

In the Matter of:

Defense Nuclear Facilities Safety Board

November 28, 2018

Public Hearing

Condensed Transcript with Word Index



For The Record, Inc.
(301) 870-8025 - www.ftrinc.net - (800) 921-5555

1

1
2
3 DEFENSE NUCLEAR FACILITIES SAFETY BOARD
4
5
6
7
8 SECOND PUBLIC HEARING ON THE
9 DEPARTMENT OF ENERGY'S INTERFACE
10 WITH THE
11 DEFENSE NUCLEAR FACILITIES SAFETY BOARD
12
13
14
15 November 28, 2018
16 10:00 a.m.
17
18
19 Defense Nuclear Facilities Safety Board
20 625 Indiana Avenue, NW
21 Washington, DC 20004
22
23
24
25

3

1 PROCEEDINGS
2 - - - - -
3 CHAIRMAN HAMILTON: Good morning. My name is
4 Bruce Hamilton, and I am the Chairman of the Defense
5 Nuclear Facilities Safety Board. I will preside over
6 this morning's public hearing. I now call this hearing
7 into order.
8 I would like to introduce my colleagues on the
9 Board. To my left is Board Member Daniel Santos; to my
10 immediate right is Board Member Joyce Connery; two seats
11 to my right is Board member Jessie Roberson. We four
12 constitute the Board.
13 The Board's acting general counsel, Mr. Joseph
14 Gilman, is seated to my far right. Several leaders and
15 members of the Board's staff who are closely involved
16 with oversight of the Department of Energy's Defense
17 Nuclear Facilities are also here.
18 This hearing is the second of three public
19 hearings planned by the Board to gather information
20 regarding the objectives and implementation of
21 Department of Energy Order 140.1, Interface with the
22 Defense Nuclear Facilities Safety Board.
23 Specifically, we will obtain information on the
24 Board's access to information, facilities and personnel,
25 and on potential impacts to the Board's Resident

2

1 I N D E X
2
3 Session 1: Page:
4 Chairman's Opening Remarks 3
5 Board Member Remarks 7
6 Seat Panel 13
7 Introduce Panel 13
8 Panel Opening Remarks 13
9 Panel Discussion 19
10 Break 67
11
12 Session 2:
13 Public Comment Period 68
14 Board Closing Remarks 100
15 Chairman's Closing Remarks 106
16 Adjourn 108
17
18
19
20
21
22
23
24
25

4

1 Inspector Program. The first hearing was held here on
2 August 28th, 2018, and the third hearing will be held in
3 New Mexico some time in February.
4 The Board's enabling legislation contained
5 within the Atomic Energy Act, as amended, defines this
6 agency's authorities, responsibilities, functions and
7 organizational structure. The enabling legislation
8 assigns responsibilities to the Secretary of Energy in
9 his or her role as the owner and regulator of the
10 Department's complex of sites and facilities, regarding
11 cooperation with the Board, and providing the Board with
12 "ready access to such facilities, personnel and
13 information as the Board considers necessary to carry
14 out its responsibilities."
15 DOE Order 140.1 is the topic of today's hearing.
16 It is the primary vehicle that the Department uses to
17 implement the Secretary's responsibilities for interface
18 and cooperation with the Board. Prior to May of 2018,
19 the Department implemented its interface with the Board
20 through a DOE Manual, a lower level of Department
21 directive that was developed through close cooperation
22 between our two agencies. The new order did not receive
23 that same level of close cooperation during development.
24 Because of fundamental changes introduced in the order,
25 the Board voted to hold this set of public hearings to

5

1 discuss those changes with Department leadership.
 2 In the first session today, the Board will hear
 3 testimony from DOE Office of Environmental Management
 4 personnel regarding changes contained in the order,
 5 including the Board's access to information, facilities
 6 and personnel, and potential impacts to the Board's
 7 Resident Inspector Program. In the second session,
 8 members of the public may provide comments.
 9 The Board announced this morning's hearing on
 10 October 24th, 2018 on its public website and
 11 subsequently posted a notice in the Federal Register on
 12 November 7th, 2018. To ensure accurate and timely
 13 information, this hearing is being videostreamed live,
 14 as well as recorded through video recording and a
 15 verbatim transcript. The transcript, associated
 16 documents, public notice and video recording will be
 17 available for viewing on our public website. The Board
 18 will make the video recording available on its website
 19 for at least 60 days.
 20 Per the Board's practice, and as stated in the
 21 agenda, we will welcome comments from interested members
 22 of the public at approximately 11:30. A list of those
 23 speakers who have contacted us is posted at the entrance
 24 to this room. In general, we have listed the speakers
 25 in the order which they contacted us, or if possible,

6

1 when they wished to speak. We will call the speakers in
 2 this order and ask that each speaker state his or her
 3 name and affiliation, if any, at the beginning of the
 4 presentation.
 5 Members of the public who wish to provide
 6 comments but did not have an opportunity to notify us
 7 ahead of time may indicate their desire to comment on
 8 the sign-up sheet on the table at the entrance to this
 9 room. They will speak in the order which they sign up,
 10 following those who have preregistered.
 11 To give everyone wishing to make a presentation
 12 an equal opportunity, we ask speakers to limit their
 13 comments to 10 minutes. The information presented
 14 should be limited to comments, technical information or
 15 data concerning the subject of this hearing. The Board
 16 members may question anyone providing comments to the
 17 extent members deem appropriate.
 18 The record of this hearing will remain open
 19 until December 28, 2018. Until that date, members of
 20 the public, including those observing today's hearing
 21 live via videostreaming, may submit a written statement
 22 to the Board to be included in the record. Contact
 23 information for submitting statements is available on
 24 our website, DNFSB.gov.
 25 The Board reserves the right to further schedule

7

1 and regulate the course of this hearing; to recess,
 2 reconvene, postpone or adjourn this proceeding; and
 3 otherwise to exercise our authority under the Atomic
 4 Energy Act of 1954, as amended.
 5 This concludes my opening remarks as Chairman.
 6 I will now turn to my fellow Board members for their
 7 opening remarks. Ms. Roberson?
 8 BOARD MEMBER ROBERSON: Thank you, Mr. Chairman.
 9 I do not have an opening statement.
 10 CHAIRMAN HAMILTON: Mr. Santos?
 11 BOARD MEMBER SANTOS: Thank you, Mr. Chairman.
 12 Thank you our fellow Board members. Good
 13 morning, Assistant Secretary White, welcome. Thank you
 14 for accepting our invitation. Mr. Mullis, welcome.
 15 Mr. Crawford, good to see you back, welcome. Thanks for
 16 being here.
 17 Other distinguished guests, stakeholders and
 18 members of the public today in attendance or following
 19 today's hearing online, as I stated in the last public
 20 hearing, the Board has a very important role in ensuring
 21 public health and safety. We provide confidence and
 22 transparency to the American people through our
 23 independent and continuous nuclear safety oversight that
 24 the programs of the Department of Energy execute their
 25 important operational missions safely and that they do

8

1 not become complacent in their responsibilities to
 2 protect the American people against undue risk from
 3 radiation in the activities performed at DOE Defense
 4 Nuclear Facilities.
 5 For the Board to be effective, and add value in
 6 ensuring public health and safety, it is paramount that
 7 the Secretary of Energy, as operator and regulator of
 8 Defense Nuclear Facilities, fully cooperates with the
 9 Board and provide the Board with ready access to
 10 facilities, personnel and information as the Board
 11 considers necessary to carry out its responsibilities.
 12 Without this ready access and cooperation from
 13 the Department of Energy, we would not be timely in
 14 performing our statutory duties. It's that simple.
 15 Since issuance of Order 140.1, it is clear based on our
 16 independent oversight that the implementation of 140.1
 17 is lagging or that the order is not being implemented as
 18 written or consistently throughout the Department of
 19 Energy.
 20 The new order has generated some confusion and
 21 resulted in some delay accessing some information. For
 22 example, information associated with a criticality
 23 database at Los Alamos. However, as of today, my
 24 understanding is that the Department of Energy continues
 25 to eventually provide the information the Board deems

9

1 necessary to accomplish its mission.
 2 Furthermore, it is not clear whether or not the
 3 current state is going to change or if the information
 4 will be provided to the Board in a timely manner. Since
 5 our last public hearing, on September 17th, 2018, the
 6 Board sent a letter to the Secretary of Energy regarding
 7 Order 140.1, where we describe our specific concerns and
 8 express our willingness to collaborate on appropriate
 9 revisions to better establish the interface between the
 10 two Federal agencies.
 11 As of today, the Board has not received any
 12 formal response from the Department of Energy. About
 13 the same time, on September 12th, 2018, the Board
 14 unanimously approved that the DNFSB staff generate a
 15 redline strikeout version of DOE Order 140.1 containing
 16 specific revisions that the staff considers necessary to
 17 address all the concerns with the order.
 18 This document has been delivered to the Board.
 19 This document, as well as the information gained from
 20 this series of public hearings, and our experiences with
 21 ready and timely access to Defense Nuclear Facilities
 22 personnel and information, will enable the Board to
 23 identify and propose further actions that will ensure
 24 the Board can continue to ensure adequate protection of
 25 public health and safety.

10

1 This concludes my opening statement. Thank you.
 2 CHAIRMAN HAMILTON: Thank you, Mr. Santos.
 3 Ms. Connery?
 4 BOARD MEMBER CONNERY: Thank you, Mr. Hamilton.
 5 I want to thank Assistant Secretary White for taking the
 6 time today to come talk to us. This is our second
 7 hearing on Order 140.1, and we didn't have the
 8 opportunity to speak with the Office of Environmental
 9 Management during the last hearing, so we thought it was
 10 important to do so today, given the number of Defense
 11 Nuclear Facilities under your purview and the importance
 12 of the work you do within the complex and its impact on
 13 the surrounding communities.
 14 We posed many questions with regard to this
 15 order, the Department's intent, the expectations for the
 16 execution of the order, and ultimately the impact that
 17 full implementation of this order on nuclear safety. We
 18 proposed those questions to Mr. Moury and Mr. White, no
 19 relation, during our last hearing, and I don't want to
 20 take up a lot of time right now, but I do want to
 21 revisit briefly the main questions that I have for the
 22 Department, and those questions remain today, even after
 23 the first hearing.
 24 First I'd like to know what problem this order
 25 intends to solve. After 30 years of interaction with

11

1 the Board, the Department has issued an order that
 2 doesn't simply codify the status quo of interactions
 3 between the Board and the Department, but changes the
 4 interactions significantly in our view, and seems to
 5 endeavor to limit the Board's access and authorities to
 6 Defense Nuclear Facilities.
 7 Therefore, my first question is, why? What
 8 problem are we trying to solve?
 9 My second question has to do with any changes in
 10 expectations in the Department's view on how we do
 11 business, and specifically, Ms. White, I would be
 12 interested to know during the course of the hearing
 13 today if there are any changes that you envision, either
 14 positive or negative, as a result of the issuance of
 15 this order and the full implementation.
 16 And, finally, I want to understand your
 17 philosophy on safety. We see a number of trends within
 18 the Department as a whole in making changes to its
 19 safety strategy, including a rewrite of 10 C.F.R. 830,
 20 the Federal Rule on Nuclear Safety, which is in
 21 rulemaking now, and also some of the associated
 22 standards are also in the process of being revised.
 23 There seems to be some connection to the
 24 elements within Order 140.1 and DOE's own efforts to
 25 have a graded approach to nuclear safety, and I would

12

1 like to understand the Department's overall intentions
 2 when it comes to that.
 3 With that, thank you again for taking the time
 4 to come here today. I appreciate the magnitude of your
 5 day-to-day job and I take your presence here as an
 6 indication of your dedication to the health and safety
 7 of your workers and the public. I look forward to your
 8 remarks.
 9 CHAIRMAN HAMILTON: Thank you, Ms. Connery.
 10 I want to make a couple of personal remarks.
 11 First of all, I will formally introduce you in just a
 12 moment, Ms. White, but before I do so, I personally want
 13 to thank you for being here today. As you are aware,
 14 DOE 140.1, Order 140.1 is a contentious issue. It's a
 15 contentious topic. But I want to assure you that the
 16 questions today are not intended to be argumentative or
 17 confrontational or in any way to try to find some
 18 differences between what you say and what other DOE
 19 officials have said.
 20 Likewise, the purpose of today's hearing is not
 21 to present arguments or critiques; rather, we are here
 22 only to determine what DOE Order 140.1 means to you and
 23 how you plan to implement it within the Office of
 24 Environmental Management. These conclude my personal
 25 remarks.

13

1 At this time, I will formally introduce the
 2 panel for the first section. This includes the
 3 honorable Ms. Ann White, Assistant Secretary for the
 4 Office of Environmental Management, Mr. John Mullis,
 5 Manager of the Oak Ridge Office of Environmental
 6 Management, and Mr. Chris Roscetti, our Technical
 7 Director here at the Defense Board. We are pleased to
 8 have you, Ms. White and Mr. Mullis, today. Thank you.
 9 Welcome to our public hearing. Ms. White, I
 10 understand that you wish to provide an opening remark,
 11 so the floor is yours.
 12 ASSISTANT SECRETARY WHITE: Good morning. I
 13 welcome the opportunity to provide opening remarks for
 14 this session at today's public hearing on the
 15 Department's interface with the Board. I want to thank
 16 the Board for this opportunity for open and transparent
 17 discussions. I also want to introduce Mr. Jay Mullis,
 18 our Oak Ridge site manager for EM.
 19 Since my Senate confirmation, I have had the
 20 pleasure of meeting with the Board members and look
 21 forward to a continued strong working relationship with
 22 the Board. At the first hearing related to this order,
 23 Board Member Roberson made a comment that I found
 24 particularly resonant. She stated, "The Board hopes the
 25 Department doesn't see the Board as competitive, but

14

1 complementary to ensuring safety." I wholeheartedly
 2 agree with that statement and will work to create that
 3 environment, not only at this hearing, but also as we
 4 progress the EM cleanup mission.
 5 I am here to offer my perspectives on the
 6 interface of the Board with the Department of Energy and
 7 the intended changes from the transition from the former
 8 DOE Manual to Order 140.1. I will focus my perspectives
 9 on this interface as they relate to the Office of
 10 Environmental Management.
 11 At the previous hearing, the Board heard from
 12 the Deputy Secretary, the Associate Undersecretary for
 13 Environment Health and Safety, and the Chief of Staff
 14 for NNSA.
 15 At that hearing, much of the basis and process
 16 for developing the order was discussed. As you recall,
 17 the Deputy Secretary of Energy issued a memorandum in
 18 October of 2017 addressing the Department's relationship
 19 with the Board, which provides expectations for how the
 20 Department will interact with the Board and its staff.
 21 EM fully supports those expectations.
 22 I firmly believe that although the Board and the
 23 Department are independent agencies, we mutually serve
 24 beneficial and essential functions in that the Board's
 25 independent analysis, advice and recommendations are

15

1 vital to DOE ensuring adequate protection of public
 2 health and safety of the Department's Defense Nuclear
 3 Facilities and Operations. We have and shall continue
 4 to benefit from your technical expertise, insights and
 5 recommendations.
 6 I must affirm that as the secretarial officer
 7 charged with the safe operations of the Environmental
 8 Management Program, I take full responsibility for that
 9 safety for which Congress and the public holds us
 10 accountable. I am affirming my commitment to carry out
 11 our mission as a Federal program office in safe, secure
 12 and environmentally responsible way. The Department is
 13 dedicated to providing reasonable assurance of
 14 protection of the public health and safety, protecting
 15 the health and safety of our workers, and accepting full
 16 responsibility for any and all outcomes of our efforts.
 17 The Board provides valuable insight and advice
 18 that the Department both appreciates and takes into
 19 consideration, but ultimately, DOE cannot abdicate our
 20 responsibility to manage the risks associated with our
 21 facilities and operate in an appropriate and
 22 conscientious fashion. Our work is critical to lowering
 23 the environmental risk posed by the legacy of the Cold
 24 War.
 25 EM line management must be held accountable and

16

1 we must have clear roles and responsibilities to ensure
 2 this is the case. These are guiding principles
 3 ingrained in how we do work safely. To that end, it is
 4 important for there to be clear distinction between the
 5 responsibility associated with our ownership of our
 6 Defense Nuclear Facilities, and the role of external
 7 advisors, including the Board.
 8 The DOE order, which the Department issued in
 9 May of this year to supercede an outdated manual, is
 10 consistent with governing legislation and it does not
 11 hinder cooperation with the Board or prevent the Board
 12 from providing independent analysis, advice and
 13 recommendations to the Secretary to ensure adequate
 14 protection of public health and safety of the
 15 Department's Defense Nuclear Facilities.
 16 The order provides direction to DOE personnel
 17 and not the Board personnel, and therefore cannot act to
 18 limit the Board's access and conduct of their charged
 19 tasks. At the working level, within EM, we have
 20 continued to conduct routine interface with the Board
 21 staff, as we have done for many years. I am not aware
 22 of any impairments to the ability of EM or Board staff
 23 to provide information or discuss issues, regardless of
 24 the hazard category, or the Safety-Class Control status.
 25 Regarding adequate protection of the public

17

1 health and safety, this is our primary point of
 2 interface and should be the focus of our interactions
 3 and partnership. DOE Federal and contractor employees
 4 are highly experienced and trained to execute their work
 5 in and around the hazards posed by our work. Their
 6 safety is the focus of our training programs and
 7 multiple requirements established by our governing
 8 regulations, directives, standards and procedures.
 9 While we value your advice on these matters,
 10 this should never detract from our shared focus on
 11 protecting public health and safety. We will continue
 12 to engage in dialogue related to worker health and
 13 safety, and will appropriately consider advice, whether
 14 formal or informal, as we have in the past, and we do
 15 from many sources, including the Board.
 16 On the issue of access to draft or predecisional
 17 information, we reserve the right to control information
 18 in the predecisional phase. I believe it is a
 19 potentially ineffective use of our mutually limited
 20 resources to pursue interim staff positions that may not
 21 ultimately be relevant or implemented. Further, it is
 22 necessary for us to work through an internal
 23 deliberative process to develop our decisions prior to
 24 sharing them with others.
 25 This will ensure our subject matter experts can

18

1 freely offer ideas and conceptual solutions, as well as
 2 ensuring our accountability and ownership of the
 3 resulting decisions. We will consider and share this
 4 information on a case-by-case basis if we believe the
 5 information is mature enough to make the interaction
 6 valuable.
 7 Finally, concerning oversight of Hazard Category
 8 3 Defense Nuclear Facilities. We note that in
 9 accordance with the definition of Hazard Category 3,
 10 these facilities do not, by definition, pose a risk to
 11 public health and safety. While we welcome your review
 12 and comment to help ensure these facilities are properly
 13 categorized, as stated earlier, this interaction should
 14 not detract from our focus on facilities with higher
 15 hazard categorization which could pose a risk to public
 16 health and safety, and should be our joint focus.
 17 Looking to the future, here are some of the
 18 things that myself and the Department are committed to
 19 carrying out: I will continue to perform my role as
 20 facility owner and regulator, as well as steward for the
 21 taxpayer in safely achieving the cleanup missions
 22 mandated by law to protect the public and lower the
 23 environmental liability for the country.
 24 DOE will continue to cooperate closely with the
 25 Board and staff and provide complete access to the

19

1 information needed to carry out the Board's mission
 2 consistent with your legislative mandate. For example,
 3 in FY 2018, approximately 2,000 requests for information
 4 were made by the Board and satisfied by DOE. A thousand
 5 of those requests were made and satisfied since the May
 6 2018 issuance of the order.
 7 We will proactively engage with the Board and
 8 staff so that we fully understand the basis and
 9 underlying analysis behind its advice, or its draft
 10 recommendations, including the safety benefits it sees
 11 for Defense Nuclear Facilities.
 12 Lastly, we will reinforce with DOE line managers
 13 the expectation that they make sound technical decisions
 14 drawing upon reasonably available information, including
 15 advice and observation from the Board.
 16 Thank you again for inviting me today, and I am
 17 looking forward to having a discussion with you.
 18 CHAIRMAN HAMILTON: Thank you, Ms. White.
 19 The Board will now proceed with questions from
 20 the panel. I will begin with the first question to our
 21 Technical Director, Mr. Roscetti. Could you summarize
 22 for us the first public hearing that we had in August,
 23 and the ensuing letter that the Board sent to the
 24 Secretary of Energy on September 17th of 2018 regarding
 25 DOE 140.1 and the Interface Manual.

20

1 MR. ROSCETTI: Yes, sir. Thank you,
 2 Mr. Chairman.
 3 On August 28th, 2018, the Board held its first
 4 public hearing concerning Department of Energy Order
 5 140.1. Deputy Secretary Brouillette provided a
 6 statement and Mr. Ike White, Mr. Matt Moury and I
 7 responded to Board questions on the developmental
 8 impacts and implementation of the order. In addition,
 9 the Board heard comments from several public
 10 stakeholders who all expressed concern with the order.
 11 In their lines of inquiry, Board members focused
 12 on the specific language used in the order compared to
 13 the Atomic Energy Act, and how the order could be
 14 interpreted and implemented across the complex.
 15 Mr. White and Mr. Moury in their testimony discussed the
 16 training they provided to Department personnel to ensure
 17 the intention of the order was clear, and to ensure
 18 consistent implementation.
 19 For instance, Mr. White stated, and I quote, "I
 20 led a training session for our field office managers,
 21 for our plants, for our laboratories, for our points of
 22 contact, to make sure that it was clear to them that we
 23 intended to continue to provide the Board and its staff
 24 with ready access to all our nuclear facilities."
 25 Board members discussed concerns with this

21

1 approach. For instance, Board Member Connery stated,
 2 and I quote, "Mr. White, the training seems to
 3 contradict what's in the order. So I would suggest that
 4 perhaps you align the order with how you're going to
 5 implement."
 6 The Board in its September 17th, 2018 letter to
 7 the Secretary of Energy stated that the first public
 8 hearing confirmed that the Board's "apprehension that
 9 DOE Order 140.1 wrongly attempts to diminish the Board's
 10 ability to perform its statutory mandate under the
 11 Atomic Energy Act of 1954, as amended."
 12 Regarding the differences in Order 140.1
 13 compared with the prior Interface Manual, I request
 14 Exhibit 1 to be entered into the record, which
 15 summarizes the major changes. These changes were
 16 discussed at the August 28th public hearing and will be
 17 discussed during the course of today's public hearing,
 18 and include: The Department's new definition of public
 19 health and safety to include only individuals beyond the
 20 site boundaries; the Department's new restriction on
 21 access to information for Hazard Category 3 and
 22 Radiological Defense Nuclear Facilities; the
 23 Department's new restrictions on access to deliberative
 24 documents, predecisional documents or deliberative
 25 meetings; the Department's new requirements for

22

1 contractors to refer all requests for information or
 2 access related to Defense Nuclear Facilities to
 3 Departmental site liaison for determinations regarding
 4 response, and only to respond when formally tasked by
 5 the Departmental site liaison.
 6 CHAIRMAN HAMILTON: Thank you, Mr. Roscetti.
 7 Do my fellow Board members have any questions
 8 for Mr. Roscetti?
 9 (No response.)
 10 CHAIRMAN HAMILTON: Seeing none, Ms. Roberson, I
 11 believe you're next in the line of inquiry.
 12 BOARD MEMBER ROBERSON: Thank you, Mr. Chairman.
 13 First of all, thank you, Assistant Secretary White,
 14 thank you for your statement. And thank you,
 15 Mr. Mullis, for being here. I saw you not too long ago.
 16 Thank you for the time you and your staff put in to make
 17 sure my interest in these were met when I was at your
 18 site a few months ago. Thank you very much.
 19 The Board has provided independent oversight of
 20 the environmental management activities to advise the
 21 Department on opportunities to improve nuclear safety
 22 and ensure adequate protection of public health and
 23 safety at your facilities since its creation. The Board
 24 has specifically provided recommendations regarding the
 25 disposition of legacy nuclear material, storage of

23

1 nuclear material, and risk reduction in access to
 2 Defense Nuclear Facilities, which are the heart of your
 3 program. And I know you touched on some of these in
 4 your opening statement, but I just want to ask a series
 5 of questions, and you can elaborate as you feel free.
 6 First of all, to you, Assistant Secretary White,
 7 can you describe your organization's perspective on EM's
 8 relationship with the Defense Nuclear Facilities Safety
 9 Board members and members of the Board staff prior to
 10 the implementation of DOE Order 140.1?
 11 ASSISTANT SECRETARY WHITE: I believe it's been
 12 a sound and productive relationship throughout the years
 13 of EM. I personally called the field to discuss any
 14 impacts or negative consequences since the order was put
 15 into place, and the relationships continue to be strong,
 16 productive and very helpful.
 17 BOARD MEMBER ROBERSON: Is there anything you
 18 expect needs to change in the relationship as a result
 19 of the order? Is there something EM thinks needed to
 20 change as a result of the order?
 21 ASSISTANT SECRETARY WHITE: There really has
 22 been no change at the work base, and to me, that's where
 23 the rubber meets the road, in the field where our
 24 mission is getting delivered. And as I say, I
 25 personally called the sites to find out the status and

24

1 how the working relationship was going, and was told
 2 resoundingly, it's good.
 3 BOARD MEMBER ROBERSON: So has the Board's
 4 independent safety oversight inhibited your ability to
 5 achieve your operational goals or for you to ensure
 6 safety measures were in place to address operational
 7 execution of your mission?
 8 ASSISTANT SECRETARY WHITE: The Board has over
 9 the years provided substantial helpful advice and
 10 consultation that's been much appreciated. So I would
 11 say no.
 12 BOARD MEMBER ROBERSON: Okay. And if I can, I'd
 13 like to direct the same question to Mr. Mullis.
 14 MR. MULLIS: Sure. No, honestly, I've seen no
 15 change in the relationship with the Board. And, in
 16 fact, over the years, I think over at EM, at least, has
 17 enjoyed a very helpful relationship and an honest and
 18 open relationship with the site reps. So there has been
 19 a number of issues presented to us over the years at our
 20 facilities, and transportation documents that have
 21 actually been helpful in identifying things that were
 22 new, that we were able to implement.
 23 So, frankly, I have not seen a change in our
 24 interface with the issuance of the new order. I'd go on
 25 to say as well, that we, as part of our contracting

25

1 process, we actually have to formally ask the contractor
 2 what putting that into -- if there's a change or an
 3 impact with putting it in the contract and from our
 4 major D&D contractors there, we've all gotten back that
 5 there's no change. So from their perspective as well,
 6 there is no impact as to how we operate at Oak Ridge.
 7 BOARD MEMBER ROBERSON: Thank you.
 8 CHAIRMAN HAMILTON: Just for the record,
 9 Mr. Mullis, you used the phrase "site representatives,"
 10 we actually have resident inspectors.
 11 MR. MULLIS: Yes, sir.
 12 CHAIRMAN HAMILTON: It was not something that
 13 was your mistake, we used to call them site
 14 representatives, but the Atomic Energy Act specifically
 15 refers to the authority to have resident inspectors.
 16 And so in cleaning up our own shop, we went back to the
 17 correct title per the legislation a couple of years ago.
 18 MR. MULLIS: Yes, sir.
 19 CHAIRMAN HAMILTON: And I know you know that.
 20 MR. MULLIS: I misspoke on that.
 21 CHAIRMAN HAMILTON: It's easy to do, because our
 22 staff does it all the time. Thirty years of bad habit.
 23 Ms. White, I would like to discuss some language
 24 in the order, and I'll read what the Atomic Energy Act
 25 says. It says, "The Secretary will provide 'ready

26

1 access to such facilities, personnel and information as
 2 the Board considers necessary to carry out its
 3 responsibilities.'" In the order, the phrase "as the
 4 Board considers necessary" is conspicuously absent. So
 5 that's just a little background.
 6 The order states that the Secretary or
 7 Secretary's designee may deny access to information
 8 requested by the Board. To your knowledge, has the
 9 Secretary delegated any authority to deny access to the
 10 Board, or how is that supposed to work? Do you know?
 11 ASSISTANT SECRETARY WHITE: I'm not aware of any
 12 delegation of that authority.
 13 CHAIRMAN HAMILTON: Well, what happens if -- and
 14 this is a hypothetical, because it hasn't happened yet,
 15 but we need to discuss this, because the order provides
 16 for it. What happens if the Board requests access to
 17 information on something that the Board considers
 18 necessary and that EM's personnel don't consider
 19 necessary? How do we resolve that conflict?
 20 ASSISTANT SECRETARY WHITE: I would hope that we
 21 would have a discussion about it and that we would be
 22 completely transparent, especially with predecisional
 23 information. As I noted in my opening remarks, it's an
 24 opportunity for us to collectively come up with
 25 processes and approaches and, quite frankly, it gives

27

1 the Board an opportunity to review how well we're doing
 2 things all on our own. So there's some benefit in that.
 3 But I cannot imagine a situation where we end up at
 4 loggerheads, quite frankly. We've always had a good
 5 relationship.
 6 CHAIRMAN HAMILTON: Yeah, I would agree with
 7 that. The challenge that I'm trying to understand is
 8 how this language could affect that in the future. So
 9 that's the basis for my question.
 10 Ms. Connery?
 11 BOARD MEMBER CONNERY: So just a little bit of
 12 followup to that last point on the predecisional
 13 information. You said it's helpful for us to see how
 14 you guys take care of it yourselves. My challenge is if
 15 we're not in the room to see that interaction, it's hard
 16 for us to judge and assess whether or not, you know, the
 17 Department is doing its job both as regulator, as
 18 enforcer, in its own oversight.
 19 So some of the tension, I think, comes from the
 20 fact that predecisional is nebulous in the order and
 21 could be interpreted in several ways. But I just wanted
 22 to make that point, because I understand that you don't
 23 want us to go down rabbit holes, if your staff hasn't
 24 fully decided on a technical course of action, but how
 25 it goes through that decisionmaking process, for

28

1 instance, is important to us so that we can actually see
 2 whether or not if there are dissents among your
 3 technical staff, how that's addressed and adjudicated is
 4 how we evaluate whether or not there's a healthy safety
 5 culture, et cetera.
 6 So that's kind of why we're questioning that,
 7 not necessarily to say that anyone at the Department is
 8 saying, no, we don't know.
 9 ASSISTANT SECRETARY WHITE: Right. And, you
 10 know, we have a very healthy process for resolving
 11 differences of technical opinions that is formalized,
 12 and it's been used on many occasions. And in my
 13 experience, to date, we come to a healthy resolution
 14 through that process.
 15 BOARD MEMBER CONNERY: So I wanted to talk about
 16 the issue of Safety-Class Controls. You mentioned that
 17 in your opening statement the issue about Hazard
 18 Categories and Safety-Class Controls. The order
 19 contains language that could impact our access to
 20 information regarding facilities without Safety-Class
 21 Controls.
 22 I'll note there are enabling legislation in
 23 other parts of the Atomic Energy Act that do not place
 24 restrictions on the Board's ability to access facilities
 25 or information based on whether or not that facility has

1 Safety-Class Controls.
 2 So I'm going to ask first Mr. Roscetti to
 3 discuss the implications of the order as written to the
 4 Board's access based, again, just on the language and
 5 the exemptions that are in the order, to not talk about
 6 where we are now, but what the problems that we see with
 7 the order and where they could be implemented later on.
 8 Mr. Roscetti?
 9 MR. ROSCETTI: Yes, ma'am. To help answer your
 10 question, I request Exhibit 2 be entered into the
 11 record. And I'll reiterate, as you did in your
 12 question, that my answer is predicated on the fact that
 13 this is a reading of the words in the order.
 14 So this exhibit was shared at the last public
 15 hearing and represents the staff's analysis of candidate
 16 Defense Nuclear Facilities across the complex, broken
 17 down by potential restrictions as described in the Order
 18 140.1. Reading the words in the order, the Board's
 19 access could be limited to just those facilities with
 20 Safety-Class Controls as indicated by the red arrow on
 21 the slide representing a 71 percent reduction in the
 22 number of candidate Defense Nuclear Facilities.
 23 Next I request Exhibit 3 be entered into the
 24 record. It further illustrates the impacts of the
 25 order's restrictions by site. For the purposes of

1 today's public hearing, sites with EM Defense Nuclear
 2 Facilities are starred. The green bars represent the
 3 total number of candidate Defense Nuclear Facilities at
 4 a given site. The red bars represent only the Hazard
 5 Category 1 and 2 Defense Nuclear Facilities with
 6 Safety-Class Controls. You can see a large drop in the
 7 number of facilities at all EM sites. Notably the Waste
 8 Isolation Pilot Plant does not have any Safety-Class
 9 Controls.
 10 BOARD MEMBER CONNERY: So, Ms. White, again, as
 11 we talked about, or as you talked about in your opening
 12 statement, you want to make sure that the Board and the
 13 Department are focused on the highest priority issues
 14 that impact the public health and safety; however, we
 15 also have to make sure that the public has reasonable
 16 assurance of public health and safety, and sometimes
 17 that doesn't equate to Safety-Class Controls or the
 18 Hazard Categories as designated by the Department.
 19 So I'm interested if you could discuss how EM is
 20 going to implement the language in the order when
 21 supporting the Board and the Board staff's access to
 22 information regarding facilities that don't have
 23 Safety-Class Controls. And the example that
 24 Mr. Roscetti pointed out is that WIPP is a Haz Cat 2
 25 Defense Nuclear Facility, it doesn't have Safety-Class

1 Controls, but obviously it's of vital importance to the
 2 nation and it's of great concern to the public and
 3 stakeholders.
 4 ASSISTANT SECRETARY WHITE: So, again, according
 5 to the field, the relationship has not changed. We have
 6 no intent to limit the Board's access to information
 7 that you need to carry out your missions and mandates.
 8 Information requested by the Board to conduct its
 9 mission will continue to be provided in accordance with
 10 the law.
 11 And importantly, too, as I've mentioned, the
 12 working relationship in the field is very important, and
 13 it's been successful, and it continues to be successful.
 14 BOARD MEMBER CONNERY: I appreciate that. So a
 15 follow-on question, and again, it goes to something that
 16 you said in your opening remarks, which is how would you
 17 respond if the Board provided a communication in the
 18 form of a letter or a recommendation related to a
 19 Defense Nuclear Facility without a Safety-Class Control;
 20 or, for instance, if we wanted to hold a hearing on how
 21 we could use our statutory authority to give you a
 22 recommendation with regards to a facility?
 23 ASSISTANT SECRETARY WHITE: I'm sure we would
 24 not reject them.
 25 BOARD MEMBER CONNERY: Thank you.

1 ASSISTANT SECRETARY WHITE: Yep.
 2 BOARD MEMBER CONNERY: Mr. Mullis, the recent
 3 issue with waste drums in Idaho highlights the potential
 4 hazards associated with storage and processing of
 5 transuranic waste at the DOE's facilities. Transuranic
 6 waste storage areas at Oak Ridge National Lab don't have
 7 Safety-Class Controls. What information or access will
 8 EM provide to the Board and its staff concerning these
 9 facilities, and what value do you see that the Board and
 10 its staff can give to you to perform this oversight at
 11 these facilities?
 12 MR. MULLIS: So for all the EM managed
 13 facilities to store TRU Waste at Oak Ridge National
 14 Laboratory, you've always enjoyed -- your resident
 15 inspectors have always enjoyed access to that. And, in
 16 fact, all along have given us suggestions,
 17 recommendations, et cetera, that have actually
 18 strengthened the operations out there. So I don't see
 19 how this is going to change that at all.
 20 So I think within the last month and a half, in
 21 fact, one of your -- Dinesh came down and toured the
 22 facility and got the information he wanted. So I
 23 haven't seen that change over the years.
 24 BOARD MEMBER CONNERY: Thank you.
 25 CHAIRMAN HAMILTON: Mr. Santos has a follow-on

33

1 to this line of inquiry and then his own question.
 2 Mr. Santos?
 3 BOARD MEMBER SANTOS: I appreciate the work and
 4 I have seen it since I have been at the Board of the
 5 collaboration, and the working relationships, and that's
 6 my hope that they continue, and that they do not change.
 7 I welcome and I'm very supportive of if there's areas
 8 that may be of impact that we have a transparent and
 9 productive dialogue.
 10 The thing that gave me pause a little bit is if
 11 that's the case, and if those are some foundation of
 12 things that we agreed on, why wasn't that level of
 13 cooperation and working together just to come up with an
 14 order that defines the interface?
 15 So if we talk about we want to collaborate, we
 16 want to be transparent and we want to work issues out,
 17 why can't we do that starting with this order? So
 18 that's the part that makes me really skeptical and
 19 question is anything going to change. I want to be
 20 welcoming the dialogue, but we didn't get to participate
 21 in the development of the Order, that gave me some
 22 pause. So I hope you can appreciate that.
 23 And what I'm concerned about is the concept of
 24 timing. When it comes to nuclear safety, I think it
 25 means not only access, but timely access. And if we get

34

1 caught up into a lot of bureaucratic debate on whether
 2 or not we need to see the information to then do the
 3 assessment, there safety could be impacted. Things can
 4 be overcome by events. So the value of the Board on
 5 oversight can be diminished.
 6 So while we're trying to debate whether we have
 7 access or not, events might be happening or things might
 8 not be controlled. So those are two points I want to
 9 make.
 10 CHAIRMAN HAMILTON: And I think just to be sure,
 11 Mr. Santos, there's no question in there. You're just
 12 making an observation.
 13 BOARD MEMBER SANTOS: No, I'm just making an
 14 observation.
 15 CHAIRMAN HAMILTON: Thank you. Okay, so no
 16 response required.
 17 BOARD MEMBER SANTOS: So the question to
 18 Ms. White, can you describe the EM implementation
 19 strategy for the order? I mean, in terms of timing,
 20 training, your expectations of the implementation?
 21 ASSISTANT SECRETARY WHITE: So as I understand
 22 it, training sessions were conducted by my staff to the
 23 field. That really highlighted the fact that this order
 24 clarifies roles and responsibilities, it applies to the
 25 Department and our contractors, and it is not intended

35

1 to preclude the Board from doing your job.
 2 BOARD MEMBER SANTOS: Can you give me a little
 3 bit on time-wise for implementation? When do you
 4 expect --
 5 ASSISTANT SECRETARY WHITE: I would have to get
 6 back with you on that. That's something that the staff
 7 is taking care of, and as I understand it, it's been
 8 completed.
 9 BOARD MEMBER SANTOS: I appreciate that we can
 10 get that for the record later.
 11 ASSISTANT SECRETARY WHITE: Sure. Absolutely.
 12 BOARD MEMBER SANTOS: Thank you so much.
 13 Mr. Mullis, a similar question, but at Oak
 14 Ridge, can you describe some of the implementation
 15 efforts to date?
 16 MR. MULLIS: Sure. So my staff and myself
 17 participated in the rollout of the Order and the
 18 subsequent training, and unless we get direction from
 19 headquarters, there's kind of a standard process we go
 20 through with each one of our contractors. We have
 21 several D&D contractors, Environmental Management
 22 contractors in Oak Ridge, so each one of those contracts
 23 is a slightly different type of contract, so there's
 24 different timelines for that.
 25 But at this point in time, we've asked all our

36

1 contractors, through the contract process, to evaluate
 2 impacts to implement the Order and then, of course,
 3 depending on that, we would either negotiate a contract
 4 change if there is -- if they came back and said it's
 5 going to cost this much more money, we have to negotiate
 6 that in contract space. At this point they have come
 7 back and said no impact, so we will move down the road
 8 to implement that.
 9 There's kind of a quarterly update typically to
 10 the standards that are in our contracts, and it would
 11 just go into that normal update. Of course, if there's
 12 a -- if it did have impacts, that would be different, we
 13 would have to go through a negotiation process. So
 14 that's kind of the timeline for that.
 15 So I would expect that within the next six
 16 months, it will be in all our contractors' contracts.
 17 BOARD MEMBER SANTOS: So if we could include
 18 that for all EM sites, including Oak Ridge, ma'am.
 19 ASSISTANT SECRETARY WHITE: Absolutely. We will
 20 get that data to you.
 21 BOARD MEMBER SANTOS: Thank you.
 22 You talked about training, Mr. Mullis. Can you
 23 describe the training and how you participated yourself.
 24 What is your perspective on the training?
 25 MR. MULLIS: Sure. Training was done by VTC and

1 call-in for each one of the sites. And there is a set
 2 of slides that was prepared, along with a copy of the
 3 order, and I think there were like a frequently asked
 4 questions kind of thing as well. And so there was a
 5 discussion by VTC led by headquarters.
 6 The first session was actually I think led by
 7 maybe AU, Mr. Moury's shop, and that's the one I think I
 8 participated in. There was a subsequent one that EM had
 9 as well that all the staff participated in. So all the
 10 site liaisons and backup liaisons to my knowledge on our
 11 side for the Defense Board participated. And I can tell
 12 you my staff and several of the site reps did as well
 13 for Oak Ridge.
 14 BOARD MEMBER SANTOS: So you can give me some of
 15 the feedback that were provided by your team of Federal
 16 employees or contractors or any outside stakeholders?
 17 MR. MULLIS: We did not share with outside
 18 stakeholders.
 19 BOARD MEMBER SANTOS: Okay.
 20 MR. MULLIS: We did -- I cannot remember,
 21 frankly, whether or not contractors participated in
 22 those training sessions or not. Typically, we would
 23 have a separate training session for contractors if they
 24 have questions. Normally that's done, unless it's a
 25 huge change to something like 420, when the big change

1 to 420 occurred a few years ago, we would not send them
 2 to that training, we would handle that on a case-by-case
 3 basis.
 4 I don't recall any specific feedback, other than
 5 we've got a new order that we're putting in that
 6 replaces the manual. I don't remember anybody saying,
 7 oh, this is going to cause us not to do this or to do
 8 that. So --
 9 BOARD MEMBER SANTOS: The part that intrigues me
 10 is, I understand all of you saying there's no change,
 11 but a literal read of the order clearly shows change,
 12 and I'm just trying to understand how you all reconcile
 13 that. Was that emphasized as part of the training?
 14 MR. MULLIS: It was. It was. And it was in the
 15 slides -- my recollection is, at least for the part I
 16 sat in, it was in the slide deck and in the set of
 17 questions, as to what these things really meant. And
 18 what we got out of it was, no big change. And the fact
 19 that the reason we were updating the order had been over
 20 a decade since the manual had been issued. And, of
 21 course, over time, we've tried to become more
 22 disciplined in our command media and, you know, we used
 23 to operate under the old four-digit orders, and over
 24 time that has changed as we migrated to a three-digit
 25 order.

1 So my perspective was, after sitting through the
 2 training, that it was simply a matter of trying to
 3 update our command media to be more in line with how all
 4 the other DOE orders and manuals operated at this time,
 5 and implementation guides.
 6 BOARD MEMBER SANTOS: Thank you.
 7 CHAIRMAN HAMILTON: Thank you, Mr. Santos.
 8 Ms. Connery?
 9 BOARD MEMBER CONNERY: So given the fact that
 10 the order is written as a DOE-wide order, and the
 11 Defense Nuclear Facilities largely fall in either EM,
 12 Environmental Management, or in the National Nuclear
 13 Security Administration, the semi-autonomous National
 14 Nuclear Security Administration, I just have a couple of
 15 questions about how that interface works when you are on
 16 site with the presence of both NNSA and EM. Because
 17 that often causes tension in the Department, having
 18 lived through that on your side of the fence, so I'm
 19 wondering how interactions with the Defense Board may be
 20 impacted by that.
 21 So, Ms. White, at several of your field
 22 locations where this whole EM and NNSA Defense Nuclear
 23 Facilities, like Savannah River, EM conducts the cleanup
 24 activities at H Canyon, while NNSA conducts the training
 25 activities at H area using the same contractor. Can you

1 discuss how EM and NNSA coordinate to ensure consistent
 2 implementation of interface with the Board, or if there
 3 has been any challenges that you've seen in that area?
 4 ASSISTANT SECRETARY WHITE: We have a number of
 5 sites where, as you say, there's both EM facilities and
 6 NNSA facilities. We enjoy a cooperative relationship
 7 with our semi-autonomous sister organization, and we're
 8 always actually working to improve those communications.
 9 We just started a project recently not related to the
 10 Defense Board that's around that very topic.
 11 So, and certainly if you become aware of any
 12 rubs regarding that, please let us know and we'll
 13 address it.
 14 BOARD MEMBER CONNERY: Thank you.
 15 Mr. Mullis, how do you anticipate working with
 16 NNSA relative to the Board interface during your
 17 upcoming environmental management work at the Y-12 site,
 18 speaking specifically to the decommissioning work at
 19 Alpha 5?
 20 MR. MULLIS: Well, I don't see that changing
 21 dramatically, as it has over the last several years. I
 22 mean, we've always had facilities and work going on out
 23 there, and at one point in time, Y-12 was part of Oak
 24 Ridge and, of course, Oak Ridge broke apart into
 25 separate entities. When I was the Defense Board liaison

41	<p>1 and part of the Nuclear Safety Program, I certainly 2 contacted and stayed in touch with my counterparts over 3 there and vice versa over the different recommendations 4 and things that were occurring. While we share 5 information and we will do our best to coordinate, we 6 don't speak for them, they don't speak for us. 7 And so at times there has been a different 8 approach, site dispersion analysis, things like that, 9 out of the two organizations. And so to the extent we 10 can cooperate and the extent we can give a unified 11 approach, we will, but given that EM work is different 12 than the work they do, I think you'll -- there is going 13 to be times as well when we -- things may be a little 14 bit misaligned, quite frankly. 15 BOARD MEMBER CONNERY: So the point I'm trying 16 to get at is with the implementation of the interface 17 document, 140, the order, we do enjoy a close working 18 relationship with EM at the Resident Inspector level, as 19 well as with NNSA, but what we've noticed is that there 20 are different approaches as to, say, who has the 21 authority to decide that something is predecisional? 22 Who gives the authority to release the document? And 23 sometimes, say on the NNSA side, it may go up to 24 field-level NNSA person, and on the EM side it might be 25 somebody at a different level.</p>	43	<p>1 Nuclear Facilities and Sites. Capturing and correcting 2 failures at the lowest levels can predict and prevent 3 larger scale problems at these off-site releases to the 4 public. So this is a conversation that we started 5 earlier with regards to Category 3 facilities and 6 facilities without Safety-Class Controls. 7 So, Mr. Mullis, as a long-time safety 8 professional, can you discuss the relationship between 9 deficiencies identified at facilities without 10 Safety-Class Controls, and the potential implications 11 for higher hazard facilities? For example, if you find 12 issues associated with future decommissioning work at 13 Alpha 5, a lower hazard facility at Y-12, how would you 14 apply those lessons learned to more hazardous 15 decommissioning activities? 16 MR. MULLIS: So we're all the time trying to 17 apply lessons learned. For instance, we had a lot of 18 lessons learned at ETPP on how to deactivate a D&D 19 gaseous fusion plant. We recognized that those weren't 20 necessarily completely applicable to the new work we 21 would be getting into at Y-12, and so there's lessons 22 learned that we could apply, we have, and we've gone in 23 and tried to do some approaches to work to figure out 24 what it's like to work with mercury and we're having 25 some hard lessons learned on that.</p>
42	<p>1 We're just wondering whether or not that will be 2 calibrated, it doesn't necessarily have to be, but will 3 that have impact on how we interact with you or whether 4 or not we will be able to get the timely information we 5 need? And I'll direct that at Ms. White. 6 ASSISTANT SECRETARY WHITE: So as Jay mentioned, 7 they're independent organizations. Speaking for EM, if 8 there's issues or problems, we want to hear about it. 9 And I hope that -- that if things come up, there will be 10 a dialogue. 11 BOARD MEMBER CONNERY: Me again. Sorry. So 12 we're going to geek out a little bit on the nuclear 13 safety side of the house, and one of the lines of 14 inquiry during our previous public hearing regarded the 15 integrated nature of safety. In an Integrated Safety 16 Management System, the erosion in the capabilities of 17 facilities without Safety-Class Controls or facilities 18 with low or facilities with low end-life consequences to 19 off-site individuals could be lead indicators of the 20 extent of conditions with implications at facilities 21 with significant analyzed consequences to off-site 22 individuals. 23 This concept is explained in great detail in the 24 Board's Technical Report 20, Protection of the 25 Collocated Worker at the Department of Energy Defense</p>	44	<p>1 With respect to things we might learn in a less 2 hazardous facility, we certainly would apply those to a 3 more hazardous facility. I guess I don't -- I don't see 4 the distinction that I think folks are trying to make 5 between a Haz Cat 2 facility with Safety-Class Controls 6 and a Haz Cat 2 facility without Safety-Class Controls 7 and a Haz Cat 3 facility. If they all have the same 8 hazard, they all have the same hazard and we would 9 approach that hazard appropriately. Okay? 10 Now, off-site consequences may drive control 11 selection, so it might differ between how close to the 12 site boundary you are versus how far away from the site 13 boundary to direct what might get Haz Cat 2 Safety-Class 14 Controls and more likely to have Safety-Significant 15 Controls, but as far as the hazards, we will address 16 hazards as we find them. 17 And we have lessons learned, one of the Board 18 members mentioned Idaho, it might have been you, but as 19 soon as we heard about that, we started developing 20 lessons learned and trying to look and see if we had 21 similar moratoriums within our population at TWPC, 22 Transuranic Waste Processing Center. 23 BOARD MEMBER CONNERY: So I think you made my 24 point, which is that these categorizations are somewhat 25 artificial in terms of how we see our oversight. We see</p>

1 our oversight as being equal in all categories, because
2 there is no difference in how you approach those safety
3 issues, and they're integrated. So I appreciate that.

4 MR. MULLIS: Well, if I might elaborate, I would
5 say the only thing this would be worth is the
6 controlling the control selection, right?

7 BOARD MEMBER CONNERY: Right.

8 MR. MULLIS: But again, that's our internal
9 documents that are appropriate for the DOE. I don't
10 know that they would apply to you at all.

11 BOARD MEMBER CONNERY: Right. And your control
12 selection is obviously the choice of the Department.

13 MR. MULLIS: Correct.

14 BOARD MEMBER CONNERY: We just analyze it for
15 our purposes to see if it is appropriate for the
16 situation at hand.

17 MR. MULLIS: Correct.

18 BOARD MEMBER CONNERY: So you gave me a great
19 lead-in. As we discussed earlier, Ms. White, at
20 transuranic waste facilities, notably at WIPP, and most
21 recently at Idaho, those are examples where the DOE and
22 the Board evaluate the extent of conditions and
23 determine valuable lessons that can be applied across
24 the complex. So you are doing that and we are doing
25 that as well.

1 These facilities also don't have Safety-Class
2 Controls, and could be excluded from the Board's
3 oversight by the Order. So can you discuss DOE's
4 approach in reviewing safety information at all your
5 facilities to identify the extent of condition issues
6 and lessons learned that could be applied across the DOE
7 complex?

8 ASSISTANT SECRETARY WHITE: Yes. So as Jay
9 mentioned, we're always looking at lessons learned
10 across the complex. We've got a very robust oversight
11 system within EM itself, as well as other areas of the
12 Department. So we enjoy that relationship and that
13 input, and also from the Board.

14 So the lessons learned component is very
15 important, and, you know, we learned a lot of lessons
16 with WIPP, for example. So we're constantly striving to
17 do better and learn more throughout our mission.

18 BOARD MEMBER CONNERY: Thank you. I'm a big fan
19 of your operational experience, formalization of those
20 lessons learned, and we encourage that at all points,
21 but I just want to, in closing, on this topic, state
22 that this confirms my belief that safety oversight
23 information gathered at all Defense Nuclear Facilities
24 are needed to help address the most challenging nuclear
25 safety issues facing the DOE complex, and that's why

1 we're concerned about access to all of the facilities
2 and having our Board be able to conduct reviews, our
3 Board staff be able to conduct reviews regardless of
4 Hazard Category facilities and regardless of
5 Safety-Class Controls. Thank you.

6 CHAIRMAN HAMILTON: Board Member Roberson?

7 BOARD MEMBER ROBERSON: Thank you, Mr. Chairman.

8 I want to explore a topic, the topic of workers as an
9 essential part of public health and safety, that I worry
10 that either we and the Department are talking past each
11 other, or I don't know what's happening, but the Board
12 has provided recommendations and other formal advice to
13 the Department in areas that include a focus on safety
14 of the workers at Defense Nuclear Facilities, and can we
15 put Exhibit 4 up.

16 So this is a list of some examples, it's by far
17 not exhaustive. One example I want to focus on as it
18 relates to the Environmental Management Program is Board
19 Recommendation 2012-1, the Savannah River site, Building
20 235-F. In this recommendation, the Board identified
21 inadequate controls for fire scenarios with an
22 unmitigated dose consequence of multiple thousands of
23 rem to more than a thousand collocated workers who were
24 routinely near Building 235-F.

25 The Secretary accepted the Board's

1 recommendation and stated in the Department's
2 implementation plan, and I'll try to quote this, "This
3 IP focuses on addressing the corrective actions
4 necessary to confirm assurance of adequate collocated
5 worker protection."

6 The recommendation is still open today, and we
7 see progress, we're very supportive of that. It's open
8 with ongoing actions by DOE and the contractor to
9 address the issues identified in the Board's
10 recommendation.

11 I guess if we were to issue this recommendation
12 today, as we read DOE Order 140.1, as it certainly
13 includes focus on some worker safety issues, would the
14 Department reject that recommendation?

15 ASSISTANT SECRETARY WHITE: We would certainly
16 look at the input and evaluate it. In the 235-F
17 situation, there were many reasons to try and reduce the
18 combustible load. You don't want to fire at any nuclear
19 facility of any variety. So that was a very welcomed
20 recommendation. As you said, we've been working on it.
21 So certainly we take input from anyone on improved
22 worker health and safety.

23 BOARD MEMBER ROBERSON: So, I just want to
24 explore for a minute. I appreciate that. I guess what
25 we struggle with when we look at some of the proposals,

49

1 advice, recommendations to the Department, and we look
2 at the order, we're trying to understand where the
3 Department sees the line. And so that's just a good
4 example. There were certainly a variety of issues
5 raised, but there were specific issues raised as it
6 related to protection of collocated workers, or even
7 facility workers. And I'm just trying to target in,
8 would that be across the line.

9 ASSISTANT SECRETARY WHITE: So this is, as you
10 well know, probably a long-standing jurisdictional
11 question that has been a matter of discussion for years.
12 And probably general counsel might be the best sort of
13 resource, ours and yours, on this particular topic,
14 because as I say, it's been a long-standing discussion.

15 For me, anyway, worker health and safety is
16 extremely important. I worked in the field in my career
17 and I benefited from the nuclear safety culture, and I
18 understand it's extremely important. So we're always
19 going to ensure that our workers are safe and protected
20 through multiple programs, including 835.

21 BOARD MEMBER ROBERSON: Thank you, Assistant
22 Secretary.

23 So we did ask this in the last hearing, and
24 we've asked it outside of the hearings, and one of the
25 things we've been told is the Atomic Energy Act does not

50

1 say that the Board provides oversight of workers, only
2 the public. And it's true, Atomic Energy Act does not
3 specify the workers, but it doesn't specify any safety
4 system or protective measures to be utilized to ensure
5 the adequate protection of public health and safety.

6 For instance, the Act does not list confinement
7 ventilation systems or fire suppression systems as
8 essential, although the Board has proposed, and the DOE
9 has agreed by its own actions, to the significant role
10 that these systems have in ensuring adequate protection.

11 From our perspective, the Department continues
12 to expand its reliance on administrative controls
13 implemented by workers versus passive engineered
14 features. Do your nuclear operations execute actions as
15 a part of your safety construction for ensuring
16 protection of public health and safety? Do you rely on
17 worker training, worker qualifications and worker
18 availability to execute actions that are necessary to
19 ensure adequate protection at your facilities?

20 ASSISTANT SECRETARY WHITE: I would say that we
21 are always compliant with the law, and again, we take
22 input on all issues related to worker safety from all
23 parties.

24 BOARD MEMBER ROBERSON: Okay. Mr. Mullis?

25 MR. MULLIS: On the specific question about do

51

1 we rely on worker action, absolutely. I mean, in TSRs,
2 you have required staffing requirements, things like
3 that. You have SACs as well. So yes. The short answer
4 to it is yes. We look at collocated workers, facility
5 workers and public health safety.

6 BOARD MEMBER ROBERSON: And we know that and you
7 all know this, too, and we expect that you will continue
8 to expand that reliance as facilities age or you
9 approach work in access facilities where systems may not
10 have been maintained to today's standards. So we see
11 that as something that's standard. The Board recognizes
12 it when it issues a recommendations on admin controls,
13 and it worked with the Department on that. And so we
14 know that's true across the complex. So thank you.

15 The last question I have on workers is I
16 personally, and I raised this in the last hearing, too,
17 I'm concerned that the language in the order that
18 exempts Board oversight of worker safety could be
19 interpreted by personnel at Defense Nuclear Facilities
20 to direct them that they are not to communicate worker
21 safety issues to the Board.

22 Now, and I'll say this is not just workers in an
23 operation, it could be Federal workers. No oversight
24 function, including your own, can be successful if the
25 people inside do not feel free to raise safety issues,

52

1 they do not believe have been properly understood or
2 appropriately addressed, and we are no different than
3 that.

4 I guess what I'm asking, and I'm directing this
5 to you, Mr. Mullis, but Ms. White, you are welcome to
6 address it. How will you ensure this is not the overtly
7 spoken or silently whispered message received by the
8 workers at your facilities?

9 MR. MULLIS: So we always strive to have a good,
10 open safety culture. All our contractors do safety
11 culture surveys. We grade them as best we can on their
12 safety culture performance. We have the same thing. We
13 just completed our safety culture survey as well. And
14 so we have a number of different systems.

15 If you can't get resolution via the normal chain
16 of command, you have DPO process, you can call the IG
17 and be anonymous. And so those things are occurring all
18 the time where we're getting concerns from both
19 contractor workers and DOE workers through various and
20 sundry means. Whether that's in staff meetings or
21 whether that's through the DPO process, or whether
22 that's through calling the IG about safety concerns they
23 might have anonymously.

24 So I don't see this order impacting that at all.
25 Based on what I've seen, at least in Oak Ridge over the

1 past couple of years, all those systems are being used
 2 robustly.
 3 BOARD MEMBER ROBERSON: And let me say, all
 4 those systems are in place and they are widespread
 5 within the agency, but I'm specifically focused on
 6 technical issues as it relates to safety controls and
 7 ensuring adequate protection. We certainly, and as I'm
 8 sure you do, hear from workers across the complex, and
 9 what we're concerned about is a message that says, the
 10 Board has no role as it relates to the workers at our
 11 facility could certainly translate into a message we
 12 think is the wrong message.
 13 MR. MULLIS: I don't see that message being out
 14 there. When I get something back from the contractor
 15 saying we see no impact for implementing this order, to
 16 me that tells me there's not going to be some overt
 17 hidden message that's being provided to the worker at
 18 the workplace to not talk to the Board staff.
 19 BOARD MEMBER ROBERSON: We should just all be
 20 diligent. And I appreciate that.
 21 CHAIRMAN HAMILTON: Thank you, Ms. Roberson.
 22 Board Member Santos?
 23 BOARD MEMBER SANTOS: I would like to follow up
 24 on that, because I see components of safety's adherence
 25 to a standard set of requirements, and for that you have

1 a robust infrastructure. So help me understand a little
 2 bit. Because the phrase that we keep hearing today, and
 3 actually one that I accept, and I want to believe it, is
 4 the "no change. The order results in no change." But
 5 as you know, you're going to have some of this order
 6 being implemented in the contracts. And I want to
 7 understand whether "no impact" equals "no change,"
 8 because contractors typically follow the letter of the
 9 requirements.
 10 So if they apply a strict implementation and
 11 reading of the requirements that are in their contracts,
 12 I'm trying to understand how that's not going to result
 13 in -- how that's going to result in no change. So I'm
 14 trying to understand the difference between no impact,
 15 which tends to be cost, versus no change in the way
 16 things are faced with the order given that language.
 17 Could you expand on that?
 18 MR. MULLIS: I assume that's directed at me.
 19 BOARD MEMBER SANTOS: Yes. And Ms. White, too.
 20 ASSISTANT SECRETARY WHITE: So, again, the order
 21 applies to DOE and our contractors, and our contractors
 22 will use the path that we've asked them to, which is to
 23 go through the Department on these topics, and that's in
 24 my opinion reasonable and appropriate. It just
 25 clarifies roles, responsibilities and lines of

1 communication.
 2 BOARD MEMBER SANTOS: So a contractor may
 3 literally read no access, but then when he approaches
 4 the Department officials, then the Department officials
 5 will say, no, no, no, no change, they do get access. Is
 6 that a way to read this?
 7 ASSISTANT SECRETARY WHITE: I can't -- so I
 8 can't imagine a situation in which if the resident
 9 inspectors, or anyone from the Board wanted access to a
 10 Hazard Category 3 facility, that we would deny it. So
 11 that's what I can say.
 12 BOARD MEMBER SANTOS: Okay. And to
 13 Mr. Roscetti, do you have any evidence or anything from
 14 our resident inspectors where the new order has resulted
 15 in some challenges to have ready access?
 16 MR. ROSCETTI: No, sir, I don't have any
 17 examples regarding our resident inspectors having issues
 18 with access at EM facilities.
 19 BOARD MEMBER SANTOS: Okay. What about other
 20 elements? Other programs?
 21 MR. ROSCETTI: I think at the last public
 22 hearing on August 28th, 2018, we described some issues
 23 regarding access to information in general, but not
 24 necessarily specific to the resident inspectors.
 25 MR. SANTOS: And that includes both with the DOE

1 Federal employees and the contractors?
 2 MR. ROSCETTI: The way that the Board staff
 3 interacts with the Department regarding access to
 4 information, we have Federal liaisons that we work
 5 through for information, so they're the final deciders
 6 as to whether we get the information we request. And
 7 when we make the request, we follow the site procedures.
 8 In the instance of the resident inspectors, and for
 9 headquarters staff, we fill out a form, there's a formal
 10 request made, and again, the Federal liaisons are the
 11 ones that ensure that the contractors provide that
 12 information we request.
 13 BOARD MEMBER SANTOS: Thank you.
 14 CHAIRMAN HAMILTON: Thank you, Mr. Santos.
 15 I have a short follow-on for Mr. Roscetti on
 16 this line of inquiry. Does the Atomic Energy Act as
 17 amended refer to hazard categories?
 18 MR. ROSCETTI: No, sir. The Atomic Energy Act
 19 as amended does not refer to hazard categories.
 20 CHAIRMAN HAMILTON: Where are they defined, and
 21 who makes that decision?
 22 MR. ROSCETTI: So I believe it's DOE Standard
 23 1027 references Hazard Category 1, 2 and 3, and then
 24 Radiological Defense Nuclear Facilities. As far as who
 25 makes that determination, it's a process that the

57

1 contractors would propose and the Federal entities would
 2 then approve or bottom line.
 3 CHAIRMAN HAMILTON: So I'm correct to say that
 4 the Atomic Energy Act does not address hazard categories
 5 and that is a DOE construct. Is that a correct
 6 statement?
 7 MR. ROSCETTI: Yes, sir, that's a correct
 8 statement.
 9 CHAIRMAN HAMILTON: New line of inquiry, and the
 10 good news, Mr. Mullis, I was going to ask you about
 11 deliberative documents and predecisional documents in
 12 delivery of meetings, but we pretty much beat that to
 13 death, Ms. White addressed it in our opening remarks and
 14 took all your thunder, but I've got one just short
 15 question. Would you put up Exhibit 5, please.
 16 I'm going to introduce this into the record.
 17 This is a list of potential situations that might be
 18 considered predecisional or deliberative. I don't want
 19 to go through all of them, I just want to look at the
 20 third bullet. "A fact finding or fact-gathering meeting
 21 following an abnormal event." So you have an abnormal
 22 event somewhere and you're going to have a fact-finding,
 23 would you consider that the kind of thing where a
 24 resident inspector wants to see it and you would say
 25 that's deliberative and/or predecisional and you can't

58

1 join us? Or how would you view that particular one?
 2 MR. MULLIS: Is that directed at me?
 3 CHAIRMAN HAMILTON: Yes, sir.
 4 MR. MULLIS: First of all, I hate talking about
 5 hypotheticals, because sometimes every event is unique,
 6 but typically, we have not excluded the Board from a
 7 fact-finding meeting following an off-normal event or an
 8 emergency.
 9 CHAIRMAN HAMILTON: And you don't think that
 10 that order would --
 11 MR. MULLIS: No.
 12 CHAIRMAN HAMILTON: -- ever drive you to do
 13 that?
 14 MR. MULLIS: I do not. I do not see that
 15 changing. Because that question has existed since I
 16 was -- since I've worked for the Department and the
 17 Defense Board was around. There are times when we need
 18 to have frank and open discussions and having a Board
 19 staff member sitting there is actually intimidating for
 20 some folks so you don't get the free and open
 21 discussion.
 22 So that tension has existed for quite some time,
 23 and it predates this order, and the way we've at least
 24 handled that in Oak Ridge over the years is a
 25 case-by-case basis. It's rare, but it has happened, and

59

1 I've called the resident inspectors and asked them not
 2 to step into it and worked through that, then we would
 3 give them a meeting after the fact.
 4 I mean, there are sometimes where we need to
 5 have meetings with our contractors as well without Board
 6 staff there because there's contract-sensitive stuff.
 7 So --
 8 CHAIRMAN HAMILTON: Okay, thank you, that's a
 9 very nuanced answer, and I appreciate capturing all
 10 those thoughts.
 11 Board Member Santos?
 12 BOARD MEMBER SANTOS: Thank you. To
 13 Mr. Roscetti, I mean, the interface order provides
 14 guidance and direction to DOE personnel and contractor
 15 personnel for interfacing with the Board and the Board
 16 staff. In a similar manner, the Board staff provides
 17 guidance to interfacing with the DOE and contractor
 18 personnel. Can you discuss the guidance the Board staff
 19 uses in interfacing with the Department of Energy and
 20 its contractors?
 21 MR. ROSCETTI: Yes, sir. The guidance given to
 22 the Board's technical staff on interfacing with the
 23 Department comes from Board policies and internal
 24 technical staff procedures. The technical staff
 25 receives initial and refresher training on these

60

1 policies and procedures.
 2 So the Board currently has eight approved
 3 policies which establish how the Board will carry out
 4 its oversight mission. These policies include
 5 requirements and guidance for staff on interfacing with
 6 the Department. For example, Policy Statement 7,
 7 Communication and Disposition of Safety Items states,
 8 "No suggestion, implicitly or explicitly, shall be made
 9 for DOE and DOE contractors to take any actions," by the
 10 technical staff during their interactions with the
 11 Department.
 12 The technical staff's internal procedures
 13 include guidance on how to conduct reviews, which are
 14 the primary mechanism by which headquarters staff
 15 interface with the Department and its contractors. A
 16 number of the requirements in our internal procedures
 17 were developed to align with the Department's previous
 18 Interface Manual, as the Board had reviewed the
 19 Department's manual prior to its issuance to ensure
 20 consistency in interface requirements.
 21 For example, one of the technical staff's
 22 internal procedures on obtaining information from the
 23 Department uses the approach and form that was included
 24 in the previous manual.
 25 BOARD MEMBER SANTOS: Thank you. And a question

61

1 to Ms. White, given the feedback and some of the
2 comments that you heard, will you and the Department
3 consider incorporating some of the formal feedback the
4 Board is providing to revise the current order?

5 ASSISTANT SECRETARY WHITE: I can't speak for
6 the entire Department, but certainly I've listened to
7 your input and understand some of your concerns, and we
8 really need to just get back with you on that.

9 BOARD MEMBER SANTOS: Okay, I'm sorry? The last
10 part?

11 ASSISTANT SECRETARY WHITE: We need to get back
12 with you on that.

13 BOARD MEMBER SANTOS: Oh, I look forward to it.
14 Thank you. Good.

15 CHAIRMAN HAMILTON: Thank you, Mr. Santos.
16 The last line of inquiry for this morning goes
17 to Ms. Connery.

18 BOARD MEMBER CONNERY: I think Ms. Roberson has
19 it.

20 CHAIRMAN HAMILTON: I'm sorry, did you have a
21 question, Ms. Roberson?

22 BOARD MEMBER ROBERSON: I did have a quick
23 followup if I could, to Mr. Santos' question. We talked
24 about the Request for Information. Maybe there are
25 others that were encompassed in the previous manual.

62

1 Are those encompassed in the new order?

2 MR. ROSCETTI: You're asking me?

3 BOARD MEMBER ROBERSON: Yes, sir.

4 MR. ROSCETTI: Could you repeat that question,
5 please.

6 BOARD MEMBER ROBERSON: Okay. Like the approach
7 and form that we had -- the Department and the Board --
8 had developed and agreed to in the manual, you said
9 we've adopted that into our internal procedure, but is
10 that captured in the new order?

11 MR. ROSCETTI: The new order is much more --
12 it's slimmed down.

13 BOARD MEMBER ROBERSON: So that's a no?

14 MR. ROSCETTI: It's a nuanced no. I would say
15 at a high level, it captures the basic premise of how we
16 previously interacted under the manual, but as far as
17 the very specific guidance that the manual contained,
18 that guidance is not contained in the new order.

19 And I'll use as an example the form for
20 requesting information. That was a very -- it was a
21 detailed process in the manual. That form is not even
22 included in the order, but we continue to use it to
23 formally request information at the staff level.

24 BOARD MEMBER ROBERSON: And I understand that, I
25 guess my question is maybe to Ms. White or Mr. Mullis,

63

1 who may be more active in responding to some of these.
2 We're assuming that we can rely on those arrangements
3 that were laid out in the previous manual, even though
4 they're not incorporated into the order. I don't know.
5 Is that a fair assumption for us to make?

6 ASSISTANT SECRETARY WHITE: I think it is. I
7 know the form that was referenced here has been in use
8 for years, and it continues to be in use. So I think
9 where systems aren't broken, then we're not going to fix
10 them.

11 BOARD MEMBER ROBERSON: I agree with that.

12 CHAIRMAN HAMILTON: Thank you, Ms. Roberson.
13 Board Member Connery for the last question this
14 morning.

15 BOARD MEMBER CONNERY: So the last line of
16 questioning is along the lines of my opening, and it's a
17 bit broader. I mean, we're here because, you know, we
18 find that the order is contradictory to our statute, but
19 at the base of it, it's about safety, and that's what
20 we're interested in, that's what the Department is
21 interested in, and I believe that's where our common
22 ground lay.

23 So the topic that I want to talk about is about
24 the Department's view and changes it's making to its
25 approach to ensuring adequate protection, both with

64

1 respect to the new interface order and changes that
2 we've seen in 10 C.F.R. 830 and its associated
3 documents.

4 This seems to be a moment in time where DOE is
5 trying to create more flexibility for itself, which I
6 understand, but it's also an effort, in my view, to
7 maybe reduce DOE oversight in some of these areas to
8 afford that flexibility. And I understand that's a
9 dynamic tension.

10 So for 30 years the Board has been a part of the
11 Department's overall safety framework. The Board and
12 the Department have had a collaborative relationship and
13 made a number of safety improvements to Defense Nuclear
14 Facilities that have otherwise occluded the Department's
15 internal mechanisms for DOE oversight. So now that DOE
16 appears to be changing their approach to nuclear safety,
17 and at the same time the hazards that you face, you in
18 particular in your environmental management cleanup
19 mission, are becoming more complex.

20 And I, again, recognize your need to balance
21 time to completion of the mission with safety, and
22 sometimes timely completion of the mission equals
23 safety. Have you considered whether or not this change
24 in philosophy, this reducing the role of DOE or Board
25 oversight, may have a negative effect on nuclear safety?

1 ASSISTANT SECRETARY WHITE: I wouldn't
 2 characterize it as a change in philosophy. For me,
 3 anyway, and for the leadership as well. I frequently
 4 say, don't even make me say, "and safely," because it's
 5 a baseline assumption in the work we do. And as I
 6 mentioned, I benefited from the safety culture as
 7 somebody who has been in the field doing the work, and
 8 it's extremely important.

9 So I would not say that the Department is
 10 changing their philosophy on safety. The only way to do
 11 work is safely.

12 BOARD MEMBER CONNERY: I appreciate that. I
 13 think that my last -- I won't ask a question, because I
 14 understand where you stand on that. I think our concern
 15 is that Congress was clear when it created the Board
 16 that they were concerned about DOE's expert-based
 17 safety, as well as becoming complacent in its approach
 18 to nuclear safety. And I worry that trend lines tend to
 19 go up and down with regard to that.

20 And at this point in time, the Board has its own
 21 struggles, as, you know, is evidenced in the press, and
 22 the Department has been having its struggles with safety
 23 culture, you've got turnover in workforce, and again,
 24 complex, difficult tasks ahead of you. So I just don't
 25 know that now is the time to make broad changes that

1 could have impacts to safety going forward.
 2 ASSISTANT SECRETARY WHITE: So I hear your
 3 concern, and again, I just, I really want to emphasize
 4 this point, that we really cannot have successful
 5 projects without safe projects. It just can't happen.
 6 And Ms. Roberson can actually attest to the fact that at
 7 Rocky Flats, as production went up, safety statistics
 8 got better, and it had to do with the cadence of the
 9 work and the rhythm and being in the routine. Our
 10 workers are well trained, well qualified.

11 So I understand where you're coming from, but I
 12 think we are solid in this area. Absolutely.

13 CHAIRMAN HAMILTON: Thank you, Ms. Connery.

14 I'd like to call on the Board members now to see
 15 if they have any last questions or comments before we
 16 take a recess.

17 Mr. Santos?

18 BOARD MEMBER SANTOS: No.

19 CHAIRMAN HAMILTON: Thank you, Mr. Santos.
 20 Board Member Connery?

21 BOARD MEMBER CONNERY: No, thank you.

22 CHAIRMAN HAMILTON: Board Member Roberson?

23 BOARD MEMBER ROBERSON: Briefly, Mr. Chairman.
 24 Just in the event that you won't be here until the end
 25 of the hearing, I just want to say thank you for your

1 contribution. I'm sure the other Board members, like
 2 myself, will take your input as a part of the total
 3 package. We're trying to determine what the Order means
 4 to the Board and the Department's going forward
 5 relationship. So thank you.

6 CHAIRMAN HAMILTON: Mr. Santos asked for a
 7 second.

8 BOARD MEMBER SANTOS: I want a second because in
 9 case you decide you need to leave, I can thank you and I
 10 really openly look forward to continued strong
 11 collaboration, continue the dialogue, because at the end
 12 of the day, you're absolutely right, we're both caring
 13 about the same thing, which is the American public
 14 health and safety. So, I'm here. Thank you.

15 CHAIRMAN HAMILTON: Thank you very much.
 16 Hearing no other questions or comments from the Board, I
 17 want to thank you, Ms. White, and Mr. Mullis, for your
 18 participation this morning. We will take a 10-minute
 19 recess, at which time we will reconvene for the public
 20 comment period. We are in recess. Thank you.

21 (Whereupon, there was a recess in the
 22 proceedings.)

23 CHAIRMAN HAMILTON: Thank you. At this time, I
 24 would like to reconvene our hearing for Session 2, the
 25 public comment period. I will turn the proceedings over

1 to our acting general counsel, Mr. Joseph Gilman.
 2 Mr. Gilman?

3 MR. GILMAN: Thank you, Mr. Hamilton.

4 At this time, the Board would like to provide an
 5 opportunity for comments from interested members of the
 6 public. A list of those speakers who have contacted the
 7 Board is posted at the entrance to this room. We have
 8 generally listed the speakers in the order in which they
 9 contacted us. I will call the speakers in this order
 10 and ask that the speakers state their name and
 11 affiliation at the beginning of their comments.

12 There is also a table at the entrance to this
 13 room with a sign-up sheet for members of the public who
 14 wish to make comments but did not have the opportunity
 15 to tell us ahead of time.

16 To give everyone wishing to make a comment equal
 17 opportunity, please limit your comments to 10 minutes.
 18 I will warn each speaker when they have 90 seconds
 19 remaining and then again when there are 30 seconds
 20 remaining. The chair will then give consideration for
 21 additional time if the schedule allows.

22 Remarks should be limited to comments, technical
 23 information or data concerning the subject of this
 24 public hearing. The Board members may question anyone
 25 providing comments to the extent deemed appropriate.

1 The Chairman would like to introduce our first
 2 speaker, so I will turn it back over to you,
 3 Mr. Chairman.
 4 CHAIRMAN HAMILTON: Thank you, Mr. Gilman. I am
 5 going to take Chairman's prerogative to introduce our
 6 first speaker, Captain Jack Crawford. Mr. Crawford
 7 served as a member of our Board from its inception in
 8 1989 until 1996. He served with distinction with the
 9 Atomic Energy Commission as Principal Deputy Assistant
 10 Secretary for Nuclear Energy. He was Deputy Manager for
 11 Naval Reactors under Admiral Rickover, and most notably,
 12 he is a survivor of the sinking of the aircraft carrier
 13 USS Yorktown during the second world war. That trumps
 14 everything else in the bio, as far as I'm concerned.
 15 Captain Crawford, when you made your remarks
 16 during the -- can you hear me, sir?
 17 CAPTAIN CRAWFORD: Thank you, Mr. Chairman.
 18 CHAIRMAN HAMILTON: When you made your remarks
 19 during our August hearing, you gave us some written
 20 remarks and written questions, which we included in the
 21 record to be asked to the Department of Energy. We have
 22 woven most of those questions into our lines of inquiry
 23 today. So I want to thank you for your submission, and
 24 I want to assure you that your experience, wisdom and
 25 insight continue to be highly valued. So thank you,

1 Mr. Crawford. Please, you have the floor. I am going
 2 to give you 10 minutes.
 3 CAPTAIN CRAWFORD: Okay. I have three
 4 questions. The first is a statement, the Board's letter
 5 of September 17, 2018 states that the Board's primary
 6 concerns are in disclosure. They are in four categories
 7 as follows: Exemptions, public health and safety,
 8 determinations of access, and deliberative information.
 9 All appear to be capable of being resolved so as to be
 10 consistent with the Board's enabling legislation.
 11 Is it not, however, important that the Board
 12 appears not to consider -- does not consider lack of
 13 technical expertise within DOE a matter of primary
 14 importance? I say "appears" because it may be that you
 15 do, but it is not evident in the correspondence.
 16 Second question: The agenda for Session 1 has
 17 as a goal, gather information on DNFSB interface and
 18 access to information, facilities and personnel managed
 19 by the Department of Energy Office of Environmental
 20 Management. Now, does this mean that the latter, namely
 21 the Office of Environmental Management, has line
 22 management responsibilities for efforts of the DOE line
 23 in building, operating and maintaining Defense Nuclear
 24 Facilities? Because if it does, this violates a
 25 fundamental principle of safety; namely, that

1 responsibility for safety can only -- only be met by
 2 those responsible for doing the work involved. Others
 3 may help, but this does not lessen the responsibility of
 4 line management for safety. Moreover, the purpose of
 5 DOE -- or stated purpose of DOE Order 0140.1 is to
 6 emphasize line management and responsibility.
 7 Finally, question number three: The Board's
 8 enabling legislation requires it to "raise the level of
 9 technical expertise in DOE substantially." Has the
 10 Board issued formal recommendations to DOE that this be
 11 done? And if they have, what have been the results?
 12 Thank you, sir, for allowing me this opportunity
 13 to ask questions.
 14 CHAIRMAN HAMILTON: And, Mr. Crawford, if you
 15 would offer those comments on paper, we will include
 16 those in the record.
 17 CAPTAIN CRAWFORD: You and every member of the
 18 Board have an envelope with these questions, and I have
 19 a few extra copies that I will hand out.
 20 CHAIRMAN HAMILTON: Well, thank you, sir.
 21 CAPTAIN CRAWFORD: And moreover, anyone who
 22 writes me and gives me their name, I will mail them a
 23 copy of these questions, okay?
 24 CHAIRMAN HAMILTON: Thank you, sir, for your
 25 continued service to the public.

1 CAPTAIN CRAWFORD: Thank you for this
 2 opportunity, Mr. Chairman.
 3 CHAIRMAN HAMILTON: I will turn the proceedings
 4 back over to our acting general counsel, Mr. Gilman.
 5 MR. GILMAN: Thank you, Mr. Hamilton. I will
 6 confirm that I received his written comments.
 7 So the next -- and thank you again for your
 8 statement, sir.
 9 The next speaker is Ms. Kathy Crandall-Robinson
 10 of Tri-Valley CAREs and the Alliance for Nuclear
 11 Accountability.
 12 MS. CRANDALL-ROBINSON: Thank you very much for
 13 the opportunity to participate in this hearing and to
 14 provide comments today. My name is Kathy
 15 Crandall-Robinson, and I am speaking for the Alliance
 16 for Nuclear Accountability and Tri-Valley Communities
 17 Against a Radioactive Environment. ANA is a network of
 18 more than 30 organizations located near DOE and NNSA
 19 Defense Nuclear Facilities, including Tri-Valley CAREs,
 20 which is near Lawrence Livermore Laboratory, and for
 21 over 30 years, ANA leaders have addressed nuclear
 22 weapons production and waste cleanup issues across the
 23 weapons complex and have developed really extensive
 24 experience working with DOE, NNSA and the Safety Board.
 25 We are deeply concerned that Order 140.1

1 constrains crucial oversight activities of the DNFSB and
 2 thereby endangers public and worker health and safety.
 3 Since its establishment, the Safety Board has played a
 4 vital role in protecting public health and safety. It
 5 has identified numerous hazards, like buildup of
 6 explosive and flammable glasses at Hanford waste tanks,
 7 fire hazards at WIPP, seismic dangers at Los Alamos,
 8 bulging and disabled waste storage from Oak Ridge, and
 9 many more.

10 Advice from the Safety Board has led to changes
 11 in safety design for facilities and corrective actions,
 12 and safety culture improvements at sites across the
 13 complex. Stakeholders and community leaders have very
 14 high praise for the information that they learn about
 15 the sites from regular site reports provided by the
 16 DNFSB.

17 A particularly egregious problem that we find
 18 with Order 140.1 is that it redefines and limits the
 19 role of DNFSB in protecting worker safety and health.
 20 This is an area where the Safety Board has played a
 21 crucial role, and of particular illustrative story about
 22 this was in a recent Santa Fe, New Mexico story entitled
 23 Exposed: The Life and Death of Chad Walde. This news
 24 article details Mr. Walde's journey working in high
 25 radiation areas at Los Alamos National Labs from fall of

1 1999 to fall of 2014, and cites DNFSB reports as
 2 evidence of exposures.

3 Walde received high doses, with scrubdown on
 4 more than one occasion, and was told to stay home at
 5 various periods of time. In 2014, he was diagnosed with
 6 stage 4 glioblastoma, a rare brain cancer. When he
 7 applied for medical care and compensation, the exposure
 8 records were gone, but notably, the DNFSB reports
 9 remained. Unfortunately, in early 2017, Mr. Walde died
 10 at the age of 44.

11 We do recall also that in the decades before
 12 DNFSB existed, major accidents, spills and releases were
 13 considered routine and justified in the service of a
 14 mentality of production first and safety second, at
 15 best. And I'll note, because Rocky Flats was mentioned,
 16 in the days before DNFSB, Rocky Flats was once a scary
 17 place. I know because I grew up in Boulder.

18 Order 140.1, with its degradation of DNFSB's
 19 role and authority, threatens to send us on a path back
 20 to a careless era as if this were a time when safety
 21 concerns and dangers at the nuclear weapons facilities
 22 are shrinking. They are not. Instead, there are aging
 23 facilities, facilities operating with serious safety
 24 concerns have been raised, and some facilities where
 25 increased production plans could lead to novel dangers.

1 For example, the plans with plutonium pit
 2 production that call for 80 pits per year by 2030,
 3 expansion at Los Alamos, and also a new facility at the
 4 Savannah River site.

5 We heartily agree with the Board's communication
 6 to Congress that the Secretary's order wrongly attempts
 7 to diminish the authority granted by Congress for the
 8 Board. We share the major concerns the Safety Board has
 9 very carefully explained, and I wanted to highlight
 10 three specific problem areas.

11 The first is this notion of DNFSB's role of
 12 protecting public health applying only outside of the
 13 site boundaries. And related to this really is the
 14 exemption of Hazard Category 3 and facilities below this
 15 hazard level, as well as the sort of dismissal of the
 16 DNFSB role in worker health and safety.

17 Many of the risky facilities now under DNFSB's
 18 purview, which we've discussed today, fall into this
 19 Hazard Category 3 or below. These facilities can and do
 20 change hazard classification. DOE claimed in a
 21 PowerPoint presentation rolling out the implementation
 22 of this order that by definition, Hazard Category 3
 23 nuclear facilities have the potential for only
 24 significant localized risks, as opposed to risks to the
 25 public, and are therefore exempted by the order.

1 At Livermore Labs, in particular, this is a flat
 2 argument. The public is so closely located to many of
 3 the facilities that they're closer than so-called
 4 collocated workers on the site, even though they're
 5 outside of the boundaries. Even at other sites where
 6 there is more physical separation, significant localized
 7 risks should definitely be overseen by the Safety Board.
 8 Negligence with dangerous materials results in releases
 9 in the air and water that travels beyond boundaries.
 10 Contamination can be carried home by workers who live in
 11 our communities.

12 Curtailing DNFSB oversight of worker health and
 13 safety is dangerous and a tragic mistake. Worker safety
 14 is what assures public safety. They cannot be delinked.

15 We're concerned, also, about the access to
 16 contractors and site workers. The constraints set forth
 17 in the order seem to set up some new procedures that
 18 could be cumbersome, counterproductive, confusing,
 19 timeliness issues, as Mr. Santos brought up, and we
 20 believe that this is at odds with the enabling
 21 legislation that actually directs that each contractor
 22 should fully cooperate with the Board.

23 Lastly, the ability to deny access to
 24 predecisional documents and deliberative meetings is
 25 concerning. In general, the DNFSB's expertise and

77

1 safety perspective will be most helpful in developing
 2 orders, procedures and requirements that help to address
 3 safety concerns at the earliest stage. The Board does
 4 not have the regulatory authority to sanction or stop a
 5 decision; instead, its value really is in providing
 6 sound information and advice. That advice is most
 7 useful at the deliberative and predecisional phase.
 8 This is especially true with access to early
 9 construction design. It is less helpful and more
 10 expensive for safety design flaws to be discovered at
 11 later stages. We always recall that UPF design fit
 12 fiasco.

13 Taken together, the order constrains the flow
 14 and access to information. These constraints will
 15 likely have a chilling effect over time on DNFSB site
 16 representatives and inspectors, and the information they
 17 seek, as well as the workers and contractors and the
 18 information they willingly provide. Information flowing
 19 to the public and stakeholders at the sites were also
 20 concerned.

21 MR. GILMAN: Ninety seconds.

22 MS. CRANDALL-ROBINSON: The goal of preventing
 23 safety incidents at the earliest stages is thwarted by
 24 what really seemed to be adversarial bureaucratic
 25 hurdles. We are especially worried that there were so

78

1 little iterative and collaborative discussion in
 2 developing this order with the Safety Board, with
 3 stakeholders, workers and contractors on the sites, and
 4 apparently very little discussion with Congress.

5 On August 27th, ANA sent a letter calling on DOE
 6 to rescind the order, or at least hold it in abeyance
 7 while public hearings at each site subject to DNFSB
 8 oversight could be held. It's three months later, we
 9 have not received a response from the Energy Secretary
 10 to our letter either.

11 On November 27th, just yesterday, we sent --

12 MR. GILMAN: Thirty seconds remaining.

13 MS. CRANDALL-ROBINSON: -- a letter to the
 14 Senate and House Armed Services Committee requesting the
 15 annulment of DOE Order 140.1. We want to really thank
 16 the DNFSB and the efforts that you have made at these
 17 hearings, and the letters, the redline strikeout effort,
 18 all of that.

19 We would like to ask in addition to the hearings
 20 you have planned, one additional hearing in Washington
 21 State to be focused on cleanup issues at Hanford, and we
 22 call on the DNFSB to continue to exercise the full
 23 extent of your authority in imposing the constraints
 24 that limit access to facilities, people and information
 25 that are at the heart of this order.

79

1 Our members, including site workers, and our
 2 communities, depend every day on DNFSB diligence. Thank
 3 you.

4 MR. GILMAN: Thank you.

5 Ms. Connery has a question.

6 BOARD MEMBER CONNERY: So I just want to thank
 7 you, Ms. Crandall-Robinson, for your cogent and
 8 thoughtful remarks, and it's good to know that you have
 9 contacted both DOE and the Hill about the concerns of
 10 your organizations, and I guess I just have a quick
 11 question. I often interact with the Tri-Valley CAREs
 12 and the Hanford -- the HAB, the Hanford Advisory Board,
 13 when I go out to the site. I'm just wondering, can you
 14 describe a little bit about the interactions you have on
 15 site with the Department of Energy and the contractors
 16 to get some of your concerns across? I mean, other than
 17 writing a letter, do you guys have any mechanisms for
 18 having interaction?

19 MS. CRANDALL-ROBINSON: Well, there is a lot of
 20 interaction at the individual sites. I know we have
 21 really good relationships with -- we don't have -- there
 22 is not a representative at Livermore, but there is a
 23 very fine cognizant engineer, good relationships there.
 24 And, you know, I think also good relationships with the
 25 site-specific advisory boards at each of the sites.

80

1 And the reason that the Alliance for Nuclear
 2 Accountability was formed right around the same time as
 3 DNFSB is that we were seeing many similar issues come up
 4 at each of the sites, and so formed this network to work
 5 together. And as that has happened, over the years, we
 6 have interacted a great deal with DNFSB from across the
 7 sites.

8 BOARD MEMBER CONNERY: Thank you.

9 MR. GILMAN: All right. The next speaker is
 10 Robin Mills from Peace Farm, Carson City, Texas.

11 MR. MILLS: It's actually Carson County, Texas.

12 MR. GILMAN: I'm sorry.

13 MR. MILLS: Thank you. Robert B. Mills, IV.
 14 Thank you for noticing, I am the great-great-great
 15 grandson of the builder of the Washington Monument.

16 I grew up in Cincinnati, Ohio, I went into the
 17 Navy and graduated from Navy Nuclear Power School.

18 CAPTAIN CRAWFORD: Congratulations.

19 MR. MILLS: Thank you, Captain Crawford.

20 I served honorably in the Navy, and when I got
 21 out, I spent some time focusing on Fernald, and that was
 22 early 1984. I spent several years of my life trying to
 23 find out exactly how much waste and crime had been
 24 committed in Fernald from approximately 1951 through the
 25 mid-'80s. And eventually, we were able to get John

81

1 Glenn involved, primarily Lisa Crawford, thank you,
 2 Lisa, and her organization Fernald Residents for
 3 Environmental Safety and Health. Once John Glenn got
 4 involved, he couldn't get through either. He was being
 5 lied to.
 6 Now, I notice that our DOE people have left.
 7 They don't want to hear this, but it was outrageous.
 8 People were being murdered by our Government through
 9 incompetence, and that's what John Glenn saw and why he
 10 started the legislation which resulted in DNFSB in 1988.
 11 So you might say that I was the butterfly that
 12 resulted in your organization, being kind of amusing.
 13 The plants are getting older. The materials are
 14 getting stressed. Workers are older and they're getting
 15 lackadaisical about what they're doing. Safety is
 16 expensive. Safety is slower. Safety is frustrating.
 17 But I just finished reading a very long expose on what
 18 happened at Fukushima by Bill Vollmann called No
 19 Immediate Danger, and the results of not being safe are
 20 pretty severe. It's outrageous the bags and the
 21 radiation that they had to deal with. Essentially, a
 22 small mistake resulted in a huge disaster costing
 23 trillions of dollars.
 24 The public has a right to know that things are
 25 being done safely, and I do appreciate DNFSB, and your

82

1 efforts. I've noticed back in 2015, you had a nice
 2 report on Pantex where you made specific recommendations
 3 on the physical site safety, and we at the Peace Farm
 4 have been saying the same thing for many years. I was
 5 living back there in the '90s, and I was saying the same
 6 thing. Thank you very much.
 7 So DNFSB has made some great moves, but now, as
 8 far as we can tell, this Order 140.1 is an attempt to
 9 castrate the efforts of DNFSB and make it so that if
 10 anything embarrassing to the Government comes out, it
 11 can be squashed. That's the way we see it at the Peace
 12 Farm. The Peace Farm is one of the member groups of
 13 ANA.
 14 I want to say that I want to be emotional here,
 15 because too many people have been analytical about it.
 16 And I think that the public deserves someone to say, No!
 17 Thank you.
 18 MR. GILMAN: Thank you, sir.
 19 The next speaker is Megan Casper of Energy
 20 Communities Alliance.
 21 MS. CASPER: Chairman Hamilton, members of the
 22 Board, I appreciate the opportunity to provide comment
 23 here today on behalf of the Energy Communities Alliance.
 24 My name is Megan Casper. I serve as the program manager
 25 for the Energy Communities Alliance, or ECA. ECA is an

83

1 organization of local communities adjacent to or hosting
 2 U.S. Department of Energy and National Nuclear Security
 3 Administration facilities. Our communities are those
 4 that will be directly impacted by how policies such as
 5 Order 140.1 are implemented.
 6 Since the DNFSB hearing on August 28th, 2018,
 7 ECA has met with DOE officials to share our concerns and
 8 to better understand DOE's reasoning for the new order.
 9 It was beneficial to speak with DOE directly and explain
 10 that while we agree with many of DOE's goals, such as
 11 and including the need to improve operations, safety and
 12 decrease costs, the order needs clarification.
 13 We noted to DOE that in its current iteration,
 14 the order could negatively impact the DNFSB's efforts to
 15 provide independent oversight, a critical function of
 16 the Board. We also identified that our primary concerns
 17 are in ensuring the safety of workers in communities at
 18 the sites.
 19 After our meetings with DOE, we concluded that
 20 with some modification to the order, ECA could, in fact,
 21 support implementing changes moving forward. We ask
 22 that DNFSB identify specific suggested language changes
 23 to the order and meet with DOE on the proposal to try
 24 and resolve differences.
 25 We found it entirely encouraging in Mr. Santos'

84

1 remarks today that the Board has created and reviewed a
 2 redline of this order. We recommend that the DNFSB
 3 share this redline with DOE and with relevant
 4 stakeholders.
 5 We think this will help to clear up confusion
 6 and reconcile misaligned interpretations of the order.
 7 We also think it will ensure that the order language
 8 codifies the intent of DOE and not something else.
 9 Primary clarifications that ECA would like to
 10 see include, but are not limited to, number 1: Access.
 11 DOE and NNSA staff seem to testify at the last hearing
 12 that the DNFSB would have access if requested to Hazard
 13 Category 3 or below sites, but the order appears to
 14 restrict this access. We understand that there is some
 15 reasonable terms that each party, meaning DOE and DNFSB,
 16 could agree to that in no way impacts the statutory
 17 authority of the DNFSB.
 18 Number two: Oversight on site. The language
 19 attempting to define "public health and safety" as only
 20 the health and safety of individuals located beyond the
 21 site is unclear. The language should be stated in a way
 22 that does not give the impression that the DNFSB should
 23 not have any oversight of on-site activities,
 24 particularly since all problems that have ever occurred
 25 off-site are caused by on-site activities.

85

1 Number three, restrictions on access to
2 information. Restrictions on predecisional, and other
3 similar information doesn't quite make sense in the eyes
4 of ECA, is unclear and too restrictive since many DOE
5 and NNSA decisions can be delayed for years. For
6 example, would DNFSB only have access to information
7 after a record of decision or other similar action be
8 signed? Then, at that point, it may be too late for
9 input on an issue that impacts human health and safety
10 now.

11 Based on our discussions with DOE, DOE's intent
12 seems to be to ensure that DNFSB is reviewing DOE's
13 decisions and not its analysis of options that may never
14 be pursued, but ECA's position is that needs to be clear
15 in the order itself.

16 ECA maintains that the independent oversight
17 role that DNFSB fills is necessary for the safety of
18 communities and its workers. In addition, DNFSB should
19 also review its own operations. ECA has made
20 recommendations to DNFSB in the past in this regard and
21 these include: One, DNFSB should work together with DOE
22 to ensure open communications and jointly develop
23 solutions to its problems identified in its reports;
24 two, DNFSB should prioritize communications with the
25 communities most directly impacted by the report and

86

1 decisions in order to ensure that there are
2 opportunities for meaningful and timely input before
3 recommendations are made; three, DNFSB should include a
4 cost benefit and risk reduction analysis to ensure that
5 they take into account budgets and feasibility while
6 developing any recommendations; and finally, DNFSB staff
7 members should heed its independent oversight role and
8 recuse themselves if any possibility of bias or
9 opposition to a project exists.

10 In closing, ECA encourages DOE work
11 cooperatively with the DNFSB and public stakeholders to
12 ensure that the language of the new order aligns with
13 the Department's actual goals to increase the efficiency
14 and safety of its interactions, and the health and
15 safety of workers and communities supporting the nuclear
16 weapons complex.

17 We have prepared formal comments that we will
18 supply to you and ask that it be submitted into the
19 record of today's hearing.

20 With that, I thank you for your time.

21 BOARD MEMBER CONNERY: So, ma'am, before you sit
22 down, can we just ask a few questions?

23 MS. CASPER: Sure.

24 BOARD MEMBER CONNERY: Sorry. So I appreciate
25 ECA's interest in the order, and the fact that you've

87

1 had conversations with DOE is helpful. We haven't
2 actually had a sitdown communication with you at all, we
3 have only received comments in this way. You talked
4 about the need for DOE and the Defense Board to work
5 together to solve problems, and yet your recommendation
6 is that we start with their order and then modify their
7 order to make sure it meets their intent.

8 So I guess my question for you is, you know, as
9 the Defense Board, I would have thought that the
10 solution set would be for DOE and for the Defense Board
11 to sit down and perhaps come together for a Memorandum
12 of Understanding rather than try to rewrite an order
13 that's problematic at its base. And I just wanted to
14 know if you had any reaction to that.

15 MS. CASPER: Sure. I think there's definitely a
16 question of what should have been done, but that's not
17 one that I think ECA or its members in discussion of
18 this order and in discussion of how we are to respond to
19 it, that's not really what we've talked about. Instead,
20 it's more discussion of what needs to be done now.

21 So rather than dealing in hypothetical what-ifs,
22 what could have been done, what should have been done,
23 what can be done now is the question we're hoping to
24 address.

25 And at the point where DOE has already as of I

88

1 think it was May this year implemented this order, Order
2 140.1, how can we moving forward ensure that it is
3 amended or adopted to incorporate stakeholder interests
4 and to incorporate the concerns that the DNFSB has.

5 So I appreciate the point you're making, but I
6 think that's not the way that ECA has been approaching
7 it.

8 BOARD MEMBER CONNERY: Okay. Thank you.

9 MS. CASPER: Thank you.

10 MR. GILMAN: All right. The final speaker is
11 Lydia Dennett of the Project on Government Oversight.

12 MS. DENNETT: Thank you very much for the
13 opportunity to comment today. My name is Lydia Dennett,
14 I am an investigator with the Project on Government
15 Oversight, or POGO. POGO is a nonpartisan independent
16 watchdog that investigates and exposes government waste,
17 corruption and abuse of power. We work to support the
18 independence of oversight agencies and amplify their
19 findings to achieve a more open and accountable Federal
20 Government.

21 The Defense Nuclear Facilities Safety Board is
22 one such organization, and POGO is concerned that this
23 DOE Order 140.1 significantly and improperly undermines
24 the Board's access to Defense Nuclear Facilities and
25 personnel and restricts its ability to perform

1 meaningful oversight of the matters that most affect
 2 public health and safety.
 3 We know that DOE prides itself on ensuring its
 4 defense nuclear sites maintain the highest levels of
 5 safety and security standards, and this order appears to
 6 be intended to underscore the Department's commitment to
 7 this and its possibility to manage risks and hold
 8 management accountable, but POGO's concern is that it
 9 may instead unduly restrict the Board's ability to
 10 thoroughly review and assess potentially catastrophic
 11 safety issues.
 12 POGO is particularly concerned about the order's
 13 requirements for how Department contractors should
 14 respond to requests for information from the Board. The
 15 DOE outsources the operation and management of its
 16 Defense Nuclear Facilities to a select group of
 17 contractors and contractor consortia, and the vast
 18 majority of workers at these sites are contract
 19 employees. In order to get the most accurate and timely
 20 information, the Board needs to be able to work directly
 21 with the contractors managing the facilities.
 22 Under this order, these contractors would be
 23 required to refer all requests for information to a
 24 Departmental site liaison to determine an appropriate
 25 response, and only after a response from the site

1 they may not want to come to light, but we feel strongly
 2 that DOE's obligations are to the public, and the
 3 interests of its contractors should only be considered
 4 with an eye toward what is in the best interest of
 5 taxpayers.
 6 Time and time again, Government oversight
 7 groups, including POGO, have found that the Department
 8 has been unwilling or unable to hold its contractors
 9 accountable. Congress created the Board to provide
 10 additional accountability and review for issues that may
 11 affect the safety of the communities around and within
 12 these cities. As the Department embarks on a trillion
 13 dollar, 30-year plan to modernize the nuclear weapons
 14 stockpile, it should not be curtailing any kind of
 15 safety oversight.
 16 I would further like to echo the other comments
 17 that have been made today regarding some of the other
 18 issues. In particular, the narrowing the definition of
 19 public safety to exclude worker safety. The Department
 20 has not yet provided a compelling reason for so
 21 dramatically reducing the scope of the Board's
 22 jurisdiction, but the Board's track record shows how
 23 important its work is for addressing these issues in
 24 particular. Its recommendations have led to several
 25 major worker safety improvements across the complex, but

1 liaison would they be able to officially respond to the
 2 Board. This seems like an unnecessary and impractical
 3 bureaucratic hurdle, especially since Government
 4 employees at these sites are already often overburdened
 5 with other contract management issues.
 6 POGO is further concerned about the role
 7 contractor organizations may have played in the
 8 formulation of this order. At the August hearing
 9 earlier this year, DNFSB Board members referenced a 2017
 10 memo from numerous DOE contractors requesting an
 11 evaluation of the Department's manual for working with
 12 the Board for revision and conversion into an order,
 13 indicating this process may have been undertaken
 14 partially at the request of the contractors.
 15 In response to your questioning, DOE confirmed
 16 that the team in charge of crafting the order did not
 17 formally incorporate any input from worker unions, the
 18 public or even the Board itself. We've seen that
 19 contractors have long complained that the Department's
 20 oversight practices are overly burdensome and requests
 21 for information and data can be time consuming and may
 22 not always result in recommendations that support the
 23 contractors' interests.
 24 This change in policy makes it easier for
 25 contractors to hide under details or information that

1 without an official formal recommendation, the
 2 Department, the Board and the public cannot track these
 3 concerns or hold facilities accountable if they fail to
 4 address risks to worker health and safety.
 5 So we feel that the Department should welcome
 6 the Board's involvement and participation in developing
 7 an interface guidance that facilitates oversight rather
 8 than restricting it. We strongly encourage DOE to
 9 revise this order or put together a Memorandum of
 10 Understanding and work with the Board so that they can
 11 continue to issue robust and meaningful safety
 12 recommendations. Thank you.
 13 MR. GILMAN: That's the final speaker on our
 14 list.
 15 CHAIRMAN HAMILTON: Yeah, I just wanted to
 16 briefly make a small correction to your comments. The
 17 Department of Energy did, in fact, reach out to us prior
 18 to the issuance of this order to get an input. In the
 19 first hearing, I gave the specifics on that. I don't
 20 have the dates with me, but in effect you can go back
 21 and look at the first hearing to get the details.
 22 The administrator of the NNSA offered me and the
 23 Board a very short period of time to give very
 24 high-level comments via just an email, but you are
 25 correct, there was no formal review by the Board or its

93

1 staff, but there was this very quick informal
2 opportunity for us to express our concerns prior to the
3 order's being signed out.

4 So just a little bit of a nuance on that just
5 for clarification for everybody. Thank you.

6 Go ahead, Mr. Gilman.

7 MR. GILMAN: Yes. So that is --

8 CHAIRMAN HAMILTON: Mr. Santos has something.

9 BOARD MEMBER SANTOS: Yeah, thank you for
10 clarifying. You know, it was informal, it was to the
11 Chairman, not to the Board members, and while I saw some
12 feedback provided, my understanding is none of that
13 actually made it to the order, nor was there any reply
14 to such feedback. I just want to tell the full story
15 there. Thank you.

16 MR. GILMAN: So that was the last speaker on our
17 list. Now we will take anyone else who is interested,
18 and we have someone right now. My apologies.

19 MR. MASSEY: I put my name on the list, I wasn't
20 going to say anything, but I thought I could. My name
21 is Herbert Massey. I have 47 years of nuclear
22 experience, 21 commercial, 24 I worked on the Board's
23 staff, and I have lots of comments in the past.

24 My feeling is probably in between the two things
25 I've heard here, so I will probably get both sides upset

94

1 at me, which means I'm probably approaching truth, but
2 what I -- well, first of all, I would say the access
3 question should be resolved in the sense that the
4 resident inspectors should have full access. Whatever
5 the NRC does, I think the Defense Board ought to have.
6 So I think that should be -- that should be taken off
7 the table.

8 One of the things I think that would help, and I
9 agree with what Mr. Crawford said, I learned a lot from
10 him about line managers being responsible. The Board
11 issued a recommendation 93-3 to improve the technical
12 capability of the DOE people, and that was 25 years ago.
13 And so the question is, well, where is that at? There
14 are good people in DOE. I've seen some. It depends on
15 where you look and stuff and what level.

16 And I've seen some people -- I've seen a lot of
17 good people, but, you know, there are holes here and
18 there, and I recall Mr. Crawford one time, he said his
19 goal would be looking down some day and seeing some of
20 the staffers dispersed out in the DOE, and I think some
21 of that has happened. Matt Moury and Ike and so forth.
22 I remember those words were said in probably 1992 I
23 think.

24 One of the things I think has to be done with
25 the order is where I have the problem is the focus on

95

1 what facilities you all look at. Let me just give you
2 my quick thoughts on that. The facilities should be
3 ranked, I think, and tied into the order. This is my
4 ranking of them.

5 Let me just read this. And I'll submit this for
6 the record. I'll have to go back home and write this
7 up. But nuclear weapons facilities, of course; the
8 high-level waste facilities -- I knew ECA, I went to an
9 ECA meeting a year ago on that. They did a really good
10 job on that. That's highly important that no one messes
11 around with those.

12 Then you've got plutonium facilities are a high
13 priority. Then it goes down, I'd say tritium, TRU Waste
14 is lesser, uranium is less than that I think because the
15 doses are lower. I'm calling them pharmacies. Then
16 you've got low-waste facilities like WIPP, and then
17 you've got decommissioning activities, which are some --
18 unless you're decommissioning a high-material facility,
19 those are actually lower priorities. And I still
20 remember Mr. Crawford said that in 1991, or '92 at a
21 meeting, that decommissioning was easy and low-tech. So
22 I have a history in all that stuff.

23 So I think if you order things and looked at
24 risks and consequences and how far the Board has to go
25 into some of these things, you'd have more credibility

96

1 relative to DOE. I think that's really the point or the
2 issues that they're fighting.

3 Joe Denino [phonetic] said something that was
4 profound to me, and my first supervisor, Wes House
5 [phonetic], said the same thing. We're not working on
6 safety for safety's sake, we want safe operations. We
7 want the plants to operate, but we want them to do it
8 safely.

9 Now, I also strongly believe that most people,
10 there may be exceptions, most people generally want to
11 work in a safe environment. You know, we sometimes
12 forget that. No one wants to jeopardize and go home and
13 cause a problem with their family.

14 One good model for this was -- I think I worked
15 on the Rocky Flats closure project, and there was an
16 interface agreement that would have worked on other
17 projects, I think. They had a split between the DOE
18 scope, Defense Board oversight and like the EPA scope,
19 and the state scope. Some of the stuff could be done by
20 other entities. Defense Board didn't have to do
21 everything. They worked on the high-risk stuff and then
22 they cut it off and it still got done. Everything got
23 done safely at Rocky Flats. That site is now gone,
24 essentially. So that's an example.

25 So the order, when I first read the order, I

97

1 read -- I skimmed it a couple of months ago, but I read
2 it on the train coming down. There's some overreach in
3 it, and I think the truth I think needs to be in
4 negotiation. I think the order probably goes too far,
5 but I think what we did before was too far on our side.
6 I think the truth is maybe somewhere in between.

7 And I heard some good comments, like cost
8 benefits is important. You know, you don't want to
9 spend a billion dollars on something that's trivial.
10 And I remember Vic Staal [phonetic] one time when we
11 were starting at Rocky Flats, I won't tell you who, one
12 of the group leads said, you mean we're going to spend
13 \$2 billion on penny tarps for K-Reactor? And the guy
14 backed off and said, no, no, I didn't mean that. That's
15 the kind of thing I'm talking about.

16 So, in summary, site reps ought to have full
17 access, whatever NRC does, and then I think there needs
18 to be negotiation on the order. I think the truth is
19 somewhere in between. Those are my comments.

20 MR. GILMAN: Thank you, sir.

21 I'll just take this time to ask if anyone else
22 who would like to make a comment. Yes, sir?

23 MR. CRAWFORD: My name is Jack Crawford, I'm the
24 son of Captain Crawford, and me being up here is the
25 ultimate irony, because when dad asked me to bring him

98

1 down, I can tell you I never in my life thought I would
2 be up here addressing you.

3 First of all, let me say that I know the very
4 fact that you have these meetings testifies to how
5 seriously you take the whole issue of nuclear safety. I
6 know that from listening to my father, I know it from
7 his stories of years and years and years of being in the
8 Navy. I'm sorry, what's your name, sir? This gentleman
9 here, being in the Navy. And I know from his stories
10 that this gentleman's absolutely right. Getting through
11 Nuclear Reactor School is incredibly difficult. I never
12 could have gotten through it myself.

13 I know from talking to my dad and people who
14 have gotten through it, that the Navy has never lost a
15 nuclear submarine. They've lost two submarines. In
16 neither case was either one of them, the sinking of
17 either one due to a nuclear accident. It's because
18 their standards are so rigorous that they have never had
19 an accident.

20 And I know that the Board in part is kind of
21 coming out of that tradition. I kind of feel like,
22 watching this, I sort of feel like, I've spent my whole
23 life as a coach and a teacher, okay? I am not in any
24 way, shape or form qualified to speak on technical or
25 scientific issues, but I sort of feel like I'm watching

99

1 something that reminded me of the NFL situation. These
2 are the players, you guys are the union reps, okay,
3 people bring to you issues of concerns about concussions
4 and injuries, and the NFL owners, and the commissioners,
5 they leave. They leave when the players, you know, are
6 trying to present issues of safety to the people that
7 should be hearing it.

8 I can't for the life of me understand why one,
9 two, three, four, five, six people get up here, talk to
10 the people who take these issues seriously, and when
11 they're hearing -- when they should be hearing from the
12 public, they leave. I'm sure they had very good reasons
13 for leaving, which means I have no idea why they left,
14 okay? It's a diplomatic way of saying that, okay? But
15 I'm sure they had reasons for leaving, but I can't
16 understand why they're not here listening to people who
17 are living in situations where they're impacted in a
18 very real way when it comes to lack of safety measures
19 in nuclear facilities.

20 So, again, not trying to in any way, you know,
21 criticize you for your efforts. I know you're in a
22 situation where you have to do what you think is best
23 for the public, and I know you do, but the people who
24 should be hearing it, as much as anybody, aren't here.
25 And I just don't know why. I just find that very hard

100

1 to believe. That's all I want to say.

2 CAPTAIN CRAWFORD: Mr. Chairman, you are looking
3 at the proudest father on the planet.

4 CHAIRMAN HAMILTON: Just for the record,
5 Mr. Crawford, Jr., there are DOE executives here, I'm
6 not going to identify them, but they're also monitoring
7 this. So I get your point, but I just wanted to modify
8 it a little bit and make sure you're clear.

9 CAPTAIN CRAWFORD: I stand corrected. Thank
10 you.

11 MR. GILMAN: Is there any other members of the
12 public that would like to make a statement?

13 (No response.)

14 MR. GILMAN: Hearing no response, I thank each
15 of our public commenters for speaking. At this time I
16 will turn the proceedings back over to Mr. Hamilton for
17 closing remarks.

18 CHAIRMAN HAMILTON: Thank you, Mr. Gilman. I
19 will now turn to my fellow Board members for their
20 closing remarks, if any.

21 Board Member Santos?

22 BOARD MEMBER SANTOS: Thank you, Mr. Chairman,
23 and thank you again to the Department of Energy
24 officials that witnessed today, and all the participants
25 in this hearing. Again, I want to thank our DNFSB staff

101

1 and all the support personnel that made today's hearing
 2 possible, as well as my fellow Board members.
 3 Ensuring public health and safety, that's what
 4 it's all about, and I take that very seriously. So our
 5 independent nuclear safety oversight mission continues
 6 to be extremely important, even after the 30-year
 7 history of the Board. Especially when one studies the
 8 challenges that are currently facing the Defense Nuclear
 9 Complex.
 10 The issuance and implementation of Order 140.1
 11 is creating external pressures to this agency with the
 12 potential to undermine the effectiveness of the Defense
 13 Nuclear Facilities Safety Board in ensuring adequate
 14 protection of public health and safety. The message we
 15 continually receive from the Department is there's no
 16 change.
 17 So I ask myself, so why issue this order? I
 18 just can't reconcile the language of the order with the
 19 theme of there's no change. So I am concerned that
 20 things will change as people implement this order. I
 21 hope I'm proven wrong, and I do remain optimistic that
 22 we will be able to find a way to truly collaborate with
 23 the leadership of the Department, to truly have a
 24 dialogue, to revise the order, to improve the interface
 25 between the two agencies, or whatever other solution is

102

1 out there. This is too important.
 2 However, I need to recognize that it's equally
 3 important that the -- that we the DNFSB address our
 4 internal issues that are also creating pressures and
 5 undermining our performance and effectiveness in
 6 ensuring adequate protection of public health and
 7 safety.
 8 These internal issues continue to be documented
 9 in several recent studies, there is some press coverage
 10 like Ms. Connery mentioned, such as the Inspector
 11 General reports and a study conducted by the National
 12 Academy of Public Administration. That is why I support
 13 and look forward to the upcoming public business meeting
 14 on December 20th, 2018, so we as a Board can address
 15 internal issues with the same enthusiasm and
 16 collaboration that we are using to address the external
 17 issues presented by Order 140.1.
 18 I continue to express to my fellow Board members
 19 that I believe the Board should be equally transparent
 20 and timely until the December 20th upcoming meeting and
 21 that is why I continue to encourage that we have a forum
 22 similar to this one today where we are livestreaming the
 23 meeting and we provide the public with an opportunity to
 24 provide comments.
 25 So this concludes my statement. Thank you,

103

1 Mr. Chairman.
 2 CHAIRMAN HAMILTON: Thank you, Mr. Santos.
 3 Board Member Connery?
 4 BOARD MEMBER CONNERY: Thank you, Mr. Chairman.
 5 Thank you fellow Board members, and I want to thank the
 6 public for coming today and participating. I don't have
 7 prepared remarks, so I am going to ad lib, which is
 8 always a scary thing for those involved.
 9 I do want to associate myself with some of the
 10 comments we have heard from the public. I think
 11 Mr. Massey is right, you know, there are three sides to
 12 every story, his side, her side and the truth. And I
 13 think the truth is probably in between, but what we have
 14 to look at are the words on the page. And again, I have
 15 full confidence that the Honorable Assistant Secretary
 16 White and her counterpart in NNSA are going to do the
 17 best things that they can do for both public health and
 18 safety and to be good stewards of the public coffers.
 19 That being said, we don't know what's going to
 20 happen down the road. And those words on a page will
 21 have effects in decisionmakers that will come after, and
 22 they actually already have effect even on the Board and
 23 the Board staff as we start to look at all of our
 24 comments and decisions and say, how does this fit within
 25 the order?

104

1 So we may be eroding safety accidentally, just
 2 because we've looked at the order and the words on the
 3 page and we're now trying to retrofit everything we do
 4 into the words that were created by one party to a
 5 collaborative effort. And I think that's problematic
 6 and I think we have to worry about it.
 7 I do understand that we need to prioritize. We
 8 are a staff of fewer than 100 in a complex that is, you
 9 know, tens of thousands. And so we can't look at
 10 everything. We have to look at high-risk activities,
 11 but we also have to look at low and medium-risk
 12 activities as well, because how the Department conducts
 13 itself in those activities and how the contractors
 14 conduct themselves are illustrative of how they're going
 15 to conduct themselves in high-risk activities.
 16 And so I have always used the analogy of we're
 17 like sticking a toothpick in a cake while you're baking
 18 to see what's sticky when you pull the toothpick out.
 19 In some cases it's going to come out clean and that's
 20 great; in some cases it's not. And it could describe a
 21 trend that we're going to see in other parts of the
 22 complex that could have high consequences for public
 23 health and safety.
 24 And I do believe that we have responsibility to
 25 understand the risks to the workers and the collocated

105

1 workers. Yes, they are highly trained, they know their
 2 hazards at their facility, if they're in that Defense
 3 Nuclear Facility, but they could be within the site
 4 boundaries and not have exquisite knowledge of the
 5 hazards of the facility that's collocated with them.
 6 They could be the delivery person providing consumables
 7 to one of the buildings. They could be folks on the
 8 ground who are training who don't have understanding of
 9 those hazards. And they're going to be impacted and
 10 it's not going to be a good day for anybody in the
 11 Department or anybody in the Defense Nuclear Facilities
 12 Safety Board and the public in general.

13 So I think we have to take those things into
 14 consideration. And again, we look forward to
 15 interactions with the public. You are our stakeholders
 16 as well. Our responsibility and the mission of our
 17 agency is to oversee DOE, but it's also to provide you
 18 with the confidence that the Department is doing its
 19 job. And therefore, the Department should have a vested
 20 interest in making sure that we can do our job well, and
 21 that we can project that confidence to the public,
 22 because again, everybody comes into their job expecting
 23 safety, and nobody comes in thinking that I'm going to
 24 screw up safety today. But it does happen and I think
 25 we have to be cognizant and cautious in that area.

106

1 So thank you very much.
 2 CHAIRMAN HAMILTON: Thank you, Ms. Connery.
 3 Board Member Roberson?
 4 BOARD MEMBER ROBERSON: Thank you, Mr. Chairman.
 5 I didn't plan on making a closing statement, but I do
 6 have to tell you, I so appreciate all the comments from
 7 the public. I mean, you are articulate, and I think it
 8 always helps put things in perspective. There's no
 9 grand standing, it's not about a power struggle between
 10 DOE and the Board. It really should be focused on
 11 something Mr. Crawford, Jr. said. He said, I'm a
 12 teacher and a coach. I don't know anything about this.
 13 Well, you're your dad's son, you know more than you
 14 think; however, the reason we do this is so you can do
 15 what you do and feel confident that the parties involved
 16 in ensuring safety is occurring where the operations are
 17 occurring are working, and I want to thank every speaker
 18 and thank you not just for your time, but for your
 19 comments. Thank you.
 20 CHAIRMAN HAMILTON: Thank you, Ms. Roberson.
 21 I have one personal comment before we close. I
 22 am left with the same sense that I had after the first
 23 hearing. I like what I hear from the Department of
 24 Energy on this order, I don't like what I read in the
 25 order. Thank you. This concludes my personal closing

107

1 remarks.
 2 I would now like to again thank the witnesses
 3 and the organizations and speakers today for supporting
 4 this hearing. I also want to thank all those who
 5 attended, either in person or via the Internet. Our
 6 goal for this hearing was to gather information on the
 7 Department's Environmental Management interface with the
 8 Defense Nuclear Facilities Safety Board. The Board's
 9 access to facilities, information and personnel and the
 10 potential impacts to the Board's Resident Inspector
 11 Program. This was the second in a series of up to three
 12 hearings regarding DOE Order 140.1. The next hearing
 13 will be in New Mexico in February of 2018, specific date
 14 yet to be determined.

15 BOARD MEMBER SANTOS: Nineteen.
 16 CHAIRMAN HAMILTON: Yes, '19, thank you,
 17 Mr. Santos. February 2019.

18 The specific date is yet to be determined. This
 19 morning we've heard testimony from the Assistant
 20 Secretary for the Office of Environmental Management and
 21 the Manager of the Oak Ridge Office of Environmental
 22 Management, as well as public comment, and so thank you
 23 again for making those comments. We do appreciate it.

24 The Board will consider the information gathered
 25 this morning to inform any actions that we may take

108

1 regarding these issues. Once again, I thank everyone
 2 for participation at the hearing. The record of this
 3 proceeding will remain open until December 28th, 2018.
 4 This concludes the public hearing of the Defense Nuclear
 5 Facilities Safety Board. We are adjourned.
 6 (Whereupon, at 12:32 p.m., the hearing was
 7 adjourned.)

CERTIFICATE OF REPORTER

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

I, Sally Jo Quade, CERT, do hereby certify that the foregoing proceedings were recorded by me via stenotype and reduced to typewriting under my supervision; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were transcribed; and further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of the action.

SALLY JO QUADE, CERT

A				
a.m 1:16	15:25 88:19 89:8 91:9 92:3	adjourned 108:5,7	Alamos 8:23 73:7,25 75:3	apply 43:14,17,22 44:2 45:10 54:10
abdicate 15:19	accurate 5:12 89:19	adjudicated 28:3	align 21:4 60:17	applying 75:12
abeyance 78:6	achieve 24:5 88:19	admin 51:12	aligns 86:12	appreciate 12:4 31:14 33:3,22 35:9 45:3 48:24 53:20 59:9 65:12 81:25 82:22 86:24 88:5 106:6 107:23
ability 16:22 21:10 24:4 28:24 76:23 88:25 89:9	achieving 18:21	Administration 39:13,14 83:3 102:12	Alliance 72:10,15 80:1 82:20,23,25	approach 11:25 21:1 41:8,11 44:9 45:2 46:4 51:9 60:23 62:6 63:25 64:16 65:17
able 24:22 42:4 47:2 47:3 80:25 89:20 90:1 101:22	act 4:5 7:4 16:17 20:13 21:11 25:14 25:24 28:23 49:25 50:2,6 56:16,18 57:4	administrative 50:12	allowing 71:12	approaches 26:25 41:20 43:23 55:3
abnormal 57:21,21	action 27:24 51:1 85:7 109:7,11	administrator 92:22	allows 68:21	approaching 88:6 94:1
absent 26:4	acting 3:13 68:1 72:4	Admiral 69:11	Alpha 40:19 43:13	appropriate 6:17 9:8 15:21 45:9,15 54:24 68:25 89:24
absolutely 35:11 36:19 51:1 66:12 67:12 98:10	action 27:24 51:1 85:7 109:7,11	adopted 62:9 88:3	amended 4:5 7:4 21:11 56:17,19 88:3	appropriately 17:13 44:9 52:2
abuse 88:17	actions 9:23 48:3,8 50:9,14,18 60:9 73:11 107:25	adversarial 77:24	American 7:22 8:2 67:13	approve 57:2
Academy 102:12	active 63:1	advice 14:25 15:17 16:12 17:9,13 19:9 19:15 24:9 47:12 49:1 73:10 77:6,6	ANA 72:17,21 78:5 82:13	approved 9:14 60:2
accept 54:3	activities 8:3 22:20 39:24,25 43:15 73:1 84:23,25 95:17 104:10,12 104:13,15	advise 22:20	analogy 104:16	approximately 5:22 19:3 80:24
accepted 47:25	ad 103:7	advisors 16:7	analysis 14:25 16:12 19:9 29:15 41:8 85:13 86:4	area 39:25 40:3 66:12 73:20 105:25
accepting 7:14 15:15	add 8:5	advisory 79:12,25	analytical 82:15	areas 32:6 33:7 46:11 47:13 64:7 73:25 75:10
access 3:24 4:12 5:5 8:9,12 9:21 11:5 16:18 17:16 18:25 20:24 21:21,23 22:2 23:1 26:1,7,9 26:16 28:19,24 29:4,19 30:21 31:6 32:7,15 33:25,25 34:7 47:1 51:9 55:3,5,9,15,18,23 56:3 70:8,18 76:15 76:23 77:8,14 78:24 84:10,12,14 85:1,6 88:24 94:2 94:4 97:17 107:9	addition 20:8 78:19 85:18	affect 27:8 89:1 91:11	analyze 45:14	argument 76:2
accessing 8:21	additional 68:21 78:20 91:10	affiliation 6:3 68:11	analyzed 42:21	argumentative 12:16
accident 98:17,19	address 9:17 24:6 40:13 44:15 46:24 48:9 52:6 57:4 77:2 87:24 92:4 102:3,14,16	affirm 15:6	and/or 57:25	arguments 12:21
accidentally 104:1	addressed 28:3 52:2 57:13 72:21	affirming 15:10	Ann 13:3	Armed 78:14
accidents 74:12	addressing 14:18 48:3 91:23 98:2	afford 64:8	announced 5:9	arrangements 63:2
accomplish 9:1	adequate 9:24 15:1 16:13,25 22:22 48:4 50:5,10,19 53:7 63:25 101:13 102:6	age 51:8 74:10	annulment 78:15	arrow 29:20
account 86:5	address 9:17 24:6 40:13 44:15 46:24 48:9 52:6 57:4 77:2 87:24 92:4 102:3,14,16	ages 4:22 9:10 14:23 88:18 101:25	anonymous 52:17	article 73:24
accountability 18:2 72:11,16 80:2 91:10	addressed 28:3 52:2 57:13 72:21	agency 53:5 101:11 105:17	anonymously 52:23	articulate 106:7
accountable 15:10	addressing 14:18 48:3 91:23 98:2	agency's 4:6	answer 29:9,12 51:3 59:9	artificial 44:25
	adequate 9:24 15:1 16:13,25 22:22 48:4 50:5,10,19 53:7 63:25 101:13 102:6	agenda 5:21 70:16	anticipated 40:15	asked 35:25 37:3
	adherence 53:24	aging 74:22	anybody 38:6 99:24 105:10,11	
	adjacent 83:1	ago 22:15,18 25:17 38:1 94:12 95:9 97:1	anyway 49:15 65:3	
	adjourn 2:16 7:2	agree 14:2 27:6 63:11 75:5 83:10 84:16 94:9	apart 40:24	
		agreed 33:12 50:9 62:8	apologies 93:18	
		agreement 96:16	apparently 78:4	
		ahead 6:7 65:24 68:15 93:6	appear 70:9	
		air 76:9	appears 64:16 70:12 70:14 84:13 89:5	
		aircraft 69:12	applicable 43:20	
			applied 45:23 46:6 74:7	
			applies 34:24 54:21	

49:24 54:22 59:1 67:6 69:21 97:25 asking 52:4 62:2 assess 27:16 89:10 assessment 34:3 assigns 4:8 Assistant 7:13 10:5 13:3,12 22:13 23:6 23:11,21 24:8 26:11,20 28:9 31:4 31:23 32:1 34:21 35:5,11 36:19 40:4 42:6 46:8 48:15 49:9,21 50:20 54:20 55:7 61:5,11 63:6 65:1 66:2 69:9 103:15 107:19 associate 14:12 103:9 associated 5:15 8:22 11:21 15:20 16:5 32:4 43:12 64:2 assume 54:18 assuming 63:2 assumption 63:5 65:5 assurance 15:13 30:16 48:4 assure 12:15 69:24 assures 76:14 Atomic 4:5 7:3 20:13 21:11 25:14 25:24 28:23 49:25 50:2 56:16,18 57:4 69:9 attempt 82:8 attempting 84:19 attempts 21:9 75:6 attendance 7:18 attended 107:5 attest 66:6 attorney 109:9 AU 37:7 August 4:2 19:22 20:3 21:16 55:22 69:19 78:5 83:6	90:8 authorities 4:6 11:5 authority 7:3 25:15 26:9,12 31:21 41:21,22 74:19 75:7 77:4 78:23 84:17 availability 50:18 available 5:17,18 6:23 19:14 Avenue 1:20 aware 12:13 16:21 26:11 40:11 <hr/> B <hr/> B 80:13 back 7:15 25:4,16 35:6 36:4,7 53:14 61:8,11 69:2 72:4 74:19 82:1,5 92:20 95:6 100:16 backed 97:14 background 26:5 backup 37:10 bad 25:22 bags 81:20 baking 104:17 balance 64:20 bars 30:2,4 base 23:22 63:19 87:13 based 8:15 28:25 29:4 52:25 85:11 baseline 65:5 basic 62:15 basis 14:15 18:4 19:8 27:9 38:3 58:25 beat 57:12 becoming 64:19 65:17 beginning 6:3 68:11 behalf 82:23 belief 46:22 believe 14:22 17:18 18:4 22:11 23:11 52:1 54:3 56:22	63:21 76:20 96:9 100:1 102:19 104:24 beneficial 14:24 83:9 benefit 15:4 27:2 86:4 benefited 49:17 65:6 benefits 19:10 97:8 best 41:5 49:12 52:11 74:15 91:4 99:22 103:17 better 9:9 46:17 66:8 83:8 beyond 21:19 76:9 84:20 bias 86:8 big 37:25 38:18 46:18 Bill 81:18 billion 97:9,13 bio 69:14 bit 27:11 33:10 35:3 41:14 42:12 54:2 63:17 79:14 93:4 100:8 Board 1:3,11,19 2:5 2:14 3:5,9,9,10,11 3:12,19,22 4:11,11 4:13,18,19,25 5:2 5:9,17 6:15,22,25 7:6,8,11,12,20 8:5 8:9,9,10,25 9:4,6 9:11,13,18,22,24 10:4 11:1,3 13:7 13:15,16,20,22,23 13:24,25 14:6,11 14:19,20,22 15:17 16:7,11,11,17,20 16:22 17:15 18:25 19:4,7,15,19,23 20:3,7,9,11,23,25 21:1,6 22:7,12,19 22:23 23:9,9,17 24:3,8,12,15 25:7 26:2,4,8,10,16,17 27:1,11 28:15	30:10,12,21,21 31:8,14,17,25 32:2 32:8,9,24 33:3,4 34:4,13,17 35:1,2 35:9,12 36:17,21 37:11,14,19 38:9 39:6,9,19 40:2,10 40:14,16,25 41:15 42:11 44:17,23 45:7,11,14,18,22 46:13,18 47:2,3,6 47:7,11,18,20 48:23 49:21 50:1,8 50:24 51:6,11,18 51:21 53:3,10,18 53:19,22,23 54:19 55:2,9,12,19 56:2 56:13 58:6,17,18 59:5,11,12,15,15 59:16,18,23 60:2,3 60:18,25 61:4,9,13 61:18,22 62:3,6,7 62:13,24 63:11,13 63:15 64:10,11,24 65:12,15,20 66:14 66:18,20,21,22,23 67:1,4,8,16 68:4,7 68:24 69:7 70:11 71:10,18 72:24 73:3,10,20 75:8,8 76:7,22 77:3 78:2 79:6,12 80:8 82:22 83:16 84:1 86:21 86:24 87:4,9,10 88:8,21 89:14,20 90:2,9,12,18 91:9 92:2,10,23,25 93:9 93:11 94:5,10 95:24 96:18,20 98:20 100:19,21 100:22 101:2,7,13 102:14,18,19 103:3,4,5,22,23 105:12 106:3,4,10 107:8,15,24 108:5 Board's 3:13,15,24 3:25 4:4 5:5,6,20	11:5 14:24 16:18 19:1 21:8,9 24:3 28:24 29:4,18 31:6 42:24 46:2 47:25 48:9 59:22 70:4,5 70:10 71:7 75:5 88:24 89:9 91:21 91:22 92:6 93:22 107:8,10 boards 79:25 bottom 57:2 Boulder 74:17 boundaries 21:20 75:13 76:5,9 105:4 boundary 44:12,13 brain 74:6 Break 2:10 briefly 10:21 66:23 92:16 bring 97:25 99:3 broad 65:25 broader 63:17 broke 40:24 broken 29:16 63:9 brought 76:19 Brouillette 20:5 Bruce 3:4 budgets 86:5 builder 80:15 building 47:19,24 70:23 buildings 105:7 buildup 73:5 bulging 73:8 bullet 57:20 burdensome 90:20 bureaucratic 34:1 77:24 90:3 business 11:11 102:13 butterfly 81:11 <hr/> C <hr/> C 3:1 C.F.R 11:19 64:2 cadence 66:8 cake 104:17
---	--	--	--	---

<p>calibrated 42:2 call 3:6 6:1 25:13 52:16 66:14 68:9 75:2 78:22 call-in 37:1 called 23:13,25 59:1 81:18 calling 52:22 78:5 95:15 cancer 74:6 candidate 29:15,22 30:3 Canyon 39:24 capabilities 42:16 capability 94:12 capable 70:9 Captain 69:6,15,17 70:3 71:17,21 72:1 80:18,19 97:24 100:2,9 captured 62:10 captures 62:15 capturing 43:1 59:9 care 27:14 35:7 74:7 career 49:16 carefully 75:9 careless 74:20 CAREs 72:10,19 79:11 caring 67:12 carried 76:10 carrier 69:12 carry 4:13 8:11 15:10 19:1 26:2 31:7 60:3 carrying 18:19 Carson 80:10,11 case 16:2 33:11 67:9 98:16 case-by-case 18:4 38:2 58:25 cases 104:19,20 Casper 82:19,21,24 86:23 87:15 88:9 castrate 82:9 Cat 30:24 44:5,6,7 44:13</p>	<p>catastrophic 89:10 categories 28:18 30:18 45:1 56:17 56:19 57:4 70:6 categorization 18:15 categorizations 44:24 categorized 18:13 category 16:24 18:7 18:9 21:21 30:5 43:5 47:4 55:10 56:23 75:14,19,22 84:13 caught 34:1 cause 38:7 96:13 caused 84:25 causes 39:17 cautious 105:25 Center 44:22 CERT 109:3,17 certainly 40:11 41:1 44:2 48:12,15,21 49:4 53:7,11 61:6 CERTIFICATE 109:1 certify 109:3 cetera 28:5 32:17 Chad 73:23 chain 52:15 chair 68:20 Chairman 3:3,4 7:5 7:8,10,11 10:2 12:9 19:18 20:2 22:6,10,12 25:8,12 25:19,21 26:13 27:6 32:25 34:10 34:15 39:7 47:6,7 53:21 56:14,20 57:3,9 58:3,9,12 59:8 61:15,20 63:12 66:13,19,22 66:23 67:6,15,23 69:1,3,4,17,18 71:14,20,24 72:2,3 82:21 92:15 93:8 93:11 100:2,4,18</p>	<p>100:22 103:1,2,4 106:2,4,20 107:16 Chairman's 2:4,15 69:5 challenge 27:7,14 challenges 40:3 55:15 101:8 challenging 46:24 change 9:3 23:18,20 23:22 24:15,23 25:2,5 32:19,23 33:6,19 36:4 37:25 37:25 38:10,11,18 54:4,4,7,13,15 55:5 64:23 65:2 75:20 90:24 101:16,19,20 changed 31:5 38:24 changes 4:24 5:1,4 11:3,9,13,18 14:7 21:15,15 63:24 64:1 65:25 73:10 83:21,22 changing 40:20 58:15 64:16 65:10 characterize 65:2 charge 90:16 charged 15:7 16:18 Chief 14:13 chilling 77:15 choice 45:12 Chris 13:6 Cincinnati 80:16 cites 74:1 cities 91:12 City 80:10 claimed 75:20 clarification 83:12 93:5 clarifications 84:9 clarifies 34:24 54:25 clarifying 93:10 classification 75:20 clean 104:19 cleaning 25:16 cleanup 14:4 18:21 39:23 64:18 72:22</p>	<p>78:21 clear 8:15 9:2 16:1,4 20:17,22 65:15 84:5 85:14 100:8 clearly 38:11 close 4:21,23 41:17 44:11 106:21 closely 3:15 18:24 76:2 closer 76:3 closing 2:14,15 46:21 86:10 100:17,20 106:5 106:25 closure 96:15 coach 98:23 106:12 codifies 84:8 codify 11:2 coffers 103:18 cogent 79:7 cognizant 79:23 105:25 Cold 15:23 collaborate 9:8 33:15 101:22 collaboration 33:5 67:11 102:16 collaborative 64:12 78:1 104:5 colleagues 3:8 collectively 26:24 collocated 42:25 47:23 48:4 49:6 51:4 76:4 104:25 105:5 combustible 48:18 come 10:6 12:4 26:24 28:13 33:13 36:6 42:9 80:3 87:11 91:1 103:21 104:19 comes 12:2 27:19 33:24 59:23 82:10 99:18 105:22,23 coming 66:11 97:2 98:21 103:6 command 38:22</p>	<p>39:3 52:16 comment 2:13 6:7 13:23 18:12 67:20 67:25 68:16 82:22 88:13 97:22 106:21 107:22 commenters 100:15 comments 5:8,21 6:6,13,14,16 20:9 61:2 66:15 67:16 68:5,11,14,17,22 68:25 71:15 72:6 72:14 86:17 87:3 91:16 92:16,24 93:23 97:7,19 102:24 103:10,24 106:6,19 107:23 commercial 93:22 Commission 69:9 commissioners 99:4 commitment 15:10 89:6 committed 18:18 80:24 Committee 78:14 common 63:21 communicate 51:20 communication 31:17 55:1 60:7 75:5 87:2 communications 40:8 85:22,24 communities 10:13 72:16 76:11 79:2 82:20,23,25 83:1,3 83:17 85:18,25 86:15 91:11 community 73:13 compared 20:12 21:13 compelling 91:20 compensation 74:7 competitive 13:25 complacent 8:1 65:17 complained 90:19 complementary</p>
---	--	---	---	---

<p>14:1 complete 18:25 completed 35:8 52:13 completely 26:22 43:20 completion 64:21,22 complex 4:10 10:12 20:14 29:16 45:24 46:7,10,25 51:14 53:8 64:19 65:24 72:23 73:13 86:16 91:25 101:9 104:8 104:22 compliant 50:21 component 46:14 components 53:24 concept 33:23 42:23 conceptual 18:1 concern 20:10 31:2 65:14 66:3 89:8 concerned 33:23 47:1 51:17 53:9 65:16 69:14 72:25 76:15 77:20 88:22 89:12 90:6 101:19 concerning 6:15 18:7 20:4 32:8 68:23 76:25 concerns 9:7,17 20:25 52:18,22 61:7 70:6 74:21,24 75:8 77:3 79:9,16 83:7,16 88:4 92:3 93:2 99:3 conclude 12:24 concluded 83:19 concludes 7:5 10:1 102:25 106:25 108:4 concussions 99:3 condition 46:5 conditions 42:20 45:22 conduct 16:18,20 31:8 47:2,3 60:13 104:14,15</p>	<p>conducted 34:22 102:11 conducts 39:23,24 104:12 confidence 7:21 103:15 105:18,21 confident 106:15 confinement 50:6 confirm 48:4 72:6 confirmation 13:19 confirmed 21:8 90:15 confirms 46:22 conflict 26:19 confrontational 12:17 confusing 76:18 confusion 8:20 84:5 Congratulations 80:18 Congress 15:9 65:15 75:6,7 78:4 91:9 connection 11:23 Connery 3:10 10:3,4 12:9 21:1 27:10,11 28:15 30:10 31:14 31:25 32:2,24 39:8 39:9 40:14 41:15 42:11 44:23 45:7 45:11,14,18 46:18 61:17,18 63:13,15 65:12 66:13,20,21 79:5,6 80:8 86:21 86:24 88:8 102:10 103:3,4 106:2 conscientious 15:22 consequence 47:22 consequences 23:14 42:18,21 44:10 95:24 104:22 consider 17:13 18:3 26:18 57:23 61:3 70:12,12 107:24 consideration 15:19 68:20 105:14 considered 57:18 64:23 74:13 91:3</p>	<p>considers 4:13 8:11 9:16 26:2,4,17 consistency 60:20 consistent 16:10 19:2 20:18 40:1 70:10 consistently 8:18 consortia 89:17 conspicuously 26:4 constantly 46:16 constitute 3:12 constrains 73:1 77:13 constraints 76:16 77:14 78:23 construct 57:5 construction 50:15 77:9 consultation 24:10 consumables 105:6 consuming 90:21 contact 6:22 20:22 contacted 5:23,25 41:2 68:6,9 79:9 contained 4:4 5:4 62:17,18 containing 9:15 contains 28:19 Contamination 76:10 contentious 12:14 12:15 continually 101:15 continue 9:24 15:3 17:11 18:19,24 20:23 23:15 31:9 33:6 51:7 62:22 67:11 69:25 78:22 92:11 102:8,18,21 continued 13:21 16:20 67:10 71:25 continues 8:24 31:13 50:11 63:8 101:5 continuous 7:23 contract 25:3 35:23 36:1,3,6 89:18</p>	<p>90:5 contract-sensitive 59:6 contracting 24:25 contractor 17:3 25:1 39:25 48:8 52:19 53:14 55:2 59:14,17 76:21 89:17 90:7 contractors 22:1 25:4 34:25 35:20 35:21,22 36:1 37:16,21,23 52:10 54:8,21,21 56:1,11 57:1 59:5,20 60:9 60:15 76:16 77:17 78:3 79:15 89:13 89:17,21,22 90:10 90:14,19,25 91:3,8 104:13 contractors' 36:16 90:23 contracts 35:22 36:10,16 54:6,11 contradict 21:3 contradictory 63:18 contribution 67:1 control 16:24 17:17 31:19 44:10 45:6 45:11 controlled 34:8 controlling 45:6 controls 28:16,18,21 29:1,20 30:6,9,17 30:23 31:1 32:7 42:17 43:6,10 44:5 44:6,14,15 46:2 47:5,21 50:12 51:12 53:6 conversation 43:4 conversations 87:1 conversion 90:12 cooperate 18:24 41:10 76:22 cooperates 8:8 cooperation 4:11,18 4:21,23 8:12 16:11</p>	<p>33:13 cooperative 40:6 cooperatively 86:11 coordinate 40:1 41:5 copies 71:19 copy 37:2 71:23 correct 25:17 45:13 45:17 57:3,5,7 92:25 corrected 100:9 correcting 43:1 correction 92:16 corrective 48:3 73:11 correspondence 70:15 corruption 88:17 cost 36:5 54:15 86:4 97:7 costing 81:22 costs 83:12 counsel 3:13 49:12 68:1 72:4 109:6,10 counterpart 103:16 counterparts 41:2 counterproductive 76:18 country 18:23 County 80:11 couple 12:10 25:17 39:14 53:1 97:1 course 7:1 11:12 21:17 27:24 36:2 36:11 38:21 40:24 95:7 coverage 102:9 crafting 90:16 Crandall-Robinson 72:9,12,15 77:22 78:13 79:7,19 Crawford 7:15 69:6 69:6,15,17 70:1,3 71:14,17,21 72:1 80:18,19 81:1 94:9 94:18 95:20 97:23 97:23,24 100:2,5,9</p>
--	---	---	--	---

106:11 create 14:2 64:5 created 65:15 84:1 91:9 104:4 creating 101:11 102:4 creation 22:23 credibility 95:25 crime 80:23 critical 15:22 83:15 criticality 8:22 criticize 99:21 critiques 12:21 crucial 73:1,21 culture 28:5 49:17 52:10,11,12,13 65:6,23 73:12 cumbersome 76:18 current 9:3 61:4 83:13 currently 60:2 101:8 curtailing 76:12 91:14 cut 96:22	DC 1:21 deactivate 43:18 deal 80:6 81:21 dealing 87:21 death 57:13 73:23 debate 34:1,6 decade 38:20 decades 74:11 December 6:19 102:14,20 108:3 decide 41:21 67:9 decided 27:24 deciders 56:5 decision 56:21 77:5 85:7 decisionmakers 103:21 decisionmaking 27:25 decisions 17:23 18:3 19:13 85:5,13 86:1 103:24 deck 38:16 decommissioning 40:18 43:12,15 95:17,18,21 decrease 83:12 dedicated 15:13 dedication 12:6 deem 6:17 deemed 68:25 deems 8:25 deeply 72:25 defense 1:3,11,19 3:4,16,22 8:3,8 9:21 10:10 11:6 13:7 15:2 16:6,15 18:8 19:11 21:22 22:2 23:2,8 29:16 29:22 30:1,3,5,25 31:19 37:11 39:11 39:19,22 40:10,25 42:25 46:23 47:14 51:19 56:24 58:17 64:13 70:23 72:19 87:4,9,10 88:21,24 89:4,16 94:5 96:18	96:20 101:8,12 105:2,11 107:8 108:4 deficiencies 43:9 define 84:19 defined 56:20 defines 4:5 33:14 definitely 76:7 87:15 definition 18:9,10 21:18 75:22 91:18 degradation 74:18 delay 8:21 delayed 85:5 delegated 26:9 delegation 26:12 deliberative 17:23 21:23,24 57:11,18 57:25 70:8 76:24 77:7 delinked 76:14 delivered 9:18 23:24 delivery 57:12 105:6 Denino 96:3 Dennett 88:11,12,13 deny 26:7,9 55:10 76:23 Department 1:9 3:16,21 4:16,19,20 5:1 7:24 8:13,18 8:24 9:12 10:22 11:1,3,18 13:25 14:6,20,23 15:12 15:18 16:8 18:18 20:4,16 22:21 27:17 28:7 30:13 30:18 34:25 39:17 42:25 45:12 46:12 47:10,13 48:14 49:1,3 50:11 51:13 54:23 55:4,4 56:3 58:16 59:19,23 60:6,11,15,23 61:2 61:6 62:7 63:20 64:12 65:9,22 69:21 70:19 79:15 83:2 89:13 91:7,12	91:19 92:2,5,17 100:23 101:15,23 104:12 105:11,18 105:19 106:23 Department's 4:10 10:15 11:10 12:1 13:15 14:18 15:2 16:15 21:18,20,23 21:25 48:1 60:17 60:19 63:24 64:11 64:14 67:4 86:13 89:6 90:11,19 107:7 Departmental 22:3 22:5 89:24 depend 79:2 depending 36:3 depends 94:14 Deputy 14:12,17 20:5 69:9,10 describe 9:7 23:7 34:18 35:14 36:23 79:14 104:20 described 29:17 55:22 deserves 82:16 design 73:11 77:9,10 77:11 designated 30:18 designee 26:7 desire 6:7 detail 42:23 detailed 62:21 details 73:24 90:25 92:21 determination 56:25 determinations 22:3 70:8 determine 12:22 45:23 67:3 89:24 determined 107:14 107:18 detract 17:10 18:14 develop 17:23 85:22 developed 4:21 60:17 62:8 72:23	developing 14:16 44:19 77:1 78:2 86:6 92:6 development 4:23 33:21 developmental 20:7 diagnosed 74:5 dialogue 17:12 33:9 33:20 42:10 67:11 101:24 died 74:9 differ 44:11 difference 45:2 54:14 differences 12:18 21:12 28:11 83:24 different 35:23,24 36:12 41:3,7,11,20 41:25 52:2,14 difficult 65:24 98:11 diligence 79:2 diligent 53:20 diminish 21:9 75:7 diminished 34:5 Dinesh 32:21 diplomatic 99:14 direct 24:13 42:5 44:13 51:20 directed 54:18 58:2 directing 52:4 direction 16:16 35:18 59:14 directive 4:21 directives 17:8 directly 83:4,9 85:25 89:20 Director 13:7 19:21 directs 76:21 disabled 73:8 disaster 81:22 disciplined 38:22 disclosure 70:6 discovered 77:10 discuss 5:1 16:23 23:13 25:23 26:15 29:3 30:19 40:1 43:8 46:3 59:18
D				
D 2:1 3:1 D&D 25:4 35:21 43:18 dad 97:25 98:13 dad's 106:13 Danger 81:19 dangerous 76:8,13 dangers 73:7 74:21 74:25 Daniel 3:9 data 6:15 36:20 68:23 90:21 database 8:23 date 6:19 28:13 35:15 107:13,18 dates 92:20 day 67:12 79:2 94:19 105:10 day-to-day 12:5 days 5:19 74:16				

discussed 14:16 20:15,25 21:16,17 45:19 75:18	46:6,25 48:8,12 50:8 52:19 54:21 55:25 56:22 57:5	easier 90:24	employees 17:3 37:16 56:1 89:19 90:4	14:1 15:1 18:2 50:10,15 53:7 63:25 83:17 89:3 101:3,13 102:6 106:16
discussion 2:9 19:17 26:21 37:5 49:11 49:14 58:21 78:1,4 87:17,18,20	59:14,17 60:9,9 64:4,7,15,15,24 70:13,22 71:5,5,9 71:10 72:18,24 75:20 78:5,15 79:9	easy 25:21 95:21	enable 9:22	entered 21:14 29:10 29:23
discussions 13:17 58:18 85:11	81:6 83:7,9,13,19 83:23 84:3,8,11,15 85:4,11,21 86:10	ECA 82:25,25 83:7 83:20 84:9 85:4,16 85:19 86:10 87:17 88:6 95:8,9	enabling 4:4,7 28:22 70:10 71:8 76:20	enthusiasm 102:15
dismissal 75:15	DOE's 11:24 32:5	ECA's 85:14 86:25	encompassed 61:25 62:1	entire 61:6
dispersed 94:20	doing 27:1,17 35:1 45:24,24 65:7 71:2	echo 91:16	encourage 46:20 92:8 102:21	entirely 83:25
dispersion 41:8	DOE-wide 39:10	effect 64:25 77:15 92:20 103:22	encourages 86:10	entities 40:25 57:1 96:20
disposition 22:25 60:7	dollar 91:13	effective 8:5	encouraging 83:25	entitled 73:22
dissents 28:2	dollars 81:23 97:9	effectiveness 101:12 102:5	end-life 42:18	entrance 5:23 6:8 68:7,12
distinction 16:4 44:4 69:8	dose 47:22	effects 103:21	endangers 73:2	envelope 71:18
distinguished 7:17	doses 74:3 95:15	efficiency 86:13	endeavor 11:5	environment 14:3 14:13 72:17 96:11
DNFSB 9:14 70:17 73:1,16,19 74:1,8 74:12,16 75:16 76:12 77:15 78:7 78:16,22 79:2 80:3 80:6 81:10,25 82:7 82:9 83:6,22 84:2 84:12,15,17,22 85:6,12,17,18,20 85:21,24 86:3,6,11 88:4 90:9 100:25 102:3	DPO 52:16,21	effort 64:6 78:17 104:5	Energy 3:21 4:5,8 7:4,24 8:7,13,19 8:24 9:6,12 14:6 14:17 19:24 20:4 20:13 21:7,11 25:14,24 28:23 42:25 49:25 50:2 56:16,18 57:4 59:19 69:9,10,21 70:19 78:9 79:15 82:19,23,25 83:2 92:17 100:23 106:24	environmentally 15:12
DNFSB's 74:18 75:11,17 76:25 83:14	draft 17:16 19:9	efforts 11:24 15:16 35:15 70:22 78:16 82:1,9 83:14 99:21	Energy's 1:9 3:16	envision 11:13
DNFSB.gov 6:24	dramatically 40:21 91:21	egregious 73:17	enforcer 27:18	EPA 96:18
document 9:18,19 41:17,22	drawing 19:14	eight 60:2	engage 17:12 19:7	equal 6:12 45:1 68:16
documented 102:8	drive 44:10 58:12	either 11:13 36:3 39:11 47:10 78:10 81:4 98:16,17 107:5	engineer 79:23	equally 102:2,19
documents 5:16 21:24,24 24:20 45:9 57:11,11 64:3 76:24	drop 30:6	elaborate 23:5 45:4	engineered 50:13	equals 54:7 64:22
DOE 4:15,20 5:3 8:3 9:15 12:14,18,22 14:8 15:1,19 16:8 16:16 17:3 18:24 19:4,12,25 21:9 23:10 39:4 45:9,21	drums 32:3	elements 11:24 55:20	enjoy 40:6 41:17 46:12	equate 30:17
	due 98:17	EM 13:18 14:4,21 15:25 16:19,22 23:13,19 24:16 30:1,7,19 32:8,12 34:18 36:18 37:8 39:11,16,22,23 40:1,5 41:11,18,24 42:7 46:11 55:18	enjoyed 24:17 32:14 32:15	era 74:20
	duties 8:14	EM's 23:7 26:18	ensuing 19:23	eroding 104:1
	dynamic 64:9	email 92:24	ensure 5:12 9:23,24 16:1,13 17:25 18:12 20:16,17 22:22 24:5 40:1 49:19 50:4,19 52:6 56:11 60:19 84:7 85:12,22 86:1,4,12 88:2	erosion 42:16
	E	embarks 91:12	ensuring 7:20 8:6	especially 26:22 77:8,25 90:3 101:7
	E 2:1 3:1,1	embarrassing 82:10		essential 14:24 47:9 50:8
	earlier 18:13 43:5 45:19 90:9	emergency 58:8		essentially 81:21 96:24
	earliest 77:3,23	emotional 82:14		establish 9:9 60:3
	early 74:9 77:8 80:22	emphasize 66:3 71:6		established 17:7
		emphasized 38:13		establishment 73:3 et 28:5 32:17
		employed 109:7,10		
		employee 109:9		

<p>ETTP 43:18 evaluate 28:4 36:1 45:22 48:16 evaluation 90:11 event 57:21,22 58:5 58:7 66:24 events 34:4,7 eventually 8:25 80:25 everybody 93:5 105:22 evidence 55:13 74:2 evidenced 65:21 evident 70:15 exactly 80:23 example 8:22 19:2 30:23 43:11 46:16 47:17 49:4 60:6,21 62:19 75:1 85:6 96:24 examples 45:21 47:16 55:17 exceptions 96:10 exclude 91:19 excluded 46:2 58:6 execute 7:24 17:4 50:14,18 execution 10:16 24:7 executives 100:5 exempted 75:25 exemption 75:14 exemptions 29:5 70:7 exempts 51:18 exercise 7:3 78:22 exhaustive 47:17 exhibit 21:14 29:10 29:14,23 47:15 57:15 existed 58:15,22 74:12 exists 86:9 expand 50:12 51:8 54:17 expansion 75:3 expect 23:18 35:4</p>	<p>36:15 51:7 expectation 19:13 expectations 10:15 11:10 14:19,21 34:20 expecting 105:22 expensive 77:10 81:16 experience 28:13 46:19 69:24 72:24 93:22 experienced 17:4 experiences 9:20 expert-based 65:16 expertise 15:4 70:13 71:9 76:25 experts 17:25 explain 83:9 explained 42:23 75:9 explicitly 60:8 explore 47:8 48:24 explosive 73:6 expose 81:17 Exposed 73:23 exposes 88:16 exposure 74:7 exposures 74:2 express 9:8 93:2 102:18 expressed 20:10 exquisite 105:4 extensive 72:23 extent 6:17 41:9,10 42:20 45:22 46:5 68:25 78:23 external 16:6 101:11 102:16 extra 71:19 extremely 49:16,18 65:8 101:6 eye 91:4 eyes 85:3</p> <hr/> <p style="text-align: center;">F</p> <hr/> <p>face 64:17 faced 54:16</p>	<p>facilitates 92:7 facilities 1:3,11,19 3:5,17,22,24 4:10 4:12 5:5 8:4,8,10 9:21 10:11 11:6 15:3,21 16:6,15 18:8,10,12,14 19:11 20:24 21:22 22:2,23 23:2,8 24:20 26:1 28:20 28:24 29:16,19,22 30:2,3,5,7,22 32:5 32:9,11,13 39:11 39:23 40:5,6,22 42:17,17,18,20 43:1,5,6,9,11 45:20 46:1,5,23 47:1,4,14 50:19 51:8,9,19 52:8 55:18 56:24 64:14 70:18,24 72:19 73:11 74:21,23,23 74:24 75:14,17,19 75:23 76:3 78:24 83:3 88:21,24 89:16,21 92:3 95:1 95:2,7,8,12,16 99:19 101:13 105:11 107:8,9 108:5 facility 18:20 28:25 30:25 31:19,22 32:22 43:13 44:2,3 44:5,6,7 48:19 49:7 51:4 53:11 55:10 75:3 95:18 105:2,3,5 facing 46:25 101:8 fact 24:16 27:20 29:12 32:16,21 34:23 38:18 39:9 57:20 59:3 66:6 83:20 86:25 92:17 98:4 fact-finding 57:22 58:7 fact-gathering</p>	<p>57:20 fail 92:3 failures 43:2 fair 63:5 fall 39:11 73:25 74:1 75:18 family 96:13 fan 46:18 far 3:14 44:12,15 47:16 56:24 62:16 69:14 82:8 95:24 97:4,5 Farm 80:10 82:3,12 82:12 fashion 15:22 father 98:6 100:3 Fe 73:22 feasibility 86:5 features 50:14 February 4:3 107:13,17 Federal 5:11 9:10 11:20 15:11 17:3 37:15 51:23 56:1,4 56:10 57:1 88:19 feedback 37:15 38:4 61:1,3 93:12,14 feel 23:5 51:25 91:1 92:5 98:21,22,25 106:15 feeling 93:24 fellow 7:6,12 22:7 100:19 101:2 102:18 103:5 fence 39:18 Fernald 80:21,24 81:2 fewer 104:8 fiasco 77:12 field 20:20 23:13,23 31:5,12 34:23 39:21 49:16 65:7 field-level 41:24 fighting 96:2 figure 43:23 fill 56:9 fills 85:17</p>	<p>final 56:5 88:10 92:13 finally 11:16 18:7 71:7 86:6 financially 109:10 find 12:17 23:25 43:11 44:16 63:18 73:17 80:23 99:25 101:22 finding 57:20 findings 88:19 fine 79:23 finished 81:17 fire 47:21 48:18 50:7 73:7 firmly 14:22 first 4:1 5:2 10:23 10:24 11:7 12:11 13:2,22 19:20,22 20:3 21:7 22:13 23:6 29:2 37:6 58:4 69:1,6 70:4 74:14 75:11 92:19 92:21 94:2 96:4,25 98:3 106:22 fit 77:11 103:24 five 99:9 fix 63:9 flammable 73:6 flat 76:1 Flats 66:7 74:15,16 96:15,23 97:11 flaws 77:10 flexibility 64:5,8 floor 13:11 70:1 flow 77:13 flowing 77:18 focus 14:8 17:2,6,10 18:14,16 47:13,17 48:13 94:25 focused 20:11 30:13 53:5 78:21 106:10 focuses 48:3 focusing 80:21 folks 44:4 58:20 105:7 follow 53:23 54:8</p>
---	---	--	--	--

56:7 follow-on 31:15 32:25 56:15 following 6:10 7:18 57:21 58:7 follows 70:7 followup 27:12 61:23 foregoing 109:4 forget 96:12 form 31:18 56:9 60:23 62:7,19,21 63:7 98:24 formal 9:12 17:14 47:12 56:9 61:3 71:10 86:17 92:1 92:25 formalization 46:19 formalized 28:11 formally 12:11 13:1 22:4 25:1 62:23 90:17 formed 80:2,4 former 14:7 formulation 90:8 forth 76:16 94:21 forum 102:21 forward 12:7 13:21 19:17 61:13 66:1 67:4,10 83:21 88:2 102:13 105:14 found 13:23 83:25 91:7 foundation 33:11 four 3:11 70:6 99:9 four-digit 38:23 framework 64:11 frank 58:18 frankly 24:23 26:25 27:4 37:21 41:14 free 23:5 51:25 58:20 freely 18:1 frequently 37:3 65:3 frustrating 81:16 Fukushima 81:18 full 10:17 11:15 15:8	15:15 78:22 93:14 94:4 97:16 103:15 fully 8:8 14:21 19:8 27:24 76:22 function 51:24 83:15 functions 4:6 14:24 fundamental 4:24 70:25 further 6:25 9:23 17:21 29:24 90:6 91:16 109:8 Furthermore 9:2 fusion 43:19 future 18:17 27:8 43:12 FY 19:3 <hr/> G G 3:1 gained 9:19 gaseous 43:19 gather 3:19 70:17 107:6 gathered 46:23 107:24 geek 42:12 general 3:13 5:24 49:12 55:23 68:1 72:4 76:25 102:11 105:12 generally 68:8 96:10 generate 9:14 generated 8:20 gentleman 98:8 gentleman's 98:10 getting 23:24 43:21 52:18 81:13,14,14 98:10 Gilman 3:14 68:1,2 68:3 69:4 72:4,5 77:21 78:12 79:4 80:9,12 82:18 88:10 92:13 93:6,7 93:16 97:20 100:11,14,18 give 6:11 31:21	32:10 35:2 37:14 41:10 59:3 68:16 68:20 70:2 84:22 92:23 95:1 given 10:10 30:4 32:16 39:9 41:11 54:16 59:21 61:1 gives 26:25 41:22 71:22 glasses 73:6 Glenn 81:1,3,9 glioblastoma 74:6 go 24:24 27:23 35:19 36:11,13 41:23 54:23 57:19 65:19 79:13 92:20 93:6 95:6,24 96:12 goal 70:17 77:22 94:19 107:6 goals 24:5 83:10 86:13 goes 27:25 31:15 61:16 95:13 97:4 going 9:3 21:4 24:1 29:2 30:20 32:19 33:19 36:5 38:7 40:22 41:12 42:12 49:19 53:16 54:5 54:12,13 57:10,16 57:22 63:9 66:1 67:4 69:5 70:1 93:20 97:12 100:6 103:7,16,19 104:14,19,21 105:9,10,23 good 3:3 7:12,15 13:12 24:2 27:4 49:3 52:9 57:10 61:14 79:8,21,23 79:24 94:14,17 95:9 96:14 97:7 99:12 103:18 105:10 gotten 25:4 98:12,14 governing 16:10 17:7 government 81:8	82:10 88:11,14,16 88:20 90:3 91:6 grade 52:11 graded 11:25 graduated 80:17 grand 106:9 grandson 80:15 granted 75:7 great 31:2 42:23 45:18 80:6 82:7 104:20 great-great-great 80:14 green 30:2 grew 74:17 80:16 ground 63:22 105:8 group 89:16 97:12 groups 82:12 91:7 guess 44:3 48:11,24 52:4 62:25 79:10 87:8 guests 7:17 guidance 59:14,17 59:18,21 60:5,13 62:17,18 92:7 guides 39:5 guiding 16:2 guy 97:13 guys 27:14 79:17 99:2 <hr/> H H 39:24,25 HAB 79:12 habit 25:22 half 32:20 Hamilton 3:3,4 7:10 10:2,4 12:9 19:18 22:6,10 25:8,12,19 25:21 26:13 27:6 32:25 34:10,15 39:7 47:6 53:21 56:14,20 57:3,9 58:3,9,12 59:8 61:15,20 63:12 66:13,19,22 67:6 67:15,23 68:3 69:4	69:18 71:14,20,24 72:3,5 82:21 92:15 93:8 100:4,16,18 103:2 106:2,20 107:16 hand 45:16 71:19 handle 38:2 handled 58:24 Hanford 73:6 78:21 79:12,12 happen 66:5 103:20 105:24 happened 26:14 58:25 80:5 81:18 94:21 happening 34:7 47:11 happens 26:13,16 hard 27:15 43:25 99:25 hate 58:4 Haz 30:24 44:5,6,7 44:13 hazard 16:24 18:7,9 18:15 21:21 28:17 30:4,18 43:11,13 44:8,8,9 47:4 55:10 56:17,19,23 57:4 75:14,15,19 75:20,22 84:12 hazardous 43:14 44:2,3 hazards 17:5 32:4 44:15,16 64:17 73:5,7 105:2,5,9 headquarters 35:19 37:5 56:9 60:14 health 7:21 8:6 9:25 12:6 14:13 15:2,14 15:15 16:14 17:1 17:11,12 18:11,16 21:19 22:22 30:14 30:16 47:9 48:22 49:15 50:5,16 51:5 67:14 70:7 73:2,4 73:19 75:12,16 76:12 81:3 84:19
--	---	--	---	--

84:20 85:9 86:14 89:2 92:4 101:3,14 102:6 103:17 104:23 healthy 28:4,10,13 hear 5:2 42:8 53:8 66:2 69:16 81:7 106:23 heard 14:11 20:9 44:19 61:2 93:25 97:7 103:10 107:19 hearing 1:8 3:6,6,18 4:1,2,15 5:9,13 6:15,18,20 7:1,19 7:20 9:5 10:7,9,19 10:23 11:12 12:20 13:9,14,22 14:3,11 14:15 19:22 20:4 21:8,16,17 29:15 30:1 31:20 42:14 49:23 51:16 54:2 55:22 66:25 67:16 67:24 68:24 69:19 72:13 78:20 83:6 84:11 86:19 90:8 92:19,21 99:7,11 99:11,24 100:14 100:25 101:1 106:23 107:4,6,12 108:2,4,6 hearings 3:19 4:25 9:20 49:24 78:7,17 78:19 107:12 heart 23:2 78:25 heartily 75:5 heed 86:7 held 4:1,2 15:25 20:3 78:8 help 18:12 29:9 46:24 54:1 71:3 77:2 84:5 94:8 helpful 23:16 24:9 24:17,21 27:13 77:1,9 87:1 helps 106:8 Herbert 93:21	hereto 109:10 hidden 53:17 hide 90:25 high 62:15 73:14,24 74:3 95:12 104:22 high-level 92:24 95:8 high-material 95:18 high-risk 96:21 104:10,15 higher 18:14 43:11 highest 30:13 89:4 highlight 75:9 highlighted 34:23 highlights 32:3 highly 17:4 69:25 95:10 105:1 Hill 79:9 hinder 16:11 history 95:22 101:7 hold 4:25 31:20 78:6 89:7 91:8 92:3 holds 15:9 holes 27:23 94:17 home 74:4 76:10 95:6 96:12 honest 24:17 honestly 24:14 honorable 13:3 103:15 honorably 80:20 hope 26:20 33:6,22 42:9 101:21 hopes 13:24 hoping 87:23 hosting 83:1 house 42:13 78:14 96:4 huge 37:25 81:22 human 85:9 hurdle 90:3 hurdles 77:25 hypothetical 26:14 87:21 hypotheticals 58:5	Idaho 32:3 44:18 45:21 idea 99:13 ideas 18:1 identified 43:9 47:20 48:9 73:5 83:16 85:23 identify 9:23 46:5 83:22 100:6 identifying 24:21 IG 52:16,22 Ike 20:6 94:21 illustrates 29:24 illustrative 73:21 104:14 imagine 27:3 55:8 immediate 3:10 81:19 impact 10:12,16 25:3,6 28:19 30:14 33:8 36:7 42:3 53:15 54:7,14 83:14 impacted 34:3 39:20 83:4 85:25 99:17 105:9 impacting 52:24 impacts 3:25 5:6 20:8 23:14 29:24 36:2,12 66:1 84:16 85:9 107:10 impairments 16:22 implement 4:17 12:23 21:5 24:22 30:20 36:2,8 101:20 implementation 3:20 8:16 10:17 11:15 20:8,18 23:10 34:18,20 35:3,14 39:5 40:2 41:16 48:2 54:10 75:21 101:10 implemented 4:19 8:17 17:21 20:14 29:7 50:13 54:6 83:5 88:1	implementing 53:15 83:21 implications 29:3 42:20 43:10 implicitly 60:8 importance 10:11 31:1 70:14 important 7:20,25 10:10 16:4 28:1 31:12 46:15 49:16 49:18 65:8 70:11 91:23 95:10 97:8 101:6 102:1,3 importantly 31:11 imposing 78:23 impractical 90:2 impression 84:22 improperly 88:23 improve 22:21 40:8 83:11 94:11 101:24 improved 48:21 improvements 64:13 73:12 91:25 inadequate 47:21 inception 69:7 incidents 77:23 include 21:18,19 36:17 47:13 60:4 60:13 71:15 84:10 85:21 86:3 included 6:22 60:23 62:22 69:20 includes 13:2 48:13 55:25 including 5:5 6:20 11:19 16:7 17:15 19:10,14 36:18 49:20 51:24 72:19 79:1 83:11 91:7 incompetence 81:9 incorporate 88:3,4 90:17 incorporated 63:4 incorporating 61:3 increase 86:13 increased 74:25	incredibly 98:11 independence 88:18 independent 7:23 8:16 14:23,25 16:12 22:19 24:4 42:7 83:15 85:16 86:7 88:15 101:5 Indiana 1:20 indicate 6:7 indicated 29:20 indicating 90:13 indication 12:6 indicators 42:19 individual 79:20 individuals 21:19 42:19,22 84:20 ineffective 17:19 inform 107:25 informal 17:14 93:1 93:10 information 3:19,23 3:24 4:13 5:5,13 6:13,14,23 8:10,21 8:22,25 9:3,19,22 16:23 17:17,17 18:4,5 19:1,3,14 21:21 22:1 26:1,7 26:17,23 27:13 28:20,25 30:22 31:6,8 32:7,22 34:2 41:5 42:4 46:4,23 55:23 56:4 56:5,6,12 60:22 61:24 62:20,23 68:23 70:8,17,18 73:14 77:6,14,16 77:18,18 78:24 85:2,3,6 89:14,20 89:23 90:21,25 107:6,9,24 infrastructure 54:1 ingrained 16:3 inhibited 24:4 initial 59:25 injuries 99:4 input 46:13 48:16 48:21 50:22 61:7
---	--	---	---	--

67:2 85:9 86:2 90:17 92:18 inquiry 20:11 22:11 33:1 42:14 56:16 57:9 61:16 69:22 inside 51:25 insight 15:17 69:25 insights 15:4 inspector 4:1 5:7 41:18 57:24 102:10 107:10 inspectors 25:10,15 32:15 55:9,14,17 55:24 56:8 59:1 77:16 94:4 instance 20:19 21:1 28:1 31:20 43:17 50:6 56:8 integrated 42:15,15 45:3 intended 12:16 14:7 20:23 34:25 89:6 intends 10:25 intent 10:15 31:6 84:8 85:11 87:7 intention 20:17 intentions 12:1 interact 14:20 42:3 79:11 interacted 62:16 80:6 interaction 10:25 18:5,13 27:15 79:18,20 interactions 11:2,4 17:2 39:19 60:10 79:14 86:14 105:15 interacts 56:3 interest 22:17 86:25 91:4 105:20 interested 5:21 11:12 30:19 63:20 63:21 68:5 93:17 109:11 interests 88:3 90:23 91:3	interface 1:9 3:21 4:17,19 9:9 13:15 14:6,9 16:20 17:2 19:25 21:13 24:24 33:14 39:15 40:2 40:16 41:16 59:13 60:15,18,20 64:1 70:17 92:7 96:16 101:24 107:7 interfacing 59:15,17 59:19,22 60:5 interim 17:20 internal 17:22 45:8 59:23 60:12,16,22 62:9 64:15 102:4,8 102:15 Internet 107:5 interpretations 84:6 interpreted 20:14 27:21 51:19 intimidating 58:19 intrigues 38:9 introduce 2:7 3:8 12:11 13:1,17 57:16 69:1,5 introduced 4:24 investigates 88:16 investigator 88:14 invitation 7:14 inviting 19:16 involved 3:15 71:2 81:1,4 103:8 106:15 involvement 92:6 IP 48:3 irony 97:25 Isolation 30:8 issuance 8:15 11:14 19:6 24:24 60:19 92:18 101:10 issue 12:14 17:16 28:16,17 32:3 48:11 85:9 92:11 98:5 101:17 issued 11:1 14:17 16:8 38:20 71:10 94:11	issues 16:23 24:19 30:13 33:16 42:8 43:12 45:3 46:5,25 48:9,13 49:4,5 50:22 51:12,21,25 53:6 55:17,22 72:22 76:19 78:21 80:3 89:11 90:5 91:10,18,23 96:2 98:25 99:3,6,10 102:4,8,15,17 108:1 Items 60:7 iteration 83:13 iterative 78:1 IV 80:13 <hr/> J <hr/> Jack 69:6 97:23 Jay 13:17 42:6 46:8 jeopardize 96:12 Jessie 3:11 Jo 109:3,17 job 12:5 27:17 35:1 95:10 105:19,20 105:22 Joe 96:3 John 13:4 80:25 81:3,9 join 58:1 joint 18:16 jointly 85:22 Joseph 3:13 68:1 journey 73:24 Joyce 3:10 Jr 100:5 106:11 judge 27:16 jurisdiction 91:22 jurisdictional 49:10 justified 74:13 <hr/> K <hr/> K-Reactor 97:13 Kathy 72:9,14 keep 54:2 kind 28:6 35:19 36:9 36:14 37:4 57:23	81:12 91:14 97:15 98:20,21 knew 95:8 know 10:24 11:12 23:3 25:19,19 26:10 27:16 28:8 28:10 38:22 40:12 45:10 46:15 47:11 49:10 51:6,7,14 54:5 63:4,7,17 65:21,25 74:17 79:8,20,24 81:24 87:8,14 89:3 93:10 94:17 96:11 97:8 98:3,6,6,9,13,20 99:5,20,21,23,25 103:11,19 104:9 105:1 106:12,13 knowledge 26:8 37:10 105:4 <hr/> L <hr/> Lab 32:6 laboratories 20:21 Laboratory 32:14 72:20 Labs 73:25 76:1 lack 70:12 99:18 lackadaisical 81:15 lagging 8:17 laid 63:3 language 20:12 25:23 27:8 28:19 29:4 30:20 51:17 54:16 83:22 84:7 84:18,21 86:12 101:18 large 30:6 largely 39:11 larger 43:3 Lastly 19:12 76:23 late 85:8 law 18:22 31:10 50:21 Lawrence 72:20 lay 63:22 lead 42:19 74:25	lead-in 45:19 leaders 3:14 72:21 73:13 leadership 5:1 65:3 101:23 leads 97:12 learn 44:1 46:17 73:14 learned 43:14,17,18 43:22,25 44:17,20 46:6,9,14,15,20 94:9 leave 67:9 99:5,5,12 leaving 99:13,15 led 20:20 37:5,6 73:10 91:24 left 3:9 81:6 99:13 106:22 legacy 15:23 22:25 legislation 4:4,7 16:10 25:17 28:22 70:10 71:8 76:21 81:10 legislative 19:2 lessen 71:3 lesser 95:14 lessons 43:14,17,18 43:21,25 44:17,20 45:23 46:6,9,14,15 46:20 letter 9:6 19:23 21:6 31:18 54:8 70:4 78:5,10,13 79:17 letters 78:17 level 4:20,23 16:19 33:12 41:18,25 62:15,23 71:8 75:15 94:15 levels 43:2 89:4 liability 18:23 liaison 22:3,5 40:25 89:24 90:1 liaisons 37:10,10 56:4,10 lib 103:7 lied 81:5 life 73:23 80:22 98:1
--	---	---	---	---

98:23 99:8	long-standing 49:10 49:14	managed 32:12 70:18	meant 38:17	20:11,25 22:7 23:9
light 91:1	long-time 43:7	management 5:3 10:9 12:24 13:4,6 14:10 15:8,25 22:20 35:21 39:12 40:17 42:16 47:18 64:18 70:20,21,22 71:4,6 89:8,15 90:5 107:7,20,22	measures 24:6 50:4 99:18	23:9 44:18 66:14 67:1 68:5,13,24 79:1 82:21 86:7 87:17 90:9 93:11 100:11,19 101:2 102:18 103:5
Likewise 12:20	look 12:7 13:20 44:20 48:16,25 49:1 51:4 57:19 61:13 67:10 92:21 94:15 95:1 102:13 103:14,23 104:9 104:10,11 105:14	manager 13:5,18 69:10 82:24 107:21	mechanism 60:14	mechanisms 64:15 79:17
limit 6:12 11:5 16:18 31:6 68:17 78:24	looking 18:17 19:17 46:9 94:19 100:2	managers 19:12 20:20 94:10	media 38:22 39:3	memo 90:10
limited 6:14 17:19 29:19 68:22 84:10	Los 8:23 73:7,25 75:3	managing 89:21	medical 74:7	memorandum 14:17 87:11 92:9
limits 73:18	lost 98:14,15	mandate 19:2 21:10	medium-risk 104:11	mentality 74:14
line 15:25 19:12 22:11 33:1 39:3 49:3,8 56:16 57:2 57:9 61:16 63:15 70:21,22 71:4,6 94:10	lot 10:20 34:1 43:17 46:15 79:19 94:9 94:16	mandated 18:22	meet 83:23	mentioned 28:16 31:11 42:6 44:18 46:9 65:6 74:15 102:10
lines 20:11 42:13 54:25 63:16 65:18 69:22	lots 93:23	mandates 31:7	meeting 13:20 57:20 58:7 59:3 95:9,21 102:13,20,23	mentality 74:14
Lisa 81:1,2	low 42:18,18 104:11	manner 9:4 59:16	meetings 21:25 52:20 57:12 59:5 76:24 83:19 98:4	mercury 43:24
list 5:22 47:16 50:6 57:17 68:6 92:14 93:17,19	low-tech 95:21	manual 4:20 14:8 16:9 19:25 21:13 38:6,20 60:18,19 60:24 61:25 62:8 62:16,17,21 63:3 90:11	meets 23:23 87:7	message 52:7 53:9 53:11,12,13,17 101:14
listed 5:24 68:8	low-waste 95:16	managing 89:21	Megan 82:19,24	messes 95:10
listened 61:6	lower 4:20 18:22 43:13 95:15,19	Mandate 19:2 21:10	member 2:5 3:9,10 3:11 7:8,11 10:4 13:23 21:1 22:12 23:17 24:3,12 25:7 27:11 28:15 30:10 31:14,25 32:2,24 33:3 34:13,17 35:2 35:9,12 36:17,21 37:14,19 38:9 39:6 39:9 40:14 41:15 42:11 44:23 45:7 45:11,14,18 46:18 47:6,7 48:23 49:21 50:24 51:6 53:3,19 53:22,23 54:19 55:2,12,19 56:13 58:19 59:11,12 60:25 61:9,13,18 61:22 62:3,6,13,24 63:11,13,15 65:12 66:18,20,21,22,23 67:8 69:7 71:17 79:6 80:8 82:12 86:21,24 88:8 93:9 100:21,22 103:3,4 106:3,4 107:15	met 22:17 71:1 83:7
listening 98:6 99:16	lowering 15:22	manuals 39:4	members 3:15 5:8 5:21 6:5,16,17,19 7:6,12,18 13:20	Mexico 4:3 73:22 107:13
literal 38:11	lowest 43:2	Massey 93:19,21 103:11		mid-'80s 80:25
literally 55:3	Lydia 88:11,13	material 22:25 23:1		migrated 38:24
little 26:5 27:11 33:10 35:2 41:13 42:12 54:1 78:1,4 79:14 93:4 100:8		materials 76:8 81:13		Mills 80:10,11,13,13 80:19
live 5:13 6:21 76:10	M	Matt 20:6 94:21		minute 48:24
lived 39:18	ma'am 29:9 36:18 86:21	matter 17:25 39:2 49:11 70:13		minutes 6:13 68:17 70:2
Livermore 72:20 76:1 79:22	magnitude 12:4	matters 17:9 89:1		misaligned 41:14 84:6
livestreaming 102:22	mail 71:22	mature 18:5		mission 9:1 14:4 15:11 19:1 23:24 24:7 31:9 46:17 60:4 64:19,21,22 101:5 105:16
living 82:5 99:17	main 10:21	mean 34:19 40:22 51:1 59:4,13 63:17 70:20 79:16 97:12 97:14 106:7		missions 7:25 18:21 31:7
load 48:18	maintain 89:4	meaning 84:15		misspoke 25:20
local 83:1	maintained 51:10	meaningful 86:2 89:1 92:11		mistake 25:13 76:13 81:22
localized 75:24 76:6	maintaining 70:23	means 12:22 33:25 52:20 67:3 94:1 99:13		model 96:14
located 72:18 76:2 84:20	maintains 85:16			modernize 91:13
locations 39:22	major 21:15 25:4 74:12 75:8 91:25			modification 83:20
loggerheads 27:4	majority 89:18			modify 87:6 100:7
long 22:15 81:17 90:19	making 11:18 34:12 34:13 63:24 88:5 105:20 106:5 107:23			moment 12:12 64:4
	manage 15:20 89:7			

<p>money 36:5 monitoring 100:6 month 32:20 months 22:18 36:16 78:8 97:1 Monument 80:15 moratoriums 44:21 morning 3:3 7:13 13:12 61:16 63:14 67:18 107:19,25 morning's 3:6 5:9 Moury 10:18 20:6 20:15 94:21 Moury's 37:7 move 36:7 moves 82:7 moving 83:21 88:2 Mullis 7:14 13:4,8 13:17 22:15 24:13 24:14 25:9,11,18 25:20 32:2,12 35:13,16 36:22,25 37:17,20 38:14 40:15,20 43:7,16 45:4,8,13,17 50:24 50:25 52:5,9 53:13 54:18 57:10 58:2,4 58:11,14 62:25 67:17 multiple 17:7 47:22 49:20 murdered 81:8 mutually 14:23 17:19</p> <hr/> <p style="text-align: center;">N</p> <hr/> <p>N 2:1 3:1 name 3:3 6:3 68:10 71:22 72:14 82:24 88:13 93:19,20 97:23 98:8 narrowing 91:18 nation 31:2 National 32:6,13 39:12,13 73:25 83:2 102:11 nature 42:15</p>	<p>Naval 69:11 Navy 80:17,17,20 98:8,9,14 near 47:24 72:18,20 nebulous 27:20 necessarily 28:7 42:2 43:20 55:24 necessary 4:13 8:11 9:1,16 17:22 26:2 26:4,18,19 48:4 50:18 85:17 need 26:15 31:7 34:2 42:5 58:17 59:4 61:8,11 64:20 67:9 83:11 87:4 102:2 104:7 needed 19:1 23:19 46:24 needs 23:18 83:12 85:14 87:20 89:20 97:3,17 negative 11:14 23:14 64:25 negatively 83:14 Negligence 76:8 negotiate 36:3,5 negotiation 36:13 97:4,18 neither 98:16 109:6 network 72:17 80:4 never 17:10 85:13 98:1,11,14,18 new 4:3,22 8:20 21:18,20,23,25 24:22,24 38:5 43:20 55:14 57:9 62:1,10,11,18 64:1 73:22 75:3 76:17 83:8 86:12 107:13 news 57:10 73:23 NFL 99:1,4 nice 82:1 Nineteen 107:15 Ninety 77:21 NNSA 14:14 39:16 39:22,24 40:1,6,16 41:19,23,24 72:18</p>	<p>72:24 84:11 85:5 92:22 103:16 nonpartisan 88:15 normal 36:11 52:15 Normally 37:24 notably 30:7 45:20 69:11 74:8 note 18:8 28:22 74:15 noted 26:23 83:13 notice 5:11,16 81:6 noticed 41:19 82:1 noticing 80:14 notify 6:6 notion 75:11 novel 74:25 November 1:15 5:12 78:11 NRC 94:5 97:17 nuance 93:4 nuanced 59:9 62:14 nuclear 1:3,11,19 3:5,17,22 7:23 8:4 8:8 9:21 10:11,17 11:6,20,25 15:2 16:6,15 18:8 19:11 20:24 21:22 22:2 22:21,25 23:1,2,8 29:16,22 30:1,3,5 30:25 31:19 33:24 39:11,12,14,22 41:1 42:12 43:1 46:23,24 47:14 48:18 49:17 50:14 51:19 56:24 64:13 64:16,25 65:18 69:10 70:23 72:10 72:16,19,21 74:21 75:23 80:1,17 83:2 86:15 88:21,24 89:4,16 91:13 93:21 95:7 98:5,11 98:15,17 99:19 101:5,8,13 105:3 105:11 107:8 108:4 number 10:10 11:17</p>	<p>24:19 29:22 30:3,7 40:4 52:14 60:16 64:13 71:7 84:10 84:18 85:1 numerous 73:5 90:10 NW 1:20</p> <hr/> <p style="text-align: center;">O</p> <hr/> <p>O 3:1 Oak 13:5,18 25:6 32:6,13 35:13,22 36:18 37:13 40:23 40:24 52:25 58:24 73:8 107:21 objectives 3:20 obligations 91:2 observation 19:15 34:12,14 observing 6:20 obtain 3:23 obtaining 60:22 obviously 31:1 45:12 occasion 74:4 occasions 28:12 occluded 64:14 occurred 38:1 84:24 occurring 41:4 52:17 106:16,17 October 5:10 14:18 odds 76:20 off-normal 58:7 off-site 42:19,21 43:3 44:10 84:25 offer 14:5 18:1 71:15 offered 92:22 office 5:3 10:8 12:23 13:4,5 14:9 15:11 20:20 70:19,21 107:20,21 officer 15:6 official 92:1 officially 90:1 officials 12:19 55:4 55:4 83:7 100:24</p>	<p>oh 38:7 61:13 Ohio 80:16 okay 24:12 34:15 37:19 44:9 50:24 55:12,19 59:8 61:9 62:6 70:3 71:23 88:8 98:23 99:2,14 99:14 old 38:23 older 81:13,14 on-site 84:23,25 once 74:16 81:3 108:1 ones 56:11 ongoing 48:8 online 7:19 open 6:18 13:16 24:18 48:6,7 52:10 58:18,20 85:22 88:19 108:3 opening 2:4,8 7:5,7 7:9 10:1 13:10,13 23:4 26:23 28:17 30:11 31:16 57:13 63:16 openly 67:10 operate 15:21 25:6 38:23 96:7 operated 39:4 operating 70:23 74:23 operation 51:23 89:15 operational 7:25 24:5,6 46:19 operations 15:3,7 32:18 50:14 83:11 85:19 96:6 106:16 operator 8:7 opinion 54:24 opinions 28:11 opportunities 22:21 86:2 opportunity 6:6,12 10:8 13:13,16 26:24 27:1 68:5,14 68:17 71:12 72:2</p>
--	--	--	--	---

72:13 82:22 88:13 93:2 102:23 opposed 75:24 opposition 86:9 optimistic 101:21 options 85:13 order 3:7,21 4:15,22 4:24 5:4,25 6:2,9 8:15,17,20 9:7,15 9:17 10:7,15,16,17 10:24 11:1,15,24 12:14,22 13:22 14:8,16 16:8,16 19:6 20:4,8,10,12 20:13,17 21:3,4,9 21:12 23:10,14,19 23:20 24:24 25:24 26:3,6,15 27:20 28:18 29:3,5,7,13 29:17,18 30:20 33:14,17,21 34:19 34:23 35:17 36:2 37:3 38:5,11,19,25 39:10,10 41:17 46:3 48:12 49:2 51:17 52:24 53:15 54:4,5,16,20 55:14 58:10,23 59:13 61:4 62:1,10,11,18 62:22 63:4,18 64:1 67:3 68:8,9 71:5 72:25 73:18 74:18 75:6,22,25 76:17 77:13 78:2,6,15,25 82:8 83:5,8,12,14 83:20,23 84:2,6,7 84:13 85:15 86:1 86:12,25 87:6,7,12 87:18 88:1,1,23 89:5,19,22 90:8,12 90:16 92:9,18 93:13 94:25 95:3 95:23 96:25,25 97:4,18 101:10,17 101:18,20,24 102:17 103:25 104:2 106:24,25	107:12 order's 29:25 89:12 93:3 orders 38:23 39:4 77:2 organization 40:7 81:2,12 83:1 88:22 organization's 23:7 organizational 4:7 organizations 41:9 42:7 72:18 79:10 90:7 107:3 ought 94:5 97:16 outcome 109:11 outcomes 15:16 outdated 16:9 outrageous 81:7,20 outside 37:16,17 49:24 75:12 76:5 outsources 89:15 overall 12:1 64:11 overburdened 90:4 overcome 34:4 overly 90:20 overreach 97:2 oversee 105:17 overseen 76:7 oversight 3:16 7:23 8:16 18:7 22:19 24:4 27:18 32:10 34:5 44:25 45:1 46:3,10,22 50:1 51:18,23 60:4 64:7 64:15,25 73:1 76:12 78:8 83:15 84:18,23 85:16 86:7 88:11,15,18 89:1 90:20 91:6,15 92:7 96:18 101:5 overt 53:16 overtly 52:6 owner 4:9 18:20 owners 99:4 ownership 16:5 18:2	p.m 108:6 package 67:3 page 2:3 103:14,20 104:3 panel 2:6,7,8,9 13:2 19:20 Pantex 82:2 paper 71:15 paramount 8:6 part 24:25 33:18 38:9,13,15 40:23 41:1 47:9 50:15 61:10 64:10 67:2 98:20 partially 90:14 participants 100:24 participate 33:20 72:13 participated 35:17 36:23 37:8,9,11,21 participating 103:6 participation 67:18 92:6 108:2 particular 49:13 58:1 64:18 73:21 76:1 91:18,24 particularly 13:24 73:17 84:24 89:12 parties 50:23 106:15 109:7,10 partnership 17:3 parts 28:23 104:21 party 84:15 104:4 passive 50:13 path 54:22 74:19 pause 33:10,22 Peace 80:10 82:3,11 82:12 penny 97:13 people 7:22 8:2 51:25 78:24 81:6,8 82:15 94:12,14,16 94:17 96:9,10 98:13 99:3,6,9,10 99:16,23 101:20 percent 29:21 perform 18:19	21:10 32:10 88:25 performance 52:12 102:5 performed 8:3 performing 8:14 period 2:13 67:20 67:25 92:23 periods 74:5 person 41:24 105:6 107:5 personal 12:10,24 106:21,25 personally 12:12 23:13,25 51:16 personnel 3:24 4:12 5:4,6 8:10 9:22 16:16,17 20:16 26:1,18 51:19 59:14,15,18 70:18 88:25 101:1 107:9 perspective 23:7 25:5 36:24 39:1 50:11 77:1 106:8 perspectives 14:5,8 pharmacies 95:15 phase 17:18 77:7 philosophy 11:17 64:24 65:2,10 phonetic 96:3,5 97:10 phrase 25:9 26:3 54:2 physical 76:6 82:3 Pilot 30:8 pit 75:1 pits 75:2 place 23:15 24:6 28:23 53:4 74:17 plan 12:23 48:2 91:13 106:5 planet 100:3 planned 3:19 78:20 plans 74:25 75:1 plant 30:8 43:19 plants 20:21 81:13 96:7 played 73:3,20 90:7	players 99:2,5 please 40:12 57:15 62:5 68:17 70:1 pleased 13:7 pleasure 13:20 plutonium 75:1 95:12 POGO 88:15,15,22 89:12 90:6 91:7 POGO's 89:8 point 17:1 27:12,22 35:25 36:6 40:23 41:15 44:24 65:20 66:4 85:8 87:25 88:5 96:1 100:7 pointed 30:24 points 20:21 34:8 46:20 policies 59:23 60:1,3 60:4 83:4 policy 60:6 90:24 population 44:21 pose 18:10,15 posed 10:14 15:23 17:5 position 85:14 positions 17:20 positive 11:14 possibility 86:8 89:7 possible 5:25 101:2 posted 5:11,23 68:7 postpone 7:2 potential 3:25 5:6 29:17 32:3 43:10 57:17 75:23 101:12 107:10 potentially 17:19 89:10 power 80:17 88:17 106:9 PowerPoint 75:21 practice 5:20 practices 90:20 praise 73:14 preclude 35:1 predates 58:23 predecisional 17:16
	P			
	P 3:1			

17:18 21:24 26:22 27:12,20 41:21 57:11,18,25 76:24 77:7 85:2 predicated 29:12 predict 43:2 premise 62:15 prepared 37:2 86:17 103:7 preregistered 6:10 prerogative 69:5 presence 12:5 39:16 present 12:21 99:6 presentation 6:4,11 75:21 presented 6:13 24:19 102:17 preside 3:5 press 65:21 102:9 pressures 101:11 102:4 pretty 57:12 81:20 prevent 16:11 43:2 preventing 77:22 previous 14:11 42:14 60:17,24 61:25 63:3 previously 62:16 prides 89:3 primarily 81:1 primary 4:16 17:1 60:14 70:5,13 83:16 84:9 Principal 69:9 principle 70:25 principles 16:2 prior 4:18 17:23 21:13 23:9 60:19 92:17 93:2 priorities 95:19 prioritize 85:24 104:7 priority 30:13 95:13 proactively 19:7 probably 49:10,12 93:24,25 94:1,22 97:4 103:13	problem 10:24 11:8 73:17 75:10 94:25 96:13 problematic 87:13 104:5 problems 29:6 42:8 43:3 84:24 85:23 87:5 procedure 62:9 procedures 17:8 56:7 59:24 60:1,12 60:16,22 76:17 77:2 proceed 19:19 proceeding 7:2 108:3 proceedings 67:22 67:25 72:3 100:16 109:4,8 process 11:22 14:15 17:23 25:1 27:25 28:10,14 35:19 36:1,13 52:16,21 56:25 62:21 90:13 processes 26:25 processing 32:4 44:22 production 66:7 72:22 74:14,25 75:2 productive 23:12,16 33:9 professional 43:8 profound 96:4 program 4:1 5:7 15:8,11 23:3 41:1 47:18 82:24 107:11 programs 7:24 17:6 49:20 55:20 progress 14:4 48:7 project 40:9 86:9 88:11,14 96:15 105:21 projects 66:5,5 96:17 properly 18:12 52:1	proposal 83:23 proposals 48:25 propose 9:23 57:1 proposed 10:18 50:8 protect 8:2 18:22 protected 49:19 protecting 15:14 17:11 73:4,19 75:12 protection 9:24 15:1 15:14 16:14,25 22:22 42:24 48:5 49:6 50:5,10,16,19 53:7 63:25 101:14 102:6 protective 50:4 proudest 100:3 proven 101:21 provide 5:8 6:5 7:21 8:9,25 13:10,13 16:23 18:25 20:23 25:25 32:8 56:11 68:4 72:14 77:18 82:22 83:15 91:9 102:23,24 105:17 provided 9:4 20:5 20:16 22:19,24 24:9 31:9,17 37:15 47:12 53:17 73:15 91:20 93:12 provides 14:19 15:17 16:16 26:15 50:1 59:13,16 providing 4:11 6:16 15:13 16:12 61:4 68:25 77:5 105:6 public 1:8 2:13 3:6 3:18 4:25 5:8,10 5:16,17,22 6:5,20 7:18,19,21 8:6 9:5 9:20,25 12:7 13:9 13:14 15:1,9,14 16:14,25 17:11 18:11,15,22 19:22 20:4,9 21:7,16,17 21:18 22:22 29:14 30:1,14,15,16 31:2	42:14 43:4 47:9 50:2,5,16 51:5 55:21 67:13,19,25 68:6,13,24 70:7 71:25 73:2,4 75:12 75:25 76:2,14 77:19 78:7 81:24 82:16 84:19 86:11 89:2 90:18 91:2,19 92:2 99:12,23 100:12,15 101:3 101:14 102:6,12 102:13,23 103:6 103:10,17,18 104:22 105:12,15 105:21 106:7 107:22 108:4 pull 104:18 purpose 12:20 71:4 71:5 purposes 29:25 45:15 pursue 17:20 pursued 85:14 purview 10:11 75:18 put 22:16 23:14 47:15 57:15 92:9 93:19 106:8 putting 25:2,3 38:5	87:16,23 94:3,13 questioning 28:6 63:16 90:15 questions 10:14,18 10:21,22 12:16 19:19 20:7 22:7 23:5 37:4,24 38:17 39:15 66:15 67:16 69:20,22 70:4 71:13,18,23 86:22 quick 61:22 79:10 93:1 95:2 quite 26:25 27:4 41:14 58:22 85:3 quo 11:2 quote 20:19 21:2 48:2
				R
				R 3:1 rabbit 27:23 radiation 8:3 73:25 81:21 Radioactive 72:17 Radiological 21:22 56:24 raise 51:25 71:8 raised 49:5,5 51:16 74:24 ranked 95:3 ranking 95:4 rare 58:25 74:6 reach 92:17 reaction 87:14 Reactor 98:11 Reactors 69:11 read 25:24 38:11 48:12 55:3,6 95:5 96:25 97:1,1 106:24 reading 29:13,18 54:11 81:17 ready 4:12 8:9,12 9:21 20:24 25:25 55:15 real 99:18 really 23:21 33:18
				Q
			Quade 109:3,17 qualifications 50:17 qualified 66:10 98:24 quarterly 36:9 question 6:16 11:7,9 19:20 24:13 27:9 29:10,12 31:15 33:1,19 34:11,17 35:13 49:11 50:25 51:15 57:15 58:15 60:25 61:21,23 62:4,25 63:13 65:13 68:24 70:16 71:7 79:5,11 87:8	

<p>34:23 38:17 61:8 66:3,4 67:10 72:23 75:13 77:5,24 78:15 79:21 87:19 95:9 96:1 106:10 reason 38:19 80:1 91:20 106:14 reasonable 15:13 30:15 54:24 84:15 reasonably 19:14 reasoning 83:8 reasons 48:17 99:12 99:15 recall 14:16 38:4 74:11 77:11 94:18 receive 4:22 101:15 received 9:11 52:7 72:6 74:3 78:9 87:3 receives 59:25 recess 7:1 66:16 67:19,20,21 recognize 64:20 102:2 recognized 43:19 recognizes 51:11 recollection 38:15 recommend 84:2 recommendation 31:18,22 47:19,20 48:1,6,10,11,14,20 87:5 92:1 94:11 recommendations 14:25 15:5 16:13 19:10 22:24 32:17 41:3 47:12 49:1 51:12 71:10 82:2 85:20 86:3,6 90:22 91:24 92:12 reconcile 38:12 84:6 101:18 reconvene 7:2 67:19 67:24 record 6:18,22 21:14 25:8 29:11 29:24 35:10 57:16 69:21 71:16 85:7</p>	<p>86:19 91:22 95:6 100:4 108:2 recorded 5:14 109:4 recording 5:14,16 5:18 records 74:8 recuse 86:8 red 29:20 30:4 redefines 73:18 redline 9:15 78:17 84:2,3 reduce 48:17 64:7 reduced 109:5 reducing 64:24 91:21 reduction 23:1 29:21 86:4 refer 22:1 56:17,19 89:23 referenced 63:7 90:9 references 56:23 refers 25:15 refresher 59:25 regard 10:14 65:19 85:20 regarded 42:14 regarding 3:20 4:10 5:4 9:6 16:25 19:24 21:12 22:3 22:24 28:20 30:22 40:12 55:17,23 56:3 91:17 107:12 108:1 regardless 16:23 47:3,4 regards 31:22 43:5 Register 5:11 regular 73:15 regulate 7:1 regulations 17:8 regulator 4:9 8:7 18:20 27:17 regulatory 77:4 reinforce 19:12 reiterate 29:11 reject 31:24 48:14</p>	<p>relate 14:9 related 13:22 17:12 22:2 31:18 40:9 49:6 50:22 75:13 109:6 relates 47:18 53:6 53:10 relation 10:19 relationship 13:21 14:18 23:8,12,18 24:1,15,17,18 27:5 31:5,12 40:6 41:18 43:8 46:12 64:12 67:5 relationships 23:15 33:5 79:21,23,24 relative 40:16 96:1 109:9 release 41:22 releases 43:3 74:12 76:8 relevant 17:21 84:3 reliance 50:12 51:8 rely 50:16 51:1 63:2 rem 47:23 remain 6:18 10:22 101:21 108:3 remained 74:9 remaining 68:19,20 78:12 remark 13:10 remarks 2:4,5,8,14 2:15 7:5,7 12:8,10 12:25 13:13 26:23 31:16 57:13 68:22 69:15,18,20 79:8 84:1 100:17,20 103:7 107:1 remember 37:20 38:6 94:22 95:20 97:10 reminded 99:1 repeat 62:4 replaces 38:6 reply 93:13 report 42:24 82:2 85:25</p>	<p>REPORTER 109:1 reports 73:15 74:1,8 85:23 102:11 represent 30:2,4 representative 79:22 representatives 25:9 25:14 77:16 representing 29:21 represents 29:15 reps 24:18 37:12 97:16 99:2 request 21:13 29:10 29:23 56:6,7,10,12 61:24 62:23 90:14 requested 26:8 31:8 84:12 requesting 62:20 78:14 90:10 requests 19:3,5 22:1 26:16 89:14,23 90:20 required 34:16 51:2 89:23 requirements 17:7 21:25 51:2 53:25 54:9,11 60:5,16,20 77:2 89:13 requires 71:8 rescind 78:6 reserve 17:17 reserves 6:25 resident 3:25 5:7 25:10,15 32:14 41:18 55:8,14,17 55:24 56:8 57:24 59:1 94:4 107:10 Residents 81:2 resolution 28:13 52:15 resolve 26:19 83:24 resolved 70:9 94:3 resolving 28:10 resonant 13:24 resoundingly 24:2 resource 49:13 resources 17:20</p>	<p>respect 44:1 64:1 respond 22:4 31:17 87:18 89:14 90:1 responded 20:7 responding 63:1 response 9:12 22:4,9 34:16 78:9 89:25 89:25 90:15 100:13,14 responsibilities 4:6 4:8,14,17 8:1,11 16:1 34:24 54:25 70:22 responsibilities' 26:3 responsibility 15:8 15:16,20 16:5 71:1 71:3,6 104:24 105:16 responsible 15:12 71:2 94:10 restrict 84:14 89:9 restricting 92:8 restriction 21:20 restrictions 21:23 28:24 29:17,25 85:1,2 restrictive 85:4 restricts 88:25 result 11:14 23:18 23:20 54:12,13 90:22 resulted 8:21 55:14 81:10,12,22 resulting 18:3 results 54:4 71:11 76:8 81:19 retrofit 104:3 review 18:11 27:1 85:19 89:10 91:10 92:25 reviewed 60:18 84:1 reviewing 46:4 85:12 reviews 47:2,3 60:13 revise 61:4 92:9 101:24</p>
--	--	---	---	--

<p>revised 11:22 revision 90:12 revisions 9:9,16 revisit 10:21 rewrite 11:19 87:12 rhythm 66:9 Rickover 69:11 Ridge 13:5,18 25:6 32:6,13 35:14,22 36:18 37:13 40:24 40:24 52:25 58:24 73:8 107:21 right 3:10,11,14 6:25 10:20 17:17 28:9 45:6,7,11 67:12 80:2,9 81:24 88:10 93:18 98:10 103:11 rigorous 98:18 risk 8:2 15:23 18:10 18:15 23:1 86:4 risks 15:20 75:24,24 76:7 89:7 92:4 95:24 104:25 risky 75:17 River 39:23 47:19 75:4 road 23:23 36:7 103:20 Roberson 3:11 7:7,8 13:23 22:10,12 23:17 24:3,12 25:7 47:6,7 48:23 49:21 50:24 51:6 53:3,19 53:21 61:18,21,22 62:3,6,13,24 63:11 63:12 66:6,22,23 106:3,4,20 Robert 80:13 Robin 80:10 robust 46:10 54:1 92:11 robustly 53:2 Rocky 66:7 74:15,16 96:15,23 97:11 role 4:9 7:20 16:6 18:19 50:9 53:10</p>	<p>64:24 73:4,19,21 74:19 75:11,16 85:17 86:7 90:6 roles 16:1 34:24 54:25 rolling 75:21 rollout 35:17 room 5:24 6:9 27:15 68:7,13 Roscetti 13:6 19:21 20:1 22:6,8 29:2,8 29:9 30:24 55:13 55:16,21 56:2,15 56:18,22 57:7 59:13,21 62:2,4,11 62:14 routine 16:20 66:9 74:13 routinely 47:24 rubber 23:23 rubs 40:12 Rule 11:20 rulemaking 11:21</p> <hr/> <p style="text-align: center;">S</p> <p>S 3:1 SACs 51:3 safe 15:7,11 49:19 66:5 81:19 96:6,11 safely 7:25 16:3 18:21 65:4,11 81:25 96:8,23 safety 1:3,11,19 3:5 3:22 7:21,23 8:6 9:25 10:17 11:17 11:19,20,25 12:6 14:1,13 15:2,9,14 15:15 16:14 17:1,6 17:11,13 18:11,16 19:10 21:19 22:21 22:23 23:8 24:4,6 28:4 30:14,16 33:24 34:3 41:1 42:13,15,15 43:7 45:2 46:4,22,25 47:9,13 48:13,22 49:15,17 50:3,5,15</p>	<p>50:16,22 51:5,18 51:21,25 52:10,10 52:12,13,22 53:6 60:7 63:19 64:11 64:13,16,21,23,25 65:6,10,17,18,22 66:1,7 67:14 70:7 70:25 71:1,4 72:24 73:2,3,4,10,11,12 73:19,20 74:14,20 74:23 75:8,16 76:7 76:13,13,14 77:1,3 77:10,23 78:2 81:3 81:15,16,16 82:3 83:11,17 84:19,20 85:9,17 86:14,15 88:21 89:2,5,11 91:11,15,19,19,25 92:4,11 96:6 98:5 99:6,18 101:3,5,13 101:14 102:7 103:18 104:1,23 105:12,23,24 106:16 107:8 108:5 safety's 53:24 96:6 Safety-Class 16:24 28:16,18,20 29:1 29:20 30:6,8,17,23 30:25 31:19 32:7 42:17 43:6,10 44:5 44:6,13 46:1 47:5 Safety-Significant 44:14 sake 96:6 Sally 109:3,17 sanction 77:4 Santa 73:22 Santos 3:9 7:10,11 10:2 32:25 33:2,3 34:11,13,17 35:2,9 35:12 36:17,21 37:14,19 38:9 39:6 39:7 53:22,23 54:19 55:2,12,19 55:25 56:13,14 59:11,12 60:25</p>	<p>61:9,13,15 66:17 66:18,19 67:6,8 76:19 93:8,9 100:21,22 103:2 107:15,17 Santos' 61:23 83:25 sat 38:16 satisfied 19:4,5 Savannah 39:23 47:19 75:4 saw 22:15 81:9 93:11 saying 28:8 38:6,10 53:15 82:4,5 99:14 says 25:25,25 53:9 scale 43:3 scary 74:16 103:8 scenarios 47:21 schedule 6:25 68:21 School 80:17 98:11 scientific 98:25 scope 91:21 96:18 96:18,19 screw 105:24 scrubdown 74:3 Seat 2:6 seated 3:14 seats 3:10 second 1:8 3:18 5:7 10:6 11:9 67:7,8 69:13 70:16 74:14 107:11 seconds 68:18,19 77:21 78:12 secretarial 15:6 Secretary 4:8 7:13 8:7 9:6 10:5 13:3 13:12 14:12,17 16:13 19:24 20:5 21:7 22:13 23:6,11 23:21 24:8 25:25 26:6,9,11,20 28:9 31:4,23 32:1 34:21 35:5,11 36:19 40:4 42:6 46:8 47:25 48:15 49:9,22 50:20 54:20 55:7</p>	<p>61:5,11 63:6 65:1 66:2 69:10 78:9 103:15 107:20 Secretary's 4:17 26:7 75:6 section 13:2 secure 15:11 security 39:13,14 83:2 89:5 see 7:15 11:17 13:25 27:13,15 28:1 29:6 30:6 32:9,18 34:2 40:20 44:3,20,25 44:25 45:15 48:7 51:10 52:24 53:13 53:15,24 57:24 58:14 66:14 82:11 84:10 104:18,21 seeing 22:10 80:3 94:19 seek 77:17 seen 24:14,23 32:23 33:4 40:3 52:25 64:2 90:18 94:14 94:16,16 sees 19:10 49:3 seismic 73:7 select 89:16 selection 44:11 45:6 45:12 semi-autonomous 39:13 40:7 Senate 13:19 78:14 send 38:1 74:19 sense 85:3 94:3 106:22 sent 9:6 19:23 78:5 78:11 separate 37:23 40:25 separation 76:6 September 9:5,13 19:24 21:6 70:5 series 9:20 23:4 107:11 serious 74:23 seriously 98:5 99:10</p>
--	---	--	---	---

<p>101:4 serve 14:23 82:24 served 69:7,8 80:20 service 71:25 74:13 Services 78:14 session 2:3,12 5:2,7 13:14 20:20 37:6 37:23 67:24 70:16 sessions 34:22 37:22 set 4:25 37:1 38:16 53:25 76:16,17 87:10 severe 81:20 shape 98:24 share 18:3 37:17 41:4 75:8 83:7 84:3 shared 17:10 29:14 sharing 17:24 sheet 6:8 68:13 shop 25:16 37:7 short 51:3 56:15 57:14 92:23 shows 38:11 91:22 shrinking 74:22 side 37:11 39:18 41:23,24 42:13 97:5 103:12,12 sides 93:25 103:11 sign 6:9 sign-up 6:8 68:13 signed 85:8 93:3 significant 42:21 50:9 75:24 76:6 significantly 11:4 88:23 silently 52:7 similar 35:13 44:21 59:16 80:3 85:3,7 102:22 simple 8:14 simply 11:2 39:2 sinking 69:12 98:16 sir 20:1 25:11,18 55:16 56:18 57:7 58:3 59:21 62:3 69:16 71:12,20,24</p>	<p>72:8 82:18 97:20 97:22 98:8 sister 40:7 sit 86:21 87:11 sitdown 87:2 site 13:18 21:20 22:3 22:5,18 24:18 25:9 25:13 29:25 30:4 37:10,12 39:16 40:17 41:8 44:12 44:12 47:19 56:7 73:15 75:4,13 76:4 76:16 77:15 78:7 79:1,13,15 82:3 84:18,21 89:24,25 96:23 97:16 105:3 site-specific 79:25 sites 4:10 23:25 30:1 30:7 36:18 37:1 40:5 43:1 73:12,15 76:5 77:19 78:3 79:20,25 80:4,7 83:18 84:13 89:4 89:18 90:4 sitting 39:1 58:19 situation 27:3 45:16 48:17 55:8 99:1,22 situations 57:17 99:17 six 36:15 99:9 skeptical 33:18 skimmed 97:1 slide 29:21 38:16 slides 37:2 38:15 slightly 35:23 slimmed 62:12 slower 81:16 small 81:22 92:16 so-called 76:3 solid 66:12 solution 87:10 101:25 solutions 18:1 85:23 solve 10:25 11:8 87:5 somebody 41:25 65:7</p>	<p>somewhat 44:24 son 97:24 106:13 soon 44:19 sorry 42:11 61:9,20 80:12 86:24 98:8 sort 49:12 75:15 98:22,25 sound 19:13 23:12 77:6 sources 17:15 space 36:6 speak 6:1,9 10:8 41:6,6 61:5 83:9 98:24 speaker 6:2 68:18 69:2,6 72:9 80:9 82:19 88:10 92:13 93:16 106:17 speakers 5:23,24 6:1 6:12 68:6,8,9,10 107:3 speaking 40:18 42:7 72:15 100:15 specific 9:7,16 20:12 38:4 49:5 50:25 55:24 62:17 75:10 82:2 83:22 107:13 107:18 specifically 3:23 11:11 22:24 25:14 40:18 53:5 specifics 92:19 specify 50:3,3 spend 97:9,12 spent 80:21,22 98:22 spills 74:12 split 96:17 spoken 52:7 squashed 82:11 Staal 97:10 staff 3:15 9:14,16 14:13,20 16:21,22 17:20 18:25 19:8 20:23 22:16 23:9 25:22 27:23 28:3 32:8,10 34:22 35:6</p>	<p>35:16 37:9,12 47:3 52:20 53:18 56:2,9 58:19 59:6,16,16 59:18,22,24,24 60:5,10,14 62:23 84:11 86:6 93:1,23 100:25 103:23 104:8 staff's 29:15 30:21 60:12,21 staffers 94:20 staffing 51:2 stage 74:6 77:3 stages 77:11,23 stakeholder 88:3 stakeholders 7:17 20:10 31:3 37:16 37:18 73:13 77:19 78:3 84:4 86:11 105:15 stand 65:14 100:9 standard 35:19 51:11 53:25 56:22 standards 11:22 17:8 36:10 51:10 89:5 98:18 standing 106:9 starred 30:2 start 87:6 103:23 started 40:9 43:4 44:19 81:10 starting 33:17 97:11 state 6:2 9:3 46:21 68:10 78:21 96:19 stated 5:20 7:19 13:24 18:13 20:19 21:1,7 48:1 71:5 84:21 statement 6:21 7:9 10:1 14:2 20:6 22:14 23:4 28:17 30:12 57:6,8 60:6 70:4 72:8 100:12 102:25 106:5 statements 6:23 states 26:6 60:7 70:5 statistics 66:7</p>	<p>status 11:2 16:24 23:25 statute 63:18 statutory 8:14 21:10 31:21 84:16 stay 74:4 stayed 41:2 stereotype 109:5 step 59:2 steward 18:20 stewards 103:18 sticking 104:17 sticky 104:18 stockpile 91:14 stop 77:4 storage 22:25 32:4,6 73:8 store 32:13 stories 98:7,9 story 73:21,22 93:14 103:12 strategy 11:19 34:19 strengthened 32:18 stressed 81:14 strict 54:10 strikeout 9:15 78:17 strive 52:9 striving 46:16 strong 13:21 23:15 67:10 strongly 91:1 92:8 96:9 structure 4:7 struggle 48:25 106:9 struggles 65:21,22 studies 101:7 102:9 study 102:11 stuff 59:6 94:15 95:22 96:19,21 subject 6:15 17:25 68:23 78:7 submarine 98:15 submarines 98:15 submission 69:23 submit 6:21 95:5 submitted 86:18 submitting 6:23</p>
---	---	--	---	---

<p>subsequent 35:18 37:8</p> <p>subsequently 5:11</p> <p>substantial 24:9</p> <p>substantially 71:9</p> <p>successful 31:13,13 51:24 66:4</p> <p>suggest 21:3</p> <p>suggested 83:22</p> <p>suggestion 60:8</p> <p>suggestions 32:16</p> <p>summarize 19:21</p> <p>summarizes 21:15</p> <p>summary 97:16</p> <p>sundry 52:20</p> <p>supercede 16:9</p> <p>supervision 109:6</p> <p>supervisor 96:4</p> <p>supply 86:18</p> <p>support 83:21 88:17 90:22 101:1 102:12</p> <p>supporting 30:21 86:15 107:3</p> <p>supportive 33:7 48:7</p> <p>supports 14:21</p> <p>supposed 26:10</p> <p>suppression 50:7</p> <p>sure 20:22 22:17 24:14 30:12,15 31:23 34:10 35:11 35:16 36:25 53:8 67:1 86:23 87:7,15 99:12,15 100:8 105:20</p> <p>surrounding 10:13</p> <p>survey 52:13</p> <p>surveys 52:11</p> <p>survivor 69:12</p> <p>system 42:16 46:11 50:4</p> <p>systems 50:7,7,10 51:9 52:14 53:1,4 63:9</p> <hr/> <p style="text-align: center;">T</p>	<p>table 6:8 68:12 94:7</p> <p>take 10:20 12:5 15:8 27:14 48:21 50:21 60:9 66:16 67:2,18 69:5 86:5 93:17 97:21 98:5 99:10 101:4 105:13 107:25</p> <p>taken 77:13 94:6</p> <p>takes 15:18</p> <p>talk 10:6 28:15 29:5 33:15 53:18 63:23 99:9</p> <p>talked 30:11,11 36:22 61:23 87:3 87:19</p> <p>talking 47:10 58:4 97:15 98:13</p> <p>tanks 73:6</p> <p>target 49:7</p> <p>tarps 97:13</p> <p>tasked 22:4</p> <p>tasks 16:19 65:24</p> <p>taxpayer 18:21</p> <p>taxpayers 91:5</p> <p>teacher 98:23 106:12</p> <p>team 37:15 90:16</p> <p>technical 6:14 13:6 15:4 19:13,21 27:24 28:3,11 42:24 53:6 59:22 59:24,24 60:10,12 60:21 68:22 70:13 71:9 94:11 98:24</p> <p>tell 37:11 68:15 82:8 93:14 97:11 98:1 106:6</p> <p>tells 53:16</p> <p>tend 65:18</p> <p>tends 54:15</p> <p>tens 104:9</p> <p>tension 27:19 39:17 58:22 64:9</p> <p>terms 34:19 44:25 84:15</p> <p>testifies 98:4</p>	<p>testify 84:11</p> <p>testimony 5:3 20:15 107:19</p> <p>Texas 80:10,11</p> <p>thank 7:8,11,12,13 10:1,2,4,5 12:3,9 12:13 13:8,15 19:16,18 20:1 22:6 22:12,13,14,14,16 22:18 25:7 31:25 32:24 34:15 35:12 36:21 39:6,7 40:14 46:18 47:5,7 49:21 51:14 53:21 56:13 56:14 59:8,12 60:25 61:14,15 63:12 66:13,19,21 66:25 67:5,9,14,15 67:17,20,23 68:3 69:4,17,23,25 71:12,20,24 72:1,5 72:7,12 78:15 79:2 79:4,6 80:8,13,14 80:19 81:1 82:6,17 82:18 86:20 88:8,9 88:12 92:12 93:5,9 93:15 97:20 100:9 100:14,18,22,23 100:25 102:25 103:2,4,5,5 106:1 106:2,4,17,18,19 106:20,25 107:2,4 107:16,22 108:1</p> <p>Thanks 7:15</p> <p>theme 101:19</p> <p>thing 33:10 37:4 45:5 52:12 57:23 67:13 82:4,6 96:5 97:15 103:8</p> <p>things 18:18 24:21 27:2 33:12 34:3,7 38:17 41:4,8,13 42:9 44:1 49:25 51:2 52:17 54:16 81:24 93:24 94:8 94:24 95:23,25 101:20 103:17</p>	<p>105:13 106:8</p> <p>think 24:16 27:19 32:20 33:24 34:10 37:3,6,7 41:12 44:4,23 53:12 55:21 58:9 61:18 63:6,8 65:13,14 66:12 79:24 82:16 84:5,7 87:15,17 88:1,6 94:5,6,8,20 94:23,24 95:3,14 95:23 96:1,14,17 97:3,3,4,5,6,17,18 99:22 103:10,13 104:5,6 105:13,24 106:7,14</p> <p>thinking 105:23</p> <p>thinks 23:19</p> <p>third 4:2 57:20</p> <p>Thirty 25:22 78:12</p> <p>thoroughly 89:10</p> <p>thought 10:9 87:9 93:20 98:1</p> <p>thoughtful 79:8</p> <p>thoughts 59:10 95:2</p> <p>thousand 19:4 47:23</p> <p>thousands 47:22 104:9</p> <p>threatens 74:19</p> <p>three 3:18 70:3 71:7 75:10 78:8 85:1 86:3 99:9 103:11 107:11</p> <p>three-digit 38:24</p> <p>thunder 57:14</p> <p>thwarted 77:23</p> <p>tied 95:3</p> <p>time 4:3 6:7 9:13 10:6,20 12:3 13:1 22:16 25:22 35:25 38:21,24 39:4 40:23 43:16 52:18 58:22 64:4,17,21 65:20,25 67:19,23 68:4,15,21 74:5,20 77:15 80:2,21 86:20 90:21 91:6,6</p>	<p>92:23 94:18 97:10 97:21 100:15 106:18</p> <p>time-wise 35:3</p> <p>timeline 36:14</p> <p>timelines 35:24</p> <p>timeliness 76:19</p> <p>timely 5:12 8:13 9:4 9:21 33:25 42:4 64:22 86:2 89:19 102:20</p> <p>times 41:7,13 58:17</p> <p>timing 33:24 34:19</p> <p>title 25:17</p> <p>today 5:2 7:18 8:23 9:11 10:6,10,22 11:13 12:4,13,16 13:8 19:16 48:6,12 54:2 69:23 72:14 75:18 82:23 84:1 88:13 91:17 100:24 102:22 103:6 105:24 107:3</p> <p>today's 4:15 6:20 7:19 12:20 13:14 21:17 30:1 51:10 86:19 101:1</p> <p>told 24:1 49:25 74:4</p> <p>toothpick 104:17,18</p> <p>topic 4:15 12:15 40:10 46:21 47:8,8 49:13 63:23</p> <p>topics 54:23</p> <p>total 30:3 67:2</p> <p>touch 41:2</p> <p>touched 23:3</p> <p>toured 32:21</p> <p>track 91:22 92:2</p> <p>tradition 98:21</p> <p>tragic 76:13</p> <p>train 97:2</p> <p>trained 17:4 66:10 105:1</p> <p>training 17:6 20:16 20:20 21:2 34:20 34:22 35:18 36:22</p>
--	--	--	---	--

36:23,24,25 37:22 37:23 38:2,13 39:2 39:24 50:17 59:25 105:8 transcribed 109:8 transcript 5:15,15 transition 14:7 translate 53:11 transparency 7:22 transparent 13:16 26:22 33:8,16 102:19 transportation 24:20 transuranic 32:5,5 44:22 45:20 travels 76:9 trend 65:18 104:21 trends 11:17 Tri-Valley 72:10,16 72:19 79:11 tried 38:21 43:23 trillion 91:12 trillions 81:23 tritium 95:13 trivial 97:9 TRU 32:13 95:13 true 50:2 51:14 77:8 truly 101:22,23 trumps 69:13 truth 94:1 97:3,6,18 103:12,13 try 12:17 48:2,17 83:23 87:12 trying 11:8 27:7 34:6 38:12 39:2 41:15 43:16 44:4 44:20 49:2,7 54:12 54:14 64:5 67:3 80:22 99:6,20 104:3 TSRs 51:1 turn 7:6 67:25 69:2 72:3 100:16,19 turnover 65:23 two 3:10 4:22 9:10 34:8 41:9 84:18	85:24 93:24 98:15 99:9 101:25 TWPC 44:21 type 35:23 typewriting 109:5 typically 36:9 37:22 54:8 58:6 <hr/> U U.S 83:2 ultimate 97:25 ultimately 10:16 15:19 17:21 unable 91:8 unanimously 9:14 unclear 84:21 85:4 underlying 19:9 undermine 101:12 undermines 88:23 undermining 102:5 underscore 89:6 Undersecretary 14:12 understand 11:16 12:1 13:10 19:8 27:7,22 34:21 35:7 38:10,12 49:2,18 54:1,7,12,14 61:7 62:24 64:6,8 65:14 66:11 83:8 84:14 99:8,16 104:7,25 understanding 8:24 87:12 92:10 93:12 105:8 understood 52:1 undertaken 90:13 undue 8:2 unduly 89:9 Unfortunately 74:9 unified 41:10 union 99:2 unions 90:17 unique 58:5 unmitigated 47:22 unnecessary 90:2 unwilling 91:8 upcoming 40:17	102:13,20 update 36:9,11 39:3 updating 38:19 UPF 77:11 upset 93:25 uranium 95:14 use 17:19 31:21 54:22 62:19,22 63:7,8 useful 77:7 uses 4:16 59:19 60:23 USS 69:13 utilized 50:4 <hr/> V valuable 15:17 18:6 45:23 value 8:5 17:9 32:9 34:4 77:5 valued 69:25 variety 48:19 49:4 various 52:19 74:5 vast 89:17 vehicle 4:16 ventilation 50:7 verbatim 5:15 versa 41:3 version 9:15 versus 44:12 50:13 54:15 vested 105:19 Vic 97:10 vice 41:3 video 5:14,16,18 videostreamed 5:13 videostreaming 6:21 view 11:4,10 58:1 63:24 64:6 viewing 5:17 violates 70:24 vital 15:1 31:1 73:4 Vollmann 81:18 voted 4:25 VTC 36:25 37:5	<hr/> W Walde 73:23 74:3,9 Walde's 73:24 want 10:5,19,20 11:16 12:10,12,15 13:15,17 23:4 27:23 30:12 33:15 33:16,16,19 34:8 42:8 46:21 47:8,17 48:18,23 54:3,6 57:18,19 63:23 66:3,25 67:8,17 69:23,24 78:15 79:6 81:7 82:14,14 91:1 93:14 96:6,7 96:7,10 97:8 100:1 100:25 103:5,9 106:17 107:4 wanted 27:21 28:15 31:20 32:22 55:9 75:9 87:13 92:15 100:7 wants 57:24 96:12 war 15:24 69:13 warn 68:18 Washington 1:21 78:20 80:15 wasn't 33:12 93:19 waste 30:7 32:3,5,6 32:13 44:22 45:20 72:22 73:6,8 80:23 88:16 95:8,13 watchdog 88:16 watching 98:22,25 water 76:9 way 12:17 15:12 54:15 55:6 56:2 58:23 65:10 82:11 84:16,21 87:3 88:6 98:24 99:14,18,20 101:22 ways 27:21 we'll 40:12 we're 27:1,15 28:6 34:6 38:5 40:7 42:1,12 43:16,24	46:9,16 47:1 48:7 49:2,18 52:18 53:9 63:2,9,17,20 67:3 67:12 76:15 87:23 96:5 97:12 104:3 104:16,21 we've 25:4 27:4 35:25 38:5,21 40:22 41:19 43:22 46:10 48:20 49:24 49:25 54:22 58:23 62:9 64:2 75:18 87:19 90:18 104:2 107:19 weapons 72:22,23 74:21 86:16 91:13 95:7 website 5:10,17,18 6:24 welcome 5:21 7:13 7:14,15 13:9,13 18:11 33:7 52:5 92:5 welcomed 48:19 welcoming 33:20 went 25:16 66:7 80:16 95:8 weren't 43:19 Wes 96:4 what-ifs 87:21 whispered 52:7 White 7:13 10:5,18 11:11 12:12 13:3,8 13:9,12 19:18 20:6 20:15,19 21:2 22:13 23:6,11,21 24:8 25:23 26:11 26:20 28:9 30:10 31:4,23 32:1 34:18 34:21 35:5,11 36:19 39:21 40:4 42:5,6 45:19 46:8 48:15 49:9 50:20 52:5 54:19,20 55:7 57:13 61:1,5,11 62:25 63:6 65:1 66:2 67:17 103:16
--	---	--	---	--

wholeheartedly 14:1	86:15 89:18 104:25 105:1	yesterday 78:11 Yorktown 69:13	2	5		
widespread 53:4	workforce 65:23		2 2:12 29:10 30:5,24 44:5,6,13 56:23 67:24 97:13	5 40:19 43:13 57:15		
willingly 77:18	working 13:21 16:19 24:1 31:12	Z		6		
willingness 9:8	33:5,13 40:8,15 41:17 48:20 72:24	0	2,000 19:3 20 42:24 20004 1:21 2012-1 47:19 2014 74:1,5 2015 82:1 2017 14:18 74:9 90:9 2018 1:15 4:2,18 5:10,12 6:19 9:5 9:13 19:3,6,24 20:3 21:6 55:22 70:5 83:6 102:14 107:13 108:3 2019 107:17 2030 75:2 20th 102:14,20 21 93:22 235-F 47:20,24 48:16 24 93:22 24th 5:10 25 94:12 27th 78:5,11 28 1:15 6:19 28th 4:2 20:3 21:16 55:22 83:6 108:3	60 5:19 625 1:20 67 2:10 68 2:13		
WIPP 30:24 45:20 46:16 73:7 95:16	73:24 90:11 96:5 106:17	0140.1 71:5				
wisdom 69:24		1				
wish 6:5 13:10 68:14	workplace 53:18	1 2:3 21:14 30:5 56:23 70:16 84:10 10 6:13 11:19 64:2 68:17 70:2 10-minute 67:18 10:00 1:16 100 2:14 104:8 1027 56:23 106 2:15 108 2:16 11:30 5:22 12:32 108:6 12th 9:13 13 2:6,7,8 140 41:17 140.1 3:21 4:15 8:15 8:16 9:7,15 10:7 11:24 12:14,14,22 14:8 19:25 20:5 21:9,12 23:10 29:18 48:12 72:25 73:18 74:18 78:15 82:8 83:5 88:2,23 101:10 102:17 107:12 17 70:5 17th 9:5 19:24 21:6 19 2:9 107:16 1951 80:24 1954 7:4 21:11 1984 80:22 1988 81:10 1989 69:8 1991 95:20 1992 94:22 1996 69:8 1999 74:1	workplace 53:18 works 39:15 world 69:13 worried 77:25 worry 47:9 65:18 104:6 worth 45:5 wouldn't 65:1 woven 69:22 write 95:6 writes 71:22 writing 79:17 written 6:21 8:18 29:3 39:10 69:19 69:20 72:6 wrong 53:12 101:21 wrongly 21:9 75:6			7
wished 6:1						
wishing 6:11 68:16				7 2:5 60:6 71 29:21 7th 5:12		
witnessed 100:24				8		
witnesses 107:2				80 75:2 830 11:19 64:2 835 49:20		
wondering 39:19 42:1 79:13				9		
words 29:13,18 94:22 103:14,20 104:2,4				90 68:18 90s 82:5 92 95:20 93-3 94:11		
work 10:12 14:2 15:22 16:3 17:4,5 17:22 23:22 26:10 33:3,16 40:17,18 40:22 41:11,12 43:12,20,23,24 51:9 56:4 65:5,7 65:11 66:9 71:2 80:4 85:21 86:10 87:4 88:17 89:20 91:23 92:10 96:11	X					
worked 49:16 51:13 58:16 59:2 93:22 96:14,16,21	X 2:1					
worker 17:12 42:25 48:5,13,22 49:15 50:17,17,17,22 51:1,18,20 53:17 73:2,19 75:16 76:12,13 90:17 91:19,25 92:4	Y					
workers 12:7 15:15 47:8,14,23 49:6,7 49:19 50:1,3,13 51:4,5,15,22,23 52:8,19,19 53:8,10 66:10 76:4,10,16 77:17 78:3 79:1 81:14 83:17 85:18	Y-12 40:17,23 43:13 43:21 Yeah 27:6 92:15 93:9 year 16:9 75:2 88:1 90:9 95:9 years 10:25 16:21 23:12 24:9,16,19 25:17,22 32:23 38:1 40:21 49:11 53:1 58:24 63:8 64:10 72:21 80:5 80:22 82:4 85:5 93:21 94:12 98:7,7 98:7 Yep 32:1					
			3			
			3 2:4 18:8,9 21:21 29:23 43:5 44:7 55:10 56:23 75:14 75:19,22 84:13 30 10:25 64:10 68:19 72:18,21 30-year 91:13 101:6			
			4			
			4 47:15 74:6 420 37:25 38:1 44 74:10 47 93:21			