nonmedical purposes, we wouldn't apply to those.

PAUL BURRESS: A lot of the x-ray fluorescent units, you're talking about holding up to the wall and shooting.

JERRY BAI: Exactly.
PAUL BURRESS: The one that had sources usually are generally licensed, so the inspection frequency --

CHARLES HAMILTON: Now they are. The Niton, they came out with the XL309 and it had ram and they switched it over to GL just by changing the SSDR on it. And they can come both ways. I mean, we still have a problem like, you know, I've got an XRF, is it ram or is it machine and then you've got to look at the model number and do some research on that and see what the source of the Cadmium-109, typically.

PAUL BURRESS: The GL stuff is hard for us to control.

JERRY BAI: It's hard for us to control.
PAUL BURRESS: So the problem there isn't the legitimate user. They will register it with the
state of Florida. The state of Florida is notified. You pay your $\$ 25$ fee or whatever it is and you're good to go and you have a trained operator using it.

But anybody can buy those. You can buy one with a Visa card and go out and start shooting things with it. And until the state of Florida finds out who bought it, the manufacturers are not going to say no, generally.

JERRY BAI: No. And if it's an expensive unit and they resell it off to somebody else, you know, and they don't know about the requirements, the units disappear.

MARK SEDDON (Vice-Chairman): Good time to break? I guess this is a good time for us to break for lunch. We're going to take a break to 1:30 to allow us time to enjoy our restaurant next door.
(Proceedings recessed at 11:55 a.m.)
(Proceedings resumed at 1:35 p.m.)
MARK SEDDON (Vice-Chairman): All right. So I think we will get back on track. I believe that Charlie is up next, correct?

Charlie, do you have your --
CHARLES HAMILTON: Yep. I'm ready.
Before we start, did anyone lose a bunch of 20 s rolled up in a rubber band?

GAIL CURRY: That was me. Where did you find that?

CHARLES HAMILTON: I found the rubber band. (Laughter)

CHARLES HAMILTON: Dr. Octavius joke.
All right. My name's Charles Hamilton. I'm the administrator of the Radioactive Materials Section in Tallahassee and we license the use of radioactive materials through the agreement stated with the NRC and we license everything except federal facilities, VAs, nuclear power plants.

We're supposed to have 12 full-time employees.
JAMES FUTCH: That was last year.
GAIL CURRY: When was that?
CHARLES HAMILTON: But we are in the top three and the largest agreement states sometimes two, sometimes three. California and Texas are up there with approximately 1650 specific licenses.

We process approximately 2,000 licensing actions per year. That includes new license application, renewals; amendments. And again, that's the second largest.

It says approve or deny radioactive materials license. It's rare that we deny anything. We just keep asking you the questions until everything is
complete and then we issue the license. So if we don't get everything we need to comply with the regulations and policies initially, we write deficiency letters. We give you thirty days to reply to that. Once we get all that, we issue the license, we issue the renewal or we issue the amendment.

Part of what we do is identify, basically, as Jerry was saying, as to section, what used to be program, we basically send out the schedule frequencies for the specific license inspections. And again, we've got 1650 licenses. Not all those are done every year.

Frequency, like I said before, some of the most strict frequency is six months, up to ten years for a general license. Typically, it's between one and three years for, like, everything from industrial radiography to outpatient nuclear medicine to hospitals.

We have probably the largest rule maybe in the entire state of Florida for the Florida Administrative Code. We do write the rules and we're continuously having to modify the rules based on NRC compatibility requirements for their CFR that they follow.

Part of that is increased control requirements, which is for certain levels of radioisotopes, certain quantities of concern and for those that are additional requirements for making sure that people are fingerprinted; background checked. You have security systems. And basically, increased security for, like, a vehicle that has industrial radiography, it has to have an alarm that totally disables the vehicle. And we have 60 licenses currently that have increased controls.

Issue licenses within thirty days. That's not the statute, but that's our internal policy. But we try to follow the AFARA concept, which is as fast as reasonably achievable. We want to, you know, as a service to our licensees, we want to get them the license as fast as we can. We want to get them the amendment as fast as we can. And sometimes we're not as fast because renewals don't typically affect your operation unless you're changing procedures. That's probably -- we still comply with the thirty days typically, but normally takes a back burner. We want get new licenses issued first and then amendments second and then renewals. We don't really have a problem with turning out stuff too late. And we try every, you know, again, every
reasonable method.
If you asked to expedite an amendment or an application, we certainly try to accommodate that and get to it. The person that is there that day, the person that's going to be there and go ahead and get that approved for you.

Now, Lee Thomas is the inspection manager for that side, so one side that is evaluators that does all the licensing actions. We kind of got the other side with Lee Thomas and Joe Major, who do the inspection side. So for all RAM licenses, the reports are sulomitted to us electronically through a document imaging system. So there have been times when we have an inspection done that day, they submit it, their manager approves it, we get it, we process it, and they send the compliance or notice of violation out the very same day. We've got -well, we've had to because we get more licenses, we got less people, and the document imaging system does a great job of helping us to expedite licensing actions and inspections. So again, about 50 percent of RAM licenses, inspections involve violations and that could range from a severity level of one violation, which is the worst, to a five.

We do issue fines for severe or multiple
violations. That's limited to a thousand dollars per day for violation, which we never do get to. Our fines aren't meant to put anybody out of business and it's certainly, you know, smaller nature, but it's basically to get the attention of management to get the corrective actions done in order to be in compliance with the regulations for the health and safety of the workers and the public.

We also, as of -- with the machine section, often coordinate with the inspectors to do investigations of medical events or other serious incidents, overexposures, et cetera. And we are notified of all radioactive materials licenses that have an incident and then we'll -- we basically make a determination whether we think the area office can handle it or do we need to send someone along to facilitate the investigation.

Again, so 1650 licenses. Of those, over 1100 are medical. And that's everything from the gamma knives to mobile nuclear medicine. Hospitals in between. The next largest category is portable gauges, and that's about 300 portable gauge devices and those are used for moisture consent of building materials; soils. Before they put asphalt down, they test it, the foundation and it has to meet
certain requirements in order to hopefully prevent potholes. But that doesn't seem to work in Florida. We don't even have snowplows.

We have two large irradiators and that's what 400 -- 4.5 million curies of Cobalt-60 looks like in a pool of water. We have another 4 million curies large irradiator. Basically, that's for just, one is just for medical products. The other in Plant City, they don't irradiate anything. Christmas trees for export. Delay of ripening of certain fruits and vegetables, fabric goods, documents and postal items.

And we also license large irradiators of about 26,400 curies and then blood irradiators are typically 1,000 to 3,000 curies.

We have nine broad scope academic licenses, five broad scope medical licenses, two broad scope research and development licenses.

We have numerous -- thirty pharmacists and numerous cyclotrons. And we've been meeting with a company called Iomedics, who's developed an on-site single-dose-unit cyclotron that you would actually install because of the short half-life of Fluorine-18 that they use for PET, it's difficult in some areas to be able to use it to get the

Fluorine-18, the isotope to the location before it decays out.

So this cyclotron actually will use $\mathrm{N}-13$, Nitrogen-13, which has about an eight-and-a-half life, but it will be right there on site. So within ten minutes, it can produce a seventy millicurie unit dose of Nitrogen-13 and they will actually set it up so that you know how far it is from where the dose comes out to where you have to inject it to determine how much dose you need to get whatever twenty or thirty millicuries, whatever the prescribed dose is.

It looks like there's one broad scope in Michigan right now that they're testing. It looks like Florida will be one of the first in line to get one of these and that might be happening maybe this year. I don't know.

One, actually one of the fastest, we don't have very many of them, but one of the fastest growing categories of licenses we have right now are the veterinarian licenses. Using from cat iodine to technetium imaging, for small animals, dogs, and numerous ones for equine around the Ocala area.

One thing I want to -- 1650 licenses, 1100 medical licenses. Probably one of the, for sure one All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
of the biggest number of amendments that we get, the largest numbering of licensing applications that we get or licensing amendments that we get are just adding a physician. Adding an authorized user to the license.

A couple things I want to say about that. Again, we try to do those as fast as we can, but sometimes you're missing a signature or you're missing a number of hours, so we may have to send you a deficiency letter. But there are also one -the visiting authorized user rule, which allows any physician to operate as an authorized user for up to 60 days per year. If you have a copy of that license that he's already listed on for those procedures that he's already listed on another license with. So that's one thing that can help you out.

The other thing has kind of been, I guess kind of a forefront issue, is making an -- physicians make an interpretation on nuclear medicine studies. And from a rule aspect, we don't regulate the practice of medicine. So anyone can make an interpretation on a diagnostic nuclear medicine study.

But for each of those, at least one authorized All Good Reporters, LLLC (321) 285-2324 www.AllGoodReporters.com
user has to make an interpretation and fulfill all the duties of the authorized user listed 64E-7, 5607(3). So anyone that -- everyone in the room can make an interpretation it. They can go with any of those interpretations, but authorized User A has to fulfill everything in 607.

And we've also had a number of amendments recently where the doctor groups in Arizona, wherever they want to make an interpretation on a quarter license and that's -- you can do that, but the doctor does have to be licensed to practice medicine in Florida but not listed as an authorized user on that state of Florida license.

And the NRC, they're doing the same thing. They're doing the same thing throughout the United States. With technology now, you can make an interpretation from Florida to Washington.

CHANTEL CORBETT: Question just for clarification on that.

So you're saying they can be the final signature on a report and not be an authorized user in Florida?

CHARLES HAMILTON: All right. What do you mean final signature on the report?

CHANTEL CORBETT: When you actually get a
report, when your inspectors come, they look to see who signs off on your final reports. So anybody, like you said, a resident, whoever, can do an initial interpretation. But the final signature on the read is required to be the authorized user.

DR. MARY HART: Like you have to have co-signs. I understand the question.

CHARLES HAMILTON: Yeah, it doesn't matter, it doesn't matter how you do it. As long as there is one piece of paper, one document that shows that an authorized user read the interpretation.

CHANTEL CORBETT: Right. What I'm saying is you're saying somebody from Arizona is reading studies from Florida. You're saying like for Telluride in the middle of the night and somebody does a final overread on site.

CHARLES HAMILTON: Yeah.
CHANTEL CORBETT: Okay.
CHARLES HAMILTON: Okay.
CHANTEL CORBETT: A couple of us were going huh?

DR. MARY HART: Yeah, it's a little bit odd. I can see the authorized user signing what the dose was given, the appropriate patient identification and all that. But who would ever sign someone else's report?

CHANTEL CORBETT: They overread.
DR. MARY HART: They need to make a change.
CHANTEL CORBETT: Well, most of that stuff ends up being overnight kind of things where they have to, you know, get somebody to give them like a prelim and then come in the next day.

MARK SEDDON (Vice-Chairman): I think A lot of cardiologists do that.

JERRY BAI: ER readings would also do that. ER doctors are not normally an authorized user.

CHANTEL CORBETT: They use stat and --
DR. MARY HART: Any cardiologists in here?
JAMES FUTCH: We're still looking for the first cardiologist one day.

DR. MARY HART: Huh?
JAMES FUTCH: One day we'll have a cardiologist, hopefully. There's not a position for a cardiologist on the group.

DR. MARY HART: I'm not saying there should be.
JAMES FUTCH: It's been suggested before once or twice.

CHARLES HAMILTON: Another issue, of course, is we're still having a tech shortage periodically. We did get information out on that several years ago.

But I've got a few calls on it recently where basically, they couldn't get enough techs to do the aerial with those calibrators, so as long as you document that, that we couldn't get the tech, we did it by another method or we're going to delay doing it until we get the tech, just document that.

And, again, that information notes, there's a space where it spells out what you can do if you can't get the proper amount of tech for that for quality assurance.

I'll go with questions first and maybe I'll think of something else.

CHANTEL CORBETT: Is there any plan to allow licensees to start submitting paperwork electronically?

CHARLES HAMILTON: Yes. We've definitely -that's kind of been a hot topic. Not only that, but lab and e-payments. So we're definitely -- that's probably one of the things at the top of our list right now.

CINDY BECKER: Yeah. We were starting to try to think about $x$-ray first because that would be easier. The thing with submitting the new applications, there's all the paperwork involved is much more simpler than paying for a --

CHARLES HAMILION: Right. Right now, though, for radioactive materials, the rule itself under 64-E-5.204 states we have to get an original signed signature plus a duplicate. But we have the ability to change the rule. But before we can change the rule, we'll have to get an interpretation from the attorneys to say, can we accept a non-original document signature.

DR. MARY HART: Yeah, electronic signatures. You know how expensive or difficult it is to get the software, but all hospitals now, we either have the pad or you can put in a code.

CHARLES HAMILTON: Right. And we do allow electronic records and we changed the rules on that so that you didn't need a signature on most all the records. So that was one step in the right direction. But we've been talking about that quite a bit lately about getting electronic, you know, allowing electronic amendments or allowing electronic applications or renewals.

When you look at other states, and basically, the few states that do allow it, basically said that it's because the legal people in that state said, well, we don't have to have an original signature. So it kind of comes down to that.

But the other thing we can do, and I tried to stress this to our staff is, we can initiate an action. Like if you want to -- you've got something that you want to expedite, right? Change of RSO or to add a procedure. We can initiate the action based on an e-mail with all the, you know, PDF or attached documents that are signed. And we can start the process of getting that into the system, get it into the tracking, and then begin the evaluation and then we can issue the amendment as soon as we get the hard copy in. And if you overnighted that to us, it can be the next day. So we can process it that way. We've done that numerous times and that's one way to get things done faster at this time until we can get the signature issue worked out.

CHANTEL CORBETT: To not bring up a hornet's nest, it may possibly, but what was the reason that the process changed for getting copies of amendments for licenses to the point where it's only people who are physically listed on the license or an owner?

CHARLES HAMILTON: Brenda?
BRENDA ANDREWS: What?
CHANTEL CORBETT: That just went down the line really quick.

BRENDA ANDREWS: Are you asking about a public record?

CHANTEL CORBETT: Yeah, basically. I mean, for me, for instance, and any of the consulting groups, a lot of times we end up as the middleman. So if we need to get a copy of a license or the most recent amendment to get it to a pharmacy or something else, especially in a smaller place where the doctor is the only authorized user, the RSO, et cetera, and he doesn't really want to be that accessible to e-mail or to physically call the state, it was a significant delay, basically, for all of us who used to be able to call up and just say, hey, can you send this down or whatever.

So it was just -- we got some interesting, very vague reasoning of the -- that there were issues and that was just the way it was.

BRENDA ANDREWS: So you're saying to me --
CHANTEL CORBETT: I wanted to know what the reason was that the policy changed.

BRENDA ANDREWS: There probably was not a policy change. There was probably an enforcement change.

CHANTEL CORBETT: Okay. Gotcha.
BRENDA ANDREWS: The rule -- the statute that
governs public records is 119 and it regulates what a public records request is. And so, at some point, maybe we weren't in compliance with that.

CHANTEL CORBETT: Gotcha.
BRENDA ANDREWS: And now we are.
CHANTEL CORBETT: Okay.
CHARLES HAMILTON: Yeah. I mean it -unfortunately, we're not allowed to give out anything to anybody else other than the licensee.

CHANTEL CORBETT: Right.
CHARLES HAMILTON: Other than what they ask for in a public records request.

But what I did with you would be the fastest thing. But you could also, you could get the facility to submit us a letter.

CHANTEL CORBETT: That's what I was going to ask you.

CHARLES HAMILTON: Right. Just get the president, CEO --

CHANTEL CORBETT: Similar to the -- yeah, right.

CHARLES HAMILTON: -- what we call the official, saying that, not necessarily your employee, but you have the ability to have -- to get records from my facility.

CHANTEL CORBETT: Similar to like an official authority letter but just for records.

CHARLES HAMILTON: If they can have that in writing, we put that in the catch all and we see that you're authorized to receive documentation for that licensee, we can issue it.

CHANTEL CORBETT: Okay. Yeah, especially for facilities with twenty sites and stuff where you're trying to run around like crazy, so, yeah. That's very helpful.

BRENDA ANDREWS: And this would eliminate it being a public records request for you.

CHANTEL CORBETT: Right. Right. That's what I was going to ask.

CHARLES HAMILTON: It became a process where first we had to get what you want and then we had to find out how long it's going to take, who's the minimum person that can do this.

CHANTEL CORBETT: Right.
CHARLES HAMILTON: And charge that minimum person's salary for two hours, however long it takes, and then submit that to legal. And then an invoice is sent. And then once we get the payment, we can start processing.

JAMES FUTCH: Welcome to Florida government.

CHARLES HAMILTON: Yeah.
REBECCA McFADDEN: That's the subpoena process right there you just mentioned. Medical release, then from the patient, anything to do with the subpoenas. Same thing.

DR. MARY HART: I have a question. Again, I'm not sure who would answer it.

There's a lot of movement, especially with the ACR, to collecting cumulative data for lifetime patient exposure with radiologic inventory. And I just wonder if the state has brought that up. It's a really important issue with, you know, the overutilization, especially like myocardial perfusion imaging and CT head imaging for non-indicated reasons in the ER and you see anybody who has a PACS system pull up a patient to look at their prior study and they've had a lot of imaging that clearly wasn't indicated.

So in some states, and certainly some medical centers and facilities, they do a cumulative. It's available on most of the new equipment that you can add it and put it in the PACS. But is there any discussion or early -- it's a great idea, I think. And what it could do is give more teeth to appropriate utilization of medical imaging, which
the ACR has guidelines. And if we can give some teeth to the ordering physicians -- they're not doing the wrong thing intentionally. But I think because one physician, an ER physician or a cardiologist in a different practice, different geographical location, orders a study, they don't realize it was done or they don't really think about radiation.

So I guess it's two questions. One, because it would be easier for me, as I chair the Clinical Practice Committee, which the Joint Commission is making more robust in every medical institution. What that does is make sure that clinicians follow guidelines, evidence-based practice so for imaging, that's huge and it's all the data is there.

The ACR has collected guidelines for when to image the brain. You know, what is the interim for cancer patients or asymptomatic cardiac patients.

So it would be great if we, in those positions at all the hospitals across the state, had some sort of central, even a statement of support, that we could say, it's not just the ACR, this is our state radiation --

MARK SEDDON (Vice-Chairman) : I think the Joint Commission has a requirement of dose management. So All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
that's applicable to the majority of hospitals in the state. And I know we talked about it a couple years ago, we had Mahesh, I think came down, and some of the folks from Double PM to talk about different things we can do as an advisory council towards addressing patient dose management.

The only opportunities I think that we've talked about with Dawn previously and Yvette now is have like information notices going out, which we did some on that for CT , when the CT concerns came out. As far as education requirements for the operators. Education requirements or recommendations for referring physicians and for the radiologists.

I think the response from these folks would be that they regulate -- they don't regulate use and so it's more difficult to address that rather than --

DR. MARY HART: Well, I wonder you can't regulate the physician's decision, but the CT that image gently and then image wisely is per study, which is great. But what it doesn't take into account is any individual who has migraine headaches, which luckily I don't, but you see patients that come in the residents or the ER doctor who has the CT before they ever do a history. So if
someone has migraine headaches, they've come in five years, ten times, and they get a head CT before anyone evaluates them.

So my point is, yes, each individual study, certainly there's good regulation on, you know, the MA and the EVP for every study, but I guess what I wonder is, I wouldn't mind, it will take years, but I would love, because at my institution I'm trying to do this, having some sort of a -- not a statement that's like a regulation, a regulatory statement, but just a position paper on this is coming, cumulative dose will be measured at some point.

We all know that in terms of payment, that CMS is requiring more robust documentation that there are indications that are appropriate, but they don't really look back at when a study was done most recently. So I guess if anyone else on the committee were interested in working towards that.

It's just when you talk to clinicians and they have a practice pattern that's not correct anymore, there's a lot of -- it shouldn't come individual to individual. It should come as an agency recommendation and then somebody is sort of filtering that to the clinicians rather than being a shoot-the-messenger position.

But I guess if anybody were interested, I'm trying to do that at my institution and I would love real lifetime work to get that done before I retire, honestly, to make sure those, you know --

KATHLEEN DROTAR: Because it's practice related would it be more appropriate coming from the Board of Medicine?

CINDY BECKER: That or I don't know if you're familiar with the Conference of Radiation Control Program Directors, CRCPD, but they're a group of states radiation control programs and also, they get endorsements and help from international agencies and support. But they would be a group that we meet once a year. In May, it's going to be in

Kentucky -- Lexington, Kentucky. They do the sort of thing you're talking about about doing position papers.

ACR comes to the meetings.
DR. MARY HART: Right. ACR is great.
CINDY BECKER: ACR is heavily involved there. Double APM. All the organizations come as well. It's been talked about a great deal. Especially with their Image Wisely and Image Gently campaigns that they have going. They supported those.

So that would maybe help as far as --

DR. MARY HART: A quorum.
CINDY BECKER: -- being involved with that organization, they actually have some workers that are talking about that. I can get you in touch with the people that might want to be involved.

DR. MARY HART: Okay. it doesn't hurt at this point to be aware.

It is practice related. However, the guidelines can come from -- like what is done now and what will be done more is the physicians, if they practice outside of guidelines, they're going to have to document why. And that's happening more and more with cancer care, for example. Which is fine if there are guidelines, they can use their judgment on any individual.

But the guidelines come from the ACR. It's not just the physician. The ACR is great, but their audience is radiologists. It's not the referring physicians and imaging specialists in general. I'm very uncomfortable pushing back and saying, well, this isn't really indicated. Because I've never interviewed the patient, how can I say that?

I had a patient call two days ago, because I said to their referring physician that a PET was not at all indicated for this. It was a 1.5 centimeter
lymph node with no history of cancer, no symptoms, nothing, an $\mathbb{M R}$ negative. He didn't have cancer. And it just wasn't indicated. And the patient called me as if I had somehow -- which puts the imaging physician in a difficult medical/legal position. But anyway, I --

MARK SEDDON (Vice-Chairman): I think some -the direction that has been, some facilities move towards is the ordering process where you're guiding the referring physicians down, like when they order procedures to go to a web based and then it tells them what is appropriate, what's the recommended procedure. I know UF was doing a bunch of work with that.

DR. MARY HART: That's great. I mean, people talk about that but I didn't know if they have some software or something.

MARK SEDDON (Vice-Chairman): Yeah, I know UF was working on that a couple years ago. Did they present here?

DR. MARY HART: If you find out, if anybody -that would be the best thing. We can't do a hard stop in our order system, like if you have a check off, these are the appropriate indications, but they can override everything and put it through.

JAMES FUTCH: So perhaps what we might do is, talk about this and see about bringing someone to do a presentation along these lines and see what other states might be doing. Cindy mentioned CRCPD. Any large hospital systems that are doing something internally --

DR. MARY HART: Right.
JAMES FUTCH: -- might would be a good place to look and see.

Regulatory wise, we can come at things from the standpoints of the machines and radiation safety from the operators. If it gets too close to the practice of medicine, it's a little more difficult. But the Board of Medicine is another body. We've talked to them before.

DR. MARY HART: I think the cumulative dose would be this group. Documenting cumulative patient dose.

JAMES FUTCH: You can certainly say it fits in to radiation protection. Whether or not you have regulatory statutes and rules to do anything about it, you'd have to figure that part out.

DR. MARY HART: Yeah.
JAMES FUTCH: But you have to start out with the idea and see what the consensus is. And we
learned from the past that sometimes the best ideas, if one has no regulatory authority, you can't do anything. Sometimes you have good ideas and you have regulatory authority and the powers that be don't want it done, so they throw roadblocks into your way on the regulatory process and stop it that way.

DR. MARY HART: Which the AMA would. They have very powerful lobbies. But anyways. It's a thought. I think it's important.

JAMES FUTCH: It's a good thing for future discussion.

DR. MARY HART: Okay. I'd love to have some.
REBECCA McFADDEN: Have you ever seen a demo of some of the software they have for cumulative dose? They basically track -- there are patient dose monitoring systems that the hospital information system feeds the demographic information and then every time the patient comes in, it tracks that and then you can build reports based on patients.

DR. MARY HART: Interestingly, we have that in our PACS, which is a Phillips and Talis base, but nobody really knows how to use it.

REBECCA McFADDEN: No, PACS doesn't usually do a cumulative dose. It's a third-party software that
they have that will track multi-modalities. And it's trackable by patient and it's a cumulative dose. I mean you can go in --

DR. MARY HART: It goes into their front demographics?

REBECCA McFADDEN: I was talking at lunch today, one system we talked about was Clarity. You can Google Clarity and it will tell you. It's multi-modality. It's cumulative dose by patient tracking. It's very, very expensive.

DR. MARY HART: That's probably -- send me an e-mail.

REBECCA McFADDEN: Until it becomes regulatory, you know, you don't have the budget for those type of systems, but they are out there.

MARK SEDDON (Vice-Chairman): The Joint Commission is pushing that as its one of the new requirements coming in effect next year and part of XR-39. It's for CT, only for CT. There's a number of systems out there, not just the one you mentioned, but there's a number of vendors that do it.

REBECCA McFADDEN: Yeah.
MARK SEDDON (Vice-Chairman): The difference is they take the data available in your PACS and use
it -- from analytics on it to allow it to be presentable and show you trends with specific patients with specific types of equipment, and procedures so that you can actually go back in with cumulative exposures and things like that.

REBECCA McFADDEN: Right.
MARK SEDDON (Vice-Chairman): One of the issues that we're talking about is, this is more practice of medicine is, at what point do you stop a procedure from moving forward where a physician is requesting a procedure. Where in the process at the hospital can you stop the patient moving forward because of the way they are handling it. Because you're trying to get patients in --

DR. MARY HART: It's tough.
REBECCA McFADDEN: It's really the medical profession.

MARK SEDDON (Vice-Chairman): You as the radiologist, you don't see the patient before.

DR. MARY HART: Right. But you can require a physical exam first if it doesn't get done. But anyway, it's a question. E-mail me that.

REBECCA McFADDEN: Like he said, he mentioned a few at lunch at well. Clarity is the only one I've physically have seen and asked them to give me some All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
numbers and when I saw the numbers, we're like, okay.

DR. MARY HART: They will eventually, like all software, they're going to come down.

REBECCA McFADDEN: Right. The XR29 is getting us to that first stage. And that is to send that information through a structure report, through the DICOM information and you can then query it from there and that's what these companies are doing. They are creating software to query that data to pull statistical data. It's not -- but you're a lifetime, a cumulative dose and tracking it by patient, they'd have to come to you for every exam in order to do that. So -- and there's many options for that.

DR. MARY HART: Yeah. Well, the thing, I have never seen it but I've seen the reports and descriptions in countries like Sweden, with socialized medicine, obviously, they can keep that database and they do.

REBECCA McFADDEN: Right, because they regulate where they go, what they have and how many times they get.

DR. MARY HART: All that information.
MARK SEDDON (Vice-Chairman): Okay. Do you
want to -- we're going to move forward. Are you still going?

CHARLES HAMILTON: Well, let's just show you pictures. XL220. Propagation device. Fix gauge device, so you can tell how much beer's in a can after it's closed.

Industrial radiograph, Radium 192, 500 curies.
That's the one -- that's one of the gamma cells. One of the gamma knives. Nuclear pharmacy.

Did you change this?
JAMES FUTCH: Yeah.
CHARLES HAMILTON: We had the wrong picture. And that was from the -- when we had a radioactive source in the steel plant. I was going to show that before lunch.

JOHN WILLIAMSON: That's a different picture.
CHARLES HAMILTON: Radioactive lunch.
JAMES FUTCH: Yeah, if anybody is following along in the book, you want to back up for a second to Alexander?

CHARLES HAMILTON: Yeah. To where?
JAMES FUTCH: This is Alexander Litvinenwho, the Russian spy who was killed with Plutonium-210. The guy whose picture you see in here was Viktor Yushchenko, who was the President, Prime Minister All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
of Hungary. I know, they sound like they are the same man. Really, they're not.

CHARLES HAMILTON: They had some way to bring that together in a weird sort of way.

DR. MARY HART: How did that picture get in there?

CHARLES HAMILTON: All right. Any other questions?

MARK SEDDON (Vice-Chairman): All right. Very good. I guess we'll -- James?

JAMES FUTCH: Let me go and then we'll float Gail and then --

GAIL CURRY: Go right ahead.
JAMES FUTCH: Gail is like, go right ahead.
So, last but not least, we've got a couple things left to talk about.

The section that I run, Gail's contributions from the MQA side, and then we're going to try and show you some of the pictures from the Wings exercise in South Carolina that John was talking about earlier. And we've got some of the equipment that we used in the airplane all hooked up so we can show you how it works in real life.

Let me start with the technology. I'm going to stand up because I can't stand to sit down and talk.

So in the technology area, I should start off by mentioning the council that we're part of today, is housed in the statute for the radiologic technologists. And obviously, everybody knows what a technologist is. The program, itself, as Cindy has mentioned, takes care of the certification of the people who do therapy, nuclear medicine or use x-rays for some purpose. And we do that in conjunction with a different division of the Department of Health called the Division of Medical Quality Assurance.

And in addition, we have some other responsibilities than are just housed in my section which has nothing to do with technology, which is nonionizing radiation and lasers. And then we also provide information technology support, computer support for the Bureau.

I think Gail is going to give us some updates on the numbers. This is the current pantheon of licensees that we issued in Florida. You can see the largest group of technologists are the radiographers, which in Florida they're called general radiographers. Followed by, it's kind of a, kind of goes back and forth. Nuclear medicine techs and the basic machine operators, which is a limited
form of radiographer that we have in Florida.
I know some of you have seen this over the years and do this every day. I'm trying to be complete for those who are brand new to the council and haven't seen before.

Followed by the radiation therapy techs. And then some of the newer categories we've established in the last fear years, like the CT techs and $M \mathbb{R}$ techs.

Total licenses doesn't match total technologists because some people are certified in multiple areas, but around 27,000.

To give you an idea how that's changed over the years, when I took over the RAD tech program in 1998, we had 17,000 total technologists certified at that time. So we have about 10,000 more than we did back in '98.

So let me discuss a little bit of this. Original licensure was 1978. In '84, there was some major changes which brought most of the rest of the major areas of, in addition to radiography, nuclear medicine and therapy were added.

The Statutes 468 part four, the Rule $64 \mathrm{E}-3$ and all the other changes you see listed up there by year were 2004, we added significantly to the
disciplinary guidelines for the profession. We also added the CT component to the nuclear medicine technologist's license so that nuclear medicine techs could do something with CT. Since the manufacturers were so kind as to start marrying technology together that required two different people to operate the same device.

The other changes you see, we added radiologist assistants in 2006. These are physician extenders similar to a physician assistant, but housed in the RAD tech statute. And Patty is not here today. She's our resident radiologist assistant.

In 2012, we added the rest of what we call the specialist technologists, the $C T, M R$ and mammo.

In 2005, the department in sourced major portions of the RAD tech relationship program which are now run by Gail's section inside Medical Quality Assurance. Medical Quality Assurance licenses all the other doctors and the nurse, all the other health care personnel in Florida.

So the way it works these days is, our part of the Bureau of Radiation Control sort of acts as the, if you will, the internal board for MQA who handles the day-to-day licensure of the profession. If there are questions about discipline, about whether
a violation has occurred, that comes to us. We determine probable cause and give it to the attorneys.

If one of our inspectors goes into the field and finds someone working on an expired license, Jerry's folks will refer it up to us. One of my staff, we'll show you in a second, we'll package that up and send a complaint over to the part of the department in Gail's group that prosecutes those. We also handle continuing education for the profession, so we certify the courses and the providers. There's somewhere in the neighborhood of like 600 providers in any given point in the year; anywhere from a couple thousand to 10,000 or so courses that are approved.

Gail, do you have updates that you would like to --

GAIL CURRY: I do.
JAMES FUTCH: Go right ahead.
GAIL CURRY: First of all, for those of you that don't know what I do, I was hired by James in 2002 and worked in his section until 2005, when Dr. Abunabaa sent us up to MQA to be in licensing. He felt like all licensing professions should be in the same place. So we went up to MQA in 2005 and still
remain there.
When we receive an application in our office, there are several ways it can come in. It can come in either by paper application through snail mail, or it can come to an online application. The online application was introduced -- I don't know what year it was, I don't remember -- but that has been an upgrade since we moved up to Medical Quality Assurance. And the applicants can actually apply online and pay their money with a credit card online and then we process it from that point.

If they fail the exam and have to reapply, unfortunately, they have to do it by paper. They can't go back on and apply for the second time with the online system. They are working to update that so that that will no longer be an issue. And believe me, not only do we do RAD techs in my section, we also do EMTs and paramedics. So it becomes quite a lot of paperwork once we start into graduation time. Because each application that comes in requires at least two documents for verification besides the application. So when all those things start coming in by fax, by mail, by e-mail, they all have to be documented and scanned, so that's a whole another process besides just
processing an application.
I will tell you that we do that with three processors for the whole state for three major professions. Two of my employees are what we call Regulatory Specialists IIs. They do all of the CEs that come into our office. Those all have to be put in the system. We can't just look at them and okay, they're good. So it all has to be documented in the system. And RAD techs are the only profession in the whole Medical Quality Assurance that are 100\% audit at the time of renewal. So we have to verify that they are in compliance with their CE when they renew. If they're not, they get a deficiency letter. If they try to renew online, it will not allow them to do that. So that's what my RSIIs do.

They also do all of our exams, because every EMT and paramedic have to take an exam. RAD techs, you know, a lot of them take exams, but thank goodness we have reciprocity in the state of Florida. So they send those exams electronically by an upload every night. They get them back and they put them in the system and license those qualified.

Three of my processors, which right now I'm down to two, do the initial applications and the re-exam applications. So you can imagine we stay
very, very busy.
I will tell you right now, from January 1st through today, we have processed 1,154 what we call certified radiologic technology applications. And we have done a total of five radiologic assistants since January.

We are working at an average number of days to process an application, once it gets into our office, is 6.61 days. We have thirty days to act on an application, whether it is sent to a deficiency status, which would then inform the applicant by letter that they are deficient and what the deficiency is, or to send them to either licensure, because they came in by endorsement, or reciprocity, or send them for an exam. So we have thirty days to do that.

If those applications go over thirty days, we consider them a $\operatorname{DMR}$ (ph), and if the applicant were to contest that, they could get a license based on the fact that we did not get those done in time. And it wouldn't matter. They could just get a license. They wouldn't have to go test, they wouldn't have to do all the things they normally would have to do. So as you can see, it's very, very important that we do get those done in a timely All Good Reporters, LLLC (321) 285-2324 www.AlfGoodReporters.com
manner.
And I have to tell you, I'm really proud of my team because they really work very, very hard. We just -- we work great as a team. I'll jump in there and help if I need to. And that's who we are.

Anybody have any questions?
KATHLEEN DROTAR: I do.
GAIL CURRY: Yes.
KATHLEEN DROTAR: We've got part of the application, the application, itself, is online. We've talked about it before. Any indication that program directors might able to verify online?

GAIL CURRY: Thank you, Kathy. Yes.
KATHLEEN DROTAR: Because it would save time, I would think. It's also kind of tedious for us to do that.

GAIL CURRY: Yes. Thank you for bringing that up. And we did discuss that at lunch and I did tell Kathy that I have requested several times over the past several years that we go to what ARRT does. The American Register of Radiologic Technologists. They have a verification online that the educators go in and oh, yeah, they graduated, they graduated, they graduated. They have their HIV, they have their HIV. It would all be electronic. Therefore,
we wouldn't require any other paperwork from the technologists or the applicant and we wouldn't have tons of papers sitting waiting to be processed and tons of phone calls because they sent it in and we haven't gotten to it yet.

KATHLEEN DROTAR: I'm sorry, because I think the previous meeting, we were down to, like, two or three days and now you've got us at twice as long.

GAIL CURRY: Yes, it is.
KATHLEEN DROTAR: And the bad part of that is a lot of the students are graduating and now getting jobs right away. And that is a delay in them getting hired and possibility of them not getting the job because, only because you can't put it out faster.

GAIL CURRY: Exactly. And I would bring it to this council and say, if you're really interested in watching this process speed up and watching this process become more streamlined, I mean, we're in the age of technology. We shouldn't be still receiving papers, you know?

I've put it out there to our IT division. And of course, it's always either a money situation or we get bumped to the bottom again because nursing needed something. You know, compared to some of the
other professions, we're pretty small, but I feel that our need is just as great as a nurse or a doctor or anybody else. What we do is very, very important. Because without what we do, nobody else could do what they do.

I would love to streamline the process, have a verification online, where if I needed to go in and look at somebody's application, I'd say, oh, okay. Well, they've already verified everything. I can approve it. Not go in and say, let me go up here and see if we got a letter or let me look through my stacks of paper here and see if I have something. It slows down our process tremendously. And with all the cutbacks that the state has done, it's really -- it's hurting. It's hurting. And we're working really hard, we're trying to get it done, but that process would just be such an immense help to us.

CHANTEL CORBETT: Do the RGs have the availability of temporary licensing?

GAIL CURRY: They do, they do, but that's taking us longer also.

CHANTEL CORBETT: Right. That's something they can do while they're in school.

GAIL CURRY: No. No. The process to this is a All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
little bit --
CHANTEL CORBETT: Different.
GAIL CURRY: Yeah. What happens is they send in their application maybe two weeks before they graduate. So they send the application in.

Now, we may process that application. But guess what? The program directors cannot send us the verification letter until the day they graduate. So because now they're going to graduate today on the 6th, these kids -- this is the, you know, Millennials, they are instant gratification. I need it right now.

So they graduate today. Guess where they are tomorrow morning? Taking the test. So by the time we can get to their application, we're going to give them a temporary, but there's going to be a lapse in time. So they have taken their test. They have passed, they are ready to go to work, but we haven't approved their temporary yet. And believe me, we get the calls. We get the calls right away.

JAMES FUTCH: To the extent that the other part of the Department of Health can help you at all, you certainly have our support. And so far there hasn't been enough to actually make your IT people move faster.

GAIL CURRY: I know.
REBECCA McFADDEN: I tell our technologists if they wait that long, they get that paper for renewal. I know it's not going to help with the new ones, but they get that in plenty of time. If they -- for renewals, I mean, if they can't get that in in time, that's their fault.

GAIL CURRY: Right.
REBECCA McFADDEN: They have to give the time.
GAIL CURRY: The renewal process because they can do it online, snap, it's done, unless they don't have their CEs in.

REBECCA McFADDEN: But they always try to blame your office. I'm like, no, I renew mine every year. GAIL CURRY: We send out the renewal notice two months before they expire.

REBECCA McFADDEN: Exactly. Yep.
GAIL CURRY: You would not believe how many phone calls we get the last day of the month or the first day of the next month saying, I tried to renew at midnight last night and it wouldn't let me, you know. Renewals --

JAMES FUTCH: That's right. It expired now.. REBECCA McFADDEN: Or I mailed it and I haven't gotten it back. Well, you're not working until you
do.
GAIL CURRY: Renewal is not a big issue for us. If they do their part in the timely manner, we're great. We can get it done. But if they procrastinate and sit there and wait until the very last minute to do it, and then they don't have their CEs in, it's going to hold them up. It's going to hold them up because there's applications in front of theirs, and we do everything by date order. So if I have thirty applications that came in on the 25th and I got yours on the 31st, guess what, you're still on the bottom of the pile and this is the 31st.

REBECCA McFADDEN: Yep.
GAIL CURRY: So you're not going to be renewed before you actually can't work.

CHANTEL CORBETT: I think a lot of times unfortunately, the technologists delay, procrastinate, looking even, throughout the year to look and see if their CEs are showing. Because a lot of them, they will go to meetings or whatever, and they say that they will upload them to the state, and then for whatever reason, that person doesn't do it. And then, like you said, it's like the day before it expires and they're like, oh, my
gosh, they're not here and it's five o'clock and nobody is there. Call.

GAIL CURRY: And what we would -- what we tell licensees when they call and say that, what are we supposed to be uploading? You know what? This is my license. I am not going to wait for somebody else to do it for me. And plus, they usually get a certificate or something that shows that they attended that conference or that --

CHANTEL CORBETT: We're supposed to type those in on RT.

GAIL CURRY: No, you can't.
CHANTEL CORBETT: We're the only one, right?
GAIL CURRY: No.
CHANTEL CORBETT: Okay. I was told some of the other licensees types could type them in.

GAIL CURRY: No, because ours have to be verified. I don't know.

CHANTEL CORBETT: They all have course numbers and they are approved and everything.

GAIL CURRY: Right. Right.
CHANTEL CORBETT: It's frustrating for us on the other end. It seems like it's adding work to you guys. We're having to send in certificates where we could just enter in.

GAIL CURRY: If we get rosters, they are automatically uploaded. We have a Scantron machine, we run them through and they are automatically uploaded. But if they procrastinate and they're not either with the ASRT that sends us those CEs on the 15th of every month, then it's their responsibility.

CHANTEL CORBETT: Yeah.
GAIL CURRY: You've got to look to be sure that things are where they should be so you can renew in a timely manner.

JAMES FUTCH: Okay. I think you, the new computer system you got, the Lead system, I was talking to Daniella, and all of the existing online renewals have been replaced with the new way of doing online renewals. And she said that that new way has the capability to do uploads of documents with the renewal process. So there's the possibility.

GAIL CURRY: Yes. That's when we go to Versa.
JAMES FUTCH: Versa online. So there's the possibility in the future being able to accept uploads with the online renewals.

GAIL CURRY: Right.
JAMES FUTCH: That should help that problem.
But where we seem to be at the bottom of the pile, but you know, April, we'll do our best.

Anything else?
GAIL CURRY: Um, Versa I think is supposed to go live in January.

JAMES FUTCH: The nurses are first. Surprise, surprise.

GAIL CURRY: Of course. Of course they are. CHANTEL CORBETT: The good thing is if it fails, they're first.

GAIL CURRY: Yeah, but that is going to be a big help to us. Because the documents can be uploaded by the applicant or the provider, whatever.

CHANTEL CORBETT: That will take some of that off of you.

GAIL CURRY: I'm good.
JAMES FUTCH: Okay. Thank you, Gail.
So let's see. Relationships. You've already heard about all this. This is Jerry's folks, inspecting licenses displayed at a facility. There's a requirement to display the licenses technologists in place accessible to view.

We do have the ability, if we find that someone is being employed who's on an expired license, the complaints that we mentioned before, that we're going to take and put together from Jerry's program
are going to be against not only the operator, but against the employer for employing someone who's not certified. It's a little different in our statute than most of the other professions.

Organizational chart. People working for me. There I am. I don't know why that picture is up there, but anyway. All the things you just heard me say I do.

This is Kelly Nesmith. Most people have probably talked to her more often than any of the rest of us because she's the continuing education coordinator. So if you need to get a course approved for your facility, if you're wondering why a course is no longer active, Kelly is the person to talk to. And she's usually -- the most common question Kelly gets is, I'm doing this society meeting tomorrow, can I get my courses approved? And she goes, ask me to ask you to try and give her like, you know, thirty days ahead of time or so in order to do that.

Giles -- Kelly is a radiographer. Giles is a radiation therapist. He came on board earlier this year. Fair amount of experience running TMH's radiation therapy program for a number of years. And if you see him at your facility in conjunction
with Yvette, that means one of those medical events happened. They are trying to figure out why; how to help you.

Our IT people, this is our programming consultant, Brad Watts. Every single system that you deal with except for MQA, the X-ray Machine Program, the Materials Licensing Program and the predecessor to the system that was licensing the technologists, was something that Brad either wrote or has been maintaining for us for a number of years.

This is another person on our staff. This is Nina Alexander. All of the non-programming things, computers stop working, viruses get on computers, Nina is the person who helps us fix those problems.

Moving away from technology for just a second, Cindy made mention of the fact that there is another program for non-ionizing radiation. There's one statute, it's about two paragraphs long. It's in 501. 122 Florida Statutes. It was written in 1984. Pretty much hasn't been changed ever since then. And it gives us the authority to do one thing, which is to register high-power lasers in the state of Florida. And these pictures you see here are from Governor Lawton Chiles' first inauguration,
something like 1993 or 1994. This is the state Capitol building; new capitol. This is the old Capitol. You can't really see it in this room.

There are actually some argon laser beams coming from the top of the new Capitol bouncing off of the old Capitol and going down the Appalachian Parkway.

This is an inspection I did back then. This is the roof of the old Capitol. This is a fellow mounting mirrors so this bounce will happen.

Here's the school picture. This is a couple guys, I'm not either one of these idiots, who were standing outside the windows on the top of the new Capitol building, 22 floors off the ground, mounting some bounce mirrors to the frame of the building so they can bounce them from up here all the way down to the roof.

REBECCA McFADDEN: They don't have belts on holding them up or nothing.

JAMES FUTCH: I think they're still living. I'm not sure. So some laser light guys from Miami. Really couple of really good guys.

So in addition to lasers, we are also asked from time to time to assist with questions regarding all the other pantheon of non-ionizing radiation
issues that are out there. Is your cell phone going to give you cancer, et cetera, et cetera. Is your power line safe to live next door to? All of these things. And where we can, if there are standards, we help refer folks to those for measurements to be made. Most of those are in those standards. Because most of the research says there's no problem. Enough about lasers.

And here is -- for those of you who have seen the joke, hold your humor for -- your laughter for a moment, but this is what we're talking about. So the researchers are looking at the maze for cell phone safety testing, and the guy says, the mice have shown no increase in cancer rate but there's been a huge up-tic in maze accidents from the texting. I think that's the joke. Anyway.

REBECCA McFADDEN: Sick joke.
JAMES FUTCH: So let's swap over to something else. Give me just a second.

Okay. Moving away from technology and picking up an issue that John had talked about earlier, we have this thing called preventive radiological nuclear detection. John, there's a state committee, has a whole bunch of members from different police agencies and fire and safety and it's part of the
domestic security superstructure of the state of Florida. And John was the co-chair of the PRND committee for eight years? And he finally twisted my arm hard enough that I decided to take over for him, which I did earlier this year. And so, all of the things that we're about to show you kind of fit underneath this umbrella.

And it, in contrast to emergency response, we think of Fukushima, we're involved with the power plant with monitoring, with what happens afterwards, that's all on the emergency response side.

This one was created after 9-11. This is trying to use detectors to stop people from using material to harm others or to cause panic, et cetera, et cetera.

I see it's not on the screen. Excuse me. It's always better if you can actually see what I'm talking about. There we go.

So when we talk about this, just to give you a little background, the three biggies -- and some of this we talked about in April. Again, because some of you weren't here, I just want to go over it again.

The three biggies, improvised nuclear device, dirty bomb, spread the material, no atomic explosion All Good Reporters, LLLC (321) 285-2324 www.AlfGoodReporters.com
and radiological exposure device. You take something highly radioactive and you put in the seat of the supervisor's chair on your last day of work when you're fired in hopes of hurting him.

This one actually happened in Florida in approximately 2006 in Collier County, Florida. It was a nuclear medicine technologist who removed a Gadolinium line source, I think it was, from the nuclear medicine camera and stuck it in the supervisor's chair. He was arrested. There was an arrest report. You can read about it. He was not prosecuted. I have no idea why.

So anybody have any idea what DJ Torres, who's one of our FHP pilots is holding in his hands?

No? I didn't think so. John knows. These are the simulated cores of two nuclear devices using actual highly enriched Uranium-235. The idea behind these, we used these in an exercise earlier this year. The idea is to show something that gives the same external gamma radiation signature from U-235, let's say a Hiroshima-sized bomb would emit and try to see if you can find it in the environment with various detectors and things like that. So naturally, when the folks from Oakridge brought this down, everybody had to take a picture of it.

All right. So this is the whole PRND process. I won't go into that, but obviously, you want to stop the bad guys somewhere along the process. The country has these networks of portal monitors and other things to detect, including in Florida, we use some of these. All right.

So this whole thing, let me just talk to you for just a second. We've done a lot of work with gamma detectors, like the one on the table, with various law enforcement folks. And we've been doing it for years with vehicles and in the past couple years, we've started doing it with aerial detection. Airplanes. We've taken detectors and put them in airplanes. And this shows you the output from the, what we call the GIS mapping view of some of the gear on the table. And what you see is these little bread crumbs, and they're color coded. So green means there's not much radiation at that moment. Yellow means there's more and red means there's something nearby.

In this case, there's something in this bush. And the folks who were learning how to fly are first learning how to drive with the systems on the ground because it's cheaper than trying to use them in the air and that's what this is showing.

We'll show you this live in a little bit, but this is the screen that shows the output from the gamma radiation detector on the table.

This is kind of the sciency physics view, as the cops call it, that shows natural background. Isotopes, Thorium, Uranium, Radium on a scale from 0KV to 3000KV.

If you see a pattern here, it's probably because it's a naturally occurring isotope in the ground, but it's always going to pick up. If you see a perturbation like this, this means there's something unusual; you should go investigate it.

Aerial flight planning. You have to teach pilots to fly so you don't miss things on the ground. And you have to teach them how to fly in very tight parallel lines.

So this brings me to the Wings exercise. And I was just thinking, boy, I'm glad they didn't hold this in, say, October, because we would have had a problem. My brother, who lives in Columbia, had 12 inches of rain -- was it yesterday or the day before? Whenever this whole thing -- two days ago. That was, like, the low total for the state of South Carolina. But he's good because he's got a generator. He's on high ground.

So Wings is the second time that the Federal Government has tried to bring together the various kind of aerial detection assets that are out there now. And it used to be all there was was the feds with the emergency-response type gear that John was talking about. The AMS, the aerometric system folks in Las Vegas or at Andrews Air Force Base. And because of the PRND mission, there are law enforcement agencies out there now flying systems like the one you see on the table doing it for propentic (ph) purposes.

And the feds say, hey, well, maybe we should kind of start integrating those systems into a much more robust capability. How would we do that? And FEMA decided to write a check and pay the bill for all the gas that it was going to take to figure this out.

So FEMA has the con ops and they wanted to us test it. They did it first in Las Vegas last year. This is the second time around. This time around there were nine different agencies -- excuse me. Nine aircraft, eleven different agencies. And we're going to show you some pictures from that exercise and how it all works or worked.

First of all, these are the places that we got
to fly. This is, for those of you not familiar, this is the Savannah River, the border between Georgia and South Carolina. Here's the border between North and South Carolina.

So this is Sumpter, which I think got 24 inches of rain two days ago. The airport we were based out of. And these were all the different sites where there's either physical, discreet sources placed by people on the ground so the aerial crews would have something to see. Right? Big sources like we train with. Let's just say something larger than a ten millicurie, five millicuries and we'll leave it at that.

The other things that you can see in this particular part of the country is Savannah River National Lab is down here. And they have part of the old nuclear weapons complex and because of that, they have contamination out in the environment on the ground that you can fly over and pick up with these aerial detection gear.

It's like Vegas in all the places that we set off bombs above ground. It's one of the few places in the country where you can measure actual contamination and not have to just do fake little discreet sources. It's spread over a wider area.

So this is our system. The FHP in Florida flies six or seven, I forget, Cessna 172, 182 airplanes. And they are very experienced. They are up all the time. They are the folks who are monitoring your progress between the white lines on 75 and time you on how long it takes to get from one to the other one and then write you a ticket. But we use them to fly our system.

So the system consists of -- I'll describe what's on the table. But this is the -- the big square thing is the sodium iodine detector. It's 4 by 4 by 16 inch crystal. It's connected to the square box, which is the Mil-Spec computer. Normally when we're flying, we'll have multiple detectors in the airplane. We flew with five in South Carolina.

This is Matt Senison, one of John's guys, hooking up the equipment in the back seat of the Cessna. And you can't really see the pilots, but this is Mark Cendan and DJ Torres. And in the shadows leaning through the other door is one of Charlie's people, Gan Preamplume, who is our GIS expert.

And the other equipment on the table is just a Wi-Fi and cell router that takes the signals from
the table and brings them over the computers, or down to the ground if you want to send it down to the ground.

So this is the full crew standing in front of the FHP airplane. And then the way it works is, Gan, basically the little plan that I showed you before with the airplane and the parallel lines, Gan has just received an assignment from the crew at DOE and he's supposed to go build a flight plan and tell the plane to go fly in a certain area in South Carolina. And so he's working with one of the DOE scientists, Lance, on how to do that.

And what we're going to do for this is we're going to put a flight plan on a little thumb drive. We're going to go out to the navigational system in the computer and plug it into the computer so the pilot, when he's flying, can see where he's at in relation to those lines and try his best to stay on those lines.

So this is the beginning of the mission. The plane is taking off.

And this is what it looks like in flight to the operator in the airplane. You can see what we have here is a restricted area that can't fly over. This is where the Savannah River I think reactors and
other parts where they don't want people flying are.
The area that we were flying in doesn't really show you the lines. But picture a big rectangle right here with a bunch of parallel lines going back and forth. And what you see is the actual bread crumbs from the system that's it's generating in flight.

So you start out coming in to the plan down here, kind of run along the edge of it and then start back and forth.

You can't see this, but this is actually about 13 miles long, each one of those lines. And it's about, I think, about the same distance, maybe not quite as far this way. So this becomes a real management issue.

Sumpter is, like, seventy miles away up here. And you've got a certain amount of gas in the plane. And you're going to go cover this area and it took us two hours to generate this. And at that point, you say, hmm, well, let's go see what we can see along the river. Because the river is down here on the border. You can't really tell. That's what this one is trying to fly along.

These colorations that you're seeing are mostly the variations in the natural background material on
the ground. So the Thoriums, the Radiums, et cetera.

However, even though you can't always pick up the fine low levels of contamination that exist approximately here, where this little pond kind of empties out, you can't really pick that up in flight. When you come back down and land and you take your data and give it to DOE, which is what we're doing here, we're giving it to the DOE GIS scientist who's going to combine it into the much larger picture produced by all the air crews, she can actually run some of the DOE algorithms to pick up very, very fine levels.

And then we gave a briefing on this and DJ is behind me. And you can't really see it quite as well, but this one has actually got some markers on it to show exactly where we picked up the Cesium-137 on the ground.

And it was kind of eye opening for the pilots because we've been doing so much training with discreet sources that are like search lights to this system from several hundred to even higher feet. They're so used to seeing something say, alarm, alarm, alarm, in flight and all of rest of it, and when that didn't happen, they thought we haven't
seen anything. But in the processing on the ground, we did, in fact, see the Cesium-137.

This is just some pictures from the other air crews and I'm going to show you some pictures of airplanes because, hey, airplanes are cool, right? This is our table. And you can see, it's a little bit tight in this building.

This is one DOE crew whose chair is actually smack up against Matt's. And on the other side, the same thing. This is the Philadelphia Police Department crew.

This is Ed Baldini, who's a lieutenant with the Philadelphia Police Department, who is the other law enforcement crew in the helicopter that actually fielded an aircraft. They had some other law enforcement agencies that had sharing their experience, but they didn't actually bring their airplanes.

This crew in the middle of the room, this is the EPA's ground crew. And I'll show you their plane in just a second.

This is the runway. This is us. This is a Beechcraft King Air that DOE flies. This is essentially the same aircraft that Customs flies. They call it a C-20, I think. They fly this also
for the Department of Energy. These two are
Department of Energy crews and on the back, there's one, two, three, four, and there's another, I think five or six helicopter systems flown by different folks.

This is the U.S. Army Black Hawk that we did some training with earlier this year. The same, the same UH60 carrying each of these white pods has about four of these devices inside of them. And there's two on this side, so there's about sixteen crystals or so they are flying.

This is the airplane that you saw before close up.

This is the EPA's aircraft. They are flying, I think it was fourteen, I think about fourteen crystals we said. And they have a whole bunch of other chemical detection gear and high-resolution video cameras in their system.

And that's the class photo. And we're done.
MATTHEW WALSER: So none of the data up in the airplane is realtime down to the ground?

JAMES FUTCH: It can be. Depends on how good your connectivity is to the ground. We flew this exact system with the little commercially available Cradle Point router over there, and depends on where All Good Reporters, LLLC (321) 285-2324 www. AllGoodReporters.com
the plane is at in relation to the towers and what the orientation of the plane is. We're doing this over the regular cellular network. We probably had 50 percent the time we could see what's going on realtime.

EPA's aircraft, the one with the big exhaust on the side, they're using satellite uplink over the Iridium network. They like to show off. When they did their plane, we were watching live video transmission as well as data transmission from the data system. And of course, that costs like a dollar something a minute for the -- two dollars a minute now?

They were really showing off. Good way to spend your federal money, right?

REBECCA McFADDEN: With the drone technology, would that replace some of this aircraft technology?

JAMES FUTCH: Well, those things over there weigh about, I think, thirty pounds.

JOHN WILLIAMSON: No, that one is fifty-six pounds.

JAMES FUTCH: When you figure out how to fly drones that can carry heavy, lift stuff, that is --

MATTHEW WALSER: Drones that have missiles on them.

JAMES FUTCH: We're not going to buy Predators. Maybe the military will give us a Predator. I'm not sure.

CHANTEL CORBETT: I'm guessing they only use these if they're specifically looking for something. They're not just hanging out on the planes flying around.

JAMES FUTCH: I would love to be able to. John and I put a proposal in for another one of these systems. These are, these are -- the crystals are $\$ 32,000$. The whole thing is couple hundred thousand dollars.

CHANTEL CORBETT: What I'm saying, if there's an specific incident or question, that's the only time they're actually loading them up and taking them out?

JAMES FUTCH: Right. If there were more of these -- FHP is up there every day over the interstates. FPH has boats patrolling them offshore.

I want to show you how this works with a source. And this is -- that's Sodium-22. You can see the pertubation that it makes. And that's how it works. Give it a second or two. I'll hide it. It takes it a little bit of time.

CHANTEL CORBETT: You have to back away.
JAMES FUTCH: Should we see what this does?
Cesium-137. And that's Cobalt-60. The Potassium-40 you see every once in a while is coming from the environment.

Sometimes these systems, when they detect one anomaly, they kind of open the window and they see some of the natural stuff at the same time.

So any questions? Anybody wanted to add anything?

MARK SEDDON (Vice-Chairman): Okay. Thanks. Okay. So I think we need to first, I don't know if we really have much time for old business by council members. So, anything you want to come up to talk about maybe at the next meeting?

BRENDA ANDREWS: We probably need to go over the travel stuff. Travel packages.

DR. MARY HART: When is the next meeting?
MARK SEDDON (Vice-Chairman): Then we'll talk about the next meeting. That's the next thing.

KATHLEEN DROTAR: Isn't there a bunch of legislation you guys are proposing?

JAMES FUTCH: No.
KATHLEEN DROTAR: Okay.
JAMES FUTCH: That's the short answer.

CHANTEL CORBETT: Are there any, like, requests or for looking into the fact of putting anything more into the fluoroscopy guidance or regulations in place for future?

JAMES FUTCH: You mean like to actually license people to do fluoroscopy?

CHANTEL CORBETT: Any kind of training requirements or anything like that?

MARK SEDDON (Vice-Chairman): I spoke to Yvette before about potentially putting out an information notice, something to that effect, with some recommendations for credentialing or training for the physicians.

CHANTEL CORBETT: I mean, a couple of the states are doing --

MARK SEDDON (Vice-Chairman): States are moving in that direction.

CHANTEL CORBETT: That direction. I'm sure the Joint Commission will eventually here, too. I mean, we have physicians who are just being monitored on time, which is, obviously, not the best way to do it. And a lot of them are not well educated and are using cini mode and the doses are getting pretty high pretty quickly.

JAMES FUTCH: From a legal perspective, if we
wanted to do something like require physicians to meet some sort of fluoroscopy requirement, we're not going to do it through 468, the RAD tech license law, because they're exempt from it. There's some --

CHANTEL CORBETT: Okay.
JAMES FUTCH: -- tangential authority and you've got the statute that probably, and I'm not a lawyer, so just accept this with a grain of salt, but I know the climate in Florida probably would not be enough to do what you want unless the community wants it. And if the community wants it, it's probably going to come through the Board of Medicine.

MARK SEDDON (Vice-Chairman): I think having information would be helpful, if nothing else.

DR. MARY HART: A step in the right direction.
CHANTEL CORBETT: Any extra.
MARK SEDDON (Vice-Chairman) : Step in the right direction. That's something we can move forward quickly, fairly quickly to publish those.

Then the next kind of gray area we can talk about in the past is register protection programs that are kind of undefined, what they involve. So that potentially should be another avenue, I think.

Again, in an x-ray regimen, especially in Orange County, it's a conglomerate of policies affect multiple things. So you could have something to that effect as well.

We initially did that for CT. We had the -- I know Don put together, Don Steiner initially put together a draft information notice for fluoro years and years ago, which I don't think it actually got published. So we can even reintroduce that as well.

YVETTE FORREST: It's definitely something to revisit.

MARK SEDDON (Vice-Chairman): Yeah. Any other business, old business you want to bring up? No? Okay.

Brenda, do you want to talk about travel vouchers and the next meeting?

BRENDA ANDREWS: First, does anybody have questions on the packets, the travel packets that I gave you? Have you had a chance to take a look at it?

REBECCA McFADDEN: This sheet with the yellow, you want us to basically copy what you have here on, you've already assigned us, but just confirm it's true?

BRENDA ANDREWS: That's your authorization.

All you do is sign that.
REBECCA McFADDEN: Okay.
BRENDA ANDREWS: The other two pieces are of signature pages for you to sign those and date them. The instructions are on the purple sheets.

If you have -- if you drove in and you know your mileage, you do not have any receipts, you can actually sign your documents and turn them back in to me now.

If you have receipts, you may want to hold on to everything and mail them back in the envelope that I provided.

Be sure to fill out the yellow areas, if applicable, on the worksheet, including, if you have receipts, and make sure you include the original receipts in your packets back to me.

Also, I have green parking discount tickets. I think if you did not stay overnight and you parked, you are eligible to have one of these to -- I think it's only four dollars for parking as opposed to, I think twelve.

JAMES FUTCH: Twelve, yeah.
BRENDA ANDREWS: So if anybody needs one of these from me, just let me know.

Anybody else?

JAMES FUTCH: So looking ahead at the calendar, we traditionally meet in the spring in the month of May, and there are a few things to think about. The first Tuesday is the 3rd. It's not a requirement. We have usually met on Tuesdays. I'm not sure if Tuesdays are still good with all the newer members.

Do we hear a preference for staying with Tuesdays? Until somebody thinks of a reason not to? So we're looking at the 3rd or multiples of seven afterwards.

Now, some folks usually have meetings of associations in early May. What conflicts do you guys see?

CHANTEL CORBETT: FNMT is the 28th through the 1st. We're good on that. JAMES FUTCH: 28th. CHANTEL CORBETT: April 28th through May 1st. JAMES FUTCH: Okay. BRENDA ANDREWS: Then there's a CRCPD meeting. CINDY BECKER: That's okay. JAMES FUTCH: There's a CRCPD meeting and Cindy would not dream of missing the next, our council. So probably stay away from the week of the 3rd, I guess.

So the 10th. Any objections to the 10th of May?

DR. MARY HART: My son is graduating from law school in California that week, so I'm going to be gone, but I don't think I'm the necessary --

JAMES FUTCH: And then we have school graduations also, to worry about.

MARK SEDDON (Vice-Chairman): The 17th then?
JAMES FUTCH: The 17th?
DR. MARY HART: That works.
KATHLEEN DROTAR: 17th.
JAMES FUTCH: We were just informed that's when the CRCPD meeting is.

YVETTE FORREST: Yeah. I'll probably try to go to the CRCPD.

MARK SEDDON (Vice-Chairman): The 24th?
JAMES FUTCH: The 24th? Any objection to the 24th?

CHANTEL CORBETT: Going once.
JAMES FUTCH: Why don't we pencil in the 24 th. And if everyone finds out otherwise, e-mail Brenda and we'll make another stab, but otherwise, let's do it.

DR. MARY HART: Is it always here? JAMES FUTCH: No.

MARK SEDDON (Vice-Chairman): It varies.
BRENDA ANDREWS: Between here and Tampa.
JAMES FUTCH: Paris, Milan.
DR. MARY HART: Do we get travel? Key West?
JAMES FUTCH: Where would you like to meet?
CHANTEL CORBETT: Key West. It's a Florida city.

JAMES FUTCH: So is Miami, but I have to remind myself of that every once in a while.

Traditionally, they bounce back and forth between Tampa and Orlando for airplane and short meeting purposes for people who fly in.

How many folks do we have flying these days? I know Dr. Williams and Dr. Atherton.

MARK SEDDON (Vice-Chairman): Any preferences?
JAMES FUTCH: It's your group. We're paying the bills, but --

CHANTEL CORBETT: Are the majority closer to here?

MARK SEDDON (Vice-Chairman): I think we alternate. We usually Tampa then Orlando, Tampa then Orlando.

BRENDA ANDREWS: I think Tampa was more difficult for those who fly in. Last time we had problems.

DR. MARY HART: Which one is more difficult?
BRENDA ANDREWS: Tampa.
JAMES FUTCH: Flying internally in the state of Florida is not easy.

CHANTEL CORBETT: It's a lot more limited schedule.

DR. ATHERTON: It was equally difficult flying here this time --

JOHN WILLIAMSON: It's all bad.
DR. ATHERTON: -- so I wouldn't count that as a major problem.

MARK SEDDON (Vice-Chairman): Show of hands for Tampa?
(Show of Hands)
MARK SEDDON (Vice-Chairman): Six. Show of hands for Orlando?
(Show of Hands)
JAMES FUTCH: We're trying to just count the members, not the staff.

BRENDA ANDREWS: Just members.
MARK SEDDON (Vice-Chairman): Just members, Orlando? Just me? Three. It looks like Tampa next time.

All right. Do we have any other business we need to worry about?

I guess one comment for the new members. I know there's the whole Sunshine laws. So communication between council members. Like when Dr. Hart was mentioning getting people together. It has to be --

JAMES FUTCH: If you're going to talk about -119 requires certain things. When we hold this meeting, we notice it in the Florida Administrative Register ahead of time so that the public can come and know about it if they want to. When Brenda and I send anything out to anybody else via e-mail, we tend to do a blank carbon copy so you don't accidentally hit reply all and start communication between two members. Because that can be interpreted as being something that would be subject to public notification; the rest of it.

So it's best to hold communications between each other in a venue like this on anything that might come up or be council business. So if we need to have some communications outside of the two regular meetings, we can set up conference calls or things of that nature.

If there's something that you want the group to know in general, send it to us and we can take care of notifying other folks about that.

Now, I'm not saying don't talk to each other. I'm saying anything you do end up talking to each other, if it turns out to be something that is council business, could get us into trouble with the Sunshine Law or at the very least, require that you recuse yourself from being part of any voting if it comes up later.

MARK SEDDON (Vice-Chairman): I know you were talking about the initiative for, like, dose management. I don't know if that would be considered council business.

JAMES FUTCH: Probably. But we can't actually have -- subcommittee. Some groups formed. And we just have to manage it properly.

DR. MARY HART: Do a group telethon.
JAMES FUTCH: Right. Exactly.
DR. MARY HART: So I'll e-mail you, Brenda. Do you want to just show if you're interested so that she can, if we have a --

JAMES FUTCH: On which topic? Which topic are we on?

BRENDA ANDREWS: What are we talking about?
DR. MARY HART: About what I was talking about before --

MARK SEDDON (Vice-Chairman): Dose management.

DR. MARY HART: Dose management in patients and whether that should go to a different -- anybody -anybody interested?

MARK SEDDON (Vice-Chairman): So I'll be interested.

REBECCA McFADDEN: I'm interested in dose management for sure. It's a hot topic.

JAMES FUTCH: So we have three folks.
REBECCA McFADDEN: I think we might have a lot of conversation about that in the next year.

KATHLEEN DROTAR: Send an e-mail out to all of us and we'll respond back through Brenda.

REBECCA McFADDEN: Whoever is interested could just dial in.

DR. MARY HART: Yeah.
REBECCA McFADDEN: Discuss.
MARK SEDDON (Vice-Chairman): So do we make a motion to adjourn?

JAMES FUTCH: I think so.
MARK SEDDON (Vice-Chairman): All right. Do we have a motion to adjourn.

KATHLEEN DROTAR: I make a motion to adjourn.
MARK SEDDON (Vice-Chairman): Second?
MR. BURGESS: Second.
MARK SEDDON (Vice-Chairman): All in favor?

ALL: Aye.
MARK SEDDON (Vice-Chairman): No nays. Thank you.
(Proceedings concluded at 3:15 p.m.)
ALL: Aye.
MARK SEDDON (Vice-Chairman): No nays. Thank
you.

## CERTIFICATE OF REPORTER

STATE OF FLORIDA:
COUNTY OF ORANGE:

I, RITA G. MEYER, RDR, CRR, CBC, CCP, do hereby certify that I was authorized to and did stenographically report the foregoing proceedings and that the foregoing transcript is a true and correct record of my stenographic notes.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties, attorneys or counsel connected with the action, nor am I financially interested in the outcome of the action. DATED on this 21st day of October, 2015.


| \$ | 20 [3] 62/2 69/4 145/25 200,000 [1] 47/12 | $\left\lvert\, \begin{aligned} & 64-\mathrm{E}-5.204[1] \\ & 64 \mathrm{E}-3[1] \\ & 116 / 23 / 3 \end{aligned}\right.$ |
| :---: | :---: | :---: |
| \$11 [1] 66/6 | 2001 [1] 55/13 | 64E-7 [1] 92/2 |
| \$2.6[1] 65/25 | 2002 [1] 118/22 | 6th [1] 125/10 |
| \$25 [1] 83/2 | 2004 [1] 116/25 | 7 |
| \$300 [1] 54/23 | 2005 [3] 117/15 118/22 118/25 | 7 |
| \$32,000 [1] 148/11 | 2006 [3] 59/5 117/9 136/6 | 75 [1] 141/6 |
| \$500 [1] 54/21 | 2008 [1] 56/19 | 9 |
| \$600,000 [1] 54/24 | 2010 [2] 9/15 56/20 |  |
| - | 2012 [1] 117/13 | 9-11 [1] 135/12 |
|  | 2014 [3] 61/2 66/1 70/13 | 90 [2] 50/21 67/13 |
| '14 [3] 45/16 55/1 56/13 | 2015 [3] 1/19 66/1 162/15 | 90,000 [1] 12/16 |
| '14-15 [3] 45/16 55/1 56/13 | 2022 [1] 48/24 | 92 [1] 25/4 |
| '84 [1] 116/19 | 2024 [1] 48/24 | 92.5 [1] 21/22 |
| '98[1] 116/17 | 20s [1] 83/24 | 95-degree [1] 50/21 |
|  | 210 [1] 113/23 | A |
| -........................... 149 [1] 3/13 | 15 |  |
|  | 22 [2] 133/14 148/22 | m [4] 1/20 42/2 42/6 83/17 |
| 0 | 22,000 [1] 67/22 | AAPN[1] ${ }^{\text {a }}$ |
| OKV [1] 138/7 | 226 [1] 47/25 | ability [3] 96/4 99/24 130/22 |
| 1 | 235 [2] 136/17 136/20 | ABIM [1] 2/10 |
| 1,000 [1] 89/15 | 237 [1] 45/16 | able [12] 37/25 39/2 41/4 52/7 57/17 |
| 1,154 [1] 121/3 | 238 [2] 59/11 59/12 | 58/18 78/14 89/25 98/13 122/12 129/21 |
| 1.5 [1] 106/25 | 24 [1] 140/5 | 148/8 |
| 1.5[1] $106 / 25$ | 24//7 [1] 41/25 | ABNM [1] 2/10 |
| 10,000 [2] 116/16 118/14 | 24/7 [1] 26/16 |  |
| 100 [3] 21/22 64/3 120/10 | 24th [4] 155/16 155/17 155/18 155/20 | 20/10 22/24 23/19 26/1 26/2 26/3 29/1 |
| 105 [1] 53/14 | 250,000 [1] $47 / 13$ | 29/4 29/24 33/18 33/23 35/14 37/6 38/1 |
| 109 [1] 82/20 | 25th [1] 127/11 | 38/4 41/15 43/14 45/3 45/17 46/14 46/23 |
| 10th [2] 155/1 155/1 | 26,400 [1] 89/14 | 48/19 48/19 51/19 51/22 54/11 54/17 |
| 11 [1] 135/12 | 27,000 [1] 116/12 | 54/21 55/11 55/15 55/23 56/5 56/18 56/19 |
| 1100 [2] 88/18 90/24 | 28th [4] 65/19 154/15 154/17 154/18 | 57/22 58/5 58/7 58/8 59/2 61/1 61/9 61/24 |
| 119[2] 99/1158/7 | 3 | 63/3 64/17 64/25 65/6 65/12 65/13 65/14 |
| 12 [3] 64/23 84/12 138/20 | 3,000 [2] 45/4 89/15 | 75/18 78/19 82/7 83/11 87/21 88/22 89/13 |
| 120 [1] 55/15 | 30 [1] 69/3 | 90/4 91/6 95/22 96/17 96/18 98/1 102/7 |
| 125 [1] 11/1 | 30-minute [1] 41/22 | 103/2 103/4 103/8 105/16 105/16 105/22 |
| 12th [1] 6/2 | 300 [1] 88/22 | 106/4 107/16 108/2 108/2 108/21 110/7 |
| 13 [4] 90/3 90/4 90/7 143/12 | 3000KV [1] 138/7 | 111/8 114/16 114/21 116/16 117/25 |
| 137 [3] 144/17 145/2 149/3 | 31st [2] 127/11 127/13 | 117/25 122/11 130/18 132/19 134/8 |
| 15 [4] 45/16 55/1 56/13 62/2 | 330 [1] 63/5 | 134/11 134/21 135/6 135/18 135/19 |
| 15th [1] 129/6 | 350 [3] 10/24 11/6 11/6 | 135/21 136/11 139/6 143/11 143/13 |
| 16 [2] 50/17 141/12 | 3500 [1] 50/3 | 143/13 146/9 146/10 146/15 147/19 |
| 160 [1] 48/2 | 39 [3] 69/15 69/16 110/19 | 149/15 149/20 150/10 151/23 152/15 |
| 1650 [4] 84/18 85/12 88/18 90/24 | 3:15 [2] 1/20 161/4 | 154/3 155/7 157/25 158/6 158/10 158/25 |
| 17,000 [3] 28/24 29/1 116/15 | 3 ld [3] 154/4 154/10 154/24 | 159/9 159/22 159/23 159/23 160/10 |
| 170,000 [1] 47/4 | 4 | above [2] 64/4 140/22 |
| 172 [1] 141/2 |  | 31/2172/ |
| 17th [3] 155/8 155/9 155/11 | 4.5 [1] 89/5 | Abunabaa [1] 118/23 |
| 18 [3] 12/2 89/24 90/1 | 40 [1] 149/3 | academic [2] 24/23 89/16 |
| 182 [2] 54/11 141/2 | 400 [4] 54/21 60/13 61/15 89/5 | Accelerated [1] 66/7 |
| 19,368 [1] 65/22 | 468 [2] 116/23 151/3 | accept [3] 96/7 129/21 151/9 |
| 192 [1] 113/7 | 4700 [1] 56/13 | access [1] 13/1 |
| 1954 [1] 17/8 | 48-hour [1] 45/12 | accessible [2] 98/10 130/21 |
| 1960 [1] 17/14 |  | accidentally [1] 158/13 |
| 1964 [1] 17/16 | 5 | accidents [1] 134/15 |
| 1968 [1] 18/1 | 5,000 [1] 29/2 | accommodate [2] 76/25 87/3 |
| 1970s [1] 46/15 | 5.204 [1] 96/3 | accomplished [1] 16/5 |
| 1971 [1] 18/5 | 50 [2] 87/21 147/4 | account [1] 103/22 |
| 1978 [1] 116/19 | 50,000 [1] 65/16 | Accupros [1] 69/16 |
| 1984 [1] 132/20 | 500 [3] 60/14 61/13 113/7 | achievable [1] 86/14 |
| 1989 [1] 48/12 | 501.122 [1] 132/20 | acquired [1] 15/3 |
| 1993 [1] 133/1 | 5607 [1] 92/3 | ACR [11] 7/15 75/12 101/9 102/1 102/16 |
| 1994 [1] 133/1 | 6 | 102/22 105/18 105/19 105/20 106/16 |
| 1998 [1] 116/15 <br> 1:30 [1] 83/15 | 6 6000 [1] 56/13 | 106/17 |
| 1:35 [1] 83/18 | 6,61[1] $121 / 9$ | acronyms [1] 26/24 |
| 1st [4] 21/18 121/2 154/16 154/18 | 60 [6] 12/3 54/2 86/9 89/5 91/13 149/3 | across [3] 21/20 29/10 102/20 |
| 2 | 600 [1] 118/13 | act [2] 17/9 121/9 |
| 2,000 [2] 45/3 84/19 |  | action [5] 59/16 97/3 97/5 162/13 162/14 |

actions [7] 23/6 38/7 49/22 84/20 87/9 87/21 88/6
active [4] 10/18 10/22 11/3 131/14
activities [2] 23/2 32/14
activity [1] 22/10
acts [1] 117/22
actual [8] 11/7 32/10 59/10 66/5 72/23 136/17 140/23 143/5
actually [58] 8/10 10/6 10/9 10/14 17/13 17/25 20/9 21/3 21/19 24/2 32/18 35/10
36/1 38/17 41/14 42/1 45/2 48/24 50/18
51/7 53/11 54/4 54/6 55/9 57/4 57/13
57/19 58/2 58/3 59/13 59/21 60/2 60/12
63/21 89/22 90/3 90/7 90/18 92/25 106/3
111/4 119/9 125/24 127/16 133/4 135/17
136/5 143/11 144/12 144/16 145/8 145/14
145/17 148/15 150/5 152/8 153/8 159/12
ADA [2] 74/16 75/15
add [3] 97/5 101/22 149/9
added [5] 116/22 116/25 117/2 117/8 117/13
adding [4] 67/1 91/4 91/4 128/23
addition [3] 115/12 116/21 133/23
additional [2] 48/23 86/4
address [1] 103/17
addressing [2] 75/17 103/6
adjourn [3] 160/18 160/21 160/22
administer [3] 18/22 49/17 80/1
administrate [1] 35/23
administration [1] 19/20
Administrative [2] 85/22 158/8
administrator [7] 4/19 8/22 13/25 15/18
19/5 43/10 84/7
administrators [2] 14/6 15/21
advance [1] 78/13
advisory [5] $1 / 3$ 2/1 4/3 14/2 103/5
aerial [9] 53/18 53/21 61/4 95/3 137/12
138/13 139/3 140/9 140/20
aerometric [1] 139/6
AFARA [1] 86/13
affect [3] 22/12 86/18 152/3
affects [3] 10/1 22/12 70/20
after [8] 40/10 41/10 47/1 47/4 52/10
65/9 113/6 135/12
afternoon [1] 57/11
afterwards [3] 56/7 135/10 154/11
again [21] $7 / 11$ 18/19 21/19 38/8 58/20
64/22 79/10 79/10 79/10 84/21 85/12
86/25 87/21 88/18 91/7 95/7 101/6 123/24
135/21 135/23 152/1
against [4] 60/23 131/1 131/2 145/9
age [1] 123/20
agencies [10] 26/12 55/4 61/16 61/19 105/12 134/25 139/9 139/21 139/22 145/16
agency [6] 9/14 26/13 43/23 49/8 54/23 104/22
ago [17] 9/15 11/25 11/25 16/22 17/4
20/11 33/18 48/6 62/16 70/13 94/25 103/3
106/23 107/19 138/22 140/6 152/8
agreed [2] 13/10 63/23
agreement [7] 17/17 21/2 23/11 63/10
68/2 84/9 84/16
agreements [1] 21/1
ahead [12] $4 / 24 / 76 / 16 / 2142 / 1087 / 5$ 114/13 114/14 118/19 131/19 154/1 158/9 aid [1] 67/15
air [14] 44/13 44/20 44/20 48/1 51/1 51/11 54/12 60/3 60/15 137/25 139/7 144/11 145/3 145/23
air-conditioned [1] 51/1
aircraft [8] 54/5 54/6 139/22 145/15 145/24 146/14 147/6 147/17
airplane [9] 55/11 114/22 141/15 142/5
142/7 142/23 146/12 146/21 156/11
airplanes [7] 53/22 137/13 137/14 141/3 145/5 145/5 145/18
airport [3] $1 / 13$ 7/15 140/6
alarm [4] 86/8 144/23 144/24 144/24
Alexander [3] 113/20 113/22 132/13
algorithms [1] 144/12
aliens [2] 55/20 56/2
all [171]
all-in-one [1] 58/16
allegation [2] 26/10 55/17
allow [6] 83/16 95/13 96/13 96/22 111/1 120/15
allowed [2] 74/8 99/8
allowing [2] 96/19 96/19
allows [1] 91/11
almost [4] 11/19 56/13 64/6 80/24
alone [1] 68/21
along [8] 71/11 88/16 108/3 113/19
137/3 143/9 143/21 143/23
alpha [1] 48/2
already [8] $13 / 10$ 20/20 63/25 91/14 91/15 124/9 130/17 152/23
also [57] $12 / 20$ 13/25 14/4 14/13 17/10
18/22 19/5 21/10 22/9 26/12 26/20 26/24
29/22 36/20 36/23 43/13 44/9 44/18 48/1
52/9 53/13 53/18 53/24 54/8 54/10 55/2
57/22 58/14 59/15 60/3 60/8 60/16 61/13
62/24 73/23 73/24 74/4 80/20 81/3 88/9
89/13 91/10 92/7 94/10 99/14 105/11
115/15 117/1 118/10 119/18 120/16
122/15 124/22 133/23 145/25 153/17
155/7
alternate [1] 156/21
always [13] $8 / 28 / 430 / 332 / 2133 / 4$
36/20 77/4 123/23 126/13 135/17 138/10
144/3 155/24
am [8] $16 / 1$ 16/3 55/23 128/6 131/6
162/10 162/12 162/13
AMA [1] 109/8
ambient [2] 48/3 48/3
amendment [5] 85/7 86/17 87/2 97/10
98/7
amendments [7] 84/21 86/23 91/1 91/3
92/7 96/19 97/19
American [1] 122/21
Ameristeel [1] 55/13
amount [3] 95/9 131/23 143/17
AMS [2] 53/21 139/6
analyses [2] 47/13 56/14
analysis [2] 56/12 81/13
analytical [1] 81/23
analytics [1] 111/1
analyzer [1] 81/6
analyzers [3] 81/5 81/24 81/24
Anderson [1] 8/1
Andrews [3] 2/18 5/1 139/7
Angels [1] 60/15
animals [1] 90/22
annual [1] 10/24
annually [2] 28/24 29/3
anode [1] 75/8
anomaly [2] 59/12 149/7
another [12] 89/6 91/15 94/23 95/5
108/14 119/25 132/12 132/17 146/3 148/9

## 151/25 155/22

answer [8] 30/7 42/6 70/5 70/10 70/19
71/5 101/7 149/25
|any [53] 6/7 6/16 12/12 13/1 20/21 24/6 24/17 26/9 33/23 41/6 41/11 43/4 47/10 53/1 55/17 62/9 70/5 70/8 71/12 72/23 75/24 76/1 80/20 80/22 91/11 92/4 94/13 95/13 98/4 101/22 103/22 106/15 108/4 114/7 118/13 122/6 122/11 123/1 131/10 136/13 149/9 150/1 150/7 151/18 152/12 153/7 155/1 155/17 156/15 157/24 159/6 162/11 162/12
any violations [1] 41/11
anybody [23] 20/21 26/14 28/11 36/10
71/4 83/4 88/3 93/2 99/9 101/15 105/1
107/21 113/18 122/6 124/3 136/13 149/9
152/17 153/23 153/25 158/11 160/2 160/3
anymore [7] 18/9 39/21 48/16 62/6 69/8 76/20 104/20
anyone [6] 15/14 83/24 91/22 92/3 104/3 104/17
anything [22] $13 / 16$ 23/1 36/6 46/23
50/8 64/3 70/4 84/24 89/9 99/9 101/4
108/21 109/3 130/2 145/1 149/10 149/14
150/2 150/8 158/11 158/18 159/2
anyway [6] 18/21 33/17 107/6 111/22 131/7 134/16
anyways [2] 34/24 109/9
anywhere [2] 36/13 118/14
apart [1] 48/15
APM [1] 105/21
Apollo [1] 18/7
apologize [1] 39/1
Appalachian [1] 133/6
apparently [1] 13/2
appearing [1] 38/20
applicable [2] 103/1 153/14
applicant [4] 121/11 121/18 123/2
130/12
applicants [1] 119/9
application [18] 84/21 87/3 119/2 119/4
119/5 119/6 119/20 119/22 120/1 121/8
121/10 122/10 122/10 124/8 125/4 125/5
125/6 125/15
applications [10] 80/21 91/2 95/24 96/20
120/24 120/25 121/4 121/17 127/8 127/10
apply [4] 41/1 82/5 119/9 119/14
appointment [1] 7/3
appreciate [1] 15/9
appropriate [8] 42/7 50/6 93/24 101/25
104/15 105/6 107/12 107/24
appropriately [1] 49/10
approval [1] 6/1
approve [4] 6/11 6/12 84/23 124/10
approved [8] 6/19 10/17 87/6 118/15
125/19 128/20 131/13 131/17
approves [1] 87/15
approximate [1] 38/9
approximately [5] $63 / 584 / 18$ 84/19
136/6 144/5
April [3] 130/1 135/21 154/18
aquatic [1] 44/11
are [223]
area [16] 18/25 46/13 57/2 61/5 62/17
64/5 74/13 88/15 90/23 115/1 140/25
142/10 142/24 143/2 143/18 151/22
area-wide [1] 62/17
areas [12] 14/9 27/5 31/18 46/10 46/11
48/4 63/18 64/8 89/25 116/12 116/21
153/13
aren't [3] 14/23 37/3 88/3
argon [1] 133/4
Arizona [2] 92/8 93/13
arm [1] 135/4
Armand [2] 2/3 4/16

Army [3] 61/5 62/16 146/6
around [20] 4/7 7/17 10/21 17/21 19/14
27/1 29/18 42/4 44/21 44/21 44/22 45/4 48/4 56/22 90/23 100/9 116/12 139/20 139/20 148/7
arrest [1] 136/11
arrested [1] 136/10
ARRT [1] 122/20
as [120] 2/6 7/2 7/22 8/21 12/10 13/1 13/25 14/9 14/9 14/16 14/25 14/25 16/14 16/14 16/17 20/1 20/2 20/4 20/7 21/18 21/19 21/25 22/1 22/21 22/21 24/6 24/7 24/11 24/11 29/9 31/16 31/22 32/1 32/1 32/17 32/17 37/19 37/19 38/4 38/4 38/14 38/14 43/25 48/8 48/17 49/20 49/20 51/16 51/20 53/17 55/4 63/17 63/17 67/17 68/4 69/11 70/25 71/10 72/24 72/24 75/6 75/6 76/9 76/9 78/12 80/13 80/18 81/16 81/16 85/8 85/9 86/13 86/13 86/14 86/16 86/16 86/17 86/17 86/18 88/9 91/7 91/7 91/12 92/12 93/9 93/9 95/3 95/3 97/10 97/11 98/5 102/10 103/5 103/11 103/11 104/22 105/21 105/25 105/25 107/4 110/17 111/18 115/5 117/5 117/22 121/24 122/4 123/8 124/2 124/2 138/4 143/14 144/15 147/10 147/10 152/4 152/9 153/20 157/10 158/15
ash [1] 56/6
ask [10] 22/15 26/23 37/10 37/12 57/1
99/11 99/17 100/14 131/18 131/18
asked [5] 7/7 71/7 87/2 111/25 133/23
asking [2] 84/25 98/1
asks [1] 43/23
asleep [1] 65/10
aspect [1] 91/21
aspects [1] $43 / 19$
asphalt [1] 88/24
ASRT [1] 129/5
assessment [1] 49/15
assets [1] 139/3
assigned [1] 152/23
assignment [1] 142/8
assignments [2] 33/3 33/11
assist [1] 133/24
assistant [4] 4/24 11/18 117/10 117/12
assistants [2] 117/9 121/5
associate [1] 11/22
association [2] 74/15 75/16
associations [3] 7/7 7/9 154/13
assume [1] 58/12
assurance [8] 5/12 19/4 95/10 115/11
117/18 117/18 119/9 120/10
assure [1] 67/13
asymptomatic [1] 102/18
ATC [1] 2/14
ate [1] $65 / 10$
Atherton [5] 2/12 4/12 156/14 157/7 157/10
athletic[5] 11/16 11/22 11/23 12/5 12/7
atomic[2] 17/9 135/25
attached [4] 9/15 58/15 66/8 97/7
attempt [1] 38/14
attend [2] 10/24 11/7
attended [1] 128/9
attends [1] 11/1
attention [1] 88/5
attenuator [1] 77/23
attorney [2] 33/13 162/11
attorneys [3] 96/7 118/3 162/13
audience [1] 106/18
audit [15] 20/25 21/1 21/9 21/10 22/19
22/20 22/20 22/21 23/13 23/17 23/18
23/21 32/12 33/12 120/11
audited [2] 23/23 24/2
auditing [1] 24/3
auditor [1] 22/25
audits [1] 22/16
authority [7] 26/14 29/15 100/2 109/2 109/4 132/22 151/7
authorization [1] 152/25
authorized [15] 91/4 91/11 91/12 91/25
92/2 92/5 92/12 92/21 93/5 93/11 93/23
94/11 98/9 100/5 162/6
automatically [2] 129/2 129/3
availability [1] 124/20
available [3] 101/21 110/25 146/24
avenue [1] 151/25
average [3] 10/24 45/19 121/7
aware [2] 79/21 106/7
awareness [2] 57/6 57/10
away [10] 12/13 40/15 61/24 123/12
125/20 132/16 134/20 143/16 149/1 154/24
awed [1] 16/3
awful [4] 45/24 48/5 59/20 59/21
Ave [2] 6/15 161/1
B
back [44] 10/10 10/18 12/4 13/19 17/14
18/1 21/1 27/16 29/8 36/23 37/1 37/5
44/25 46/15 47/22 49/12 57/11 67/5 68/18
71/19 76/23 83/20 86/21 104/16 106/20
111/4 113/19 115/24 116/17 119/14
120/21 126/25 133/8 141/18 143/4 143/10
144/7 146/2 149/1 153/8 153/11 153/16 156/10 160/12
backed [1] 33/6
background [12] 19/11 34/11 34/13
34/14 47/2 50/11 64/4 64/5 86/5 135/20 138/5 143/25
backgrounds [3] 34/13 34/16 64/11
bad [5] 50/22 73/5 123/10 137/3 157/9
badging [1] 40/20
bag [1] 31/9
Bai [2] $2 / 214 / 14$
Baldini [1] 145/12
Baldwin [1] 55/14
ballpark [1] 36/19
balls [1] 13/13
band [2] 83/25 84/3
bankrupt [1] 36/9
bankrupted [1] 63/20
bare [1] 74/11
Bartow [4] 5/22 18/25 46/13 62/14
base [2] 109/22 139/7
based [16] 12/24 27/19 34/4 36/12 36/17
47/25 62/13 63/19 63/24 85/23 97/6
102/14 107/11 109/20 121/19 140/6
baseline [1] 62/21
basic [3] 13/5 57/8 115/25
basically [20] $13 / 2313 / 24$ 27/3 27/18 73/17 81/6 85/8 85/10 86/6 88/5 88/14 89/7 95/2 96/21 96/22 98/3 98/12 109/16 142/6 152/22
basics [1] 60/8
basis [5] 28/14 30/11 44/4 44/14 47/8
battery [3] 77/4 77/19 78/13
Bay [1] 7/24
be [129] $8 / 8$ 8/10 11/7 15/20 16/11 16/14 18/11 18/16 20/5 22/25 28/5 28/19 31/15 32/22 34/21 34/23 35/6 35/13 35/15 39/2 39/4 40/6 41/17 42/7 42/21 46/7 48/13

48/24 49/5 49/24 50/6 50/11 52/7 52/17 55/7 55/19 57/2 57/17 58/18 60/23 63/16 64/3 65/20 66/9 66/22 67/3 67/23 68/7 70/5 71/1 74/2 74/3 74/21 77/4 77/11 79/17 79/20 80/13 80/18 85/9 87/5 88/7 89/25 90/5 90/15 90/16 92/11 92/20 92/21 93/5 94/20 95/22 97/12 98/10 98/13 99/13 102/10 102/19 103/15 104/12 105/6 105/13 105/14 106/5 106/7 106/10 107/22 108/4 108/8 108/17 109/4 111/1 116/3 118/23 118/24 119/16 119/24 120/6 120/8 122/25 123/3 123/20 124/17 125/16
127/15 128/5 128/17 129/8 129/9 129/25 130/10 130/11 $131 / 1134 / 5$ 139/4 146/22 148/8 151/11 151/16 151/25 153/13 155/4 158/5 158/14 158/15 158/19 159/3 159/10 160/4
beach [2] 5/24 44/10
beam [1] 73/24
beams [2] 56/4 133/4
became [4] 7/4 17/17 20/9 100/15
because [86] 11/2 12/15 13/22 14/13
21/2 21/15 22/10 24/20 29/25 30/5 32/20 32/24 33/7 33/13 33/16 41/25 42/8 42/14 42/15 42/20 46/15 48/14 50/7 50/10 52/1 52/24 58/23 59/3 70/20 71/7 72/2 72/22 73/3 75/17 75/24 77/18 78/21 78/21 81/15 86/18 87/18 89/23 95/22 96/23 102/4 102/9 104/8 105/5 106/21 106/23 111/13 111/13 112/21 114/25 116/11 119/20 120/16 121/14 122/3 122/14 123/4 123/6 123/14 123/14 123/24 124/4 125/9 126/10 127/8 127/20 128/17 130/11 131/11 134/7 135/21 137/24 138/9 138/19 138/24 139/8 140/17 143/21 144/20 145/5 151/4 158/14 Becker [2] 2/16 5/7
Becky [3] 4/18 8/14 13/19
become [4] 30/12 57/18 74/13 123/19
becomes [3] 110/13 119/19 143/14
Beechcraft [1] 145/23
been [44] 7/21 7/24 8/2 8/4 9/24 11/19
13/6 14/2 16/9 28/8 36/8 46/13 48/12 53/4 56/20 60/18 60/19 60/20 63/18 68/7 70/10 70/18 71/8 74/1 74/1 74/16 75/17 77/10 87/13 89/20 91/18 94/21 95/17 96/17 105/22 107/8 119/7 125/24 129/14 132/10 132/21 134/15 137/10 144/20
beer's [1] 113/5
before [40] 11/21 12/2 25/1 31/4 36/22
40/6 41/8 45/10 46/25 59/19 59/23 64/2 64/9 65/9 75/10 80/2 83/24 85/14 88/24 90/1 94/21 96/5 103/25 104/2 105/3 108/15 111/19 113/15 116/5 122/11 125/4 126/16 127/16 127/25 130/24 138/22 142/7 146/12 150/10 159/24
began [1] $17 / 21$
begin [1] 97/9
beginning [1] 142/20
behind [2] 136/17 144/15
being [23] 6/24 9/15 9/16 14/19 39/1 39/18 41/4 42/15 45/7 55/18 56/3 77/25 78/20 80/25 94/5 100/12 104/24 106/2 129/21 130/23 150/20 158/15 159/6
believe [20] 4/5 6/3 6/20 15/25 29/16
29/19 35/8 38/17 43/6 46/4 55/13 64/16 78/2 79/23 79/24 81/25 83/20 119/17
125/19 126/18
belong [1] 43/16
below [1] 64/7
belt [1] 10/7
belts [1] 133/18
bench [2] 50/18 51/2

| B | broad [6] $12 / 24$ 44/12 89/16 89/17 89/17 | 49/10 49/9 47/13 43/24 47/6 47/93 <br> 49/14 49/18 50/14 50/20 51/1 51/9 51/14 |
| :---: | :---: | :---: |
| besides [2] 119/22 119/25 | broad-based [1] 12/24 | 51/15 51/18 53/7 53/21 54/4 54/5 54/7 |
| best [9] 11/12 19/10 34/20 107/22 109/1 | broad-leaf [1] 44/12 | 55/9 55/19 56/5 58/2 58/17 59/13 59/19 |
| 130/1 142/18 150/21 158/17 | broader [1] 12/6 | 60/3 60/9 61/22 64/19 67/17 67/19 70/10 |
| betas [1] 44/23 | brother [1] 138/20 | 71/4 77/17 79/24 82/16 83/4 83/4 86/16 |
| better [4] 35/19 70/23 74/3 135/17 | brought [4] 44/25 101/11 116/20 136/24 | 86/17 88/15 90/6 91/7 91/16 91/22 92/3 |
| between [19] 13/17 29/22 31/20 43/9 | Broward [2] 20/8 20/9 | 92/4 92/10 92/16 92/20 93/3 93/23 95/8 |
| 48/24 54/23 56/21 73/4 77/23 85/16 88/21 | brush [1] 30/7 | 96/5 96/7 96/12 97/1 97/2 97/5 97/7 97/10 |
| 140/2 140/4 141/5 156/2 156/10 158/3 | BS [1] 2/4 | 97/12 97/13 97/15 98/13 100/3 100/6 |
| 158/14 158/17 | budget [1] 110/14 | 100/18 100/24 101/21 102/1 103/5 106/4 |
| beyond [1] 43/18 | build [3] 52/22 109/20 142/9 | 106/9 106/14 106/22 107/25 108/10 |
| big [13] 59/6 62/19 68/1 68/5 68/18 74/3 | building [9] 7/14 17/15 18/3 48/23 88/23 | 108/19 109/20 110/3 110/8 111/4 111/12 |
| 74/3 127/2 130/11 140/10 141/10 143/3 | 133/2 133/14 133/15 145/7 | 111/20 112/8 112/19 113/5 113/5 114/22 |
| 147/6 | buildings [1] 61/11 | 115/20 119/3 119/3 119/5 119/9 120/25 |
| biggest [2] 34/3 91/1 | built [1] 46/19 | 121/24 124/9 124/24 125/15 125/22 |
| biggies [2] 135/20 135/24 | bullet [1] 57/14 | 126/11 127/4 129/9 130/11 131/17 133/16 |
| bill [2] 4/12 139/15 | bump [1] 65/17 | 134/4 135/17 136/11 136/22 140/14 |
| bills [1] 156/17 | bumped [2] 65/24 | 140/19 140/23 142/17 142/23 143/20 |
| bird's [1] 67/16 | bunch [10] 12/2 34/17 35/15 58/6 83/24 | 144/12 145/6 146/22 147/23 148/22 |
| Birky [3] 2/9 5/20 9/6 | 107/13 134/24 143/4 146/16 149/21 | 151/20 151/22 152/9 153/7 158/9 158/14 |
| bit [28] 8/14 13/21 14/13 15/6 15/7 15/21 | burden [1] 53/10 | 158/21 158/24 159/19 |
| 15/22 16/12 17/7 19/7 19/15 20/1 21/21 | bureau [31] 1/12 2/16 2/17 2/18 2/19 | can't [28] 19/13 26/17 32/18 34/5 41/3 |
| 22/3 48/19 48/20 56/17 65/13 65/13 65/24 | 2/20 2/21 2/22 4/14 5/3 5/7 5/9 5/15 | 47/10 62/2 74/10 95/9 103/18 107/22 |
| 68/19 93/22 96/18 116/18 125/1 138/1 | 15/19 15/24 16/13 16/20 16/25 17/1 18/10 | 109/2 114/25 119/14 120/7 123/14 126/6 |
| 145/7 148/25 | 18/22 23/23 25/2 25/6 27/6 27/25 61/7 | 127/16 128/12 133/3 141/19 142/24 |
| Black [2] 52/9 146/6 | 68/16 78/25 115/17 117/22 | 143/11 143/22 144/3 144/6 144/15 159/12 |
| blame [1] 126/13 | Bureau's [1] 30/9 | cancer [6] 102/18 106/13 107/1 107/2 |
| blank [1] 158/12 | bureaus [3] 16/18 16/19 17/5 | $134 / 2134 / 14$ |
| blood [1] 89/14 | burial [2] 45/22 45/24 | candidates [1] 7/10 |
| blow [1] 34/18 | burner [1] 86/21 | cannot [1] 125/7 |
| Blue [1] 60/15 | Burress [2] 2/11 4/21 | capability [2] 129/16 139/14 |
| board [8] 14/2 17/15 59/10 105/6 108/14 | $\text { bus [1] } 12 / 1$ | Cape [1] 18/7 |
| 117/23 131/22 151/13 | bush [1] 137/21 | capitol [9] 31/23 61/14 133/2 133/2 |
| boat [1] 29/17 | business [12] 3/13 25/7 48/12 66/13 | 133/3 133/5 133/6 133/9 133/14 |
| boats [1] 148/19 | 88/4 149/13 152/13 152/13 157/24 158/19 | car [5] 31/14 34/6 41/24 42/22 75/6 |
| Boca [1] 4/11 | 159/4 159/11 | carbon [1] 158/12 |
| body [1] 108/14 | businesses [2] 14/18 14/22 | card [4] 30/1 51/11 83/5 119/10 |
| bomb [3] 17/16 135/25 136/21 | busy [1] $121 / 1$ | cardiac [1] 102/18 |
| bombarding [1] 55/20 bombs [2] 34/18 140/22 | button [3] 61/22 61/23 62/3 buy [4] 43/24 83/4 83/4 148/1 | Cardinal [1] 71/22 <br> Cardinal are [1] 71/22 |
| book [3] 46/16 46/16 113 | Bye [1] 39/15 | cardiologist [4] 94/15 94/18 94/19 102/5 |
| booties [1] 50/24 boots [1] 31/10 | C | cardiologists [2] 94/9 94/13 <br> care [12] 14/19 15/5 21/3 45/21 52/18 |
| border [3] 140/2 140/3 143/22 | C-20 [1] 145/25 | 52/19 52/20 63/1 106/13 115/6 117/20 |
| both [3] 44/22 47/15 82/16 | Cadmium [1] 82/20 | 158/24 |
| bottom [3] 123/24 127/12 129/25 | Cadmium-109 [1] 82/20 | cargo [2] 29/15 50/3 |
| bought [1] 83/7 | calculation [1] 44/5 | Carolina [8] 53/14 53/16 114/20 138/24 |
| bounce [4] 133/10 133/15 133/16 156/10 | calendar [1] 154/1 | 140/3 140/4 141/16 142/11 |
| bouncing [1] 133/5 | calibration [1] 68/9 | carry [3] 50/15 69/20 147/23 |
| Bowls [1] 60/20 | calibrators [1] 95/3 | carrying [1] 146/8 |
| box [2] 31/8 141/13 | California [2] 84/17 155/4 | cartridge [1] 44/23 |
| boy [1] 138/18 | call [25] 29/25 30/2 30/4 31/12 34/16 | case [4] 29/12 42/1 59/12 137/21 |
| Brad [2] 132/5 132/9 | 37/11 41/25 42/19 43/2 43/3 45/11 55/2 | cases [2] 56/3 59/23 |
| rain [1] 102/17 | 57/1 98/11 98/13 99/22 106/23 117/13 | Cassini [1] 59/1 |
| brand [1] 116/4 | 120/4 121/3 128/2 128/4 137/15 138/5 | $\text { cast [1] } 46 / 5$ |
| bread [2] 137/17 143/5 | 145/25 | cat [1] 90/21 |
| break [7] 29/16 47/16 48/15 75/7 83/14 | called [11] 18/10 18/11 20/25 29/16 | catch [2] 33/6 100/4 |
| 83/14 83/15 | 53/20 72/11 89/21 107/4 115/10 115/22 | categories [4] 35/16 80/17 90/20 116/7 |
| breakdown [2] 67/16 67/20 breaks [1] 73/21 | $\begin{aligned} & 134 / 22 \\ & \text { calling [1] } 38 / 1 \end{aligned}$ | categorizes [1] 68/24 category [1] 88/21 |
| Brenda [9] 2/18 5/1 6/3 97/22 152/15 | calls [10] $8 / 22$ 30/6 43/2 43/23 95/1 |  |
| 155/21 158/10 159/17 160/12 | 123/4 125/20 125/20 126/19 158/21 | causing [1] 56/8 |
| Brian [2] 2/9 5/20 | came [12] 10/3 17/8 21/6 21/7 32/12 | CBC [3] 1/24 162/5 162/19 |
| ridget [1] 2/10 | 32/16 82/14 103/3 103/10 121/14 127/10 | CCP [3] 1/24 162/5 162/19 |
| rief [1] 19/9 | 131/22 | CCSP [1] $2 / 12$ |
| riefing [1] 144/ | camera [1] 136/9 | CDC [3] $26 / 20$ 58/3 58/16 |
| riefly [3] 20/10 20/23 65/11 | cameras [1] 146/18 | CDCs [1] 57/22 |
| bring [9] 13/13 40/6 57/11 97/17 114/3 | campaigns [1] 105/2 | CE [1] 120/12 |
| 123/16 139/2 145/17 152/13 | can [153] 13/2 13/3 22/1 22/15 26/18 | cease [1] 37/10 |
| bringing [2] 108/2 122/17 brings [2] 138/17 142/1 | 27/12 30/7 31/12 31/15 31/16 31/17 31/22 <br> 32/3 32/4 32/19 33/18 39/9 40/14 42/10 | ceiling [1] 50/18 |
| brings [2] 138/17 142/1 | 32/3 32/4 32/19 33/18 39/9 40/14 42/10 | cell [3] 134/1 134/12 141/25 |



didactive [1] 57/5
didn't [9] 12/1 33/14 96/15 107/2 107/16 136/15 138/18 144/25 145/17
difference [4] 9/23 47/2 73/4 110/24
different [30] 9/18 12/7 14/9 14/18 17/4
22/22 29/2 35/7 50/1 51/20 57/15 61/17
61/18 66/7 66/8 72/21 102/5 102/5 103/5
113/16 115/9 117/6 125/2 131/3 134/24
139/21 139/22 140/7 146/4 160/2
differs [1] 69/2
difficult [9] 78/17 89/24 96/10 103/17
107/5 108/13 156/24 157/1 157/7
difficulty [1] 77/5
dig [1] 47/19
digital [6] 74/24 76/4 76/5 76/8 76/15 76/19
direct [1] 13/1
direction [6] 96/17 107/8 150/17 150/18
151/17 151/20
directors [3] 105/10 122/12 125/7
dirty [1] $135 / 25$
disables [1] 86/9
disagree [1] 13/11
disappear [1] 83/12
disappearing [1] 81/9
disciplinary [1] 117/1
discipline [1] 117/25
disclosure [1] 62/12
discount [1] 153/17
discreet [3] 140/8 140/25 144/21
discuss [3] 116/18 122/18 160/16
Discussing [1] 29/20
discussion [3] 70/11 101/23 109/12
dispersed [1] 59/13
display [2] 61/14 130/20
displayed [1] 130/19
disposal [2] 9/2 45/8
distance [2] 73/20 143/13
distribute [1] 66/17
distributed [1] 66/17
distribution [1] 68/10
division [8] 16/17 16/23 16/24 17/3
20/15 115/9 115/10 123/22
DJ [3] 136/13 141/20 144/14
DMR [1] 121/18
do [232]
doctor [5] 92/8 92/11 98/8 103/24 124/3
doctor's [1] 77/1
doctors [2] 94/11 117/19
document [8] 44/7 87/13 87/19 93/10
95/4 95/6 96/8 106/12
documentation [2] 100/5 104/14
documented [2] 119/24 120/8
Documenting [1] 108/17
documents [6] 89/11 97/7 119/21 129/16 130/11 153/8
DOE [7] 142/8 142/11 144/8 144/9 144/12
145/8 145/23
does [18] 12/17 20/21 22/12 24/5 24/9
28/5 40/16 74/17 76/15 79/2 87/8 87/20
92/11 93/16 102/13 122/20 149/2 152/17
doesn't [16] 37/9 38/8 42/16 50/13 72/2
89/2 93/8 93/9 98/10 103/21 106/6 109/24
111/21 116/10 127/24 143/2
dogs [1] 90/22
doing [34] 9/24 13/6 14/12 14/13 17/23 18/1 24/2 46/13 49/11 53/9 54/14 55/22
56/21 59/7 60/8 71/23 92/14 92/15 95/5
102/3 105/16 107/13 108/4 108/5 112/9
129/15 131/16 137/10 137/12 139/10

144/9 144/20 147/2 150/15
dollar [2] 47/24 147/12
dollars [5] 47/25 88/1 147/12 148/12 153/20
domestic [1] 135/1
Don [2] 152/6 152/6
don't [81] 12/15 15/14 18/8 18/20 26/23
27/7 27/8 27/8 27/9 28/11 28/13 28/18
33/10 35/18 36/6 36/9 38/11 39/25 40/13 40/22 41/15 42/14 42/15 45/12 50/9 52/1 52/16 52/21 53/15 61/20 61/23 66/10 69/8 70/9 70/24 72/1 74/3 75/7 75/24 75/25 79/8 80/18 80/21 80/25 81/18 83/11 85/2 86/18 86/23 89/3 89/9 90/17 90/18 91/21 96/24 102/6 102/7 103/16 103/23 104/15 105/8 109/5 110/14 111/19 118/21 119/6 119/7 126/11 127/6 128/18 131/6 133/18 138/14 143/1 149/12 152/8 155/5 155/20 158/12 159/1 159/10
done [35] 7/18 16/5 23/7 36/4 51/5 52/3 52/11 53/24 54/7 60/16 61/2 64/13 68/8 68/12 85/13 87/14 88/6 97/13 97/14 102/7 104/16 105/3 106/9 106/10 109/5 111/21 121/5 121/20 121/25 124/14 124/16 126/11 127/4 137/8 146/19
door [4] 64/20 83/16 134/3 141/21
dose [32] 49/15 49/19 49/19 57/8 57/16 68/25 69/2 69/4 69/5 74/24 78/21 89/22 90/7 90/9 90/10 90/12 93/23 102/25 103/6 104/12 108/16 108/18 109/15 109/16
109/25 110/3 110/9 112/12 159/9 159/25 160/1 160/6
doses [3] 8/5 70/14 150/23
dosimetry [2] 57/15 57/16
Double [2] 103/4 105/21
down [35] 4/9 12/17 13/22 18/25 21/16 42/15 43/2 47/16 48/10 48/23 51/2 54/1 55/7 55/15 88/24 96/25 97/24 98/14 103/3 107/10 112/4 114/25 120/24 123/7 124/13 133/6 133/16 136/25 140/16 142/2 142/2
143/8 143/21 144/7 146/21
download [1] 58/2
downsize [2] 21/19 21/21
downsized [1] 16/25
DPTs [1] $13 / 1$
Dr [14] 4/9 7/1 38/17 38/20 39/13 72/7 72/10 84/5 118/22 156/14 156/14 157/7 157/10 158/4
Dr. [4] 4/5 7/12 7/21 9/6
Dr. Birky [1] 9/6
Dr. Hart [3] 4/5 7/12 7/21
draft [3] 21/11 21/13 152/7
dream [1] 154/23
dress [2] 50/20 50/24
dressed [1] 51/2
dressing [1] 50/19
drill [4] 42/24 47/20 48/11 48/12
drills [1] 51/4
drive [3] 34/6 137/23 142/14
driven [1] 59/24
drone [1] 147/16
drones [2] 147/23 147/24
dropped [1] 70/18
Drotar [2] 2/5 5/17
drove [1] 153/6
dry [1] 47/22
due [3] 21/14 37/24 40/12
duffle [1] $31 / 9$
dummy [1] 57/14
duplicate [1] 96/4
during [5] 16/24 18/7 42/11 67/4 72/20 duties [1] 92/2

Dycus [1] 2/4
e-mail [10] 38/13 97/6 98/10 110/12
111/22 119/24 155/21 158/11 159/17 160/11
e-mailed [1] 6/3
e-payments [1] 95/18
each [16] $15 / 21$ 16/11 16/12 28/2 31/24
59/8 66/19 80/3 91/25 104/4 119/20
143/12 146/8 158/18 159/1 159/2
earlier [10] 11/24 22/5 43/14 67/8
114/21 131/22 134/21 135/5 136/18 146/7
early [2] 101/23 154/13
ears [2] 29/6 35/21
easier [2] 95/23 102/10
easy [3] 64/22 73/5 157/4
Ed [1] $145 / 12$
edge [1] 143/9
educated [1] 150/22
education [5] 18/16 103/11 103/12 118/10 131/11
educators [1] 122/22
effect [4] 62/22 110/18 150/11 152/4
effects [2] 56/8 59/15
efficient [2] $25 / 2332 / 3$
Efstratios [2] 2/7 5/23
eight [9] 18/22 34/23 43/16 44/20 44/21
54/19 57/3 90/4 135/3
eight-and-a-half [1] 90/4
either [16] 9/11 30/4 37/2 44/3 45/20
60/2 61/11 74/7 96/11 119/4 121/13
123/23 129/5 132/9 133/12 140/8
electronic [7] 37/24 96/9 96/14 96/18
96/19 96/20 122/25
electronically [3] 87/12 95/15 120/20
eleven [1] 139/22
elicit [1] 53/25
eligible [1] 153/19
eliminate [1] 100/11
eliminates [1] 51/17
else [17] $15 / 14$ 25/16 26/15 39/3 83/10
95/12 98/7 99/9 104/17 124/3 124/4 128/7
130/2 134/19 151/16 153/25 158/11
else's [1] 94/1
embedded [1] 53/2
emergency [18] 16/19 17/19 18/24 20/15
23/2 31/7 32/1 34/11 42/16 48/18 49/13
49/14 49/19 53/1 55/3 135/8 135/11 139/5
emergency-response [1] 139/5
emit [1] 136/21
emphasis [1] 58/20
employed [1] 130/23
employee [5] 13/8 13/9 99/24 162/11
162/12
employees [4] 25/4 65/15 84/12 120/4
employer [1] 131/2
employing [1] $131 / 2$
empties [1] 144/6
EMT [1] 120/17
EMTs [1] 119/18
encounter [1] 36/4
encountered [2] 28/7 28/10
end [7] 52/1 55/6 73/24 74/1 98/5 128/23
159/2
endorsement [1] 121/14
endorsements [1] 105/12
ends [1] 94/4
Energy [7] 17/9 53/20 60/9 61/3 61/7
146/1 146/2
enforce [1] 66/20
enforcement [6] 68/17 98/22 137/10

| E |  | $65 / 14$ |
| :---: | :---: | :---: |
| enforcement... [3] 139/9 145/14 145/16 | everyone [5] 6/3 6/6 9/7 92/3 155/21 | fails [1] 130/9 |
| gage [1] 14/24 | everything [22] 14/11 25/16 25/25 27/1 | failure [1] $41 / 9$ |
| gaged [1] 14/7 | 27/3 30/23 30/25 38/14 40/8 57/9 76/7 | Fair [1] 131/23 |
| gineering [1] 34/12 | 85/2 85/17 88/19 92/6 107/25 | fairly [3] 17/3 63 |
| Engineers [1] 62/16 | 124/9 127/9 128/20 153/11 | fake [1] 140/24 |
| enjoy [1] $83 / 16$ |  | 81/1 |
| enough [9] 33/10 50/22 54/ |  | - |
| 125/24 134/8 135/4 151/11 | EVP [1] 104/6 | fantastic [1] 33/12 |
| enriched [4] 70/12 70/12 70/25 136/17 | exact [2] 67/23 | far [18] 14/25 20/1 22 |
| ensure [1] 67/6 enter [1] 128/25 | exactly [7] 28/4 52/5 82/9 123/16 126/17 144/17 159/16 | 32/9 32/17 37/19 68/22 69/7 76/9 81/16 <br> 90/8 103/11 105/25 125/23 143/14 |
| ters [2] | exam [7] 77/2 | fast [6] 65/14 86/13 86/16 86/1 |
| 2] 50/10 8 |  |  |
| envelope [1] 153/11 | mple [1] 106/1 | faster [4] 52/7 97/15 123/15 125/25 |
| enviro [1] $45 / 21$ | exams [3] 120/16 120/18 120/20 | fastest [3] 90/18 90/19 99/13 |
| enviro-care [1] 45/21 | except [3] 27/20 84/10 | fault [1] 126/7 |
| environment [4] 44/9 136/22 140/18 149/5 | exception [1] excuse [2] 135 | favor [2] fax [1] |
| environmental [20] 10/2 10/4 15/18 | exempt [3] 80/7 80/2 | FBI[1] 26/14 |
| 16/23 17/1 18/2 18/13 19/25 25/12 26/2 | exemption [1] 80/11 | FDA [2] 26/13 6 |
| 26/16 27/2 30/4 43/10 43/17 44/2 44/6 | exercise [14] 51/6 51/7 52/10 52/10 | fear [1] 116/8 |
| 44/10 62/17 63/10 | 53/13 53/16 53/18 54/8 54/14 61/4 114/20 | February [2] 20/6 51/6 |
| EOF [1] 51/14 | 136/18 138/17 139/23 | federal [5] 26/13 49/8 84/11 139/1 |
| EPA [7] 46/17 63/7 63/11 63/12 63/1 | exercises[10] 26/20 26 | 147/15 |
| 63/23 64/13 | 52/3 52/11 53/24 56/ | FedEx [1] 55/12 |
| EPA's [3] 145/20 146/14 147/6 | exhaust [1] 147/6 | feds [4] 26/13 36/5 139/4 139/1 |
| 1] | ex | [3] 66/8 66/11 83/2 |
| equine [1] 90/23 | existing [3] 41/14 67/1 129/13 | fee |
| equ/15 50/16 53/7 57/17 59/22 68/9 68/10 | exp | es [7] 36/8 65/25 66/2 |
| 68/13 69/13 74/18 74/23 101/21 111/3 | expensive [5] 70/16 70/23 83/9 96/10 | $\begin{aligned} & \text { fees [7 } \\ & 67 / 23 \end{aligned}$ |
| 114/21 141/18 141/24 | 110/10 | feet[5] 47/21 54/11 54/12 61/24 14 |
| equipped [4] 31/6 31/7 31/13 31/24 | experience [5] 35/20 35/25 77/1 131/23 | fellow [1] 133/9 |
| ER [5] 94/10 94/10 101/15 102/4 103/24 | 145/17 | felt [2] 39/17 118181 |
| eradiated [1] 56/3 | experienced [1] 141/3 | FEMA [7] 49/7 49/25 |
| ERCI [1] 67/24 | experiencing [1] 77/4 | 139/15 139/18 |
| error [1] 51/23 | expert [2] 68/15 141/2 | few [15] 8/1 8/13 10/17 20/11 21/1 45/22 |
| errors [1] 51/17 escalate [1] $36 / 25$ | expertise [1] 43/22 expire [1] 126/16 | 62/16 65/11 75/19 79/5 140/22 154/3 |
| especially [8] 17/24 51/21 98/8 100/7 | expired [3] 118/5 | FHP [5] 61/3 136/14 141/1 14 |
| 101/8 101/13 105/22 152/1 | expires [1] 127/25 | Fi [1] $141 / 25$ |
| essentially [8] 45/18 46/19 52/12 55/17 | explodes [1] 59/20 | field [30] 4/15 12/17 12/18 14/24 20/18 |
| 57/6 58/16 63/25 145/24 | explosion [1] 135/2 | 5/10 30/6 30/9 49/9 49/20 49/21 50/5 |
| established [3] 9/14 17/20 116/7 | export [1] 89/10 | 50/15 50/17 50/19 51/12 51/19 53/16 |
| et [7] 88/12 98/9 134/2 134/2 135/14 | exposure [8] 57/9 57/18 62/7 74/7 74/1 | 59/13 67/18 67/4 68/11 68/13 75/23 |
| 135/15 144/1 | 78/19 101/10 136/1 | 76/5 77/16 77/16 78/7 118/4 |
| European [1] 75/16 | exposures [2] 75/1 | fielded [1] 145/15 |
| evacuate [1] 49/16 | extend | fifteen [3] 11/25 12/22 33/18 |
| evaluate [1] $23 / 4$ | extended | fifty [1] 147/20 |
| evaluated [1] 51/6 evaluates [1] 104/3 | extenders [1] | fifty-six [1] 147/20 |
| evaluation [1] 97/10 | $\begin{array}{ll}\text { Extension [1] } \\ \text { extensive [1] } & 23 / 17\end{array}$ | $\begin{array}{lll}\text { figure } \\ 65 / 18 & 65 / 24 & 108 / 22 \\ 132 / 2 & 139 / 16 & 147 / 22\end{array}$ |
| evaluators [2] 21/24 87/8 | extent [3] 55/19 63/20 125/21 | file [1] 44/7 |
| even [12] 25/5 25/8 33/10 48/10 52/25 | external [1] 136/20 | fill [3] $8 / 1434 / 4153 / 13$ |
| 64/10 89/3 102/21 127/19 144/3 144/22 | extra [1] 151/18 | film [2] 76/3 76/19 |
| 152/9 | eye [2] 67/16 144/19 | filtering [1] 104/24 |
| event [8] 31/11 37/7 59/24 60/13 60/21 | eyes [2] 29/6 35/21 | final [6] 21/12 92/20 92/24 93/2 93/4 |
| 66/22 68/25 69/6 | F | 93/16 |
| events [9] 12/7 59/23 60/11 61/2 68/18 |  | finally [3] 59/3 59/5 135/3 |
| /21 68/24 88/11 132/1 | fabric [1] | finals [2] $60 / 1860 / 19$ |
| eventually [2] 112/3 150/19 | facilitate [2] 27/2 | financially [1] 162/14 |
| ever [11] 23/23 40/6 45/10 46/25 64/10 | facilities [24] 28/8 28/15 28/19 29/2 | find [13] $25 / 22$ 30/5 41/15 64/7 64/11 |
| 70/4 79/9 93/25 103/25 109/14 132/21 | 29/24 30/1 40/13 41/13 45/25 52/18 52/20 | 73/25 74/20 75/3 84/1 100/17 107/21 |
| every [34] 7/5 21/7 23/8 23/15 30/14 | 53/10 58/22 65/23 66/6 66/25 67/1 67/10 | 130/22 136/22 |
| 31/4 35/6 44/16 45/5 45/18 47/13 47/14 | 68/22 72/14 84/11 100/8 101/20 107/8 | finding [3] 9/1 41/11 81/8 |
| 49/1 49/3 51/21 60/11 72/18 73/20 85/13 | facility [16] 14/11 15/1 28/8 28/9 28/10 | finds [3] 83/7 118/5 155/21 |
| 86/25 86/25 102/12 104/6 109/19 112/13 | 37/18 45/9 45/21 49/13 49/14 66/19 99/1 | fine [4] 36/24 106/14 144/4 144/13 |
| 116/3 120/16 120/21 126/14 129/6 132/5 | 99/25 130/19 131/13 131/25 | fines [2] 87/25 88/3 |
| 148/18 149/4 156/9 <br> everybody [7] 38/23 39/11 64/20 76/3 | fact [6] $150 / 2$ | finest [1] 32/17 <br> fingerprinted [1] 86/5 |



| G | guides [2] $38 / 258 / 15$ guiding [1] 107/9 |  |
| :---: | :---: | :---: |
| going... [13] 142/14 142/15 143/4 143/18 | guilty [1] 39/17 | 1/15 |
| 144/10 145/4 147/4 148/1 151/3 151/13 | gun [1] 77/13 | lawk [1] 146/6 |
| 155/4 155/19 158/6 | guy [4] 12/10 12/14 113/24 134/13 | hazard [2] 36/12 57/10 |
| gone [2] 7/17 155/5 | guys [19] 28/7 28/13 29/16 34/18 39/25 | he [10] 81/22 98/9 107/2 111/23 111/23 |
| good [29] 11/8 15/7 16/11 38/25 39/4 | 41/9 65/9 65/10 72/22 76/2 79/11 128/24 | 118/23 131/22 135/3 136/10 136/11 |
| 40/21 63/1 63/13 64/22 66/4 76/12 77/15 | 133/12 133/21 133/22 137/3 141/17 | he's [10] 32/6 91/14 91/15 138/24 138/2 |
| 83/3 83/13 83/14 104/5 108/8 109/3 | 149/22 154/14 | 138/25 142/9 142/11 142/17 142/17 |
| 109/11 114/10 120/8 130/8 130/15 133/22 | gyms [1] 53/6 | head [5] 11/22 76/19 80/25 101/14 |
| 8/24 146/22 147/14 154/6 154/16 | H | 2] 103/23 104/1 |
| goods [1] 89/11 | had [62] 10/17 17/16 17/19 18/1 21/8 | health [30] 2/15 4/21 5/11 10/3 10/4 |
| Google [2] 58/1 110/8 | 21/10 21/19 21/24 22/20 23/21 23/21 | 11/5 14/19 14/23 15/4 15/5 16/21 16/24 |
| gosh [1] 128/1 | 23/22 25/4 33/2 33/18 34/19 34/21 36/2 | 17/1 17/15 20/17 20/17 21/21 30/12 34/13 |
| got [45] 7/8 11/10 15/15 16/24 22/10 | 39/2 46/20 49/4 51/6 51/7 53/18 56/1 56/3 | 36/12 37/14 46/18 52/18 52/20 56/25 63/9 |
| 25/6 31/8 31/8 31/22 34/11 34/12 34/14 | 60/24 61/5 61/9 62/21 68/22 70/15 76/22 | 88/8 115/10 117/20 125/22 |
| 34/17 34/18 37/8 45/2 50/18 56/2 56/6 | 76/23 76/25 77/18 78/24 82/10 82/14 | hear [4] 29/7 39/9 81/21 154/8 |
| 59/2 65/1 82/17 82/18 85/12 87/9 87/17 | 87/18 92/7 100/16 100/16 101/17 102/20 | heard [4] 16/10 75/10 130/18 131/7 |
| 87/19 95/1 97/3 98/15 114/15 114/21 | 103/3 106/23 107/4 113/12 113/13 114/3 | hearing [1] 15/20 |
| 122/9 123/8 124/11 127/11 129/8 129/12 | 116/15 134/21 136/25 138/19 138/20 | heavily [1] 105/20 |
| 138/24 139/25 140/5 143/17 144/16 151/8 | 145/15 145/16 147/3 152/5 152/19 156/24 | heavy [2] 77/21 147/23 |
| 152/8 | hairdo [1] 17/25 | heftier [1] 79/11 |
| Gotcha [2] | half [6] 11/19 13/12 57/4 73/23 89/23 | hefty [1] 79/7 |
| gotten [2] 123/5 126/25 | 90/4 | held [6] 76/24 77/3 77/6 77/12 81/10 |
| government [4] 23/15 43/23 100/25 | half-lif | 81/23 |
| 139/2 | half-value [1] 73/ | helicopter [2] 145/14 146/4 |
| Go | Hamilton [4] 2/22 5/9 | helicopters [1] 53/22 |
| governs [1] 99/1 | hand [8] 37/8 48/16 76/24 77/3 77/6 | Hello [1] 38/21 |
| GPS [1] 51/22 | 77/12 81/10 81/23 | help [12] 27/22 91/16 105/12 |
| grab [1] | hand-held [6] 76/24 77/3 77/6 77/12 | 122/5 124/17 125/22 126/4 129/24 130/11 |
| grade [1] 75/18 | 81/10 81/23 | 132/3 134/5 |
| graded [5] 49/4 49/4 | handheld [1] 78/8 | helpful [2] 100/10 151/16 |
| grades [2] 49/7 49/8 | handhelds [1] | helping [2] 43/19 87/20 |
| grads [1] 13/18 | handle [4] 49/19 80/21 88/16 118/10 | helps [1] $132 / 15$ |
| graduate [5] 13/1 125/5 125/8 | handled [1] 66/16 | her [2] 131/10 131/18 |
| 125/13 | handlers [1] 62/4 | here [40] 6/21 6/24 8/8 11/10 13/18 |
| graduated [3] 122/23 122/23 122/2 | handles [1] 117/2 | 15/15 16/7 16/8 16/9 29/14 39/18 45/2 |
| graduating [2] 123/11 155/3 | handling [1] 111/13 | 52/1 72/5 94/13 107/20 113/24 117/11 |
| graduation [1] 119/20 | hands [5] 136/14 157/12 157/14 157/16 | 124/10 124/12 128/1 132/24 133/16 134/9 |
| graduations [1] 155/7 | 157/17 | 135/22 138/8 140/16 142/24 143/4 143/9 |
| grain [1] 151/9 | hanging [2] 74/11 148/6 | 143/16 143/21 144/5 144/9 150/19 152/22 |
| grasses [1] 44/11 | hangs [1] 39/16 | 155/24 156/2 156/19 157/8 |
| gratification [1] 1 | happen [3] 38/8 | Here's [4] 32/12 54/25 133/11 140/3 |
| gray [1] 151/22 | happened [3] 54/1 132/2 136/5 | hereby [1] 162/5 |
| great [12] 7/8 87/20 101/23 102/19 | happening [3] 81/17 90/16 106/12 | hey [4] 38/22 98/13 139/12 145/5 |
| 103/21 105/19 105/22 106/17 107/15 | happens [6] 21/19 32/22 55/8 58/1 | Hi [1] 38/23 |
| 122/4 124/2 127/4 | 125/3 135/10 | hide [1] 148/24 |
| greater [3] 41/16 | happy [5] 7/8 8/8 34/2 | high [7] 53/6 54/12 69/9 132/23 138/25 |
| green [2] 137/17 1 | hard [9] 33/6 47/5 82/21 82/23 97/11 | 146/17 150/24 |
| grieve [1] 29/4 | 107/22 122/3 124/16 135/4 | high-power [1] 132/23 |
| ground [17] 60/2 133/14 137/23 138/10 | hardy [1] 75/1 | high-resolution [1] 146/17 |
| 138/15 138/25 140/9 140/19 140/22 142/2 | harm [1] 135/14 | higher [7] 46/20 47/8 50/11 50/12 62/2 |
| 142/3 144/1 144/18 145/1 145/20 146/21 | harms [1] 36/1 | 72/3 144/22 |
| 146/23 | Hart [7] 2/10 4/5 7/1 7/12 7/21 7/21 | highest [1] 21/8 |
| group [23] 10/6 10/18 10/22 14/17 15/18 | 158/4 | highly [4] 70/12 70/25 136/2 136/17 |
| 16/7 16/22 28/16 28/19 43/17 46/22 46/24 | has [61] 10/6 19/20 19/25 26/14 26/16 | highly-enriched [1] 70/12 |
| 53/20 56/25 94/19 105/10 105/13 108/17 | 28/3 30/3 33/1 36/4 36/17 40/6 48/12 | highway [2] 42/15 60/6 |
| 115/21 118/9 156/16 158/23 159/15 | 48/16 51/8 53/4 53/20 58/6 58/14 59/9 | him [4] 32/7 131/25 135/5 136/4 |
| grouped [1] 31/16 | 62/6 64/3 68/12 69/15 71/15 77/10 77/20 | himself [1] 80/20 |
| groups [3] 92/8 98/4 159/13 | 80/15 86/7 86/8 88/25 90/4 91/18 92/1 | hire [2] 34/2 34/4 |
| grow [1] 47/24 | 92/5 101/11 101/16 102/1 102/16 102/25 | hired [2] 118/21 123/13 |
| growing [1] 90/19 | 103/22 103/25 104/1 107/8 109/2 115/6 | Hiroshima [1] 136/21 |
| guess [20] 4/1 4/9 6/1 10/12 15/24 24/25 | 115/14 118/1 119/7 120/8 124/14 129/16 | Hiroshima-sized [1] 136/21 |
| 62/10 70/13 83/14 91/18 102/9 104/6 | 132/10 134/24 137/4 139/2 139/18 142/8 | his [6] 19/21 62/24 62/25 118/22 136/14 |
| 104/17 105/1 114/10 125/7 125/13 127/11 | 144/16 146/8 148/19 158/5 | 142/18 |
| 154/25 158/1 | hasn't [3] 15/12 125/23 132/21 | historically [1] 36/3 |
| guessing [2] 71/20 | hat [1] 18/8 | history [3] 17/7 103/25 107/1 |
| guidance [7] 24/12 36/17 43/25 44/6 | hats [1] 18/8 | hit [2] 32/23 158/13 |
| 63/19 64/1 150/3 | have [287] | HIV [2] 122/24 122/25 |
| guidelines [9] 7/4 102/1 102/14 102/16 | haven't [8] 21/12 68/1 73/19 116/5 123/5 |  |
| 106/9 106/11 106/14 106/16 117/1 | 125/18 126/24 144/25 | hold [8] 77/13 127/7 127/8 134/10 138/18 |

$160 / 6$
I've [18] 7/21 7/24 8/1 8/2 8/4 8/5 8/8 11/19 13/5 14/2 24/16 45/2 82/17 95/1 106/21 111/24 112/17 123/22
i.e [1] 53/25
idea [9] 31/11 59/18 101/23 108/25
116/13 136/12 136/13 136/17 136/19
ideas [2] 109/1 109/3
identification [2] 56/11 93/24
identify [1] $85 / 8$
idiots [1] $133 / 12$
IIs [1] 120/5
ill [1] 56/8
image [6] 33/17 102/17 103/20 103/20
105/23 105/23
images [2] 32/9 78/6
imagine [2] 50/20 120/25
imaging [11] 76/8 87/13 87/19 90/22
101/14 101/14 101/17 101/25 102/14
106/19 107/5
immediately [1] 40/10
immense [1] 124/17
impact [2] 20/24 62/17
imperial [1] 20/4
important [7] 11/13 62/14 62/21 101/12
109/10 121/25 124/4
impregnated [1] 56/2
impressed [2] 10/14 11/2
improvised [2] 60/1 135/24
in-depth [1] 7/5
in-the-field [1] 67/4
inauguration [1] 132/25
inch [1] 141/12
inches [2] 138/21 140/5
incident [4] 26/3 26/14 88/14 148/14
incidents [2] 55/16 88/12
include [1] 153/15
includes [2] 66/11 84/20
including [3] 76/4 137/5 153/14
incoming [2] 33/8 33/10
incorporates [1] 56/14
increase [1] 134/14
increased [3] 86/1 86/6 86/10
increasingly [2] 30/13 30/14
independent [1] 9/13
indicated [5] 101/15 101/18 106/21
106/25 107/3
indicating [1] 79/8
indication [1] 122/11
indications [2] 104/15 107/24
indicator [1] 21/7
individual [6] 28/3 103/22 104/4 104/21
104/22 106/15
industrial [11] 5/21 24/23 28/9 29/12
30/18 30/25 48/17 78/5 85/17 86/7 113/7
industry [3] 9/25 10/2 26/4
inform [1] 121/11
information [15] 9/1 62/20 70/3 94/25
95/7 103/9 109/17 109/18 112/7 112/8
112/24 115/16 150/10 151/16 152/7
informed [1] 155/12
initial [6] 7/6 36/21 40/8 41/9 93/4
120/24
initially [3] 85/3 152/5 152/6
initiate [2] 97/2 97/5
initiative [1] 159/9
inject [1] 90/9
injured [2] 58/22 58/23
injuries [1] 53/12
inside [12] 27/13 31/6 31/14 35/8 41/24
42/21 46/21 50/19 51/1 81/8 117/17 146/9
inspect [4] 23/5 45/13 66/19 68/9
inspected [4] 40/6 45/10 66/9 67/14 inspecting [1] 130/19
inspection [26] 19/3 19/17 20/2 21/23 24/19 25/7 26/7 27/5 27/16 29/23 32/10 36/21 36/25 38/2 41/8 42/19 56/15 66/11 67/5 69/16 69/23 82/11 87/7 87/11 87/14 133/8
inspections [37] 21/15 25/5 25/9 26/8
26/9 26/9 26/13 27/20 28/2 28/24 29/1
32/2 32/5 32/23 32/23 33/9 33/9 33/16
33/22 35/3 35/9 36/11 36/21 40/1 41/10
45/5 45/17 66/3 67/14 68/3 70/2 72/15
72/17 73/3 85/11 87/21 87/22
inspector [9] 28/5 28/5 30/24 31/4 31/24
36/5 37/18 45/13 66/18
inspectors [19] 24/19 25/17 27/9 28/2
28/7 28/11 28/22 29/3 32/7 33/2 33/25
55/25 67/4 68/10 69/14 69/18 88/10 93/1
118/4
install [1] 89/23
installed [1] 41/10
installs [4] 41/14 41/14 41/16 41/17
instance [6] $26 / 16$ 44/15 56/16 60/17 64/8 98/4
instances [1] 46/20
instant [1] 125/11
instead [5] 21/5 22/8 51/10 65/6 65/9
institute [3] 5/21 9/22 62/13
institution [3] 102/12 104/8 105/2
instructions [1] 153/5
instruments [4] 43/24 50/16 57/20 69/13
insure [1] 67/2
integrating [1] 139/13
intelligence [2] 59/24 59/25
intelligence-driven [1] 59/24
intending [1] 59/25
intentionally [1] 102/3
interact [1] 30/10
interaction [1] 28/23
interested [11] 14/15 58/1 104/18 105/1
123/17 159/18 160/3 160/5 160/6 160/13
162/14
interesting [3] 8/11 8/25 98/15
Interestingly [1] 109/21
interim [1] 102/17
interior [1] 50/18
internal [11] 21/10 22/18 22/20 23/13
23/18 37/22 53/2 58/13 78/22 86/12

## 117/23

internally [2] 108/6 157/3
international [3] $1 / 13$ 9/8 105/12
internist [1] 7/22
interpretation [9] 91/20 91/23 92/1 92/4
92/9 92/17 93/4 93/11 96/6
interpretations [1] 92/5
interpreted [1] 158/15
interstates [1] 148/19
intertwined [1] 14/11
interviewed [1] 106/22
Intro [1] 12/20
introduce [1] 6/22
introduced [3] 15/12 76/24 119/6
introductions [4] 4/8 7/18 12/23 72/6
inventing [1] 30/16
inventory [1] 101/10
investigate [3] 56/1 67/12 138/12
investigated [1] 69/7
investigation [2] 27/16 88/17
investigations [7] 26/11 28/25 31/3
66/21 66/22 67/9 88/11
Investigator [1] 23/14
investigators [1] 25/17

| I | $\begin{aligned} & 130 / 18 \text { 130/25 } \\ & \text { iob }[31 \text { 29/6 87/20 123/14 } \end{aligned}$ | 96/18 97/6 98/19 101/12 102/17 103/2 104/5 104/13 105/4 105/8 107/13 107/16 |
| :---: | :---: | :---: |
| invited [1] 10/15 | jobs [1] 123/12 | 107/18 110/14 114/1 116/2 118/21 119/6 |
| invoice [1] 100/23 | Joe [1] 87/10 | 120/18 123/21 123/25 125/10 126/1 126/4 |
| involve [2] 87/22 151/24 | John [15] $2 / 20$ 11/10 15/11 15/17 18/14 | 126/22 128/5 128/18 130/1 131/6 131/19 |
| involved [8] 16/6 55/18 61/5 95/24 | 43/5 62/24 64/15 114/20 134/21 134/23 | 149/12 151/10 152/6 153/6 153/24 156/14 |
| 105/20 106/2 106/5 135/9 | 135/2 136/15 139/5 148/8 | 158/2 158/10 158/24 159/8 159/10 |
| involving [2] 55/16 61/10 | John's [1] 141/17 | knowledge [2] 12/25 13/5 |
| iodine [3] 44/23 90/21 141/11 | Joint [4] 102/11 102/24 110/16 150/19 | knows[5] 26/2 26/2 109/23 115/4 136/15 |
| iodines [1] 44/24 | joke [4] 84/5 134/10 134/16 134/17 | L |
| Iomedics [1] 89/21 | joy [1] 54/10 | L |
| ionizing [3] 18/19 132/18 133/25 | judgment [1] 106/15 | lab [6] 18/2 23/3 50/7 50/13 95/18 |
| Iridium [1] 147/8 | July [3] 21/18 53/14 53/17 | 140/16 |
| irradiate [1] 89/9 | jump [4] 8/15 25/1 31/14 122/4 | laboratory [11] 43/16 45/1 47/22 50/4 |
| irradiator [1] 89/7 | just [117] 7/5 7/11 7/17 8/12 10/1 11/6 | 50/13 55/10 56/11 59/1 59/6 62/24 62/25 |
| irradiators [3] 89/4 89/13 89/14 | 11/9 11/24 12/5 12/23 13/14 15/3 15/21 | Labs [1] 61/7 |
| is [387] | 20/11 23/21 24/1 25/2 25/21 25/21 29/11 | Lagoutaris [2] 2/7 5/24 |
| isn't [4] 30/23 82/24 106/21 149/21 | 29/14 30/6 30/16 30/23 30/24 32/9 33/4 | Lance [1] 142/12 |
| isotope [2] 90/1 138/9 | 34/5 35/21 37/9 39/18 41/2 41/15 42/1 | land [6] 47/1 47/7 53/23 63/6 63/16 |
| Isotopes [1] 138/6 | 45/22 46/6 51/5 54/13 55/14 55/25 57/18 | 144/7 |
| issue [20] 37/14 66/24 67/23 77/10 85/1 | 62/12 65/11 65/21 66/23 69/10 69/25 | lands [5] 46/20 63/11 63/22 63/23 64/5 |
| 85/5 85/6 85/6 86/11 87/25 91/19 94/23 | 70/19 70/22 74/14 75/16 76/1 77/14 77/14 | lane [1] 46/6 |
| 97/10 97/16 100/6 101/12 119/16 127/2 | 78/2 78/13 79/1 79/12 79/14 81/16 82/15 | lapse [1] 125/16 |
| 134/21 143/15 | 84/24 89/7 89/8 91/3 92/18 95/6 97/24 | laptop [1] 51/11 |
| issued [2] 86/22 115/20 | 98/13 98/15 98/17 99/18 100/2 101/3 | large [10] 1/25 36/14 46/10 60/22 61/4 |
| issues [8] 29/5 30/12 68/17 74/5 77/4 | 101/11 102/22 104/11 104/19 106/17 | 71/16 89/4 89/7 89/13 108/5 |
| 98/16 111/7 134/1 | 107/3 110/20 113/3 115/13 119/25 120/7 | larger [2] 140/11 144/11 |
| it [324] | 121/21 122/4 124/2 124/17 128/25 131/7 | largest [8] 15/4 67/18 84/16 84/22 85/20 |
| it's [162] 12/21 12/22 12/24 13/4 14/17 | 132/16 134/19 135/19 135/22 137/7 137/8 | 88/21 91/2 115/21 |
| 15/7 20/6 20/16 20/24 21/13 22/3 240 | 138/18 140/11 140/24 141/24 142/8 145/3 | Las [2] 139/7 139/19 |
| 25/20 28/4 30/3 30/17 30/18 31/22 31/23 | 145/21 148/6 150/20 151/9 152/23 153/24 | laser [3] 56/4 133/4 133/21 |
| 32/25 33/4 34/20 35/10 37/7 37/13 40/6 | 155/12 157/18 157/20 157/21 157/22 | lasers [4] 115/15 132/23 133/23 134/8 |
| 41/10 42/2 42/11 45/9 47/5 48/16 49/5 | 159/14 159/18 160/14 | last [24] 6/2 7/3 11/13 20/6 29/20 33/17 |
| 50/4 50/17 50/22 52/5 52/7 52/25 56/25 | K | 37/17 41/12 45/16 63/8 64/19 74/13 74/24 |
| 57/6 58/13 58/15 59/14 62/14 64/22 64/22 |  | 75/19 78/19 84/13 114/15 116/8 126/19 |
| 65/10 66/10 69/10 69/10 70/22 70/23 71/4 <br> 71/12 71/18 71/19 72/24 73/5 73/25 74/1 | $\begin{array}{\|l} \text { Kathleen [1] 2/5 } \\ \text { Kathy [3] 5/17 122/13 122/19 } \end{array}$ | 126/21 127/6 136/3 139/19 156/24 late [1] $86 / 25$ |
| 74/2 74/12 76/8 77/15 77/19 77/24 78/10 | keep [5] 30/16 41/4 49/18 84/25 112/19 | lately [1] 96/18 |
| 78/11 78/15 79/5 79/13 80/9 80/24 81/16 | keeping [1] 14/10 | later [2] 22/9 159/7 |
| 82/23 83/9 84/24 85/16 88/4 88/5 89/24 | Keiser [1] 5/18 | laughter [6] 9/12 17/12 33/20 39/19 84/4 |
| 93/22 94/21 96/23 97/20 100/17 101/11 | Kelly [4] 131/9 131/14 131/16 131/21 | 134/10 |
| 101/20 101/23 102/9 102/15 102/22 | Kennedy [1] 18/7 | launch [2] 58/25 59/4 |
| 103/17 104/19 105/5 105/14 105/22 | Kent [1] 2/9 | launches [2] 18/8 59/9 |
| 106/16 106/18 108/13 109/9 109/10 | Kentucky [2] 105/15 105/15 | law [7] 137/10 139/8 145/13 145/15 |
| 109/11 109/25 110/2 110/2 110/8 110/9 | key [3] 79/24 156/4 156/6 | 151/4 155/3 159/5 |
| 110/10 110/19 111/15 111/16 111/22 | KI [1] 49/17 | lawmakers [1] 61/14 |
| 112/11 113/6 115/23 121/24 122/15 | kidding [2] 13/14 55/23 | laws [1] 158/2 |
| 123/23 124/14 124/15 124/15 126/4 | kids [1] 125/10 | Lawton [1] 132/25 |
| 126/11 127/7 127/7 127/24 128/1 128/22 | kill [1] 11/6 | lawyer [1] 151/9 |
| 128/23 129/6 131/3 132/19 132/19 134/25 | killed [1] 113/23 | layer [1] 73/23 |
| 135/16 135/16 137/24 138/8 138/9 138/10 | kind [41] 11/13 12/14 12/23 14/24 16/12 | layered [1] 20/14 |
| 140/21 140/22 140/25 141/11 141/12 | 16/13 17/6 17/7 20/6 21/25 27/21 31/10 | Lead [1] 129/12 |
| 143/6 143/12 145/6 151/12 152/2 152/10 | 35/17 40/21 42/23 47/5 67/15 71/18 74/11 | Leadership [3] 14/14 14/16 14/20 |
| 152/23 153/20 154/4 156/6 156/16 157/5 | 81/12 87/9 91/18 91/18 94/5 95/17 96/25 | leads [2] 18/14 19/3 |
| 157/9 158/17 160/7 | 115/23 115/24 117/5 122/15 135/6 138/4 | leaf [1] 44/12 |
| items [1] 89/12 | 139/3 139/13 143/9 144/5 144/19 149/7 | leaning [1] 141/21 |
| its [2] 37/9 110/17 | 150/7 151/22 151/24 | learn [1] 52/6 |
| itself [4] 52/24 96/2 115/5 122/10 | kinds [5] 31/9 34/10 34/15 34/19 81/13 | learned [1] 109/1 |
| J | King [1] 145/23 | learning [4] 52/2 52/6 137/22 137/23 |
| jack [2] 26/6 34/1 | kit [3] 31/7 69/19 69/23 | 159/5 |
| jack-of-all-trades [2] 26/6 34/1 | kits [1] 69/16 | leave [6] 30/1 34/7 40/1 40/8 |
| Jacksonville [4] 17/14 18/4 19/24 55/14 | Knives [2] 88/20 113/9 | 140/12 |
| James [9] 2/17 5/3 6/21 18/16 18/19 | know [101] 7/2 12/13 13/4 14/12 14/19 | leaves [1] 45/10 |
| 19/21 56/5 114/10 118/21 | 15/14 16/9 16/10 22/2 24/10 25/25 26/1 | lectures [1] 12/22 |
| January [6] 22/8 59/5 61/8 121/2 121/6 | 30/14 30/25 33/10 34/2 34/5 37/12 40/22 | Lee [2] 87/7 87/10 |
| 130/4 | 42/12 42/16 49/11 50/8 52/5 52/21 53/15 | left [4] 13/17 17/2 34/17 114/16 |
| Jax [1] 5/24 | 57/15 61/25 62/2 65/10 65/12 70/10 70/23 | legal [4] 96/23 100/22 107/5 150/25 |
| Jerry [15] 2/21 4/14 19/3 19/5 19/15 | 70/24 71/1 71/6 71/10 71/22 72/20 73/7 | legislation [1] 149/22 |
| 20/10 24/25 39/21 39/23 48/18 55/11 | 73/25 74/3 74/10 74/22 75/23 76/1 79/9 | Legislature [1] 22/13 |
| 66/16 68/11 76/22 85/9 | 79/10 80/24 80/25 82/17 83/10 83/11 | legitimate [1] 82/25 |
| Jerry's [6] 20/20 67/25 69/19 118/6 | 86/14 86/25 88/4 90/8 90/17 94/6 96/10 | legs [1] 13/18 |

## less [1] 87/19

let [13] 7/12 37/11 47/23 57/13 81/20 114/11 114/24 116/18 124/10 124/11 126/21 137/7 153/24
let's [11] 16/17 26/17 27/23 30/22 113/3 130/17 134/18 136/21 140/11 143/20 155/22
letter [13] 37/17 37/19 38/1 38/7 38/12 38/12 91/10 99/15 100/2 120/14 121/12 124/11 125/8
letters [1] 85/4
LEUs [4] 70/16 70/22 71/9 71/17
level [9] 19/1 45/5 45/7 45/8 45/15 47/7
53/13 57/7 87/23
levels [6] 18/6 47/3 64/9 86/2 144/4 144/13
Lexington [1] 105/15
license [31] 36/20 37/24 40/18 61/17 61/21 84/8 84/10 84/20 84/24 85/1 85/6 85/11 85/16 86/16 89/13 91/5 91/14 91/16 92/10 92/13 97/21 98/6 117/3 118/5 120/22 121/19 121/22 128/6 130/23 150/5 151/3
licensed [4] 40/23 80/18 82/11 92/11 licensee [2] 99/9 100/6
licensees [7] 21/4 23/4 86/15 95/14 115/20 128/4 128/16
licenses [23] 36/15 84/18 85/12 86/9 86/11 86/22 87/11 87/18 87/22 88/13 88/18 89/16 89/17 89/18 90/20 90/21 90/24 90/25 97/20 116/10 117/18 130/19 130/20
licensing [13] 23/6 25/15 80/11 84/19 87/9 87/20 91/2 91/3 118/23 118/24 124/20 132/7 132/8
licensure [3] 116/19 117/24 121/13 lieutenant [1] 145/12
life [6] 8/7 11/21 52/25 89/23 90/5 114/23
life-threatening [1] 52/25
lifetime [3] 101/9 105/3 112/12
lift [1] 147/23
light [1] 133/21
lighter [1] 78/15
lights [1] 144/21
like [96] $6 / 107 / 19$ 10/15 10/16 11/15
13/2 17/3 17/6 21/14 22/9 24/7 25/9 25/24 26/25 31/4 31/17 31/23 35/23 36/14 36/24 40/8 54/1 54/11 55/7 56/20 58/5 64/6 64/21 66/2 68/19 75/5 77/12 78/7 79/15 79/17 80/24 82/17 85/14 85/17 86/7 89/5 90/13 90/15 93/3 93/6 93/14 94/6 97/3 100/1 100/9 101/13 103/9 104/10 106/9 107/10 107/23 111/5 111/23 112/1 112/3 112/18 114/1 114/14 116/8 118/13 118/16 118/24 123/7 126/14 127/24 127/24
127/25 128/23 131/19 133/1 136/23 137/9 138/11 138/23 139/10 140/10 140/21 142/22 143/16 144/21 147/8 147/11 150/1 150/5 150/8 151/1 156/5 157/22 158/3 158/18 159/9
likes [1] 76/20
limited [3] 88/1 115/25 157/5
line [5] 30/10 90/15 97/24 134/3 136/8 linear [1] 76/15
lines [9] 108/3 138/16 141/5 142/7 142/18 142/19 143/3 143/4 143/12
list [9] 32/13 32/13 32/20 32/22 32/24 54/25 63/7 69/17 95/19
listed [7] 20/8 91/14 91/15 92/2 92/12

97/21 116/24
literally [4] 33/3 34/7 77/16 78/8
little [43] 7/4 8/14 13/21 15/5 15/7 15/20 15/21 16/12 17/7 19/7 27/10 31/8 36/18 39/17 39/18 48/19 48/20 56/17 61/22 65/1 65/12 65/13 65/24 68/19 69/19 72/3 74/10 76/6 93/22 108/13 116/18 125/1 131/3 135/20 137/16 138/1 140/24 142/6 142/14 144/5 145/6 146/24 148/25
Litvinenwho [1] 113/22
live [4] 130/4 134/3 138/1 147/9
lives [3] 31/17 34/5 138/20
living [1] 133/20
loaded [1] 43/8
loading [1] 148/15
lobbies [1] 109/9
local [1] 14/22
located [7] 19/14 19/15 20/2 25/18 $42 / 4$ 42/9 43/11
location [7] 34/8 34/8 34/8 42/7 42/22
90/1 102/6
locations [1] 61/11
locked [1] 79/17
logistics [1] $32 / 2$
long [14] 8/9 41/24 48/15 49/23 72/24
93/9 95/3 100/17 100/21 123/8 126/3
132/19 141/6 143/12
long-term [1] 49/23
longer [5] 12/6 48/17 119/16 124/22 131/14
longitude [1] 51/25
look [24] 12/15 33/14 34/2 34/3 46/22
46/25 46/25 51/15 53/25 57/14 57/16
74/10 82/18 93/1 96/21 101/16 104/16
108/9 120/7 124/8 124/11 127/20 129/8 152/19
looked [4] 21/7 21/14 33/14 41/12
looking [17] $15 / 7$ 30/2 52/13 60/4 64/1
64/9 74/16 77/13 78/3 78/11 94/14 127/19
134/12 148/5 150/2 154/1 154/10
looks [8] 46/10 58/5 77/12 89/5 90/13
90/14 142/22 157/22
lose [1] $83 / 24$
lost [3] 21/21 21/23 55/5
$\begin{array}{llll}\text { lot [47] } & 8 / 6 & 10 / 20 & 14 / 8 \\ 14 / 19 & 26 / 12 & 28 / 7\end{array}$
29/3 30/6 40/5 43/18 43/22 45/24 48/5
52/4 54/7 54/15 55/3 59/2 59/20 59/21
60/5 61/17 70/10 70/20 71/19 76/17 79/1
79/13 79/15 79/23 81/14 81/16 82/6 94/8
98/5 101/8 101/17 104/21 119/19 120/18
123/11 127/17 127/21 137/8 150/22 157/5
160/9
lots [4] 51/22 51/23 52/23 76/19
love [9] 17/24 18/8 54/13 76/10 104/8
105/2 109/13 124/6 148/8
lovely [1] 50/20
low [9] 18/25 36/9 45/5 45/7 45/8 45/15 70/12 138/23 144/4
low-enriched [1] 70/12
low-level [4] 45/5 45/7 45/8 45/15
lower [2] 64/10 74/24
lower-dose [1] 74/24
lowering [1] $8 / 5$
Lucie [9] 44/15 44/21 46/4 46/7 48/22
49/2 49/4 51/7 52/10
luckily [1] 103/23
lunch [9] 43/9 64/17 65/9 83/15 110/6
111/24 113/15 113/17 122/18
lunchtime [1] 13/13
lymph [1] 107/1
M.D [3] 2/3 2/10 2/13
M.Ed [1] 2/5

MA [1] 104/6
ma'am [3] 66/13 69/12 69/25
machine [22] $5 / 16$ 18/18 19/24 23/20
30/17 40/4 41/17 65/7 65/12 65/19 66/15
66/20 67/9 67/13 68/16 70/1 74/20 82/18 88/9 115/25 129/2 132/6
machines [14] 17/20 65/20 66/7 67/10
67/17 67/18 67/22 72/20 74/25 76/10 77/3 78/24 79/18 108/11
made [8] 16/18 17/3 48/17 59/3 59/5
75/5 132/17 134/6
magnitude [1] 64/7
Mahesh [1] 103/3
mail [13] 38/13 97/6 98/10 110/12
111/22 119/4 119/23 119/24 153/11
155/21 158/11 159/17 160/11
mailed [2] 6/3 126/24
main [1] 19/19
mainly [3] 9/24 22/24 23/3
maintain [1] 27/25
maintained [1] 51/14
maintaining [1] $132 / 10$
major [6] 87/10 116/20 116/21 117/15 120/3 157/11
majority [6] 32/21 73/2 73/14 75/20
103/1 156/18
make [39] 4/8 13/4 21/25 27/6 29/8
36/22 38/8 40/13 40/19 40/22 42/24 47/10
48/16 49/15 50/23 56/1 58/21 59/14 59/15 60/9 62/6 68/12 69/13 78/14 88/14 91/20
91/22 92/1 92/4 92/9 92/16 94/3 102/13
105/4 125/24 153/15 155/22 160/17 160/22
makes [6] 48/15 60/18 69/17 77/20 80/5 148/23
making [5] 6/24 50/12 86/4 91/19 102/12
MAKV [1] 73/16
mammo [1] 117/14
mammography [2] 28/25 68/3
man [3] 15/16 36/6 114/2
manage [3] 25/22 68/2 159/14
managed [1] 64/13
management [10] 49/8 55/3 88/6 102/25
103/6 143/15 159/10 159/25 160/1 160/7
manager [2] 87/7 87/15
managers [2] 14/1 27/7
manner [3] 122/1 127/3 129/10
manual [1] 44/6
manufacturer [1] 79/5
manufacturers [3] 77/9 83/7 117/5
many [16] 8/4 12/7 15/2 16/9 16/9 16/22
24/10 24/18 28/2 65/23 76/23 90/19
112/14 112/22 126/18 156/13
map [1] 34/3
mapping [1] 137/15
margin [1] 72/3
Marisel [1] $1 / 14$
Mark [4] 2/2 5/5 43/7 141/20
marked [1] 63/18
markers [1] 144/16
marrying [1] 117/5
Mars [2] 59/1 59/6
Mary [2] $2 / 107 / 20$
masks [1] 31/10
match [1] 116/10
material [10] 19/21 23/4 46/3 53/2 56/12
61/18 81/5 135/14 135/25 143/25
materials [32] 5/10 18/17 21/3 22/25
materials... [28] 23/1 23/22 24/11 25/11 26/1 26/2 26/8 30/18 31/1 32/20 33/21 35/25 36/3 36/4 37/16 37/24 40/16 40/18 55/16 55/18 81/15 84/7 84/9 84/23 88/13 88/24 96/2 132/7
math [1] 54/22
Matt [2] 4/23 141/17
Matt's [1] 145/9
matter [5] 72/2 77/21 93/8 93/9 121/21
Matthew [4] 2/14 11/9 11/12 13/23
may [19] $6 / 2$ 12/16 12/21 20/10 22/19
48/9 48/24 59/24 63/18 68/20 91/9 97/18
105/14 125/6 153/10 154/3 154/13 154/18 155/2
maybe [15] 23/16 56/21 75/6 79/11
79/20 85/20 90/16 95/11 99/3 105/25 125/4 139/12 143/13 148/2 149/15
maze [2] 134/12 134/15
McCoys [1] 64/20
McFadden [3] 2/8 4/18 8/14
McNally [1] 20/5
MD [1] 8/1
me [45] 10/15 12/15 12/16 14/8 14/21
26/23 30/8 33/17 40/24 42/19 52/20 55/20 65/8 65/10 84/1 98/4 98/18 102/10 107/4 110/11 111/22 111/25 114/11 114/24 116/18 119/17 124/10 124/11 125/19 126/21 128/7 131/5 131/7 131/18 134/19 135/16 137/7 138/17 139/21 144/15 153/9 153/16 153/24 153/24 157/22
mean [19] 13/12 24/21 37/7 37/21 41/17 71/15 72/2 78/3 82/16 92/23 98/3 99/7 107/15 110/3 123/19 126/6 150/5 150/14 150/19
means [10] 23/2 25/24 27/6 50/12 61/21 132/1 137/18 137/19 137/19 138/11
meant [1] 88/3
measure [4] 57/17 57/20 78/25 140/23
measured [1] 104/12
measurement [2] 53/18 53/21
measurements [5] 47/12 51/13 51/22
72/23 134/5
med [1] 11/1
mediation [1] 37/5
medical [48] 5/6 5/12 8/17 12/10 12/12
16/19 24/22 26/22 30/18 31/1 34/13 35/13 40/7 43/20 52/25 53/4 53/10 56/24 58/21
66/22 67/9 67/10 67/19 68/18 68/21 68/24 68/25 69/6 73/3 76/4 81/2 88/11 88/19 89/8 89/17 90/25 101/3 101/19 101/25 102/12 107/5 111/16 115/10 117/17 117/18 119/8 120/10 132/1
medical/legal [1] 107/5
medicals [1] 35/14
medicine [27] 5/14 7/21 7/23 10/11 28/9 29/21 30/2 36/16 85/18 88/20 91/20 91/22 91/23 92/12 105/7 108/13 108/14 111/9 112/19 115/7 115/24 116/22 117/2 117/3 136/7 136/9 151/14
meet [8] 35/18 57/10 67/14 88/25 105/13 151/2 154/2 156/5
meeting [24] $6 / 26 / 8$ 10/7 10/11 10/24
11/7 16/15 39/2 39/4 39/5 71/8 71/9 89/20 123/7 131/17 149/15 149/18 149/20 152/16 154/20 154/22 155/13 156/11 158/8
meetings [5] 78/19 105/18 127/21 154/12 158/21
melted [2] 55/7 55/14
member [1] 5/18
members [19] $2 / 1$ 6/21 10/24 11/6 16/4 16/8 49/17 49/22 52/13 57/21 134/24 149/14 154/7 157/19 157/20 157/21 158/1 158/3 158/14
mention [4] 20/23 21/17 21/18 132/17
mentioned [11] 9/6 22/18 32/11 41/21
72/14 101/3 108/4 110/21 111/23 115/6 130/24
mentioning [2] 115/2 158/4
messenger [1] 104/25
met [2] 10/10 154/5
metal [2] 81/12 81/24
meter [4] 47/19 57/7 58/10 62/1
meters [2] 29/18 31/8
method [3] 32/3 87/1 95/5
Mexico [1] 54/2
Meyer [3] 1/24 162/5 162/19
Miami [6] 4/13 20/9 26/18 26/18 133/21
156/8
mice [1] 134/13
Michigan [1] 90/14
microR [1] 64/6
middle [4] 13/14 42/19 93/15 145/19
middleman [1] 98/5
midnight [1] 126/21
might [20] 16/22 28/12 28/19 30/24 36/4 37/12 41/17 42/7 42/13 46/7 63/13 74/20 90/16 106/5 108/1 108/4 108/8 122/12 158/19 160/9
migraine [2] 103/22 104/1
Mil [1] 141/13
Mil-Spec [1] 141/13
Milan [1] 156/3
mileage [1] 153/7
miles [3] 63/5 143/12 143/16
military [5] 7/25 8/10 34/17 75/5 148/2
mill [1] 55/8
Millennials [1] 125/11
millicurie [2] 90/6 140/12
millicuries [2] 90/11 140/12
milligram [1] 64/4
million [4] 36/14 65/25 89/5 89/6
mind [1] 104/7
mine [1] 126/14
mined [3] 46/20 46/25 47/7
mines [2] 47/14 47/14
miniature [1] 50/4
minimum [5] 35/2 73/19 73/23 100/18 100/20
mining [11] $18 / 25$ 46/9 47/15 48/7 48/10
56/15 62/13 62/18 62/20 63/6 63/25
Minister [1] 113/25
minute [4] 41/22 127/6 147/12 147/13
minutes [10] 6/2 6/8 6/11 6/19 32/5
41/23 42/18 42/22 65/11 90/6
mirrors [3] 74/7 133/10 133/15
miss [5] $13 / 18$ 39/5 39/7 39/8 138/14
missed [1] 22/19
missiles [1] 147/24
missing [3] 91/8 91/9 154/23
mission [4] 26/7 62/14 139/8 142/20
missions [5] 43/12 43/15 43/16 61/9
61/20
Mississippi [1] $13 / 17$
Mm [2] 15/10 72/24
Mm-hmm [2] 15/10 72/24
mobile [5] 50/7 50/13 55/10 60/3 88/20
modalities [1] 110/1
modality [1] 110/9
mode [2] 69/1 150/23
model [3] 57/22 58/6 82/19
modem [1] 70/17
modified [2] 73/19 74/1
modify [3] 28/21 76/25 85/23
moisture [1] 88/23
moment [3] 9/8 134/11 137/18
moments [1] $8 / 13$
money [4] 59/20 119/10 123/23 147/15
monitor [3] 27/23 57/23 58/18
monitored [1] 150/20
monitoring [23] 18/6 43/21 44/2 46/14
46/24 52/9 52/11 53/5 56/17 56/18 59/14
60/13 60/15 60/19 60/19 60/20 60/24
60/24 61/13 61/15 109/17 135/10 141/5
monitors [1] 137/4
Monroe [6] 8/16 8/17 13/21 13/25 14/20 15/2
month [5] 40/12 126/19 126/20 129/6 154/2
monthly [1] 44/18
months [10] 20/11 21/1 22/9 36/13
36/22 41/10 47/14 51/5 85/15 126/16
more [50] 7/4 11/9 12/10 13/22 19/8
19/15 24/12 25/6 25/23 36/11 36/18 58/7
61/23 70/5 70/16 70/22 70/22 76/11 76/11
77/9 77/9 77/17 77/17 78/12 78/12 78/20
81/14 81/16 87/18 95/25 101/24 102/12
103/17 104/14 105/6 106/10 106/12
106/13 108/13 111/8 116/16 123/19
131/10 137/19 139/14 148/17 150/3 156/23 157/1 157/5
morning [3] 42/2 57/6 125/14
most [32] 32/3 32/9 35/14 42/7 42/10
45/20 52/22 54/19 55/2 61/19 64/5 64/11
64/11 72/14 73/15 74/9 74/23 75/20 77/1
77/25 85/14 94/4 96/15 98/6 101/21
104/16 116/20 131/4 131/9 131/15 134/6 134/7
mostly [3] 26/9 26/11 143/24
motion [4] 6/10 160/18 160/21 160/22
mounting [2] 133/10 133/14
move [9] 6/12 15/24 43/5 65/4 65/4
107/8 113/1 125/24 151/20
moved [3] 9/15 9/21 119/8
movement [1] 101/8
movie [1] 17/10
moving [11] 61/12 71/8 75/8 76/2 76/9
76/18 111/10 111/12 132/16 134/20
150/16
MP [1] 2/2
MQA [5] 114/18 117/23 118/23 118/25
132/6
MQSA [1] 28/25
mR [6] 11/11 26/21 62/2 107/2 116/8 117/14
MRCs [2] 26/21 26/22
MRI [2] 12/12 13/3
much [22] 18/21 22/1 24/8 24/18 24/19
36/2 51/20 52/7 52/7 70/16 74/9 75/6 79/2 90/10 95/25 113/5 132/21 137/18 139/13 144/10 144/20 149/13
multi [2] 110/1 110/9
multi-modalities [1] 110/1
multi-modality [1] 110/9
multiple [4] 87/25 116/12 141/14 152/3
multiples [1] 154/10
multitude [1] 30/12
my [33] 11/21 12/19 12/21 14/18 27/9 28/19 35/20 35/25 42/20 42/22 70/3 77/1 77/1 84/6 99/25 104/4 104/8 105/2 115/13 118/6 119/17 120/4 120/15 120/23 122/2
124/11 127/25 128/6 131/17 135/4 138/20 155/3 162/8
myocardial [1] 101/13

| M | 128/12 128/14 128/17 131/14 134/7 | 33/2 33/5 36/24 43/12 43/15 54/17 59/7 |
| :---: | :---: | :---: |
| myself [1] 156/9 |  |  |
| N | nobody [7] 31/17 34/21 48/15 76/20 | mbering [1] 91/2 |
| $\mathrm{N}-13$ [1] 90/3 |  |  |
|  | nominations [1] 7/8 | numerous [4] 89/19 89/20 90/23 97/14 |
| NASA [1] 58/25 | non [6] 18/19 96/7 101/15 132/13 132/18 | nurse [2] 117/19 124/2 |
| nasty [1] 35/23 | 133/25 | nurses [1] 130/5 |
| national [6] 52/3 53/13 60/25 61/7 64/1 | non-indi | nursing [1] 123/24 |
|  | non-ionizing [3] 18/19 132/18 133/2 | 0 |
| natural [3] 138/5 143/25 149/8 | non-programming [1] | o'clock [1] 128/1 |
| naturally [2] 136/24 138/9 | nondestructive [2] 31/2 78/6 | Oakridge [2] 61/7 136/24 |
| nature [2] 88/5 158/22 | none [3] 47/10 58/7 146/20 | bjection [1] 155/17 |
| navigational [1] 142/15 | nonionizing [1] 115/ | jections [1] 155/1 |
| nays [3] 6/16 6/18 161/2 | nonmedical [1] 82/5 | obviously [5] 8/6 112/19 115/4 137/2 |
| NBA [1] 60/19 | normal [2] 38/18 64/4 | 150/21 |
| near [2] 18/7 46/ | normally [5] 22/9 86/21 94/11 121/23 | Ocala [5] 4/19 8/19 14/14 14/20 90/23 |
| nearby [1] | 141/14 | ccurred [1] 118/1 |
| necessarily [3] 14/23 | north [2] | ccurring [1] 138 |
| necessary [5] 42/6 53/11 59/16 62/7 | not [125] 7/5 9/6 9/10 10/1 11/6 13/15 | ccurs [1] 74/7 |
| 155/5 | 18/21 19/10 22/11 24/13 25/5 25/8 25/19 | Octavius [1] 84/5 |
| need [27] 13/4 34/4 42/5 49/16 52/19 | 29/19 32/6 32/8 32/22 32/24 33/7 33/13 | October [4] 1/19 65/19 138/19 162/15 |
| 55/21 57/9 64/17 68/14 69/14 69/14 70/4 | 33/16 36/2 37/14 39/1 39/5 39/18 41/4 | odd [1] 93/22 |
| 74/6 85/2 88/16 90/10 94/3 96/15 98/6 | 41/17 42/7 51/19 52/24 52/25 55/23 55/25 | of temporary [1] 124/20 |
| 122/5 124/2 125/11 131/12 149/12 149/16 | 58/23 59/14 62/10 62/11 65/10 66/10 | off [23] 28/6 30/7 32/19 37/9 44/5 45/7 |
| 157/25 158/19 | 69/10 71/12 71/12 71/16 72/24 73/5 74/8 | 46/8 48/9 51/7 60/1 77/11 77/22 83/10 |
| needed [2] 123/25 124/7 | 75/10 78/1 78/3 78/4 78/5 79/21 79/22 | 93/2 107/24 115/1 130/14 133/5 133/14 |
| needs [4] 12/12 27/24 77/15 153/23 | 81/15 83/7 85/12 86/11 86/18 92/12 92/21 | 140/22 142/21 147/8 147/14 |
| nefarious [1] 54/3 | 94/11 94/18 94/20 95/17 97/17 98/21 99/8 | off-site [1] 44/5 |
| negative [2] 51/25 107 | 99/23 101/7 102/2 102/22 104/9 104/20 | off-year [1] 51/7 |
| neighborhood [1] 118/12 | 106/16 106/18 106/24 108/20 110/20 | office [26] 14/13 23/14 27/9 27/9 27/10 |
| neighbors [1] 56/4 | 112/11 114/2 114/15 117/11 119/17 | 27/12 27/12 28/12 31/25 42/11 55/9 65/16 |
| Nesmith [1] 131/9 | 120/13 120/14 121/20 123/13 124/10 | 67/6 67/11 68/4 68/8 68/12 69/17 70/6 |
| nest [1] 97/18 | 126/4 126/18 126/25 127/2 127/15 128/1 | 77/1 82/1 88/15 119/2 120/6 121/9 126/14 |
| network [3] 17/19 147/3 147/8 | 128/6 129/4 131/1 131/2 133/12 133/21 | officer [1] 49/18 |
| networks [1] 137/4 | 135/16 136/11 137/18 140/1 140/24 | offices [4] 19/19 27/8 27/8 66/18 |
| Nevada [1] 34/19 | 143/13 148/1 148/2 148/6 150/21 150/22 | official [2] 99/23 100/1 |
| never [5] 23/22 80/20 88/2 106/21 | 151/2 151/8 151/10 153/7 153/18 154/4 | offshore [1] 148/20 |
| 112/17 | 154/6 154/9 154/23 157/4 157/19 159/1 | often [3] 29/25 88/10 131/10 |
| new [39] 6/21 6/24 9/22 10/16 16/4 16/8 | 162/10 | oftentimes [1] 60/15 |
| 17/3 30/15 30/16 30/19 41/13 41/13 41/16 | Notary [1] 1/24 | oh [4] 34/1 122/23 124/8 127/25 |
| 41/17 41/17 48/13 54/1 59/2 59/4 66/25 | notes [3] 35/23 95/7 162/9 | okay [40] 10/15 18/5 19/12 22/23 23/9 |
| 76/12 76/14 76/23 77/8 80/24 84/20 86/22 | nothing [6] 31/20 31/21 107/2 115/14 | 23/12 23/25 25/1 34/10 34/25 66/12 69/24 |
| 95/23 101/21 110/17 116/4 126/4 129/11 | 133/19 151/16 | 71/18 72/9 72/12 72/19 75/9 93/18 93/19 |
| 129/14 129/15 133/2 133/5 133/13 158/1 | notice [10] 13/7 25/4 37/23 38/1 45/12 | 98/24 99/6 100/7 106/6 109/13 112/2 |
| newer [3] 79/25 116/7 154/7 | 87/16 126/15 150/11 152/7 158/8 | 112/25 120/7 124/8 128/15 129/11 130/16 |
| newest [2] 8/13 10/6 | noticed [2] 25/5 48/5 | 134/20 149/11 149/12 149/24 151/6 |
| next [28] 13/8 22/14 39/4 43/6 49/5 | notices [1] 103/9 | 152/14 153/2 154/19 154/21 |
| 64/20 65/6 65/18 67/19 68/1 68/5 83/16 | notification [1] 158/16 | old [11] 3/13 12/3 13/18 75/5 76/12 |
| 83/21 88/21 94/7 97/12 110/18 126/20 | notified [2] $83 / 188 / 13$ | 133/2 133/6 133/9 140/17 149/13 152/13 |
| 134/3 149/15 149/18 149/20 149/20 | notifying [1] 158/25 | older [1] 75/4 |
| 151/22 152/16 154/23 157/22 160/10 | now [48] 8/7 9/21 11/20 13/6 15/4 17/23 | on-site [1] 89/21 |
| nice [4] 36/8 58/5 67/15 69/19 | 18/10 18/12 21/22 22/2 24/9 42/14 45/23 | once [18] 13/1 21/19 30/20 33/6 35/12 |
| nickel [1] 81/4 | 46/14 48/7 48/20 52/12 65/1 65/10 76/16 | 44/25 52/6 58/20 73/20 85/5 94/21 100/23 |
| night [6] 42/3 42/6 79/17 93/15 120/21 | 77/9 80/25 82/13 87/7 90/14 90/20 92/16 | 105/14 119/19 121/8 149/4 155/19 156/9 |
| 126/21 | 95/20 96/1 96/11 99/5 103/8 106/9 117/17 | oncologist [2] 4/11 72/8 |
| nights [1] 12/2 | 120/23 121/2 123/8 123/11 125/6 125/9 | one[116] 10/6 11/9 12/15 14/1 14/6 |
| Nina [2] 132/13 132/15 | 125/12 126/23 139/4 139/9 147/13 153/9 | 16/18 18/6 18/7 20/3 21/17 25/7 27/10 |
| nine [5] 11/19 65/14 89/16 139/21 139/22 | 154/12 159/1 | 28/19 31/22 32/17 34/9 34/21 35/15 35/19 |
| nine-and-a-half [1] 11/19 | NRC [16] 20/24 21/2 21/4 21/6 23/11 | 40/12 45/18 45/24 46/11 46/12 47/9 47/9 |
| ninety [6] 37/7 37/14 37/22 66/24 67/3 | 24/9 24/9 32/12 32/15 33/12 36/5 36/5 | 47/21 48/5 48/10 48/13 49/3 51/24 52/6 |
| 67/7 | 36/17 84/10 85/24 92/14 | 55/12 55/25 56/5 58/16 59/8 60/17 62/6 |
| Niton [1] 82/13 | nuclear [38] 5/14 7/21 7/23 10/11 10/25 | 63/3 73/25 74/18 77/3 77/8 78/4 78/18 |
| Nitrogen [2] 90/4 90/7 | 20/24 22/23 23/7 28/9 29/21 30/2 34/14 | 78/24 79/11 82/10 83/4 85/16 87/8 87/23 |
| Nitrogen-13 [2] 90/4 90/7 | 36/15 44/2 44/7 45/4 48/18 49/1 49/6 | 89/7 90/13 90/15 90/16 90/18 90/18 90/19 |
| no [46] 6/9 6/17 6/18 12/6 13/18 17/11 | 59/18 60/1 84/11 85/18 88/20 91/20 91/23 | 90/24 90/25 90/25 91/10 91/16 91/25 |
| 18/4 24/12 24/20 27/11 43/5 48/17 54/12 | 113/9 115/7 115/24 116/21 117/2 117/3 | 93/10 93/10 94/15 94/17 95/19 96/16 |
| 62/6 62/10 71/14 75/8 75/8 76/21 77/21 | 134/23 135/24 136/7 136/9 136/16 140/17 | 97/14 102/4 102/9 109/2 110/7 110/17 |
| 79/19 79/22 83/8 83/9 107/1 107/1 109/2 | nukes [1] 34/16 | 110/20 111/7 111/24 113/8 113/8 113/9 |
| 109/24 119/16 124/25 124/25 126/14 | number [23] 11/4 11/5 27/21 30/2 30/5 | 118/4 118/6 128/13 132/1 132/18 132/22 |


| 0 | $\begin{array}{llll} 19 / 24 & 19 / 25 & 20 / 2 & 20 / 19 \\ 23 / 2 & 23 / 4 & 23 / 5 & 23 / 6 \\ 23 / 6 & 23 / 21 & 23 / 21 \end{array}$ | packages [1] 149/17 <br> packets [4] 65/1 152/18 152/18 153/16 |
| :---: | :---: | :---: |
| one...[25] 133/12 135/12 136/5 136/14 | 23/23 23/23 27/2 27/19 29/6 31/15 32/13 | PACS [9] 4/18 8/22 13/25 14/6 101/16 |
| 137/9 139/10 140/22 141/6 141/7 141/17 | 33/12 36/8 36/9 36/18 38/2 38/18 44/1 | 101/22 109/22 109/24 110/25 |
| 141/21 142/11 143/12 143/23 144/16 | 44/2 48/12 49/7 49/8 50/12 50/16 51/8 | pad [1] 96/12 |
| 145/8 146/3 147/6 147/20 148/9 149/6 | 54/22 55/9 55/10 56/18 56/19 60/3 62/5 | PAGE [1] 3/2 |
| 153/19 153/23 157/1 158/1 | 62/13 64/5 67/10 67/11 67/18 67/21 68/1 | pages [1] 153/4 |
| onerous [1] 63/15 | 68/4 68/8 68/10 68/12 69/17 70/20 71/7 | pain [1] 81/5 |
| ones [8] 26/15 29/4 29/25 76/12 76/13 | 78/16 83/16 86/12 86/15 88/3 95/19 97/2 | paint [1] 81/24 |
| 76/14 90/23 126/5 | 102/22 107/23 109/22 117/12 117/21 | panic [2] 59/21 135/14 |
| online [15] 119/5 119/5 119/10 119/10 | 118/4 119/2 120/6 120/16 121/8 123/22 | pantheon [2] 115/19 133/25 |
| 119/15 120/14 122/10 122/12 122/22 | 124/2 124/13 125/23 126/2 130/1 131/3 | paper [7] 29/2 93/10 104/11 119/4 |
| 124/7 126/11 129/13 129/15 129/20 | 132/4 132/4 132/12 136/14 141/1 141/8 | 119/13 124/12 126/3 |
| 129/22 | 141/22 145/6 154/23 | paperless [1] 37/25 |
| only [20] 15/11 23/20 33/7 61/21 73/16 | ours [1] 128/17 | papers [3] 105/17 123/3 123/21 |
| 77/21 95/17 97/20 98/9 103/7 110/19 | out [133] 5/14 5/21 6/3 7/14 9/1 12/17 | paperwork [7] 25/15 27/17 40/11 95/14 |
| 111/24 119/17 120/9 123/14 128/13 131/1 | 12/18 14/13 14/21 20/7 21/7 21/13 24/15 | 95/24 119/19 123/1 |
| 148/4 148/14 153/20 | 25/13 26/15 27/7 27/14 27/15 27/19 28/4 | paragraphs [1] 132/19 |
| open [5] 50/9 50/13 51/11 51/15 149/7 | 28/14 29/1 29/7 29/16 29/17 30/21 31/5 | parallel [3] 138/16 142/7 143/4 |
| opening [1] 144/19 | 32/15 32/16 34/16 37/16 37/19 38/1 38/3 | paramedic [1] 120/17 |
| opens [1] 14/8 | 38/4 40/5 41/3 42/13 43/19 44/1 44/25 | paramedics [1] 119/18 |
| operate [4] 27/14 68/6 91/12 117/7 | 49/9 50/19 50/20 50/21 50/22 50/24 50/25 | Paris [1] 156/3 |
| operating [2] 40/23 48/20 | 51/2 52/4 52/23 55/9 55/21 55/21 55/25 | park [5] 19/23 25/14 27/14 65/15 70/4 |
| operation [2] 48/25 86/19 | 56/9 57/2 59/3 59/5 59/13 59/14 59/23 | parked [1] 153/18 |
| operational [1] 18/23 | 60/2 60/10 60/12 62/4 62/5 62/13 65/15 | parking [3] 52/23 153/17 153/20 |
| operations [8] 4/15 12/10 20/18 30/9 | 65/22 66/14 66/18 67/11 68/4 70/1 71/10 | Parkway [1] 133/7 |
| 37/13 49/13 49/14 49/18 | 74/11 75/4 75/7 75/12 75/15 75/23 75/24 | part [34] 8/10 10/5 11/13 13/4 14/15 |
| operator [5] 78/20 79/2 83/3 131/1 | 77/12 77/16 78/15 78/16 78/24 81/14 | 14/20 20/9 25/10 25/11 25/11 25/19 44/2 |
| 142/23 | 82/14 83/5 83/7 85/10 86/24 87/17 88/3 | 48/15 48/16 48/17 53/17 54/8 56/24 85/8 |
| operators [6] 80/6 80/10 82/4 103/12 | 90/2 90/9 91/17 94/25 95/8 97/16 99/8 | 86/1 108/22 110/18 115/2 116/23 117/21 |
| 108/12 115/25 | 100/17 103/9 103/11 107/21 108/22 | 118/8 122/9 123/10 125/21 127/3 134/25 |
| opportunities [1] 103/7 | 108/24 110/15 110/20 123/14 123/22 | 140/15 140/16 159/6 |
| opportunity [2] 14/21 51/8 | 126/15 132/2 134/1 139/3 139/9 139/17 | particular [3] 54/14 63/4 140/15 |
| opposed [1] 153/20 | 140/6 140/18 142/15 143/8 144/6 147/22 | particulate [1] 44/22 |
| ops [1] 139/18 | 148/6 148/16 150/10 153/13 155/21 | parties [2] 162/11 162/12 |
| options [1] 112/14 | 158/11 159/3 160/11 | parts [2] 75/8 143/1 |
| oral [1] 73/13 | outcome [1] 162/14 | party [1] 109/25 |
| Orange [6] 19/23 25/14 65/15 70/4 152/2 | outfit [1] 50/16 | passed [3] 17/8 21/13 125/18 |
| 162/3 | outlast [1] 41/20 | passing [1] 71/11 |
| order [9] 13/3 64/7 88/7 89/1 107/10 | outpatient [2] 36/15 85/ | past [12] 8/6 9/24 14/3 15/3 15/6 21/14 |
| 107/23 112/14 127/9 131/20 | output [2] 137/14 138/2 | 51/5 70/11 109/1 122/20 137/11 151/23 |
| ordering [2] 102/2 107/9 | outright [1] 33/5 | patient [21] 13/2 41/8 74/6 76/13 76/14 |
| orders [1] 102/6 | outside [4] 51/3 106/11 133/13 158/20 | 93/24 101/4 101/10 101/16 103/6 106/22 |
| org [2] 16/24 20/12 | over [46] 6/3 11/10 11/13 16/12 17/13 | 106/23 107/3 108/17 109/16 109/19 110/2 |
| organization [2] 24/12 106/3 | 19/4 19/23 25/18 29/17 35/24 45/3 47/12 | 110/9 111/12 111/19 112/13 |
| Organizational [1] 131/5 | 48/8 51/18 53/23 54/4 55/2 63/11 63/23 | patients [8] 41/5 102/18 102/18 103/24 |
| organizations [2] 54/25 105/21 | 70/11 74/24 75/4 78/10 79/12 81/9 82/15 | 109/20 111/3 111/14 160/1 |
| organized [2] 25/3 25/20 | 88/18 116/2 116/13 116/14 118/8 121/17 | Patricia [1] $2 / 4$ |
| orientation [1] 147/2 | 122/19 134/18 135/4 135/22 140/19 | Patrol [1] 60/6 |
| original [5] 96/3 96/7 96/24 116/19 | 140/25 142/1 142/24 146/25 147/3 147/7 | patrolling [1] 148/19 |
| 153/15 | 147/18 148/18 149/16 | pattern [2] 104/20 138/8 |
| Orlando [14] 1/15 4/3 5/6 10/11 19/25 | overall [1] 20/21 | Patty [2] 4/5 117/11 |
| 25/14 26/17 43/11 55/9 156/11 156/21 | overdue [1] 33/9 | Paul [4] 2/11 4/21 11/24 39/24 |
| 156/22 157/16 157/22 | overexposures [1] | pay [6] 33/1 44/1 70/14 83/2 119/10 |
| orthopedics [2] 4/24 11/18 | overnight [2] 94/5 153/18 | 139/15 |
| $\text { OSHA [1] } 57 / 10$ | overnighted [1] 97/12 | paying [2] 95/25 156/16 |
| other [68] 8/1 8/7 12/12 14/22 16/19 | overread [2] 93/16 94/2 | payment [2] 100/23 104/13 |
| 22/19 26/4 26/12 27/20 27/22 33/15 34/9 | override [1] 107/25 | payments [1] 95/18 |
| 34/22 35/15 43/4 44/10 44/16 46/12 49/3 | overs [1] 63/14 | PDF [1] 97/6 |
| 58/15 61/16 63/17 72/5 74/4 74/10 76/9 | Oversight [1] 16/20 | Pearl [1] 52/9 |
| 78/1 78/3 87/9 88/11 89/8 91/18 96/21 | overutilization [1] 101/13 | pediatric [2] 75/18 75/19 |
| 97/1 99/9 99/11 108/3 114/7 115/12 | overview [3] $16 / 14$ 16/17 19/9 | pediatrics [1] 8/6 |
| 116/24 117/8 117/19 117/19 123/1 124/1 | own [4] 12/21 23/5 28/6 37/10 | penalties [1] 35/17 |
| 125/21 128/16 128/23 131/4 133/25 137/5 | owned [1] 15/2 | pencil [1] 155/20 |
| 140/14 141/7 141/21 141/24 143/1 145/3 | owner [1] 97/21 | Pensacola [1] 31/20 |
| 145/9 145/13 145/15 146/17 152/12 153/3 | P | people [41] 10/3 11/7 12/16 14/17 25/16 |
| 157/24 158/18 158/25 159/1 159/3 |  | 29/3 34/11 34/12 42/14 42/24 49/14 51/14 |
| others [2] 19/18 135/14 | p.m [3] 1/20 83/18 161/4 | 53/8 53/12 54/17 55/24 56/1 56/2 56/6 |
| otherwise [2] 155/21 155/22 | PA [2] 2/14 12/4 | 58/22 58/23 86/4 87/19 96/23 97/20 106/5 |
| our [108] 6/24 12/5 12/21 14/4 14/11 | PA-C [1] $2 / 14$ | 107/15 115/7 116/11 117/7 125/24 131/5 |
| 15/21 16/17 18/2 18/6 18/6 18/12 18/20 | pack [2] 42/20 77/19 | 131/9 132/4 135/13 140/9 141/22 143/1 |
| 19/3 19/4 19/14 19/17 19/19 19/20 19/20 | package [2] 58/16 118/7 | $150 / 6 \quad 156 / 12 \quad 158 / 4$ |



All Good Reporters, LLC 321-285-2324 www.AllGoodReporters.com


| $\mathbf{R}$ | reported [2] 1/23 67/10 | 114/13 114/14 118/19 120/23 |
| :---: | :---: | :---: |
| recommendations... [2] 103/13 150/12 | reports [5] 32/19 87/12 93/2 109/20 | 128/21 128/21 129/23 |
| recommended [2] 24/6 107/12 | $112 / 17$ | 137/1 137/6 140/10 143/4 145/5 147/15 |
| record [2] 98/2 162/8 | represent [2] 19/13 19/18 | 148/17 151/17 151/19 157/24 159/16 |
| records [8] 96/14 96/16 99/1 99/2 99/12 | represents [1] 30/9 | 160/20 |
| 99/25 100/2 100/12 | reproducibility [2] 73/17 74/21 | ripening [1] 89/10 |
| rectangle [1] 143/3 | Republic [1] 60/24 | risk [1] 78/20 |
| recuse [1] 159/6 | request [3] 99/2 99/12 100/12 | Rita [3] 1/24 162/5 162/19 |
| recycling [1] 55/7 | requested [1] 122/19 | river [8] 44/17 44/18 44/22 140/2 140/15 |
| red [4] 46/16 61/10 62/1 137/19 | requesting [1] 111/11 | 142/25 143/21 143/21 |
| refer [2] 118/6 134/5 | requests [1] 150/1 | RND [1] 60/23 |
| referring [4] 103/13 106/18 106/2 | require [5] 36/18 111/20 123/1 151/1 | road [1] 13/23 |
| 107/10 | 159/5 | roadblocks [1] 109/5 |
| reg [4] 21/3 23/1 23/4 24/11 | required [7] 35/2 37/16 42/5 45/9 68/23 | roads [1] 61/12 |
| regarding [1] 133/24 | 93/5 117/6 | robust [4] 10/22 102/12 104/14 139/14 |
| regards [1] 22/16 | requirement [8] 23/10 34/8 71/14 79/16 | rocket [1] 18/8 |
| Regency [1] $1 / 13$ | 102/25 130/20 151/2 154/5 | role [1] 12/19 |
| regimen [1] 152/1 | requirements [16] 29/21 29/24 57/10 | rolled [1] 83/25 |
| region [2] 62/18 62/19 | 66/21 67/14 71/9 80/21 83/11 85/24 86/1 | roof [2] 133/9 133/17 |
| Regional [1] 8/17 | 86/4 89/1 103/11 103/12 110/18 150/8 | room [15] 1/14 4/7 7/1 7/18 11/11 13/14 |
| regions [2] 42/8 42/9 | requires [2] 119/21 158/7 | 15/12 27/13 50/8 50/9 50/11 51/23 92/3 |
| register [7] 66/14 67/21 82/25 122/21 | requiring [1] 104/14 | 133/3 145/19 |
| 132/23 151/23 158/9 | reregistered [1] 65/21 | rooms [1] 77/2 |
| registered [1] 68/7 | rescue [1] 55/2 | roses [1] 32/16 |
| registrants [1] 68/16 | research [7] 5/21 9/25 9/25 40/25 82/19 | rosters [1] 129/1 |
| registration [4] 17/20 19/24 68/6 68/17 | 89/18 134/7 | rotate [1] 76/13 |
| registrations [3] 22/21 25/15 66/24 | researchers [1] 134/12 | rotates [1] 76/14 |
| regular [3] 42/11 147/3 158/21 | resell [1] 83/10 | rotating [1] 75/8 |
| regulate [6] 81/18 91/21 103/16 103/16 | Reserve [4] 26/22 43/20 53/5 56/24 | router [2] 141/25 146/25 |
| 103/19 112/21 | resident [2] 93/3 117/12 | routine [1] 28/14 |
| regulated [1] 30/10 | residents [1] 103/24 | rover [2] 59/6 59/7 |
| regulates [1] 99/1 | resin [1] 46/5 | RRA [1] $2 / 4$ |
| regulation [2] 104/5 | resolution [1] 146/1 | RSIIs [1] 120/15 |
| regulations [10] 24/14 24/14 24/15 37/4 | resources [2] 52/21 58/2 | RSO [3] 2/6 97/4 98/9 |
| 67/24 76/25 78/17 85/3 88/7 150/3 | respectively [1] 46/17 | RT [4] 2/5 2/6 2/8 128/11 |
| regulatory [19] 18/13 20/24 22/23 23/7 | respond [10] 26/19 30/11 31/12 32/4 | RTG [2] 59/9 59/11 |
| 24/13 29/5 37/21 44/8 49/6 71/13 81/16 | 38/6 42/11 42/25 43/2 55/15 160/12 | rubber [4] 31/9 50/24 83/25 84/3 |
| 104/10 108/10 108/21 109/2 109/4 109/6 | responder [1] 54/23 | rule [8] 85/20 91/11 91/21 96/2 96/5 96/6 |
| 110/13 120/5 | responders [3] 54/15 54/17 61/25 | 98/25 116/23 |
| Rehabilitative [1] 46/18 | response [24] 6/9 6/17 16/20 18/24 23/2 | rules [6] 35/8 81/15 85/22 85/23 96/14 |
| reintroduce [1] 152 | 26/3 31/7 31/25 32/1 34/12 37/20 38/11 | 108/21 |
| related [2] 105/5 106/8 | 41/22 41/23 42/16 48/18 49/7 49/8 55/8 | run [9] 27/1 48/14 55/8 100/9 114/17 |
| relation [2] 142/18 147/ | 55/19 103/15 135/8 135/11 139/5 | 117/17 129/3 143/9 144/12 |
| relationship [1] 117/16 | responsibilities [1] 115/13 | running [1] 131/23 |
| Relationships [1] 130/17 | responsibility [1] 129/6 | runs [1] 27/18 |
| relative [2] 162/10 162/12 | rest [7] 20/1 67/19 116/20 117/13 131/11 | runway [1] 145/22 |
| release [1] 101/3 | 144/24 158/16 | Russian [1] 113/23 |
| released [1] 17/10 | restaurant [2] 64/20 83/16 | RVCs [1] 26/23 |
| relieve [1] 53/10 <br> remain [1] 119/1 | restricted [1] 142/24 restrictions [1] 63/15 | S |
| remediate [1] 63/21 | restrictive [2] $36 / 1963 /$ | safe [2] 39/11 134/3 |
| remediation [3] 63/8 63/18 64/10 |  | safety [11] 8/3 14/4 14/10 36/12 40/20 |
| remember [5] 8/21 16/23 35/20 41/25 | resume' [1] 11/14 | 67/14 74/5 88/8 108/11 134/13 134/25 |
| 119/7 | resumed [1] 83/18 | said [15] 17/3 25/4 29/9 31/4 46/19 |
| remind [1] 156/8 | retire [1] 105/3 | 81/22 85/14 93/3 96/22 96/23 106/24 |
| remote [1] 74/8 | retiring [1] 20/5 | 111/23 127/24 129/15 146/16 |
| remove [2] 58/9 79/24 | revisit [1] 152/11 | salary [1] 100/21 |
| moved [1] 136/7 | RGs [1] 124/19 | salt [1] 151/9 |
| renew [5] 120/13 120/14 126/14 126/20 | rid [1] $76 / 3$ | same [20] 35/24 36/3 41/15 51/15 53/17 |
| 129/9 | rifle [1] 77/13 | 76/5 87/17 92/14 92/15 101/5 114/2 117/7 |
| renewal [8] 65/18 85/6 120/11 126/4 | rig [4] 47/20 48/11 48/12 73/21 | 118/25 136/20 143/13 145/10 145/24 |
| 126/10 126/15 127/2 129/17 | right [93] 6/19 8/15 8/19 9/3 10/7 13/8 | 146/7 146/8 149/8 |
| renewals [10] 65/22 84/21 86/18 86/23 | 13/22 13/24 15/23 15/25 22/2 24/4 25/6 | sample [5] 18/2 44/16 47/20 50/2 51/21 |
| 96/20 126/6 126/22 129/14 129/15 129/22 | 30/3 30/3 31/4 31/23 33/15 34/8 36/22 | samples [19] 44/10 44/13 44/13 44/15 |
| enewed [1] 127/15 | 38/16 39/20 40/1 40/2 40/15 41/19 42/2 | 44/19 44/20 45/1 45/4 47/21 48/1 48/1 |
| replace [1] 147/17 | 42/14 43/5 64/14 65/24 70/7 71/25 73/1 | 48/2 49/10 49/11 50/4 50/9 50/14 56/13 |
| replaced [1] 129/14 | 74/9 74/22 76/21 77/24 83/19 84/6 90/5 | $62 / 25$ |
| reply [2] 85/5 158/13 | \|90/14 90/20 92/23 93/12 95/20 96/1 96/1 | sampling [2] 30/24 50/23 |
| report [12] 21/12 35/21 49/12 52/8 68/23 | 96/13 96/16 97/4 99/10 99/18 99/21 | sand [1] 44/11 |
| 92/21 92/24 93/1 94/1 112/7 136/11 162/7 |  | Sarasota [1] 5/19 |
| Reportable [1] 68/21 | $111 / 6 \quad 111 / 20 \quad 112 / 5 \quad 112 / 21 \quad 114 / 7 \text { 114/9 }$ | sat [1] $13 / 7$ |





| T | third-party [1] 109/25 | Timothy [1] 2/13 tink [1] 134/16 |
| :---: | :---: | :---: |
| there... [15] 134/4 135/18 136/10 139/3 | thirty [24] 9/14 21/5 32/4 37/17 38/3 | titles[1] 18/12 |
| 9/4 139/8 139/9 139/21 146/25 147/18 | 38/6 41/23 42/18 42/22 46/14 47/4 47/24 | TLDs [1] 48/3 |
| 48/17 148/18 149/21 150/1 154/3 | 48/6 85/4 86/11 86/20 89/19 90/11 121/9 | TMH's [1] 131/23 |
| there's [81] 13/18 17/14 21/5 26/10 27/5 | 121/15 121/17 127/10 131/19 147/19 | TMJ [1] 80/24 |
| 27/6 27/10 27/11 28/17 29/23 30/15 31/11 | Thirty-minutes [1] 41/23 | today [7] 68/2 110/7 115/2 117/11 121/3 |
| 1/19 31/20 34/3 35/15 41/16 42/14 43/11 | thirty-seven [2] 9/14 21/5 | 125/9 125/13 |
| 52/14 53/24 54/12 55/5 55/17 59/12 60/11 | this [208] | together [12] 16/3 17/5 28/17 51/9 |
| 60/18 60/19 60/20 60/21 60/23 70/10 | Thomas [2] 87/7 87/10 | 58/17 114/4 117/6 130/25 139/2 152/6 |
| 71/14 75/7 75/14 75/17 75/24 78/15 78/25 | Thorium [1] 138/6 | 152/7 158/4 |
| 79/13 79/22 79/23 80/17 81/3 81/14 90/13 | Thoriums [1] 144/1 | told [1] 128/15 |
| 94/18 95/7 95/24 101/8 104/5 104/21 | those [90] 6/3 14/6 16/18 18/23 19/18 | Tom [1] 20/5 |
| 110/19 110/21 112/14 118/12 125/16 | 24/15 24/16 26/10 26/21 26/23 31/18 34/2 | tomorrow [2] 125/14 131/17 |
| 127/8 129/17 129/20 130/20 132/18 134/7 | 34/16 34/18 34/22 35/8 35/18 42/8 43/16 | ton [1] 75/6 |
| 134/14 134/23 137/18 137/19 137/19 | 44/22 44/24 45/1 50/7 51/17 52/6 52/20 | tons [3] 75/7 123/3 123/4 |
| 137/21 138/11 140/8 146/2 146/3 146/10 | 54/19 59/9 62/7 63/11 63/23 64/7 66/21 | too [8] 18/21 24/8 36/2 39/7 39/8 86/24 |
| 146/10 148/13 151/4 154/20 154/22 158/2 | 67/3 67/5 67/6 67/12 70/24 73/14 74/21 | 108/12 150/19 |
| 158/23 | 74/25 76/10 76/11 76/16 76/18 76/25 | took [5] 9/19 18/12 61/8 116/14 143/18 |
| Therefore [1] 122/25 | 78/19 81/8 82/5 83/4 85/12 86/3 88/18 | top [7] 32/14 32/22 33/19 84/15 95/19 |
| thermal [1] 59/9 | 88/23 91/7 91/14 91/25 92/5 95/3 102/19 | 133/5 133/13 |
| these[50] 17/4 19/8 28/14 32/9 33/8 | 105/4 105/24 110/14 116/4 118/9 118/20 | topic [4] 95/17 159/20 159/20 160/7 |
| 41/18 45/20 46/3 46/6 55/6 57/19 60/2 | 119/23 120/6 120/20 120/22 121/17 | Torres [2] 136/13 141/20 |
| 60/4 75/5 78/4 81/4 81/14 90/16 103/15 | 121/20 121/25 128/10 129/5 132/1 132/15 | total [9] 47/13 69/3 69/4 69/16 116/10 |
| 107/24 108/3 112/9 117/9 117/21 125/10 | 134/5 134/6 134/6 134/9 139/13 140/1 | 116/10 116/15 121/5 138/23 |
| 132/24 133/12 134/3 136/15 136/18 | 142/18 142/19 143/12 147/18 151/21 | totally [2] 9/17 86/8 |
| 136/18 137/4 137/6 137/16 139/25 140/7 | 153/4 156/24 | touch [1] 106/4 |
| 140/20 143/24 146/1 146/8 146/9 148/5 | though [4] 70/25 73/3 96/1 144/3 | tough [2] 75/5 111/15 |
| 148/9 148/10 148/10 148/18 149/6 153/19 | thought [3] 16/11 109/10 144/25 | towards [4] 71/9 103/6 104/18 107/9 |
| 153/24 156/13 | thousand [7] 54/11 54/12 54/18 54/18 | towers [1] 147/1 |
| they [329] | 88/1 118/14 148/11 | town [1] 22/12 |
| they'd [1] 112/13 | thousands [1] 33/3 | TQA [1] 27/19 |
| they're [41] 24/12 30/1 31/5 32/24 42/9 | threat [1] 60/22 | track[5] 27/24 36/22 83/20 109/16 110/1 |
| 47/15 49/11 52/15 52/17 52/18 55/21 | threatening [1] 52/25 | trackable [1] 110/2 |
| 55/24 58/12 61/24 72/22 76/15 90/14 | three [23] 6/20 16/19 16/22 17/4 23/16 | tracking [3] 97/9 110/10 112/12 |
| 92/14 92/15 102/2 105/10 106/11 112/4 | 36/16 36/23 40/12 41/10 47/21 52/11 | tracks [2] 48/3 109/19 |
| 114/2 115/22 120/8 120/13 124/24 125/9 | 84/15 84/17 85/17 120/2 120/3 120/23 | trades [2] 26/6 34/1 |
| 127/25 128/1 129/4 130/9 133/20 137/17 | 123/8 135/20 135/24 146/3 157/22 160/8 | traditionally [2] 154/2 156/10 |
| 144/23 147/7 148/5 148/6 148/15 151/4 | three-month [1] 40/12 | trailer [3] 50/15 50/17 51/1 |
| they've [5] $36 / 24$ 71/8 101/17 104/1 124/9 | thrilled [1] $8 / 10$ <br> through [19] 6/24 9/5 15/5 58/4 84/9 | $\begin{aligned} & \text { train [6] } \\ & 140 / 10\end{aligned} 23 / 5$ 29/10 29/19 54/18 61/25 |
| thickness [1] 77/22 | 87/12 107/25 112/7 112/7 119/4 121/3 | trained [5] 34/23 53/8 55/1 62/4 83/3 |
| thing [45] 9/18 32/12 35/24 36/3 37/9 | 124/11 129/3 141/21 151/3 151/13 154/15 | trainer [2] 11/22 11/23 |
| 42/1 48/5 51/24 58/5 61/21 63/3 63/13 | 154/18 160/12 | training [25] 19/4 27/24 40/8 43/19 |
| 68/5 74/4 76/5 76/7 76/9 77/14 77/19 | throughout [4] 43/19 43/21 92/15 | 43/20 54/15 54/16 54/20 54/20 54/22 |
| 77/20 77/21 81/11 90/24 91/16 91/18 | 127/19 | 54/24 55/3 56/19 57/2 57/5 57/6 59/17 |
| 92/14 92/15 95/23 97/1 99/14 101/5 102/3 | throw [2] 42/21 109/5 | 60/5 61/3 61/20 62/6 144/20 146/7 150/7 |
| 105/16 107/22 109/11 112/16 130/8 | thrown [1] 40/11 | 150/12 |
| 132/22 134/22 137/7 138/22 141/11 | thugs [1] 12/3 | trainings [1] 56/22 |
| 145/10 148/11 149/20 | thumb [1] 142/14 | transcript [1] 162/8 |
| things [43] 15/6 16/5 21/14 21/17 24/7 | thus [2] 68/22 69/7 | transcription [1] 51/17 |
| 24/21 30/15 43/18 48/9 52/6 52/22 58/15 | tic [1] 134/15 | transit [1] 71/4 |
| 68/25 69/17 74/10 74/11 76/2 76/18 83/6 | ticket [1] 141/7 | transition [2] 15/6 81/3 |
| 91/6 94/5 95/19 97/14 103/5 108/10 111/5 | tickets [1] 153/17 | transmission [2] 147/10 147/10 |
| 114/16 119/23 121/23 129/9 131/7 132/13 | tie [1] 25/24 | transmit [2] 51/9 51/20 |
| 134/4 135/6 136/23 137/5 138/14 140/14 | tight [2] 138/16 145/7 | transport [1] 70/24 |
| 147/18 152/3 154/3 158/7 158/22 | tilt [1] 79/12 | transportation [3] 19/1 45/14 45/15 |
| think [72] 7/10 10/9 13/16 14/14 14/15 | Tim [1] 4/10 | travel [7] 26/17 65/1 149/17 149/17 |
| 16/6 22/13 24/20 38/18 39/17 41/12 45/2 | time [58] 7/11 8/9 12/4 13/12 15/15 | 152/15 152/18 156/4 |
| 45/17 52/14 54/17 58/23 65/3 70/13 71/18 | 16/11 21/10 26/10 34/20 37/4 41/3 41/12 | travels [1] 39/11 |
| 71/21 72/3 74/19 75/24 77/2 78/22 80/23 | 41/22 41/23 44/14 46/17 48/8 56/20 64/19 | treating [2] 53/12 58/22 |
| 83/20 88/15 94/8 95/12 95/22 101/23 | 65/2 65/15 68/19 73/16 83/13 83/14 83/16 | treatment [5] 45/8 69/1 69/1 69/2 69/10 |
| 102/3 102/7 102/24 103/3 103/7 103/15 | 84/12 97/15 109/19 116/16 119/14 119/20 | trees [1] 89/10 |
| 107/7 108/16 109/10 115/18 122/15 123/6 | 120/11 121/20 122/14 125/14 125/17 | tremendously [1] 124/13 |
| 127/17 129/11 130/3 133/20 135/9 136/8 | 126/5 126/7 126/9 131/19 133/24 133/24 | trends [2] 75/25 111/2 |
| 136/15 140/5 142/25 143/13 145/25 146/3 | 139/1 139/20 139/20 141/4 141/6 147/4 | Triad [1] 71/22 |
| 146/15 146/15 147/19 149/12 151/15 | 148/15 148/25 149/8 149/13 150/21 | tried [4] 79/9 97/1 126/20 139/2 |
| 151/25 152/8 153/18 153/19 153/21 154/3 | 156/24 157/8 157/23 158/9 | trouble [1] 159/4 |
| \| $\begin{aligned} & \text { 155/5 156/20 156/23 160/9 160/19 } \\ & \text { thinking [2] 39/14 138/18 }\end{aligned}$ | timely [3] 121/25 127/3 129/10 | true [5] 22/7 22/7 32/5 152/24 162/8 |
| thinking [2] 39/14 138/18 | timer [1] 37/9 | truly [1] 58/22 |
| thinks [1] 154/9 third [2] 25/7 109/25 | $\begin{aligned} & \text { times [8] } 23 / 16 \text { 87/13 97/14 98/5 104/2 } \\ & 112 / 22 \text { 122/19 127/17 } \end{aligned}$ | trunk [1] $42 / 21$ <br> trust [1] 41/2 |



All Good Reporters, LLC 321-285-2324 www.AllGoodReporters.com

125/15 127/3 128/10 128/13 128/24 130/24 134/11 135/6 135/9 139/22 141/14 142/13 142/13 142/15 144/9 144/9 146/19 147/2 148/1 151/2 154/10 154/16 156/16 157/18
we've [52] 7/8 7/17 11/10 11/12 13/10 21/23 21/24 22/9 25/6 33/2 34/11 34/12 34/14 34/18 34/19 36/8 46/13 51/5 52/3 52/11 53/24 54/7 56/1 56/2 56/3 56/20 57/12 61/2 61/18 65/1 68/22 69/7 85/12 87/17 87/18 89/20 92/7 95/16 96/17 97/13 103/7 108/14 114/15 114/21 116/7 122/9 122/11 137/8 137/10 137/12 137/13 144/20
weapons [1] 140/17
wear [1] 18/8
web [1] 107/11
week [6] 22/14 44/16 44/25 69/4 154/24 155/4
weeks [1] 125/4
weigh [4] 75/6 79/3 79/5 147/19
weird [1] 114/4
Welcome [3] 4/3 16/2 100/25
well [42] 7/22 13/24 14/9 14/16 21/18
32/1 32/16 34/9 43/25 49/9 49/20 55/4 63/13 63/14 63/17 67/22 68/4 69/11 70/22 73/15 75/22 79/10 81/19 87/18 94/4 96/24 103/18 105/21 106/20 111/24 112/16 113/3 124/9 126/25 139/12 143/20 144/16 147/10 147/18 150/22 152/4 152/9
went [6] 7/6 29/17 29/17 64/19 97/24 118/25
were [44] 9/13 9/14 9/15 9/21 10/16 15/3 16/21 17/21 24/1 24/1 29/13 32/11 43/15 52/14 56/4 59/7 63/4 63/7 65/25 70/15 75/11 76/24 79/1 93/20 95/21 98/16 104/18 105/1 116/22 116/25 117/5 121/18 123/7 133/12 137/22 139/21 140/6 140/7 143/2 147/9 147/14 148/17 155/12 159/8
weren't [2] 99/3 135/22
west [3] 55/14 156/4 156/6
western [1] 64/12
what [157] 7/6 9/7 9/11 9/24 11/15
12/14 14/14 15/8 16/10 16/10 16/12 21/25 25/9 25/13 25/18 26/21 26/23 27/4 28/4 28/23 29/11 29/20 30/20 30/21 30/24 32/6 33/5 33/23 33/24 34/9 34/10 34/16 35/17 $36 / 3$ 36/4 36/17 36/19 37/12 38/7 38/7 40/4 41/6 42/16 43/1 43/24 47/15 49/11 49/20 49/21 49/23 50/3 52/5 53/11 56/9 57/7 57/8 58/4 58/11 62/22 63/15 65/10 66/2 66/14 67/16 68/24 69/6 69/14 69/20 70/6 72/15 72/19 73/7 73/7 73/10 73/11 74/17 75/25 77/6 77/21 80/12 81/12 81/13 81/22 82/20 85/8 85/9 89/4 92/23 93/12 93/23 95/8 97/18 97/23 98/19 99/1 99/11 99/13 99/16 99/22 100/13 100/16 101/24 102/13 102/17 103/21 104/6 106/9 106/10 107/12 108/1 108/3 108/25 111/9 112/9 112/22 115/4 117/13 118/21 119/6 120/4 120/15 121/3 121/12 122/20 124/3 124/4 124/5 125/3 125/7 127/11 128/3 128/3 128/4 128/5 134/11 135/10 135/17 136/13 137/15 137/16 137/25 142/13 142/22 142/23 143/5 143/20 143/22 144/8 147/1 148/13 149/2 151/11 151/24 152/22 154/13 159/22 159/23
what's [7] 13/22 69/21 71/5 75/24 107/12 141/10 147/4
whatever [13] 27/13 74/7 75/16 77/16 77/23 81/5 83/2 90/10 90/11 98/14 127/21 127/23 130/12
when [68] 9/19 12/3 20/12 26/13 28/18
29/25 30/1 32/12 32/14 32/25 33/1 34/1 35/18 36/6 38/9 40/4 41/9 41/21 43/22 48/6 48/14 48/15 49/11 50/19 50/23 55/5 55/8 62/1 69/14 70/1 70/24 71/4 74/2 74/6 84/14 87/14 92/25 93/1 96/21 102/16 103/10 104/16 104/19 107/10 112/1 113/13 116/14 118/22 119/2 119/22 120/12 128/4 129/19 135/19 136/4 136/24 141/14 142/17 144/7 144/25 147/8 147/22 149/6 149/18 155/12 158/3 158/7 158/10 Whenever [1] 138/22
where [55] 14/25 19/13 19/14 20/2 27/10 29/9 31/17 34/3 34/5 37/23 45/21 45/25 50/4 51/7 51/9 53/7 53/21 53/24 56/3 57/13 59/24 75/19 78/6 81/1 84/1 90/8 90/9 92/8 94/5 95/1 95/8 97/20 98/8 100/8 100/15 107/9 111/10 111/11 112/22 113/21 124/7 125/13 128/25 129/9 129/25 134/4 140/7 140/23 142/17 142/25 143/1 144/5 144/17 146/25 156/5
wherever [1] 92/9
whether [18] 30/17 30/17 46/22 47/1 49/9 49/10 49/13 49/15 49/18 49/21 53/23 54/2 77/24 88/15 108/20 117/25 121/10 160/2
which [66] 8/23 9/17 15/4 18/14 18/17 19/3 19/5 19/23 20/9 21/8 21/17 23/2 25/24 27/6 44/4 44/6 45/20 45/23 46/9 53/11 54/18 56/24 57/24 59/2 61/21 62/19 63/25 64/2 64/6 70/16 73/14 77/3 78/17 86/2 86/13 87/24 88/2 90/4 91/11 101/25 102/11 103/9 103/21 103/23 106/13 107/4 109/8 109/22 115/14 115/14 115/22 115/25 116/20 117/16 120/23 121/11 132/22 135/5 140/5 141/13 144/8 150/21 152/8 157/1 159/20 159/20
while [4] 73/21 124/24 149/4 156/9 white [4] 46/12 75/3 141/5 146/8 who [51] 14/23 20/5 22/21 24/2 34/18 37/3 38/18 45/6 50/7 52/20 53/15 55/24 56/2 56/6 58/22 58/23 59/13 70/10 70/19 70/24 71/4 72/11 80/22 83/7 87/10 93/2 93/25 97/20 98/12 101/7 101/16 103/22 103/25 113/23 113/25 115/7 116/4 117/23 122/5 132/15 133/12 134/9 136/7 137/22 138/20 141/4 141/22 145/13 150/20 156/12 156/24
who's [9] 14/6 72/5 89/21 100/17 130/23
131/2 136/13 144/10 145/12
whoever [3] 34/20 93/3 160/13
whole [18] 9/19 10/6 16/15 43/8 46/13 58/6 58/20 62/18 119/25 120/3 120/10 134/24 137/1 137/7 138/22 146/16 148/11 158/2
whose [2] 113/24 145/8
why [13] 10/3 55/21 70/16 75/21 78/3 78/4 78/5 106/12 131/6 131/13 132/2
136/12 155/20
Wi [1] $141 / 25$
Wi-Fi [1] 141/25
wide [1] 62/17
wider [1] 140/25
Wildlife [2] 60/7 61/6
will [45] $6 / 218 / 1416 / 16$ 19/15 20/5 20/12 21/18 24/13 24/15 24/18 37/11 38/12 39/4 42/20 43/8 53/9 54/21 55/18 60/1 62/4 81/12 82/25 83/20 90/3 90/5 90/7 90/15 104/7 104/12 106/10 110/1 110/8 112/3 117/23 118/6 119/16 120/2 120/14 121/2 127/21 127/22 130/13 133/10 148/2 150/19

| W | $\begin{array}{ll} \text { XL220 [1] } & 113 / 4 \\ \text { XL309 [1] } & 82 / 14 \end{array}$ |
| :---: | :---: |
|  | XR [1] 110/19 |
| willful [1] 36/1 William [1] $2 / 12$ | XR-39 [1] 110/19 |
| Williams [5] 2/13 4/9 4/10 72/7 156/14 | XR29 [1] 112/5 |
| Williamson [4] $2 / 20$ 11/11 15/17 18/14 window [1] 149/7 | XRF[1] 82/17 |
|  | Y |
| Wings [5] 53/18 54/8 114/19 138/17 | yeah [48] 7/16 11/4 27/23 31/24 32/4 |
|  | 32/6 33/21 35/7 35/11 40/10 40/17 42/18 |
| wires [1] 74/ | 64/24 71/3 71/14 71/24 72/24 74/19 75/2 |
| wise [3] 42/8 81/17 108/10 | 78/22 79/7 80/8 93/8 93/17 93/22 95/21 |
| wisely [2] 103/20 105/23 | 96/9 98/3 99/7 99/20 100/7 100/9 101/1 |
| within [17] 9/16 9/21 9/22 14/9 18/23 | 107/18 108/23 110/23 112/16 113/11 |
| 23/14 32/4 38/1 38/3 40/12 42/18 63/8 | 113/18 113/21 122/23 125/3 129/7 130/10 |
| 66/24 67/3 67/7 86/11 90/5 | 152/12 153/22 155/14 160/15 |
| without [3] 17/2 40/23 124/4 | year [50] 12/3 15/3 15/6 22/6 23/15 |
| won't [3] 16/15 24/8 137/2 | 23/16 30/14 35/12 45/3 45/16 45/18 48/2 |
| wonder [4] 41/6 101/11 103/18 104/7 | 48/14 49/1 49/3 49/4 49/5 51/7 54/19 |
| wondered [1] 70/19 | 54/24 55/1 55/16 56/12 56/22 59/5 60/12 |
| wonderful [2] 7/10 39/10 | 64/4 66/1 68/21 68/22 69/7 70/13 84/13 |
| wondering [1] 131/13 | 84/20 85/13 90/17 91/13 105/14 110/18 |
| work [31] 11/18 12/5 12/10 26/5 26/12 | 116/25 118/13 119/6 126/14 127/19 |
| 27/2 27/11 28/20 32/9 32/21 34/6 46/21 | 131/23 135/5 136/19 139/19 146/7 160/10 |
| 46/24 52/20 54/7 60/7 60/8 61/23 65/15 | years [54] 7/22 7/24 7/25 8/4 9/14 10/10 |
| 68/6 77/16 89/2 105/3 107/13 122/3 122/4 | 10/18 11/6 11/20 11/25 11/25 13/6 14/3 |
| 125/18 127/16 128/23 136/3 137/8 | 15/2 16/9 16/22 17/4 23/8 33/18 35/14 |
| worked [5] 8/5 8/8 97/16 118/22 139/24 | 36/15 36/16 36/16 36/23 46/14 47/4 48/6 |
| workers [3] 14/19 88/8 106/3 | 62/16 63/9 70/11 72/18 73/5 74/13 74/24 |
| working [14] 45/18 49/24 53/4 77/5 | 75/19 76/23 85/15 85/17 94/25 103/3 |
| 104/18 107/19 118/5 119/15 121/7 124/16 | 104/2 104/7 107/19 116/3 116/8 116/14 |
| 126/25 131/5 132/14 142/11 | 122/20 131/24 132/11 135/3 137/11 |
| workload [2] 66/15 66/17 | 137/12 152/7 152/8 |
| works [9] 20/3 31/5 114/23 117/21 | yellow [4] 46/16 137/19 152/21 153/13 |
| 139/24 142/5 148/21 148/24 155/10 | Yep [5] 10/8 16/1 83/23 126/17 127/14 |
| worksheet [1] 153/14 | yes[23] 6/5 7/20 8/20 10/13 10/19 10/23 |
| World [1] 60/21 | 11/17 13/20 21/15 44/1 55/23 66/13 69/12 |
| worry [3] 51/19 155/7 157/25 | 69/25 72/3 80/4 95/16 104/4 122/8 122/13 |
| worst [1] 87/24 | 122/17 123/9 129/19 |
| would [71] 8/12 11/7 11/15 16/11 18/16 | yesterday [1] 138/21 |
| 22/21 28/19 35/13 35/15 37/10 49/5 53/15 | yet [4] 68/2 71/15 123/5 125/19 |
| 57/19 60/22 63/16 64/10 64/11 64/21 | you [425] |
| 66/21 67/3 73/14 74/20 77/11 78/23 79/12 | you'd [3] 7/19 9/8 108/22 |
| 79/20 81/1 81/5 81/11 89/22 93/25 94/10 | you'll [3] 13/7 15/20 75/3 |
| 95/22 99/13 100/11 101/7 102/10 102/19 | you're [49] 7/18 8/15 8/22 13/22 14/14 |
| 103/15 104/8 105/2 105/6 105/13 105/25 | 15/11 16/6 35/2 36/7 36/22 38/9 40/25 |
| 107/22 108/8 108/17 109/8 118/16 121/11 | 41/1 41/3 43/6 49/24 51/16 51/21 54/5 |
| 121/24 122/14 122/15 122/25 123/16 | 58/1 79/8 79/9 79/11 82/7 83/2 86/19 91/8 |
| 124/6 124/17 126/18 128/3 136/21 138/19 | 91/8 92/20 93/13 93/14 98/18 100/5 100/8 |
| 139/14 140/9 147/17 148/8 151/10 151/16 | 105/8 105/16 107/9 111/14 112/11 123/17 |
| 154/23 156/5 158/15 159/10 | 126/25 127/11 127/15 131/13 136/4 |
| would've [1] 63/20 | 143/18 143/24 158/6 159/18 |
| wouldn't [9] 82/5 104/7 121/21 121/22 | you've [14] 15/15 16/5 16/5 28/8 28/10 |
| 121/23 123/1 123/2 126/21 157/10 | 79/9 82/18 97/3 123/8 129/8 130/17 |
| write [4] 85/3 85/22 139/15 141/7 | 143/17 151/8 152/23 |
| writing [1] 100/4 | your [60] 9/1 9/7 10/7 10/20 11/14 22/21 |
| written [2] 28/3 132/20 | 34/7 35/2 38/7 39/11 44/23 44/24 49/21 |
| wrong [7] 8/15 27/1 68/25 69/1 69/1 | 49/24 50/9 50/10 51/10 51/12 51/12 51/16 |
| 102/3 113/12 | 52/2 52/8 52/17 52/22 52/23 58/21 58/21 |
| wrote [1] 132/9 | 61/22 66/11 66/11 66/14 72/14 75/6 75/20 |
|  | 83/2 83/22 86/19 93/1 93/2 99/23 109/6 |
|  | 110/25 125/24 126/14 131/13 131/25 |
|  | 134/1 134/2 134/10 134/10 136/3 141/5 |
|  | 144/8 146/23 147/15 152/25 153/7 153/8 |
|  | 153/16 156/16 |
|  | yours [1] 127/11 |
|  | yourself [1] 159/6 |
|  | Yvette [12] 2/19 5/15 17/21 18/18 65/4 |
|  | 65/5 70/8 72/14 81/20 103/8 132/1 150/9 |
|  | Z |
|  | zero [3] 41/9 60/13 61/15 |

zone [1] 62/1

