

UNITED STATES DEPARTMENT OF LABOR

+ + + + +

ADVISORY BOARD ON TOXIC SUBSTANCES
AND WORKER HEALTH

+ + + + +

MEETING

+ + + + +

TUESDAY
OCTOBER 18, 2016

+ + + + +

The Advisory Board met in the Comfort Inn Oak Ridge-Knoxville, 433 S. Rutgers Avenue, Oak Ridge, Tennessee, at 8:30 a.m., Steven Markowitz, Chair, presiding.

MEMBERS

SCIENTIFIC COMMUNITY:

JOHN M. DEMENT
MARK GRIFFON*
KENNETH Z. SILVER
GEORGE FRIEDMAN-JIMENEZ
LESLIE I. BODEN

MEDICAL COMMUNITY:

STEVEN MARKOWITZ, Chair
LAURA S. WELCH

ROSEMARY K SOKAS

CARRIE A. REDLICH

VICTORIA A. CASSANO

CLAIMANT COMMUNITY:

DURONDA M. POPE
KIRK D. DOMINA
GARRY M. WHITLEY

JAMES H. TURNER

FAYE VLIEGER

DESIGNATED FEDERAL OFFICIAL:

ANTONIO RIOS

ALSO PRESENT:

RACHEL LEITON, Director, DEEOIC*

GREGORY LEWIS, Director, Office of Worker

Screening and Compensation Support, DOE

JOHN VANCE, Branch Chief, DEEOIC Policy,

Regulations and Procedures

*Participating by phone

CONTENTS

SEM Subcommittee (continued)	
Laura Welch.4
Part B Lung Disease Subcommittee	32
Carrie Redlich, Chair	
Break	
Pre- and Post-1995 Exposures	91
Steven Markowitz	
Circular 15-06, associated Memo and note	
EEOICP Memo/Policy re: solvents and	
Hearing Loss112
Laura Welch	
Lunch	
IH & CMC Subcommittee.146
Rosemary Sokas, Chair	
Providing DOW Records for EEOICP228
Gregory Lewis, DOE	
Break	
Weighing Medical Evidence Subcommittee261
Victoria Cassano, Chair	
Public Comment Session326
Steven Markowitz	
Adjourn.377

P-R-O-C-E-E-D-I-N-G-S

8:40 a.m.

1
2
3 CHAIR MARKOWITZ: Good morning. We're
4 going to resume the meeting of the Advisory Board
5 on Toxic Substances and Worker Health. We're
6 going to continue with the discussion from
7 yesterday led by Dr. Laura Welch on the site
8 exposure matrices.

SEM SUBCOMMITTEE (continued)

9
10 MEMBER WELCH: Yesterday we generally
11 finished and concluded our discussion of what
12 other data sources should be added to SEM and the
13 process for that. So we are ready to come up
14 with a couple of more recommendations.

15 Kevin, if you just go down a couple of
16 slides. I'll tell you when to stop. Yes.
17 Institute of Medicine had recommended that DOL
18 add the nature and extent of exposure to the SEM.
19 And the DEEOIC staff thought that would be
20 difficult and we agree.

21 It would be really hard to actually
22 put that into the SEM. But as we heard at the

1 last meeting, they've developed a contract with
2 an industrial hygienist who could provide that
3 nature and extent for individual claims rather
4 than trying to add it to the SEM. And I think
5 that makes sense because you really want to look
6 at it for each individual.

7 But we also agreed that the process as
8 we understood it was not going to allow the
9 industrial hygienist to do that because currently
10 the industrial hygienists get the information the
11 claims examiner sent them on exposure which would
12 be SEM and the Occupational History
13 Questionnaire, neither of which have nature and
14 extent of exposure in it.

15 Our next concrete recommendation was
16 that we think there should be a process where the
17 industrial hygienist interviews the claimant
18 directly when that's necessary to adjudicate the
19 claim. And in addition to which we know that
20 would help. If it's a regular group of
21 industrial hygienists, it would help them
22 understand the sites better. Because every time

1 they talk to a worker, they're going to
2 understand more about what happened at that site
3 and also the worker's perspective on the kind of
4 personal protective equipment or training they
5 received. So they'll become more knowledgeable.

6 Let's discuss that point before we
7 move onto another one.

8 MEMBER SOKAS: I was just going to
9 suggest that we discuss it and have a Committee
10 discussion and then vote to make it a
11 recommendation.

12 MEMBER WELCH: Yes. Steve and I had
13 just talked briefly about how to do that because
14 we didn't vote on the first one, adding other
15 databases. But I didn't really want to reopen
16 that discussion again.

17 But I think on this one, we could
18 discuss it and vote as a board. It's a little
19 simpler. I would agree with you. Do you have
20 any comments you want to make? Anyone on the
21 Board have comments to add?

22 MEMBER BODEN: First, questions.

1 Something I don't know how it worked. But the
2 Former Worker Projects did a lot of work actually
3 interviewing workers at the sites and getting
4 information about the exposures, etc. How does
5 that relate to this process at this point? Is
6 that information used? And, if so, how?

7 MEMBER WELCH: John, could you? You
8 could address the site assessment process at
9 least.

10 MEMBER DEMENT: I guess I will answer
11 the question as directly as I can. We recognized
12 in the Former Worker Projects to get a nature and
13 an extent through a worker interview is pretty
14 difficult.

15 So we decided two issues. One we
16 would concentrate on location and task. At least
17 for construction traits that's a driver of a lot
18 of issues on exposure.

19 And then on the extent we decided and
20 I think it's actually in the Occupational History
21 Questionnaire currently to ask about frequency of
22 doing the task. That gives us at least a handle

1 on both the exposure the task is a driver on,
2 sometimes the magnitude of exposure, so the
3 characteristics of the exposure, and then the
4 frequency of doing the task. So that's how we
5 came up with it.

6 And we use it as a algorithm in many
7 of our analyses to actually separate individuals
8 into at least low, high and medium types of
9 exposures. And it's proven to work reasonably
10 well for most things.

11 MEMBER BODEN: Does that carry over
12 now to the EEOICPA process?

13 MEMBER WELCH: I also heard you say
14 that you were asking about the site assessments
15 that were done before the program began, too.
16 And those are based on existing records on the
17 sites. And those existing records were available
18 to the DOL contract that created the SEM.

19 But I don't think anybody has ever
20 looked to see whether everything -- If I have a
21 worker with an unusual exposure at a site, I'll
22 ask John to look in the database and tell me more

1 about it, particularly a task. Sometimes workers
2 tell me about a task and I have no idea what the
3 exposure would be. He can sometimes find it in
4 the site assessment that was done when the
5 program was started or in databases that he has.
6 But whether all those exist in the SEM, I don't
7 know. They should because we were using existing
8 records, but some worker interviews, too, which
9 aren't necessarily in the SEM.

10 MEMBER DEMENT: I don't know to the
11 extent to which the SEM has actual task. I mean
12 I know there's some in there. But I don't know
13 the extent. It's hard to search from each site
14 and look in in terms of task.

15 To me, the Occupational History
16 Questionnaire in conjunction with the SEM in
17 allowing the hygienist to go back and ask more
18 specific questions about task that may not be
19 covered well would be an advantage to the program
20 in terms of trying to get to the nature and
21 extent of exposure.

22 MEMBER BODEN: It also sounds to me

1 like we should be keeping this in mind when we're
2 making recommendations for changing the
3 Occupational History to make it more -- to have
4 it as relevant as it can be to the question of
5 nature and extent of exposure.

6 MEMBER DEMENT: I don't think we can -
7 - I don't see how it's possible for us to
8 separate the Occupational History Questionnaire
9 from the SEM and the IH assessment. To me,
10 they're all sort of part of the whole process.
11 So I don't know.

12 I guess I would like to hear from DOL
13 when they would plan to have an updated
14 Occupational History Questionnaire because I
15 think to me that's the start of the exposure
16 assessment. We really need to have it in our
17 hands to be able to make intelligent decisions
18 about this whole continuum of process for
19 exposure assessment.

20 CHAIR MARKOWITZ: So I would just make
21 a couple of comments. One is I would remind the
22 Board that I think DOL has invited us to assist

1 them in improving the Occupational History
2 Questionnaire.

3 But just to respond to Dr. Boden's
4 comments about Former Worker Program, it's a
5 screening program. I run one of the larger
6 Former Worker Programs at many, many sites, not
7 the construction workers but the production,
8 engineering, administrative, maintenance
9 personnel with hugely varied tasks and exposures.
10 So it's much more complicated than the
11 construction site.

12 Our Occupational Histories don't go
13 into the depth that's needed for this decision
14 making around claims. It can be useful. It's
15 not going to solve the challenge for the claim in
16 part because it's a screening program and in part
17 because we haven't devoted the resources for that
18 kind of in-depth assessment of their exposures.

19 So it can be useful. It should be
20 used. But it's not going to answer the problem.

21 MEMBER DEMENT: I agree. And I think
22 to require an Occupational History Questionnaire

1 a priori it's just a whole -- Just think of the
2 number of exposures and tasks and things that
3 workers are doing, many of which are not going to
4 lead to much in terms of exposure assessment.

5 That's the reason we think that having
6 the IH ability to go back when specific exposures
7 are identified as potentially contributing to
8 this, causing and contributing to this condition.
9 And allowing a more detailed discussion about
10 exact tasks that the worker did would be a much
11 more intelligent way of approaching the process.

12 MEMBER CASSANO: I think our work
13 subcommittee will have something to say on this
14 issue, too, because what we noticed is a lot of
15 times is the CE determines what information
16 actually goes to the industrial hygienist. So
17 we'll be talking about that some more as well.

18 MEMBER WELCH: Les, did you have
19 another comment? Your light is on. You don't
20 have to talk.

21 MEMBER BODEN: I was actually thinking
22 that one of the things that would be worth

1 thinking about in all aspects of this is the
2 lynchpin role of the CE and guidance to the CE.
3 And the decision making process I think will be
4 essential to our fulfilling our mission.

5 MEMBER REDLICH: Following up on
6 Leslie's comment, I was going to mention this
7 later. I probably know less about aspects of
8 this process than others. But from some of the
9 cases that we started to review, the SEM
10 inserting that actually complicated the process
11 and came up with an answer that it would have
12 just been better had there been no SEM in there.

13 There were some basic assumptions and
14 this was related to cases such as COPD. So I
15 think in certain cases it may not be an issue as
16 so much fine-tuning and fixing it. But maybe
17 it's not needed.

18 MEMBER WELCH: I guess in my mind and
19 on my paper I drew a Venn diagram. We have the
20 SEM. We have the Occupational History
21 Questionnaire. And we have the industrial
22 hygiene interview. And they will overlap. But

1 the chance that all three overlap with the same
2 information is pretty small because they're
3 approaching it in a different way.

4 So the SEM is a great place to keep
5 track of those 17,000 different chemical
6 exposures and what sites they were used at and in
7 which tasks. But there are a lot of diseases
8 that are not addressed by the way the SEM was
9 constructed.

10 So I think what you're saying is
11 completely right. I mean I've certainly seen
12 cases like that, too. And we have to be sure of
13 that.

14 MEMBER WELCH: So you have the
15 expertise to know which of those sources of data
16 is most useful.

17 MEMBER REDLICH: Well, yes. But on
18 the other hand what it is is it's basically
19 something that's not a specific chemical that's
20 not really addressed in SEM. And that's what the
21 IOM report had said they're not addressing
22 mixtures, in addition to which specific chemicals

1 that were probably related to a task wherever it
2 was done have not been linked to that task at all
3 the sites because there wasn't specific data that
4 was there. So there are many ways in which the
5 web of connections requires the addition of some
6 expert judgement.

7 MEMBER REDLICH: But when you have so
8 many different exposures over so many years,
9 there may be some situations where fine-tuning
10 this will create greater clarity. But I think
11 there are probably a number of where it isn't
12 necessarily more helpful.

13 MEMBER WELCH: Well, yes. I mean the
14 problem would be if the SEM is considered the
15 ultimate answer. But if the SEM is there as a
16 useful tool the same way the Occupational History
17 Questionnaire is there as a useful tool if it has
18 something that helps, fine. If it doesn't answer
19 the question, it's not the end of the inquiry.

20 MEMBER REDLICH: I guess also from my
21 perspective how much time, effort and resources
22 are being devoted to this activity to me would be

1 helpful in trying to decide how much added
2 benefit is there.

3 MEMBER WELCH: I don't think you need
4 to know that. I think at least our committee who
5 is working on this has already decided it's more
6 important to put effort to broadening the range
7 of assessments rather than trying to make SEM do
8 things that it may not be able to do. Is that a
9 fair statement do you think, John?

10 MEMBER DEMENT: I think so. The other
11 thing, a lot of cases, we started reviewing
12 specific cases in great detail. When it's a
13 survivor case and you look at the History
14 Questionnaire, it's usually pretty much blank
15 except for having worked at a site if you're
16 lucky to have a little bit about the job at the
17 site. But nothing in terms of potential
18 exposures in most cases and certainly nothing
19 about task.

20 Where do you go from there in terms of
21 assessing that potential exposure? And I think
22 the SEM does or could play a role in that given

1 that it could be expanded in many cases in terms
2 of these exposure disease links.

3 I think the SEM plays a role. It can
4 play a role in specifically some of those cases.

5 MEMBER SOKAS: It sounds like the Venn
6 diagram approach is one of the recommendations
7 that would come forward from the Committee
8 because I think it's pretty clear from the spot
9 review of some of these charts that it's really
10 being used as a filter right now. And you don't
11 get to the next step if you don't get through it
12 which is problematic.

13 MEMBER VLIIEGER: Excuse me. A few
14 things that aren't being covered here, we didn't
15 discuss the EE3 which is a required document for
16 the claim and it's the work history. So even
17 when the worker put in what processes they worked
18 in because there's no link and there's no
19 database. No one has gone and looked at the
20 documents that even the unions have maintained.
21 Or building trades has a good database when they
22 interviewed the workers for their exposures. No

1 one has looked at acquiring those and linking
2 those on the SEM.

3 So the EE3 is a required document
4 under the claim process. But when the worker
5 says what they did, those comments are mostly not
6 developed. When we received our files, the EE3s
7 were not with the files. And I found in one of
8 the files the claims examiner said the person was
9 a laundry worker when in fact they had claimed --
10 and it was in an earlier document -- they were
11 actually a laborer and not a laundry worker.

12 By not including a lot of the context
13 from the EE3 in the documents, you lose what the
14 worker is trying to tell you they knew that they
15 did. So I think a lot of the development in the
16 EE3 could be improved. That form in itself could
17 be improved.

18 Another comment was, and Kirk can
19 speak to this, the unions by contract changed
20 their jobs at the sites. And that information
21 can be captured, but it hasn't been captured. I
22 think if we're going to try and figure out what

1 people did at different sites by varying
2 processes and what they did in the overall
3 complex of the program, we need to go back and
4 capture that information from the unions for the
5 site surveys and the definition documents they
6 say for the site and what they did and what
7 processing they did.

8 NIOSH has done a lot of that. They
9 know what went on. That's how they're doing
10 their process. We should be able to capture
11 those documents from NIOSH about what work
12 processes and thereby what exposures were going
13 on.

14 And every site was slightly different.
15 Or if a contract changed or a mission changed,
16 but we should be capturing that somewhere.
17 That's going to tell you what was going on and
18 what they could have been exposed to.

19 MEMBER CASSANO: I think the point is
20 that you need to look at the EE3 and see if you
21 want to include that maybe in an updated form or
22 better form in your Venn diagram of what needs to

1 be.

2 MEMBER WELCH: If you feel like what
3 you have to say is reinforcing what somebody else
4 has already said and we're discussing the same
5 points, then hold your comments. I wasn't
6 particularly looking at you, Les. You were the
7 only one who flipped up your thing.

8 (Off microphone comment)

9 MEMBER WELCH: Thank you, thank you.
10 Because Steve is not nudging me yet, but we have
11 one more recommendation and we're supposed to
12 move along. Now could I get a sense of the
13 Board? Should we have people raise their hands?
14 Are people in favor of the recommendation that
15 OWCP establish a process whereby the industrial
16 hygienist interviews the claimants directly when
17 the hygienist thinks it is necessary to
18 adjudicate the claim? Show of hands.

19 (Show of hands)

20 MEMBER WELCH: Okay, great. So I
21 think the process we're going to use is that I
22 think that one probably doesn't need additional

1 bullet points because that's pretty
2 straightforward. And then I'll add we'll figure
3 out how to do it. But by the end of the meeting
4 or between now and whenever we need to do it
5 we'll add rationale for that which I already have
6 in that document, a rationale for it.

7 MEMBER BODEN: The CE is the
8 gatekeeper. And so it can't be that the
9 industrial hygienist decides when to do it.
10 There has to be a way for the industrial
11 hygienist to have a chance to decide when to do
12 it. So we need to figure that out.

13 MEMBER WELCH: I guess I'm saying if
14 we tell OWCP they need to establish a process
15 then they should take the CE out of the line of
16 fire or out of the gatekeeping role. As it is
17 now, the hygienist can ask for more information.
18 But instead of asking the worker, they ask the CE
19 and the CE only uses the sources that they
20 already have. So it doesn't seem like there's new
21 information that comes in.

22 Carrie had hers up first.

1 MEMBER REDLICH: I guess this would be
2 addressed with your initial Venn diagram. But
3 the SEM seems to be I need to characterize all
4 the exposures of this job. But depending on what
5 the disease is, you have ideas about what would
6 be relevant things that you would need to know or
7 would be helpful to find. That SEM up front
8 should do that.

9 But my concern is -- and maybe this is
10 something the other group would discuss -- are
11 you really going after fine-tuning this exposure
12 where if you actually think for this particular
13 disease these are the exposures I might care
14 about versus a more extensive characterization.

15 MEMBER WELCH: Right. I think you're
16 saying what you said before about the SEM and
17 that the idea is that the SEM doesn't do the job.
18 And if you're looking at a case or an industrial
19 hygienist is looking at a case and somebody falls
20 with silicosis, the question is were they exposed
21 to silica. And if they weren't exposed to silica
22 as a physician you would say were they exposed to

1 other things that cause the same change on the x-
2 ray or do they have other medical conditions?
3 From the industrial hygiene question and claimant
4 question, it would be whether they're exposed to
5 silica.

6 So if that information is not in the
7 SEM, the hygienist might have to interview the
8 worker to figure out what task they did and how
9 they could have been exposed. So the SEM I think
10 --

11 MEMBER REDLICH: So maybe to re-ask
12 the question is how much is the person doing the
13 SEM directing their activity towards the specific
14 disease. That's not --

15 MEMBER WELCH: No, the SEM is a
16 collection -- people can correct me if I'm wrong
17 -- of exposure data. It's not a way to identify
18 we have claims for silicosis. Where was silica
19 used? It's taking existing records and putting
20 them in a system that links this Material Safety
21 Data Sheet or this industrial hygiene to a
22 location within the DOE complex and to a disease

1 if there's a link with that substance in a
2 disease.

3 So it's starting from the information
4 on substance use at the facility, however those
5 records exist. It doesn't do what you would like
6 it to do. And I think it would be hard to. It's
7 like saying we want the Occupational History
8 Questionnaire to gather everything going in.

9 And I think John made a really good
10 point that usually even if you have an extensive
11 one. Even our building trades one takes an hour
12 to interview. Got a lot of information. But I
13 often have to call the worker or have one of our
14 guys call the worker to clarify some things that
15 were there to really figure out if they had the
16 exposure that we think they might have had.

17 MR. RIOS: Just for clarification,
18 this is Tony Rios. The only recommendation that
19 the Board has voted on is the one outlined in
20 bullet number two. And I am asking for
21 clarification. Do you want it submitted to the
22 Department as it is written?

1 PARTICIPANT: Yes.

2 MR. RIOS: Okay. And the only reason
3 I'm bringing that up is because Dr. Boden was
4 talking about the CE being a gatekeeper and those
5 additional conversations. So that's why I just
6 wanted to make it clear that the recommendation
7 is exactly how it's written on bullet two.

8 CHAIR MARKOWITZ: Do we have a comment
9 down there?

10 MEMBER CASSANO: I think though I
11 agree with what you're saying. I think a lot of
12 these recommendations may be modified after we
13 get through our discussion.

14 A lot of what is determined to go to
15 the industrial hygienist and the CMC is by the
16 CE. The industrial hygienist is only seeing what
17 the CE determines to be relevant. And that makes
18 a major impact on the process of him interviewing
19 it.

20 Maybe he doesn't need to interview if
21 they have all of the information. Maybe they
22 still do. But I think maybe we can hold all of

1 the recommendations from all of the subcommittees
2 because there's so many cross-cutting issues
3 until after all the subcommittees report. And
4 then we can develop more cross-cutting
5 recommendations. So I don't want to have two
6 contradictory recommendations.

7 CHAIR MARKOWITZ: I think it's a good
8 point. And what we ought to do is as we go
9 through the subcommittees develop provisional
10 recommendations which reflect the sense of the
11 group but aren't officially voted on. And then
12 tomorrow we will revisit them, hopefully not
13 revisit a lot of the discussion in relation to
14 them. But we can formulate the specific language
15 and then vote on the specific recommendations. I
16 think that probably makes a lot of sense.

17 And I do have one last comment though
18 about this recommendation. I do think we should
19 generalize it and say that we believe the
20 industrial hygienist should conduct personal
21 interviews of claimants under some circumstances
22 in order to obtain better information, but not

1 specify that it's when the IH thinks that the
2 information is insufficient. Then we're
3 inserting ourselves in the claims process in a
4 way that may not make sense.

5 MEMBER DOMINA: I just want to make
6 sure though when we're talking about industrial
7 hygienists and the SEM what SEM are we talking
8 about, the public one or the one that DOL keeps
9 behind closed doors that we don't have access to.
10 That could have for any given site 50 or 100
11 chemicals on it. We don't know because we
12 haven't seen it.

13 I brought this up several times. And
14 also the fact is like it was brought up on the
15 tour yesterday -- Mr. Whitley brought it up --
16 just because of somebody's job title does not
17 mean that they're not exposed to something like
18 janitors and somebody just brought up laundry
19 workers. Laundry workers are involved with a lot
20 of nasty stuff.

21 MEMBER BODEN: I just want to remind
22 everybody that they need to speak into the

1 microphone and that they need to put the
2 microphone as close as they can to their mouth.
3 The captioner as well as the transcriber have
4 informed us that the audio is poor.

5 MEMBER WELCH: Why don't we -- Kevin,
6 if you can move the slide. I don't remember what
7 our third recommendation is, but I know I had
8 one. Let's see. Is that the last slide? Go
9 back up then. Oh, yeah.

10 So we wanted to recommend that one way
11 to improve the Occupational History Questionnaire
12 is to have former workers administer the
13 questionnaire who have been trained in
14 questionnaire administration instead of having
15 staff who don't have any experience at the site
16 or have specific training in taking an
17 occupational history. That's how it's happening
18 now.

19 When the questionnaire is improved and
20 let's say it's asking something about task, it
21 would really be very valuable to have the
22 questionnaire administered by individuals who

1 have worked at the site and understand something
2 about task. And as representing the Building
3 Trades Medical Screening Program, we're happy to
4 work with DOL to implement the development and
5 quality assurance process that we've been using
6 to make sure the questionnaire captures as much
7 as we can. Do people have any comments on that
8 idea of having former workers administer the
9 questionnaire at the resource centers?

10 MEMBER POPE: I think that's a great
11 idea. The former workers are the ideal people to
12 put that input on that form. They would be the
13 ones that would know those different areas that
14 would be applicable to those different claimants.

15 CHAIR MARKOWITZ: In our Former Worker
16 Program which is at 14 DOE sites, most of them we
17 have former workers who are coordinators at those
18 sites and they assist. Gary Whitley is one of
19 them. There are two additional ones from Fernald
20 and Mound in the audience today. They are the
21 ones who assist at a local level workers, former
22 workers, claimants with filling out forms

1 including the EE3, whatever work history
2 information is provided. So they really are and
3 have been the collection of the repository of a
4 lot of the exposure information at those sites.

5 So it's been extremely useful in the
6 Former Worker Program. Therefore, it should be a
7 kind of approach that would be endorsed by
8 EEOICPA.

9 MEMBER TURNER: I'm a former worker
10 and I'm in that program. About 1998 there was a
11 group of -- There was a couple of women that came
12 -- It was a man and a woman that had come from
13 Washington into National Jewish. And they did a
14 video. Somewhere there is a video floating
15 around that I was in.

16 MEMBER WELCH: Sounds like there's the
17 absence of more comments. Do we have a general
18 sense of the group that people like this idea?
19 Okay. Good.

20 The other point that's on this slide
21 is that we had discussed what we refer to as the
22 1995 Memo which I think some of you are familiar

1 with. But not everyone is familiar with it.

2 We have it on the agenda for Wednesday
3 I think. We can circle back, but it was -- It's
4 after the break today?

5 CHAIR MARKOWITZ: We have it on the
6 agenda for this morning.

7 MEMBER WELCH: So we'll talk about it
8 then. Okay, because we think these things help
9 with that particular issue.

10 I think I'll stop there. We discussed
11 other things in the committee. But what I really
12 wanted to present to you all was those three
13 major concepts. We'll continue to work our way
14 down the list in future calls. But I think these
15 are going to be -- Sorry. I'm not close enough.
16 We can move on.

17 CHAIR MARKOWITZ: Great. Thank you,
18 Dr. Welch.

19 Dr. Redlich who is the chair of the
20 subcommittee on looking at issues relating to
21 Part B Lung Disease. If you could discuss the
22 subcommittee's activities.

1 PART B LUNG DISEASE SUBCOMMITTEE

2 MEMBER REDLICH: I should first say
3 the other members of our committee did not have a
4 chance to review the conclusions we've come up to
5 date with. Please, others, chime in. These are
6 the members of our committee.

7 So I think we've introduced myself,
8 John Dement, Kirk Domina, Jim Turner next to me
9 and Laura Welch. And I appreciate everyone's
10 input.

11 Just to review, we had our initial
12 meeting and then we have had two teleconferences
13 that were open to the public since then, the end
14 of June and the end of September. This is a
15 summary of where we're up to so far.

16 At the initial June meeting -- and
17 I'll get into this further -- we tried to just
18 clarify our charge and areas where we overlap
19 with some of the other subcommittees and define
20 what data and information needs would help us
21 come up with recommendations. And then we did
22 receive data, did the initial review of the

1 analysis and then also a plan to review cases
2 that we had requested.

3 Just to go over, I think we are
4 somewhat clear on our goals. But I would say if
5 there are other issues that we don't discuss
6 today that people feel belong under this
7 subcommittee let us know.

8 And I'll go over -- We requested DOL
9 the information we got. Dr. Dement will present
10 some of the initial data analysis he did and then
11 what our initial conclusions are.

12 We got a number of questions from the
13 DOL concerning the Part B conditions. And the
14 general areas that they fell under were specific
15 questions about sensitization, the BeLPT. Some
16 of them were a little bit more technical or is
17 there a better test for acts and a couple of
18 questions about clarification for diagnostic
19 criteria CBD, the question of what to do with the
20 sarcoid-CDB overlap and similar with silicosis
21 and then complications of disease.

22 As far as the information needs, I

1 think we realized that we felt like we needed
2 more data on the Part B claims process. I think
3 some are more familiar with it than others. And
4 then we also felt that it would be helpful to
5 have cases to review.

6 We did ask is there any relevant
7 surveillance or other data from any of the sites
8 such as Hanford that might be useful and then
9 input from patients and also providers involved
10 and others in the process.

11 This was actually not meant to be able
12 to read. But it is available on the website.
13 This was data requests that we gave to the
14 Department of Labor in terms of specific data
15 about the claims process. Dr. Dement will go
16 into that. And then also specific cases to
17 review. I would say that the Department of Labor
18 was quite responsive to our requests and really
19 gave us the data or some of the data fields that
20 they gave us in response to our request. So that
21 was productive.

22 And probably next -- and

1 unfortunately, John, I had trouble putting them
2 into a slide form -- this is from John's initial
3 analysis of the data. And the whole group has
4 not gone over this ourselves first. But we're
5 presenting it to everybody.

6 John, do you want me to just quickly
7 and you comment or the other way around? They're
8 in the order of your --

9 MEMBER DEMENT: Whichever one is fine.

10 MEMBER REDLICH: It's probably best
11 because I think John can also explain just some
12 of the issues with the data that we got or not
13 issues, but just what fields.

14 MEMBER DEMENT: First of all, we
15 received an initial set of data and we requested
16 some additional fields. The Department of Labor
17 was responsive in coming back with what they
18 could provide. We got an additional file that
19 had the data fields.

20 There are still some questions. So we
21 had a couple of telecons for me to basically
22 understand how the information was extracted from

1 their system. So I could understand how to
2 classify cases with regard to acceptance or
3 denial by condition.

4 And I guess from the outset there's
5 one point I want to make. The way the
6 information is structured allowed some overall
7 look at acceptance and denial by classification
8 and by Part E and Part B.

9 But for many individuals that had
10 multiple conditions that were filed, it's not
11 possible to look at it with the way the data is
12 structured over years. You can only look at
13 specific cases in which there's only one
14 condition filed by year. And you can only look
15 at the reasons for denial for individuals that
16 have one condition filed.

17 As I go through this information, keep
18 that in mind. This represents overall
19 information from all the cases. But as we drill
20 down deeper into the information, it's not
21 possible to look at it except individual
22 classifications.

1 MEMBER REDLICH: And I should say that
2 though our charge was B claims, we did ask for
3 some information such as how many cases of
4 sarcoidosis or interstitial lung disease, things
5 that might should be a B but not be recognized as
6 such as interstitial lung disease that could be
7 chronic beryllium disease. That's why we have
8 diseases that are non B diseases up there.

9 MEMBER DEMENT: Part E is Part E. I
10 mean individuals -- For each individual there's a
11 line item. And it shows what they filed in for
12 Parts B and E. So they can actually file in
13 both. Some of this will count as both. And I'll
14 show you a slide that shows the overlap.

15 MEMBER BODEN: John, quick question.
16 In some cases, you'll have one of the conditions
17 accepted and another one denied. How are they
18 counted here?

19 MEMBER DEMENT: There is a separate
20 acceptance or denial by each part.

21 MEMBER BODEN: Okay. So this is
22 actually conditions accepted or denied, not the

1 cases.

2 MEMBER DEMENT: Yes. Conditions. And
3 these are conditions in this particular file.

4 Can you advance the slide?

5 MEMBER REDLICH: Just the other point
6 is I think part of the rationale especially for
7 someone like me who is less familiar with the
8 whole process is trying to identify maybe where
9 the biggest problems are and also currently more
10 major concerns which is why we broke the data out
11 by year.

12 MEMBER DEMENT: Right.

13 MEMBER WELCH: John, can I ask a small
14 question?

15 MEMBER REDLICH: And so I'll let John.

16 MEMBER WELCH: That's okay. My
17 question on the previous slide, there could be
18 people who are reflected in those numbers. An
19 individual could be reflected multiple times in
20 those numbers on the first slide because it's by
21 condition.

22 MEMBER DEMENT: On this slide, yes.

1 MEMBER WELCH: On this slide, yeah.

2 MEMBER DEMENT: Because it's a summary
3 of approvals by condition.

4 MEMBER WELCH: Right. So when you
5 look at interstitial lung disease where the
6 percent approval is fairly low one of those
7 people could have been approved for CBD.

8 MEMBER DEMENT: Yes.

9 MEMBER WELCH: They could have filed
10 for both CBD and interstitial lung disease.

11 MEMBER DEMENT: Right.

12 MEMBER WELCH: And they were approved
13 for CBD and essentially denied for interstitial
14 lung disease. So I'm just pointing out that you
15 can't just look at this and say "Wow. There are
16 only 28 percent of the people with interstitial
17 lung disease who had their claim approved." Many
18 of them had a claim approved for a more specific
19 diagnosis.

20 MEMBER DEMENT: Many of them had
21 multiple approvals and multiple denials as well.

22 MEMBER WELCH: And there's just --

1 John will explain it, but anytime you look at a
2 number that we're showing you and you draw a
3 conclusion you have to then go back and say "What
4 are the limitations on that particular line item
5 maybe?"

6 MEMBER DEMENT: Right.

7 MEMBER WELCH: Thank you.

8 MEMBER VLIEGER: I just have one
9 comment on that slide. Most of the overlap is
10 going to be between beryllium sensitivity
11 accepted and then CBD. That's where the majority
12 of the overlap in my experience is going to be.
13 In order to get CBD approved, you have to have
14 the beryllium sensitivity approved first.

15 MEMBER DEMENT: And post-1993.

16 MEMBER VLIEGER: Right. And so when
17 we're looking at a lot of those overlaps, my
18 experience is more that those are the two that
19 are going to be the overlaps.

20 MEMBER DEMENT: Yes.

21 MEMBER REDLICH: Okay. So this was
22 broken out by year. Yes.

1 MEMBER DEMENT: Do you want me to talk
2 about it?

3 MEMBER REDLICH: Yes.

4 MEMBER DEMENT: So what you have in
5 this slide is for individuals who have a single
6 condition that was filed that's where we can make
7 this breakout. And this is the approval rates by
8 year.

9 It's really taking a snapshot in each
10 year saying which cases were approved and denied.
11 It doesn't say anything about when the case was
12 filed. This is looking at a specific year which
13 approval or denial was made.

14 If you look, for example, under Part B
15 -- I started all this in 2005 realizing that Part
16 E was only in place in 2004; so looking at 2005
17 forward -- I guess for CBD it looks like there's
18 a downward trend and probably worthy of some
19 discussion about why that might be.

20 Is it because as we go forward in this
21 program we are requiring the post-1993 for most
22 cases? That is required sensitivity. Is that

1 the reason we're seeing a decline in the rate of
2 approval?

3 Or is it early case finding? When we
4 started the program, we had lots of individuals
5 who actually had better medical information
6 developed in the cases. When we go further down,
7 we have more cases that have less information. I
8 don't know the reason for that. But the others
9 are a little more consistent with regard to the
10 approval rates.

11 I don't have much more comments unless
12 you have some more comments on it, Carrie.

13 MEMBER REDLICH: Yes, any other before
14 we move onto the next slide?

15 CHAIR MARKOWITZ: I'm sorry. I don't
16 understand the overall, the column to the right.
17 That doesn't represent the total of across the
18 rows, right?

19 MEMBER DEMENT: No, it represents a
20 total for the whole program from the start of the
21 program.

22 MEMBER REDLICH: This is the Part E.

1 John?

2 MEMBER DEMENT: Yes, this again if you
3 look at the trends across time, there are some
4 ups and downs. In some cases you're dealing with
5 relatively smaller numbers. So there's a lot of
6 variability about it.

7 But for CBD again it looks like over
8 time we're seeing the downward trend in approval
9 rates.

10 MEMBER REDLICH: And then this is the
11 other Part E conditions.

12 MEMBER DOMINA: I just want to make a
13 comment here. I think you also have to be aware
14 of based on demographics the person's age, if
15 they're currently working, if this is still the
16 best program for them to be in. If you were one
17 of my guys based on your age and whatever and now
18 we have this under our Workers Compensation
19 Program based on the benefits allowed by an
20 individual, this may not be the best program for
21 that person who is a current worker and who still
22 has several years ahead of them in his career.

1 Or this could actually be the worst of the three
2 programs that we would have to go under.

3 And I can't speak for anybody's state
4 except for Washington because our Workers
5 Compensation is better than others. And the
6 program that we have set up through our current
7 Chronic Beryllium Disease Prevention Program
8 allows for a lot better benefits for the people
9 than this program. And because you do have
10 offsets in compensation, you need to be aware of
11 that.

12 MEMBER REDLICH: This is the Part E
13 Other Conditions.

14 MEMBER DEMENT: We see as you've
15 outlined or highlighted in this slide some
16 downward trends for the interstitial lung disease
17 over time. And again, the reasons for that you
18 can't call out of this data.

19 MEMBER REDLICH: I agree. And I think
20 what struck me from it was as far as the low -- I
21 mean the total number of sarcoidosis cases being
22 relatively small. And I was -- Some of the

1 reasons some of those weren't accepted and then
2 I guess the interstitial lung disease was another
3 one that we were questioning.

4 MEMBER DEMENT: And again for the
5 cases where we had individual conditions filed
6 for, single conditions filed for, we were able to
7 look at the classification for reasons for
8 denial. This is not broken out by year. This is
9 overall for the entire program from the
10 inception. And these are the classifications
11 that were provided.

12 If you look at for example CBD 60
13 percent of the denials were for primarily lack of
14 medical information. And if you look down into
15 Part B that pretty much is a driver except the
16 chronic silicosis where we have a combination of
17 medical condition not covered or insufficient
18 medical information.

19 MEMBER WELCH: The one thing to
20 remember because maybe not everybody knows the
21 Part B rules but the medical condition not
22 covered could be because they worked at the site.

1 That's not specified. They have chronic
2 silicosis, but they didn't work at the Nevada
3 test site.

4 So Part B was very specific for that.
5 That's why you probably see such a high percent
6 not covered there. And those same people could
7 go and apply under Part E and have their case
8 accepted.

9 CHAIR MARKOWITZ: Just a quick
10 question about what is meant by medical
11 information insufficient. That doesn't really
12 mean lack of information. That means whatever
13 medical data or information that was provided
14 that didn't meet the criteria established for
15 those conditions. Is that right?

16 MEMBER DEMENT: Well, I can't answer
17 that. The program will have to answer that. And
18 I think we're starting to get a sense of it as we
19 review individual cases for that. That's as it
20 is provided to us.

21 MS. LEITON: This is Rachel.

22 MEMBER REDLICH: Rachel, this is Tony.

1 Can you place one of your phones on mute?

2 MS. LEITON: Yes, the other one is on
3 mute.

4 MEMBER REDLICH: And if you can speak
5 slowly.

6 MS. LEITON: Yes. So medical
7 conditions usually are not covered if they don't
8 meet the criteria. Or medical condition
9 information is insufficient.

10 MEMBER BODEN: John, a question about
11 first denial reason. So in the small number of
12 cases that I've looked at there have often been
13 multiple reasons for denial. And I'm wondering
14 whether looking at the first denial condition
15 necessarily gives you a full picture of what's
16 going on.

17 MEMBER DEMENT: May I ask a question?
18 We were only provided that. We weren't provided
19 a whole chain of acceptance/denials. But I guess
20 my review of the cases so far I don't think it's
21 a bad ball park look-see of the reasons for
22 acceptance or denial.

1 I think it's representative. Whether
2 or not it's 66 percent or 56 percent, it still
3 represents for sensitivity. And I think that may
4 be the major reason.

5 MEMBER REDLICH: I feared the somewhat
6 confusion between what these different categories
7 actually meant. The medical condition not
8 covered seemed more straightforward, but
9 insufficient information that would partly depend
10 on how high a bar or where your level of
11 certainly you needed to make a decision. And
12 that and the negative causation result, I'm
13 assuming that was just a decision it was not
14 related.

15 MEMBER DEMENT: That's my
16 interpretation of that. As you look at Part E,
17 you'll see that under Part B you don't see as
18 much of that. But you see more of it under Part
19 E.

20 MEMBER REDLICH: That's right. And
21 then this is Part E and if John wants to comment.
22 I think it's mainly the other conditions of Part

1 E.

2 MEMBER DEMENT: Yes.

3 MEMBER REDLICH: So we could --

4 MEMBER DEMENT: I think you move onto
5 the other conditions because those are the ones
6 that are primarily the COPD, asthma, ILD.

7 MEMBER REDLICH: That's right,
8 exactly.

9 MEMBER DEMENT: If you look at it, a
10 lot of these are negative causation result. And
11 again it is what it is in terms of what this
12 thing says.

13 But we need to drill down more into
14 why there's a negative causation. Is it lack of
15 exposure? Or is it a lack of an association
16 between an exposure and an outcome? I guess we
17 start to get some picture of that. We need more.
18 We need more information.

19 MEMBER REDLICH: And I realize I tried
20 to squish this onto one slide which may have made
21 it illegible to some people. But this was for
22 the COPD, asthma, ILD and sarcoid. The negative

1 causation result for all of them was the most
2 common reason for denial.

3 And I would take into account the
4 comment Laura made earlier. But to me this was
5 striking.

6 MEMBER WELCH: Although if I
7 understand what John said, these are people for
8 whom this was the only claim that they made. So
9 it wasn't like these people. These ILD claims
10 got accepted for something else. Once you're
11 drilling down to this level, they were claimants
12 with a single disease.

13 MEMBER DEMENT: Single disease in the
14 part that they filed under, yes.

15 MEMBER WELCH: Right. So I was
16 talking about only the first slide.

17 MEMBER DEMENT: Yes, the first slide
18 is we're able to look overall, but you just can't
19 break it out by cause or year based on the way
20 the structure of the information is. And it took
21 me a while to realize that going back and forth
22 with the folks at DOL. And we finally I think

1 have it calibrated.

2 MEMBER REDLICH: And one thing that
3 this does not reflect is has there been a change
4 in the pattern of acceptance over time. I think
5 what we're most concerned with is trying to
6 improve or fix how things are happening
7 currently.

8 So whether these numbers reflect how
9 things were seven or eight years ago versus the
10 past several years you would have to look at the
11 trends. My guess is that just from the cases
12 that we've looked over as John has said that this
13 seems to fit with the cases.

14 MEMBER DEMENT: I guess it's possible
15 in this to restrict this type of output to the
16 last five years based on the structure of the
17 data we have. I just didn't do it yet.

18 MEMBER REDLICH: Sure.

19 CHAIR MARKOWITZ: Question. One of
20 the ways in which this look is vulnerable is
21 whether in fact these cases are representative of
22 the larger number of cases. Many claimants do

1 submit claims for multiple conditions. And these
2 of course are only the claims which are for a
3 single condition.

4 John, do you have any sense of what
5 percentage of all the claims that these
6 represent? Is it 10 percent? Is it --

7 MEMBER DEMENT: No, no. It's much
8 greater than that. It's at least half and maybe
9 even more. I guess my sense of taking a look at
10 these reasons and looking back at the bigger
11 table that has it all in it the distributions
12 look pretty similar in terms of --

13 So I think it's probably a reasonable
14 representation of the reasons for acceptance or
15 denial for the conditions stated. But I think
16 the issue of beryllium disease and sensitivity
17 collectively may be an issue for discussion
18 because I think those two are so interjoined.

19 MEMBER REDLICH: I was just going back
20 to the original.

21 MEMBER BODEN: Okay. Thank you. So I
22 was trying to think about ways in which these two

1 groups, the single and the multiple, might be
2 different. And this is a question maybe for
3 people who have been more involved in the claims
4 processing.

5 I could imagine that people who had
6 some sort of representation might be more likely
7 to file multiple claims to try to cover different
8 possibilities. Whereas, people who were less
9 likely to be represented and who might therefore
10 not be as good in a way of pursuing the claims
11 might have single cases. And I wondered if
12 anybody who is more familiar with the process
13 might be able to answer that question.

14 MEMBER VLIEGER: In my experience, the
15 better way to get a lung condition accepted is
16 for everything they've been diagnosed with to be
17 applied for. What this comes down to is
18 ultimately under Part E for the benefits which is
19 once you apply for them and at least one lung
20 condition is accepted there's very little
21 variance depending on how chronically ill they
22 are with their condition under the Impairment

1 Rating Guidelines with the AMA Guide, 5th
2 edition. Their benefits are going to be about
3 the same whether they get one, two or three lung
4 conditions accepted.

5 The difference with beryllium of
6 course is there's a different benefit package for
7 that. There's Part B benefit. But when it comes
8 to wage loss and impairment rating with the
9 impairment system we currently use under this
10 program, as long as you get one of their lung
11 conditions accepted they're going to be covered
12 medically and they're going to be getting as much
13 benefit.

14 So, yes, multiple conditions are
15 claimed. Then as long as it's substantiated by
16 medical evidence, we can get them accepted.

17 MEMBER REDLICH: The issue of this
18 overlap -- and John could clarify -- because this
19 was accepted by year. So you could still be
20 included if in 2015 you had accepted one claim.
21 But three years earlier there could have been a
22 different condition. That was still there were

1 two claims, but that would be included because
2 one was earlier. Am I correct about that or not?

3 MEMBER DEMENT: The way this
4 information is structured I don't think that
5 would happen because we have a line item per
6 individual. And actually on the line item is
7 both Part E and Part B. If they didn't file in
8 one of the parts, it would just be blank in terms
9 of medical conditions filed.

10 If they actually filed for multiple
11 conditions, I think even if it filed in different
12 time periods, it should appear on that line. And
13 I'll speak to the DOL people for that. I think
14 it should be there in terms of that information
15 on that line that says medical conditions filed.
16 I don't think that would necessarily be the case
17 in our data.

18 MEMBER CASSANO: One of the things
19 that I see and probably assume happens a lot is
20 that a claimant either applies -- They've been
21 diagnosed with multiple conditions. They apply
22 for the wrong medical condition or they apply for

1 the wrong nexus of causation. And therefore it
2 gets denied.

3 Part of a duty to assist which does
4 not statutorily exist in this department is that
5 if the CE or someone with the knowledge sees that
6 they should say, "Oh no. This person actually was
7 exposed to such and such and therefore, yes,
8 there is a nexus and therefore we should accept
9 the claim." And that does not happen I don't
10 think.

11 MEMBER POPE: I just had a question
12 about the insufficient information, that
13 percentage. Could it possibly be some
14 contributing factor that the claimant did not
15 have an advocate or support when filing their
16 case that that percentage is so much higher in
17 terms of their claim being processed or being
18 approved?

19 MEMBER DEMENT: Again, I think the
20 information from just this data file won't
21 provide the answer to your question. It's a
22 great question, but I think we actually have to

1 look more at the collection of cases that we're
2 provided to review to see if that might be the
3 case.

4 In the ones I reviewed if there was a
5 representation for the individual, it's usually
6 stated in the letters that go back in terms of
7 the fact that it goes back to the representative
8 and they're copied on things. So we should get a
9 sense of that.

10 MEMBER REDLICH: But I think that
11 raises a very good question because I think for
12 certain things like beryllium sensitization if
13 there was no beryllium sensitization test result
14 anywhere in the packet one would consider that
15 reasonable. But that's insufficient evidence.

16 There are many other situations where
17 that person may feel "Gosh, I'd be more
18 comfortable with additional medical information."
19 And whether I could imagine some of the COPD,
20 ILD, asthma, how carefully has the person proven
21 asthma. And where one could potentially make a
22 decision based on imperfect information.

1 I think under certain circumstances
2 it's very common as clinicians we want more
3 medical information. And it turns out that
4 either you can't really get much more or what you
5 get in the end doesn't really change the decision
6 you would have made with the information you
7 have.

8 I think that's an area to look into
9 further. With this additional information that
10 someone feels they need, what's the likelihood
11 that it would change your decision?

12 MEMBER WELCH: I was just going to say
13 I feel like our board looking at these cases the
14 classic story about like 12 wives, men they're
15 blinded and they're trying to identify an
16 elephant. So I got the toe and you got the
17 trunk.

18 But I've seen cases for the medical
19 information insufficient where, say, for COPD the
20 claims examiners are being told to use certain
21 criteria. And if the case doesn't meet those
22 criteria, it doesn't move on. It will be turned

1 down at that point. Then the worker can come
2 back with more.

3 And at some point it gets to a CMC.
4 the claims examiner will say "Is the medical
5 information sufficient" sometimes. I mean I've
6 seen that. No, not always, but sometimes. And
7 then CMC will say yes or no.

8 But it's often when they're looking
9 for, say with COPD, a pulmonary function test
10 that supports COPD when there might be a CT scan
11 that says COPD or a chest x-ray that says
12 emphysema. But the structure of the way the
13 claims examiners are told to review the case,
14 they want pulmonary function testing.

15 So it doesn't get to the -- Once
16 medical insufficient is insufficient, there's not
17 a decision about causation. There's a hierarchy
18 that way.

19 Once you get to something where the
20 diagnosis is a little easier to make the way the
21 claims examiners are approving it, you then
22 switch. You see more negative causation and less

1 insufficient. And probably those relationships
2 between the two depend a lot on the specific
3 disease and how the claims examiners are being
4 instructed to identify the condition.

5 I just thought that might be helpful.
6 But that's again my little -- You know I got the
7 toe and maybe you have the trunk.

8 MEMBER REDLICH: I agree. I think
9 what we were hoping for was that this data would
10 not come up with any specific recommendations or
11 answers, but to more highlight where we maybe
12 want to look further or focus efforts.

13 MEMBER CASSANO: I think this data
14 shows that we also should look at a
15 recommendation for the CEs for when they're under
16 the weighing medical evidence portion of our
17 discussions. This is another point where the CE
18 just says no and then an unassisted claimant has
19 no recourse because they don't know the
20 difference between valid medical evidence and
21 invalid medical evidence. I think this is going
22 to be a recommendation area for CE guidance as

1 well.

2 CHAIR MARKOWITZ: But we don't know
3 the extent to which these particularly CBD claims
4 stop at the CE or to what extent they move on to
5 CMCs. But do we have any insight yet? I know
6 you only looked at a limited number of CBD cases.
7 But I think DOL has identified before us
8 assistance with interpreting the vague language
9 of the Act about how to define consistent with.
10 Something is consistent with the finding of CBD
11 or a characteristic of.

12 To what extent is medical information
13 insufficient or medical criteria not satisfied?
14 It really is about that. It's about how to
15 define what consistent with is. Have we
16 developed any insights into that? And if not,
17 how can we?

18 MEMBER REDLICH: To just finish up, we
19 did request cases. We requested 20.

20 (Off microphone comment)

21 MEMBER REDLICH: Yes, I was going to
22 get to it. I just wanted to -- Exactly, that is

1 the bottom. I will. I just thought we should --
2 because there's a later slide that starts to. So
3 there were 20 beryllium sensitization CBD, 10 of
4 chronic silicosis. Of each one, there was half
5 accepted, half denied.

6 And we just got these cases a couple
7 weeks ago. We also developed a form to go over
8 as we reviewed them in terms of -- I realize that
9 these aren't legible up here, but the types of
10 things looking at the number of points we raised
11 as we went through the cases. The source of the
12 IH data, what conditions were claimed, what the
13 conclusion was, did we agree with it, yes and
14 why.

15 So we have been through or are going
16 through these cases. It's taken a little bit
17 longer both in terms of access in going through
18 them. But I think to address the conclusions to
19 date and as I said we have not all reviewed
20 these.

21 One of the questions that was I think
22 easier to address was the sarcoid CBD overlap.

1 And at least from both the data and the cases
2 that I reviewed, there has been some confusion
3 about this presumption. And there is a document
4 that I've read several times. It's somewhat
5 confusing about how to interpret and implement
6 this. And part of it relates to whether it's pre
7 or post 1993.

8 This is an area to me that seemed that
9 this presumption -- the question was if someone
10 has a history of beryllium exposure and a
11 diagnosis of sarcoid and whether it is presumed
12 that that is CBD. And I would recommend that it
13 be presumed. And that would not need a proof of
14 sensitization.

15 We could get into that discussion
16 further for reasons for that, but I think that a
17 lot of effort has been spent that probably could
18 be simplified there.

19 And the other DOL questions that we
20 were asked, the majority of them I think we have
21 answers to. This is a draft. They were very
22 specific sort of questions. And again this isn't

1 quite legible, but what pathologic
2 characteristics or is there another test other
3 than the BeLPT or are there reasons to do that
4 differently than currently is being done?

5 And I think those questions, a number
6 of them, hopefully we could more in the short run
7 I think address in terms of really just using the
8 most recent guidelines and the state-of-the-art
9 for testing. I wasn't going to go through each
10 of these. But I think the majority of them are
11 addressable with the information we currently
12 have. That was number two.

13 From these initial reviews of the
14 cases, I'd say we all have been through different
15 amounts. This is in process now. I think on a
16 number of them we agree with the conclusions.

17 Where the issues so far I think have
18 come up are there have been a few on the CBD, but
19 more of the non-CBD cases, the ILD, COPD. A
20 number of those come up with the use of the SEM
21 and that's probably why I was making the earlier
22 comments. The most noticeable were COPD and

1 silicosis with sort of a lack of recognition
2 sometimes of the multiple exposures.

3 And then I think a more minor question
4 that I saw raised and also in discussing with
5 colleagues is this question if you have an ILO
6 reading that shows something, but a CT scan that
7 may be disparate. And I think that's something
8 that could be addressed.

9 My opinion is that if an ILO is the
10 standard and what everyone has and if someone
11 also got a CT scan which the scenario could
12 happen that an ILO would find evidence of a
13 pneumoconiosis, but that a CT scan could be read
14 where that interpretation doesn't say that the
15 person has a pneumoconiosis, then the chest x-ray
16 reading gets discredited. I think that that's
17 something we could address sooner rather than
18 later.

19 I think the other thing that became
20 apparent with certain areas that I don't think we
21 may be able to fix but at least we could comment
22 that we thought there were some issues is this

1 limitations of the RECA eligibility. And I think
2 others know more about this, but there seems to
3 be a year cutoff and if your exposures were after
4 that year in terms of the uranium miners.

5 MEMBER WELCH: Then they're not
6 eligible for RECA.

7 MEMBER REDLICH: That is correct. And
8 if they're not eligible for RECA, they're not
9 eligible for this program. That's my
10 understanding. I just put that there because
11 there were a number of claims that did involve
12 that.

13 I don't know if others on our
14 committee because we didn't really discuss these
15 amongst ourselves have other comments or
16 conclusions that they feel stood out from the
17 data so far and the cases.

18 MEMBER WELCH: Actually, mine is just
19 to comment on your number one about the
20 presumption about sarcoidosis. We can't say with
21 demonstrated or known exposure to beryllium
22 because at least none of our workers identified

1 the exposures that caused them to be sensitized
2 or developed CBD.

3 People are working in buildings where
4 beryllium has contaminated the building. They
5 get exposed after the fact. They're not
6 beryllium process workers.

7 However the presumption is expressed
8 what BTMed does for our screening programs is we
9 screen everybody at every site. And we've
10 identified sensitized workers at the majority of
11 the sites, a great majority of the sites we've
12 screened at. So we presume that beryllium
13 exposure occurred to workers at that site.

14 And it's something we're actually
15 talking about in terms of language that we've
16 written within our own program to try to be very
17 careful not to say they have to report a history
18 of a beryllium exposure or they have to have
19 documented beryllium exposure. None of those --
20 You could definitely have CBD without.

21 MEMBER REDLICH: I guess what I meant
22 was if you qualified to be in this program it

1 seems there was enough beryllium around and there
2 aren't that many sarcoid cases. Being part of
3 the program they would qualify. That's what I
4 meant. That would be just be -- That was not
5 worded correctly. You're correct. I did not --

6 MEMBER WELCH: When you described it
7 before you said with known or documented or
8 reported or something like. So let the record
9 reflect.

10 MEMBER REDLICH: So the possible,
11 correct.

12 MEMBER WELCH: And when we actually
13 come up with the language we'll be sure to get
14 that right. But I would agree.

15 MEMBER REDLICH: Yes, that was not
16 worded as intended. Thank you.

17 MEMBER WELCH: And you haven't
18 struggled with it quite as often as I might have.

19 MEMBER REDLICH: Well, I will say that
20 I do think we come from this from the disparate
21 perspectives. And so I have not been involved in
22 the surveillance programs. What I see is workers

1 who have a diagnosis of sarcoid and then ten
2 years later someone finds out that they had a
3 history of metal work or even raised the
4 question. And there are many reasons in that
5 situation where it can be very difficult to get a
6 BeLPT test done.

7 MEMBER BODEN: I need to go back to
8 the reasons for not accepting claims slide.
9 Okay. I just wanted to point out one thing when
10 we're thinking about this slide that is actually
11 something Laura brought up to me.

12 These are not independent percentages
13 because there's an order in which people make
14 decisions. If the employee isn't covered, nobody
15 bothers with the rest of the questions because
16 they're irrelevant.

17 And as you go down the list, really
18 each of those things is if the medical condition
19 isn't covered, then you're not going to look at
20 the rest. And if the medical information is
21 insufficient, you're not going to look at the
22 rest. So that's just something to think about

1 when we're interpreting these things.

2 Actually, in that case because we've
3 already ruled out 25 percent of the cases before
4 we get to the question of causation, that
5 causation number is really like 90 percent and
6 not like 67 percent. It's really an important
7 number.

8 MEMBER CASSANO: I just wanted to go
9 back to the sarcoid versus berylliosis or chronic
10 beryllium disease question. Something that came
11 up in our discussion as well, we did not write it
12 as a recommendation, but it certainly would have
13 been one of our recommendations.

14 MEMBER REDLICH: The point that you
15 made earlier that at the end I think it would be
16 reasonable for us to go back -- at the end of
17 these three days -- and to restate our
18 recommendations and see if we can get agreement
19 on some of these and have wording that we're
20 comfortable with.

21 CHAIR MARKOWITZ: Can you go back to
22 the slide, the last slide, the one at the end,

1 the conclusions? That's it. A question there on
2 number one. The text "should be presumed to be
3 CBD" that's not the policy of DOL. This is the
4 recommendation or the ideas of the subcommittee,
5 right?

6 MEMBER REDLICH: Yes.

7 CHAIR MARKOWITZ: Okay. So the
8 question is in this second line "BeLPT not needed
9 for diagnosis." So post 1993 a person has
10 sarcoidosis. They have a negative beryllium
11 lymphocyte proliferation test. The
12 recommendation is that they be considered as
13 having CBD.

14 MEMBER REDLICH: Yes.

15 (Off microphone comments)

16 CHAIR MARKOWITZ: Okay, right. But
17 we're presuming people have beryllium exposure
18 within the complex because of the problems of
19 actually identifying exposure. How is it then
20 that a negative BeLPT? How do you differentiate
21 with sarcoid versus CBD with a negative BeLPT and
22 sarcoidosis from those with BeLPT?

1 MEMBER REDLICH: The BeLPT for blood
2 is not a perfect test. And there are many
3 reasons why someone could have CBD and have a
4 negative BeLPT test. It could be related to the
5 medications they're on. It could be related to
6 how that blood flew to Denver.

7 There's also the feeling that you
8 recruit the sensitized lymphocytes to the lung to
9 granulomas in your lung and you don't have many
10 left circulating in your peripheral blood. And I
11 think it's very reasonable whether the test
12 doesn't need to be done. But just because not to
13 require the test because it can be difficult to
14 get it done if you're not a surveillance program.
15 I have a lot of experience with this.

16 And also if it comes back negative and
17 the person otherwise qualifies, I think it should
18 be presumed. There's also data of a higher
19 number of sarcoid cases in the Navy. I think
20 there's data at Hanford to suggest that these
21 work environments have an increased risk of a
22 sarcoid like disease.

1 CHAIR MARKOWITZ: Just a follow-up
2 question. This recommendation, how does this
3 differ from what DOL is doing now when they
4 address sarcoidosis, not how they're settling
5 claims, but in the policy statement?

6 MEMBER REDLICH: The DOL may be the
7 best person to answer, but my understanding is it
8 was a somewhat confusing one-page, presumption
9 document. But currently if it's pre 1993, that
10 is a presumption because you don't need the
11 BeLPT. I think then there were some other issues
12 in those cases about how definitive of a
13 pathology and things like that I think will be
14 clarified.

15 The post 1993 my understanding is that
16 you still need the criteria, meaning that you
17 need a positive BeLPT test.

18 MEMBER VLIEGER: Or a positive lavage.

19 MEMBER REDLICH: Yes, that's the other
20 point that the BeLPT is not as sensitive as the
21 lavage. And there are patients that you would
22 not do a lavage on because it's too invasive and

1 dangerous a procedure.

2 MEMBER DEMENT: I have a question
3 about nonpulmonary sarcoid. A couple of the
4 cases that I reviewed appeared to be a
5 nonpulmonary sarcoid involvement.

6 But some of the cases it wasn't
7 entirely clear that that was true. There may
8 have been a pulmonary component to it. And it's
9 currently I think the criteria for acceptance,
10 for example, on the CT scan. It might would help
11 in that regard to establish the pulmonary
12 component of a primarily nonpulmonary sarcoid.

13 MEMBER REDLICH: Yes, or I think one
14 could also just look at the sarcoid literature
15 since most cases of sarcoid have pulmonary
16 involvement. Whether that was documented in the
17 medical records or not, I think we could just
18 assume that there is a diagnosis of sarcoid.

19 You might want to slightly clarify
20 either biopsy proven or something. But I think
21 someone may not have looked to characterize the
22 pulmonary component versus there being no

1 pulmonary component. And I would say knowing
2 that that would be -- If you actually went and
3 looked carefully, you would find it in the
4 majority of people that could stop the process to
5 make the person go and have that done. That's
6 where I think a presumption would be helpful.

7 MEMBER FRIEDMAN-JIMENEZ: Just a quick
8 question, Dr. Redlich. Is there sensitivity and
9 specificity of the BeLPT known? Has anyone
10 measured that? And is there a good enough gold
11 standard to actually calculate it?

12 MEMBER REDLICH: Laura could probably
13 answer this question better than I can.

14 MEMBER WELCH: Yes, I mean there are a
15 couple of published papers on that, on
16 sensitivity and specificity. There's also inner
17 laboratory variation. So I think the programs,
18 the two screening programs, have developed an
19 algorithm that will try to address those
20 questions.

21 And then there's also the predictive
22 value of BeLPT for CBD. I mean I shouldn't say

1 predictive value. It's more than that because
2 it's a biological assay. If you have two
3 positive tests or a positive test and a
4 borderline test the likelihood there's true
5 sensitivity is thought to be higher.

6 DOL doesn't require high level
7 sensitivity of the test to allow beryllium
8 sensitivity. So beryllium sensitivity is
9 accepted with one positive BeLPT which is
10 sensitive and not as specific as if you had two
11 positive tests.

12 So there's a combination of the
13 meaning of each individual test. And in terms of
14 reproducibility which then may relate to --
15 There's no other biological test for sensitivity
16 other than the blood test. So you can't really
17 test it against something else.

18 MEMBER FRIEDMAN-JIMENEZ: Lavage.

19 MEMBER WELCH: No, but not necessarily
20 because lavage is not the gold standard. I mean
21 you could have somebody who has a negative lavage
22 and a clearly positive peripheral blood test. It

1 just kind of depends where those lymphocytes are
2 at the time. You can be sensitive.

3 Now the lavage is obviously more
4 predictive of having lymphocyte granulomas in
5 your lung.

6 But one of the things we found in the
7 Building Trades Program is we found a lower
8 proportion of CBD cases upon our sensitized
9 workers maybe because the sensitization is
10 occurring by skin contact rather than through the
11 lungs. So sensitivity in some workers may be
12 less predictive or it may have to do with dose.
13 So among Rocky Flats workers if you were
14 sensitized and you worked there during a certain
15 period of time, you're likely of having CBD was
16 pretty high. That's about four times as high as
17 sensitized construction workers.

18 The disease is rare enough that you
19 can only speculate about those things. But each
20 test has -- We can talk about it for a long time.
21 But there are some good papers that talk about
22 reproducibility which really has to do with

1 specificity of the test. Is it reproducible in
2 an individual? And then biological, how
3 meaningful it is by comparing it to additional
4 diagnostic evaluations.

5 But the thing is a sensitivity test is
6 not a diagnostic test for CBD. It's a diagnostic
7 test for sensitivity. And it is in itself the
8 answer. So it makes it really hard to do it the
9 way we're used to doing other tests where you can
10 take a test and measure it against a different
11 gold standard. Way too much information.

12 MEMBER FRIEDMAN-JIMENEZ: But that
13 just raises a question. If it is the gold
14 standard essentially, then eyebrows may go up if
15 you say that you want to accept a case in the
16 face of a negative beryllium sensitization test
17 if it's presumed to be the gold standard.

18 Carrie mentioned several reasonable
19 reasons why you might have false negatives. But
20 I think that needs to be clarified and justified.

21 MEMBER WELCH: It's not sufficiently
22 sensitive a test.

1 MEMBER REDLICH: Can I? And I know
2 Gary had a comment. All of the studies that
3 looked at the sensitivity and the use of the
4 BeLPT have been done in the setting of
5 surveillance of healthy workers. That is a
6 different use of the test.

7 What we're talking about now is not
8 that. We're talking about a person who has a
9 diagnosis of sarcoid and who has been in this
10 program in one of these facilities where
11 beryllium has been used. And in that setting, do
12 you need that test?

13 There's a lot of misunderstanding of
14 the beryllium literature. Because in the setting
15 of healthy workers, you don't want to start
16 giving someone a diagnosis that they may not have
17 or doing harm with a blood test in a healthy
18 person. That's different than in a patient with
19 a diagnosis of sarcoid in this setting.

20 I don't mean to blow off the BeLPT.
21 Just we're talking in this narrow setting.

22 Gary, you've been patient.

1 MEMBER WHITLEY: Is there anything
2 that says if you have six or eight inclusive
3 BeLPT tests that it means anything in the
4 program? You don't have a sensitive -- I mean
5 you don't have a positive. So you don't ever get
6 to be sensitive according to the program. But
7 there are people who have six or eight inclusive
8 tests.

9 MEMBER WELCH: It depends on the
10 reason for being inconclusive. If it's
11 borderline, it has more meaning than if it's
12 uninterpretable. So you can get a test that's
13 inconclusive because the cells died on the way.
14 Nothing grew. So it's not a negative test. It's
15 a nothing test.

16 But there are people for whom the
17 uninterpretable occurs because there's cellular
18 overgrowth. And that's a reaction between the
19 individual's lymphocytes that you're putting into
20 the assay and the medium that they're growing in.

21 ORISE and National Jewish have
22 developed ways to do this. We've only used it a

1 couple of times. But if we have people who have
2 repeated uninterpretables for that reason as
3 opposed to the lack of cell growth, there are
4 methods that they can use for that individual to
5 develop a growth system for the cells that's much
6 less likely to have that overgrowth problem.

7 As a general rule, if somebody has
8 several uninterpretable tests you should just
9 stop repeating it. It's going to continue to be
10 uninterpretable. It has something to do with the
11 reaction of their cells with the growth media.
12 But there are solutions for it. The people at
13 National Jewish and ORISE know how to do that, so
14 that the surveillance programs can be in touch
15 with those experts.

16 MEMBER REDLICH: But one of the cases
17 that we reviewed was a situation like that. And
18 then there was a letter that basically said from
19 one of the labs "In our experience when you have
20 four uninterpretable tests this means
21 sensitization." And then there was resolution of
22 the claim.

1 So if that is something that is
2 happening more commonly, then that would be
3 something that I think should probably be looked
4 into. Someone should look at all of those and
5 try and come up with a plan.

6 CHAIR MARKOWITZ: Before we continue
7 the discussion, just a question for Dr. Redlich.
8 How much more of the subcommittee report is
9 there? We have 15 minutes.

10 MEMBER REDLICH: We're done.

11 CHAIR MARKOWITZ: Okay, fine. So we
12 can continue the discussion. Ms. Vlieger.

13 MEMBER VLIEGER: Dr. Redlich mentioned
14 that the procedure manual is difficult to follow
15 in the way that it's written for the pre and post
16 1995 criteria. I would like us to consider a
17 proposal for clarifying that section of the
18 procedure manual.

19 The criteria for post '93 actually
20 should be repeated in the post '93 section, but
21 it's presumed that you understood it from the pre
22 '93 section of the procedure manual. If we could

1 maybe look at that down the road for clarifying
2 that because that's a problem.

3 Then we also discussed at our previous
4 meeting the instructions given to the CMCs
5 regarding what is the criteria under this program
6 of acceptance of a CBD claim. And in the cases
7 we received it was clear that the doctors that
8 were being asked this question were wandering
9 away from the intent of the program and the law.

10 There again, I think that's something
11 that we can clarify through the procedure manual
12 making a recommendation for the wording and how
13 those questions go to the CMCs, so that it's per
14 the provisos of the program and not the case
15 registry criteria which is a much higher
16 standard.

17 MEMBER SOKAS: I wanted to basically
18 thank this conversation because I think it really
19 helped clarify the distinction between a
20 screening program, Dr. Redlich, and the
21 definition of illness.

22 So I guess one of the clarifying

1 pieces could be that if you're getting repeated
2 beryllium sensitization tests done if it's part
3 of a screening program and you have absolutely no
4 lung disease, then that might be appropriate
5 maybe or maybe not. I don't know. But it does
6 seem fairly clear that if you actually have the
7 diagnosis of lung disease that it shouldn't be
8 part of the diagnostic process the way it seems
9 to be used.

10 That I think is new information for me
11 and helpful clarification for how to do this. I
12 think it will probably save a lot of difficulty
13 and expense to have that clarified.

14 CHAIR MARKOWITZ: Is there a response
15 to Dr. Sokas?

16 MEMBER CASSANO: Having looked at this
17 from the process part and what the CEs are doing,
18 I think the easiest way to resolve this is to
19 basically take away that 1993 differentiation.
20 And if someone has sarcoidosis the LPT is not
21 required regardless of whether it's pre 1993 or
22 post 1993.

1 While people in the surveillance
2 program can continue to get LPTs some person that
3 is out on insurance and they say, "Well, you've
4 got sarcoid" you don't know. What the heck. The
5 insurance company is going "What the heck is a
6 beryllium sensitivity test and why do you need
7 it? And that sounds like Worker's Comp. And
8 we're not going to cover it."

9 I think in order to make this equal
10 for people that are either in or not in a
11 surveillance program we just don't require it if
12 there is a diagnosis of sarcoidosis.

13 MEMBER REDLICH: Agreed.

14 CHAIR MARKOWITZ: Additional comments
15 or, Dr. Cassano, if you could put your -- Thank
16 you. Otherwise I will be calling on you all day.
17 Any other comments or questions? Anything else
18 from this subcommittee? Dr. Welch.

19 MEMBER WELCH: I have a question and
20 probably this is for Fay. I should understand
21 this, but people applied. Not everyone applied
22 for Part E if they had CBD. But it seems like

1 Part E provides additional benefits if your claim
2 can be accepted in both parts. It's only Part E
3 that's going to be providing treatment for
4 consequential conditions.

5 MEMBER VLIEGER: That's correct
6 because it would fall under Part E. So under
7 Part B for chronic beryllium disease there's the
8 benefit compensation. Then it rolls into Part E
9 benefits.

10 Part E benefits, the medical is not
11 part of the lump sum. It's part of the
12 compensation amount. The compensation amount
13 would come under wage loss or impairment rating
14 if they qualify for both.

15 But medical benefits are separate and
16 not counted under the benefit. And it's under
17 Part E for management. I'm looking at John
18 Vance. Well, medical benefits come under Part E,
19 but it's not part of the compensation. It's not
20 calculated compensation.

21 Do you want to come up? This is a
22 John section. But when you get accepted for Part

1 B your impairment rating and wage loss would come
2 out of Part E.

3 MR. VANCE: Yes, this is John Vance.
4 So the question is how are the medical benefits
5 covered under Parts E and B. If your condition
6 is accepted under Part B, we would cover the
7 medical costs for the care and treatment of
8 chronic beryllium disease and any consequential
9 illness from that under Part B.

10 If you have a Part B and Part E case,
11 your medical benefits are going to be paid. How
12 it's paid, it doesn't matter whether it's under
13 Part B and Part E. There's budgeting issues
14 involved there.

15 But needless to say if you have a
16 condition that is accepted under B or E your
17 medical benefits will be paid. And in most cases
18 where you have a chronic beryllium disease
19 accepted for a DOE contractor or subcontractor
20 that qualifies under Part E you're also going to
21 have your chronic beryllium disease accepted
22 under that aspect of the program and your

1 impairment and loss of wage benefits could flow
2 from that Part E acceptance.

3 MEMBER WELCH: But is there a reason
4 then that should every CBD case also be applied
5 under Part E because that's not what we saw? Or
6 is it just duplicative and it's unnecessary a
7 process?

8 MR. VANCE: It's going to depend on
9 the nature of the employment because you're going
10 to be looking at individuals that are they even
11 qualified to apply and be eligible for benefits
12 under Part E. So if you have individuals that
13 were working strictly for a beryllium vendor,
14 they're not going to qualify under Part E because
15 you have to be a DOE subcontractor or contractor
16 employee.

17 When we look at the cases if there's
18 any possibility that that employee could qualify
19 under both Parts B and E, we will create the
20 claim as a combined claim. But if we're looking
21 at it and seeing this person only worked at an
22 AWE or only worked at a beryllium vendor

1 facility, then we're not going to create that
2 Part E component unless there's some reason on
3 the claim that says they want that to occur.
4 Okay.

5 MEMBER REDLICH: There's one thing
6 that I didn't add to the slide, but it was on the
7 list. There was a question raised in terms of
8 complications of treatment of disease.

9 And I think that it would be very --
10 It seems that there is not now a presumption.
11 And that's something that I think we would --
12 Fortunately for pulmonary diseases you just treat
13 them all about the same, steroids no matter what
14 the disease is. In terms of complications of the
15 treatment and the complications of the disease
16 whatever it is, the end-stage disease and
17 treatment tend to have the same complications.

18 So it's not that hard to come up with
19 presumed complications if that would be helpful
20 for that part of the process.

21 (Off microphone comment)

22 MEMBER REDLICH: Yes, that's right.

1 That was on that other list. Right.

2 MEMBER VLIEGER: This is an area that
3 I have to compliment the Department of Labor on
4 in the past year. Consequential conditions of
5 lung conditions particularly after steroid use
6 and multiple antibiotics and that type of
7 situation were difficult to get accepted.

8 In the last year, I've seen a change
9 in the way they look at them and they seem to
10 have some presumptive list. There's some stuff
11 coming up that is easier for claimants once they
12 have an accepted lung condition and they've had
13 years of treatment.

14 I want to compliment them on that.
15 But I do believe that it could be better listed.
16 I think we could actually add to their knowledge
17 on what is considered presumptive after a lung
18 condition with years of treatment.

19 CHAIR MARKOWITZ: If there are other
20 comments or questions? So with that compliment
21 from Ms. Vlieger for the Department of Labor, we
22 will take a break and reconvene at 10:45 a.m.

1 (Whereupon, the above-entitled matter
2 went off the record at 10:24 a.m. and resumed at
3 10:51 a.m.)

4 MEMBER WELCH: Since Steven has a sore
5 throat, I'm going to call it to order so he
6 doesn't have to yell. Now he's allowed to talk.

7 PRE AND POST 1995 EXPOSURES

8 CHAIR MARKOWITZ: Thank you, Dr.
9 Welch. Our next topic we're going to be
10 discussing is a set of communications from
11 Department of Labor regarding how the claims
12 examiner and claims process will regard exposures
13 that occur before and after 1995. And what I
14 wanted to start this conversation off with is --
15 This is an issue that cuts across various
16 subcommittees. That's why we have taken it out
17 of individual subcommittees to deal with it as a
18 group.

19 But I just want to start off the
20 conversation by actually going to the text of
21 what DOL says so that we're on the same page so
22 to speak or even literally. And I'm just going

1 to then read through excerpts. And I've
2 highlight parts.

3 First, we'll look at the circular
4 dated December 2014 about post '95 occupational
5 toxic exposure guidance. Let me ask this. I
6 know Mark Griffon wanted to participate in this,
7 a Board member who may be available by phone.
8 But do we know whether Mark Griffon is on the
9 phone?

10 Anyway, while I'm reading if you could
11 let me know, that would be great.

12 MEMBER WELCH: Do you want somebody
13 else to read?

14 CHAIR MARKOWITZ: No, that's fine.
15 "After 1995 significant improvements in
16 occupational safety and health programs,
17 engineering controls and regulatory enforcement
18 existed throughout the Department of Energy
19 facilities. These measures would have served to
20 limit employees' exposure to toxic materials.
21 Therefore, in the absence of compelling data to
22 the contrary, it is unlikely that covered Part E

1 employees working after 1995 would have been
2 significantly exposed to any toxic agents at a
3 covered DOE facility."

4 And then scrolling down, okay. That's
5 it. You can leave it there. "After 1995 it is
6 accepted that any potential exposures that they
7 might have received would have been maintained
8 within existing regulatory standards and/or
9 guidelines. If there is compelling, probative
10 evidence that documents exposures at any level
11 above this threshold or measurable exposures in
12 an unprotected environment the claims examiner is
13 to contact the DEEOIC Lead Industrial Hygienist
14 on guidance whether a formal IH referral is
15 required. Any findings of exposure including
16 infrequent, incidental exposure require review of
17 physician to opine on the possibility of
18 causation." And that's the end of this
19 particular circular.

20 This was followed by a memo a couple
21 of months later from the Division clarifying or
22 really giving the rationale for this. And I'm

1 not going to read through all of this. But
2 basically it's worth looking at. It's available
3 online. We have it in our briefing books here.

4 It explains the sequence of events
5 that occurred over time within the Department of
6 Energy whereby it was expected that 1995 and
7 thereafter that toxic exposures would have been
8 adequately controlled. And the number of those
9 events included the use of Tiger Teams by DOE to
10 do a health and safety audit at the facilities.

11 Other measures that were taken within
12 the Department of Energy to improve safety and
13 health in the '80s and into the early '90s,
14 issuance of a DOE Order 440.1 -- I think that was
15 in 1995. Correct me if I'm wrong -- about the
16 need to keep exposures limited to below the
17 regulatory levels.

18 And so at the end of this three-page
19 memo, it says -- this is in the first full
20 paragraph toward the third line -- "Further since
21 DOE published the order with the goal of
22 significantly mitigating employee exposure to

1 workplace hazards including exposure to chemical
2 or biological toxins, DEEOIC finds that after
3 1995 any exposure to a toxic substance by an
4 employee working in a covered DOE facility
5 occurred within existing regulatory standards
6 and/or guidelines."

7 Finally, more recently there was a
8 third document, a note from DOL which Kevin is
9 going to bring up. And I think we were sent
10 this after our first meeting because we were
11 interested in the background for the particular
12 circular. And it was pointed out that the
13 February 2015 memo which I just read part of is
14 the rationale basically. But in addition they
15 added "as to why we created the distinction
16 between pre 1995 and post 1995 exposures we
17 thought this would allow us to cut out the
18 industrial hygiene referrals on certain cases
19 which at that time were slowing down the process.
20 This didn't mean that the cases would not undergo
21 a medical review, but at least we could make the
22 assumption that for cases in which employees

1 worked only after 1995 the exposures would have
2 been within regulatory standards and guidelines.
3 We could then send that statement directly to the
4 treating physician for an opinion or on
5 causation."

6 So that's the text from the various
7 communications from DOL on this issue. Now I
8 will open this up for discussion. Ms. Vlieger.

9 MEMBER VLIEGER: First of all, a
10 number of the advocacy groups weighed in to the
11 Department of Labor and questioned the Department
12 of Energy when these two circulars came out. In
13 particular, I had forwarded this to the Board. I
14 don't know if it ever got up on anybody's
15 website.

16 I received a response from Pat
17 Worthington from the Department of Energy into a
18 query as to what their participation in these
19 circulars was because they would be the people
20 that would know about the inspections, incidents,
21 accidents, off-normal occurrences that would have
22 happened at DOE facilities and injured workers in

1 all kinds of toxic situations.

2 And their response -- I can forward
3 this email again -- was that "we are aware of the
4 two circulars you reference, but we are not
5 involved in the policy making process at the
6 Department of Labor." I find it entirely curious
7 that the regulatory department that would know
8 where all of these inspections reports on
9 accidents, incidents and off-normal occurrences
10 would be did not participate in the logic of
11 these two circulars.

12 Furthermore, the building trades and a
13 number of other union members protested these and
14 pointed out that there have been a number of
15 inspections and management oversight done proving
16 that the toxic exposure regulations were not
17 being followed.

18 And I'd like to point out that 440.1
19 was actually published in September of 1995, not
20 January 1st. So to say post '95 when the
21 regulation didn't even come out until the last
22 quarter of the year is kind of baffling to me,

1 too. That's just the start of my objections to
2 these two.

3 MEMBER CASSANO: From a medical
4 perspective and having dealt with many, many
5 different industries and many, many different
6 contractors, I think this whole presupposition is
7 wrong-headed. And there are two reasons it's
8 wrong-headed.

9 First of all just because there are
10 regulations in place doesn't mean that everybody
11 is following them. And to assume that because
12 these are Federal contractors that they're
13 sainted in some way and are doing everything
14 perfectly correctly is number one not true.

15 Number two, regulations are
16 regulations. And as we've seen from the
17 continued reduction in lead standard over the
18 years, a regulation isn't necessarily totally
19 protective of a particular medical outcome. So I
20 think from those two perspectives this
21 presumption is -- presupposition, not presumption
22 is wrong-headed.

1 MEMBER SOKAS: I want to basically
2 second what both Ms. Vlieger and Dr. Cassano have
3 said. I participated in an OSHA evaluation for a
4 variety of purposes, but it was ostensibly in
5 regard to DOE facilities applying for VBP
6 statistic back sometime between '97 and '99.

7 At the time, there were clear
8 indications that the subcontractors were being
9 hired on the basis of their injury and illness
10 rates. So there was clear evidence of pressure
11 to reduce record-keeping and reporting at the
12 time which was of concern. And there were also
13 clear discussions on the part of the clinicians
14 and others at these facilities about problems
15 that had occurred or episodes of things that had
16 happened. Again, the idea that instantaneously
17 everything is under control is not supportable.

18 I did also want to check to see if
19 Mark Griffon is on the line because this was an
20 area -- Okay He in our subcommittee was
21 investigating that in particular.

22 CHAIR MARKOWITZ: Dr. Boden.

1 MEMBER BODEN: Concurring with
2 everything that's been said so far and also just
3 thinking about what it means, it does say that a
4 claim in this case post '95 could be sent for a
5 medical opinion presumably saying that you have
6 to assume that everything was within regulatory
7 standards and guidelines. And as a consequence
8 it seems pretty clear that that in most cases is
9 going to make it very difficult for a physician
10 to make a connection between a presumed, adequate
11 occupational environment and illness.

12 MEMBER WELCH: As Ms. Vlieger
13 mentioned, the building trades did send a multi-
14 page memorandum to the Department of Labor on
15 this question. There's a different issue for
16 construction workers which represent a lot of the
17 workers here. It's that the DOE regulations
18 didn't apply to the subcontractors. For
19 construction workers there was a DOE rule passed
20 in 2006 that required the application of DOE site
21 regulations to subcontractors.

22 And I might not have been listening

1 completely, but I think we all agree that there
2 are many substances that are known to be
3 hazardous for which there is no existing
4 regulation.

5 And the OSHA regulations clearly state
6 for some substances a residual risk. So they'll
7 say for asbestos exposure and mesothelioma for
8 example that at the current exposure level there
9 will still be a measurable 1 in a 1,000 rate of
10 mesothelioma.

11 And all their standards do say that
12 there's not one that's completely protective. It
13 just lowers the likelihood of the number of
14 people who will be affected, but it does not
15 prevent it. Even if all the standards were
16 followed if a case occurred and an individual
17 with benzene exposure got the classic disease, it
18 needs to be investigated what that person's
19 exposure was. Then an individual decision needs
20 to be made in that case. You couldn't assume
21 that that was a idiopathic case of leukemia that
22 occurred in the setting of a known hazard

1 exposure.

2 Even if the exposures were completely
3 controlled to OSHA standards, we would still
4 expect to see a lower level but cases. And I'm
5 always explaining the difference between risk
6 from exposure and causation after the disease
7 occurs and it's a very different issue.

8 If the risk is lower, it means there
9 will be fewer cases. But when the cases occur,
10 they're still related to the hazardous exposure
11 in many cases. So setting this rule is providing
12 information that's misleading I think in many
13 ways which we've talked about to medical
14 providers who may not have the experience that
15 all of us have in nuancing these exposure disease
16 relationship.

17 That's one reason that our SEM
18 committee wanted to allow individual assessment
19 of individual cases. We think that would
20 obviate. You could get rid of this memo if you
21 were doing what we were suggesting.

22 CHAIR MARKOWITZ: Dr. Friedman-

1 Jimenez.

2 MEMBER FRIEDMAN-JIMENEZ: I also want
3 to concur. In 25 years of running an evidence-
4 based occupational medical clinic, we've seen
5 several dozen probably patients who we've been
6 convinced have work-related diseases for which
7 OSHA or NIOSH has done an inspection or a health
8 hazard evaluation afterwards.

9 I cannot remember one case in which
10 OSHA or NIOSH found a level of the toxin in
11 question above the OSHA standard. And we've been
12 very surprised by the results of the HHEs and the
13 OSHA inspections that they've been so low.

14 Typically they've been done months or
15 years after the patient has stopped working
16 there. They've been done with due warning to the
17 employer after the workplace has been cleaned up.
18 And I do not think that these inspections are
19 representative of the levels that are seen every
20 day in the work process.

21 So either there are high levels that
22 are being missed and not documents which I think

1 is very likely or the levels that are there are
2 under OSHA standard, but OSHA standard is not
3 adequately protective which is a likely
4 possibility. In particular for carcinogens, the
5 OSHA standards are frequently calculated to make
6 the risk one in a million or one in a hundred
7 thousand, low enough --

8 PARTICIPANT: One in a 1,000.

9 MEMBER FRIEDMAN-JIMENEZ: One in a
10 1,000. But the point is that these risks are way
11 below a risk that would give you some probability
12 of causation that would be greater more likely
13 than not to be work related. So essentially it
14 will rule out carcinogenic exposures causing
15 cancer if you presume that they've always been
16 under OSHA standard.

17 I think this is a non-evidence-based
18 ruling that we should make a strong statement
19 that it does not match with the level of science
20 that we have.

21 CHAIR MARKOWITZ: Dr. Dement.

22 MEMBER DEMENT: I guess a couple of

1 comments from an exposure perspective. A lot of
2 the exposures that occur doing non-routine
3 operations. And it's true at most facilities and
4 I think probably even more true of DOE
5 facilities.

6 Secondly, if protection programs rely
7 on personal protective equipment and programs,
8 they're prone to provide much less protection
9 than the type of respiratory protection for
10 example would predict because a failure is along
11 the way in a program even in a program that's
12 reasonably well designed and administered.

13 A presumption of no exposure or
14 exposure within guidelines based on use of PPE
15 would not be appropriate in most circumstances
16 because actual field measurements of protection
17 factors have been much lower than predicted by
18 the device itself.

19 MEMBER REDLICH: I was just going to
20 say this seems to be uniform agreement the
21 problems with this statement. What is the
22 process to undo it?

1 CHAIR MARKOWITZ: So I will formulate
2 a recommendation which we'll review tomorrow.
3 It's going to be pretty straightforward I think.

4 MEMBER REDLICH: I don't mean to limit
5 further discussion.

6 CHAIR MARKOWITZ: I understand.

7 MEMBER REDLICH: But it seems quite
8 clear that it should be undone.

9 CHAIR MARKOWITZ: That's fine.
10 Further comments, particularly if they address
11 new topics or new issues that haven't been so far
12 discussed? Mr. Domina.

13 MEMBER DOMINA: I guess some of this I
14 look at maybe a little bit different just because
15 I know initially they told us this had to do with
16 the Tiger Team stuff. Well, there was also a
17 Progress Assessment Team that came out in 1992
18 that said you still didn't do what you said the
19 Tiger Team was going to do. Then there was a
20 Safety Management Evaluation Team in 1996 that
21 said you still haven't done what you said you
22 were going to do in 1992.

1 And then you get into currently -- I
2 don't know if a lot of you know this -- when a
3 DOE site shuts down they move the retiree
4 benefits to another DOE site. So out at Hanford,
5 we administer the retiree benefits for the folks
6 at Rocky Flats, Mound and Fernald. And so you
7 have to look at what they did at Rocky Flats a
8 few years ago when they changed the retiree
9 medical benefits. They never would have shown up
10 in this program because everything was being
11 covered in the retiree medical.

12 And then I also look at if everything
13 was being so safe Hanford Tank Farm folks
14 wouldn't be in Federal Court right now with the
15 State of Washington trying to sue DOE for
16 adequately protecting the workers. And so it
17 still continues today that people aren't
18 adequately protected.

19 CHAIR MARKOWITZ: Ms. Vlieger, did you
20 have something to add?

21 MEMBER VLIEGER: One other piece of
22 evidence to consider when we make our

1 recommendation is that the advocates hold an
2 annual meeting in Denver. And in 2015 we asked
3 the Department of Energy because in the process
4 of the claims processing the claims examiner will
5 do what's called a document acquisition request
6 to the Department of Energy. That would include
7 exposure records, medical records, personnel
8 records and EJTAs, that sort of thing.

9 When we get those records back from
10 the Department of Energy there is no exposure
11 records. And these were mandated by regulation.
12 So we asked them if they're not in the DAR for
13 the claims examiner to look at, where are they?

14 And the response that came back on
15 July 20th of this year is that we don't have
16 those records to put into the individual
17 claimant's records. And I believe I forwarded
18 this communication as well. I can do it again.

19 But the response from the Department
20 of Energy was we do not have individual exposure
21 records for workers. When these go to the CE and
22 the CE limits the exposures, then the industrial

1 hygienist says, there's no evidence of exposure.
2 It's because the records are not in the personnel
3 files.

4 CHAIR MARKOWITZ: Dr. Silver.

5 MEMBER SILVER: It's disturbing to me
6 that the Department of Labor seems to have caught
7 an Atomic Energy Commission disease of believing
8 that certain documents that say the way things
9 ought to be, guidelines, regulations, orders, are
10 the way they are.

11 People from DOE communities probably
12 remember the old official line that the
13 contaminants never went past the fence line. And
14 DOE era of openness blew that away. I doubt that
15 DOE chastened staff who issue these order of the
16 way things ought to be are a good description of
17 the way they are.

18 There are plenty more examples. The
19 term fantasy documents was coined by an
20 environmental sociologist, Lee Clarke, who is now
21 at Rutgers who studies risk analysis. So I would
22 place this in the category of fantasy documents.

1 CHAIR MARKOWITZ: Dr. Redlich, did you
2 have something else?

3 MEMBER REDLICH: In addition to
4 stating that we think this should be withdrawn or
5 whatever, I think whatever process came up with
6 this statement -- you know, we'd like to prevent
7 something like this that clearly there is uniform
8 opinion that this does not make sense.

9 It's very concerning how this passed
10 through whatever review process. And I don't
11 know that that is. But I think whatever process
12 put this in place appears to be problematic in
13 this case.

14 CHAIR MARKOWITZ: Okay. That's
15 interesting. I have a final comment to say. I
16 think actually this was Dr. Dement's idea on one
17 of the phone calls which is in some ways -- I
18 mean I do believe from what I've heard that in
19 many situations within the complex the conditions
20 did improve over time and that health and safety
21 hazards were reduced over time through the '80s
22 and into the '90s. Maybe it was not specifically

1 around a particular date or around a particular
2 set of actions. But conditions did improve.

3 Actually those are the situations in
4 which we actually need the industrial hygienist
5 to weigh in to see whether there was a
6 significant exposure or not. This is exactly
7 when we don't want to bypass the investigation
8 into the exposure because we won't need to
9 understand whether there was excessive exposure
10 or not.

11 I would say quite the opposite that as
12 conditions improved it's where further
13 investigation into the exposure of a particular
14 alleging disease where we really need that
15 additional information. And the physician who
16 needs to opine -- express an opinion about
17 causation really needs to know whether the
18 significant exposure occurred or not.

19 It's actually the reverse. What I
20 think should happen is actually the reverse of
21 what this policy advocates. Dr. Cassano.

22 MEMBER CASSANO: Yes. And just

1 circling back to Laura's initial comment about
2 the industrial hygienist interviewing the
3 claimant, I think this is a perfect example of
4 why that has to happen.

5 CHAIR MARKOWITZ: Okay. We need to
6 move onto the next topic. Dr. Welch is going to
7 lead a discussion on the different EEOICP policy
8 involving solvents and hearing loss.

9 EEOICP MEMO/POLICY RE: SOLVENTS AND HEARING LOSS

10 MEMBER WELCH: And Kevin I hope is
11 going to be able to bring up a slide presentation
12 that I just emailed to him.

13 We discuss at the Board at our last
14 meeting that there are limited number of
15 presumptions that have been developed to help the
16 claims examiners adjudicate cases. And this is
17 one of the more recent ones that determines in
18 which cases does organic solvent exposure be a
19 contributory cause to hearing loss.

20 I mean it's really great that DOL
21 decided to address this question because hearing
22 loss is really quite prevalent in this former

1 worker community. And it generally has been
2 attributed to noise. But there is --

3 Looking at the contribution of organic
4 solvent exposure based on the literature that now
5 exists is really an appropriate thing to do.

6 Because there's this complicated relationship,
7 many of the workers, the hearing loss could be
8 considered noise-induced. I was explaining it's
9 not a different pattern with organic solvents.
10 It will be contributory.

11 So it makes sense to figure out a way
12 to approach that. A presumption is a really good
13 way to say, okay, in this circumstance even if
14 somebody had noise exposure we can presume that
15 solvent was a contributory cause.

16 This is my idea of how one would
17 develop a presumption generally. And then I want
18 to talk about the solvent one. There has to be
19 an exposure-disease relationship already if we're
20 going to presume that in this particular this
21 particular exposure caused this particular
22 disease.

1 And then you need some kind of dose or
2 exposure needed for a presumption based on what
3 we understand about the epidemiology or the
4 biology of that disease. In this particular
5 case, if somebody was using a magic marker --
6 they're a trainer and using a magic marker at
7 work -- most of us probably wouldn't say that
8 solvent exposure was sufficient to be
9 contributory to their hearing loss if they also
10 had noise exposure. Not every solvent exposure
11 is contributory.

12 A presumption would -- And
13 presumptions that have been used in many settings
14 usually do have something that helps define the
15 dose of the exposure. It could be latency. It
16 could be occupation. It's not necessarily
17 industrial hygiene.

18 And you also need to identify the
19 criteria that's used for the diagnosis of the
20 disease which is something DOL has done, OWCP has
21 done, throughout the program. We see there are
22 many cases that are denied because medical

1 evidence was insufficient. That's because
2 they're comparing the medical criteria to some
3 established criteria.

4 And then each presumption should --
5 and the ones I worked with before which are a lot
6 in bankruptcy cases in asbestos companies where
7 there's a trust fund for people to apply to. In
8 every case, it specified how the workers who did
9 not meet the presumption can meet alternative
10 criteria. And Dr. Boden is really an expert on
11 this and he helped me think through this a few
12 months ago when we were talking about
13 presumptions.

14 You can set a presumption to be quite
15 strict which makes it very easy because then the
16 likelihood the people who make that presumption
17 have a very high likelihood of it being causal or
18 contributory. But then there's a big pool of
19 people who definitely have that exposure-disease
20 relationship. They just haven't met the
21 presumption.

22 If you wanted everybody who could get

1 compensation to meet the presumption, you need to
2 make it much more generous and include less
3 strict criteria. Any organization of the
4 Department of Labor can determine where that
5 balance is. How many people come in with easy
6 criteria and leave the remainder to prove their
7 case in a more specific way. But there needs to
8 be a way that you can demonstrate that you
9 essentially meet the criteria for compensation
10 even if you don't meet the specific presumption.

11 The Department of Labor criteria for
12 solvent-induced hearing loss says the employee
13 needs a diagnosis of sensorineural hearing loss
14 in both ears which is a specific pattern of
15 hearing loss. And the employee was exposed to
16 one of a relatively short list of chemical
17 solvents. And that he or she worked in one of
18 the listed labor categories for a concurrent and
19 unbroken 10-year period. Then the claim can be
20 accepted for hearing loss.

21 Then in addition the presumption
22 essentially says -- and I might not have put the

1 language in -- essentially, this is the only way
2 you can get in. If you want to come in, you have
3 to demonstrate not that you meet what's assumed
4 in the presumption, but there's additional
5 scientific research that applies to your specific
6 circumstance. So it could be very high
7 industrial hygiene exposures. It could be
8 things, but it's a very high bar for a worker to
9 come in and meet the presumption.

10 CHAIR MARKOWITZ: I'm sorry, Laura.
11 I'm sorry to interrupt. But I believe the
12 criteria include that the exposure has to occur
13 before 1990.

14 MEMBER WELCH: Oh, sorry. Yes, you're
15 right. So in addition the exposure has to occur
16 before 1990.

17 Here are the solvents. This is a list
18 of solvents that have been demonstrated in
19 specific studies to be associated with solvent-
20 induced hearing loss. It's not an unreasonable
21 list. I don't think this is the part of the
22 criteria that's significantly limiting people

1 from applying. But we could address that.

2 So DOL made a decision. Instead of
3 saying exposure to organic solvents as a general
4 criteria, they limited it to the ones that have
5 been demonstrated in either animal experiments or
6 human epidemiology to be specifically associated.
7 Which is again making the presumption more
8 specific.

9 You might be able to see it better on
10 your screen. This is a list of the labor
11 categories. And again this is exclusive. If
12 you're not in this labor category, you don't have
13 the opportunity to say, well, although I was
14 classified as a laborer, I really worked as a
15 machinist. And therefore I should be considered
16 a machinist.

17 What's on this list are ones that if
18 you all were to make up a list you'd probably
19 come up with it. But you can also look at it and
20 say, well, where are -- there are some
21 construction trades, for example, that may have
22 used a lot of solvents that aren't on the list.

1 So in terms of the animal data,
2 there's really quite a bit of research.
3 Actually, I should back up a second. Just hold
4 that slide in your head for a minute.

5 One of the things that my committee
6 had recommended, the SEM subcommittee had
7 recommended that we talked a lot about yesterday,
8 was that something should be added to the disease
9 causation list if it's in Haz-Map but also EPA,
10 National Toxicology Program and other sources
11 that are listed in the Institute of Medicine
12 report. The relationship between organic
13 solvents and hearing loss has been accepted by
14 several of those agencies.

15 We could move forward if we meet the
16 criteria for something where we should add the
17 exposure-disease relationship. I don't really
18 need to show you all this. Because as we said
19 before, if EPA has reviewed it we don't really
20 need to and see that styrene and toluene do this
21 and do that.

22 But I just wanted to let you know that

1 there's a good amount of animal data that shows
2 something about dose, although we can't go
3 straight from animal data to human data and
4 something about the biological mechanism. And
5 the biological mechanism helps when we look at
6 the fact that it's probably at least an additive
7 and maybe synergistic with noise. Somebody who
8 has solvent exposure and noise exposure may end
9 up with more hearing loss than each one
10 individually.

11 And then I just put in one
12 epidemiologic study from 2008. But there are
13 many more and there's been a good systematic
14 review. The tables are so big because there are
15 now so many studies I couldn't figure out how to
16 get it into a slide in the time I had to put
17 these together.

18 But I wanted to point out here was the
19 air concentration for solvents were quite low in
20 this particular study. Those are within the OSHA
21 standards for some of those solvents.

22 But many of these studies don't

1 necessarily give you a number of years exposure.
2 But in this particular one the workers were
3 followed up for at least six years from after
4 exposure began, but a minimum of four to six
5 years.

6 From this study, we can't really see
7 if the effect occurs in two years. But they were
8 seeing an effect before ten years. In addition
9 to which these were workers who were exposed
10 after 1990. So this study alone helps with some
11 of the presumptions that are set by OWCP.

12 And the big recent reviews, everybody
13 agrees that animal and human studies clearly
14 establish an effect of solvents on hearing. And
15 then based on those, I think we would all
16 conclude if you read what I read that compound-
17 specific data has clear limitations.

18 Because when you do animal
19 experiments, they're generally going to expose
20 them to one agent at a time. And the industrial
21 hygiene that's done is one agent at a time. But
22 the biology lets us conclude that this isn't a

1 generalized effect of organic solvents. It's not
2 specific. There are some solvent health effects
3 that seem to be very specific to one solvent.

4 That's not the case here. Every time
5 they test one in the animals it has the same
6 effect. And I said consensus statements are
7 available from NIOSH and EPA that date back two
8 decades.

9 I know that if we ask for discussion
10 around the table everybody is going to agree with
11 me that --

12 (Laughter.)

13 PARTICIPANT: That's a presumption.

14 MEMBER WELCH: I'm presuming. I'm
15 presuming that the people who've dealt with this
16 in the past would say that the presumption that
17 is set by OWCP is quite stringent and
18 unnecessarily so.

19 The biggest problem we've had with the
20 building trades is our construction workers may
21 spend 30 years working at Savannah River. But
22 it's never continuous. They're working one job

1 after another, but they might have a couple weeks
2 off. We can't find anybody that has ten years of
3 continuous work at one of these facilities.

4 In addition to which, the evidence
5 suggested should not be limited to specific
6 solvents. Although the cases I've looked at for
7 people who have solvent exposure, we don't have
8 any trouble demonstrating that they had exposure
9 to xylene or MEK because they were used
10 everywhere. But there still would be people who
11 unnecessarily would be excluded because their
12 solvents are not on that list.

13 One reason we talked about it and that
14 Steven suggested we talk about it, Dr. Markowitz
15 suggested we talk about it, is that we've talked
16 about one thing that our SEM subcommittee could
17 do is help DOL establish additional presumptions,
18 particularly for diseases for which they're being
19 reviewed. COPD is a very big -- there's a lot of
20 claims for COPD and presumptions would help speed
21 the analysis. They wouldn't necessarily have to
22 go to industrial hygienist if we can build a

1 presumption. It could make the claims go through
2 faster, but also it would be much less time, much
3 less money for the adjudication of the claims.

4 Our committee hasn't gotten to that
5 topic yet, but we will. But there needs to be a
6 transparent process for establishing presumptions
7 with some clearly stated -- I don't know what the
8 right word is -- assumptions/presumptions about
9 those factors, particularly the dose that's
10 required before we set a presumption that if a
11 worker has this particular dose of whatever the
12 hazardous substance is, his disease can be
13 considered caused or contributed.

14 We're going to get into the discussion
15 tomorrow of what caused, contributed and
16 aggravated means. And that will help our
17 committee develop a process. But it should be
18 very clear when a presumption comes out why each
19 of those decisions was made in our opinion.

20 We can go back and once as a group
21 we've decided maybe how we establish those, our
22 subcommittee can come up with some additional

1 presumptions and help improve the ones that
2 exist.

3 MEMBER SOKAS: I wanted to thank Dr.
4 Welch and ask her to go back to her very first
5 slide which kind of lays out that. And by way of
6 discussion our subcommittee was given a list of
7 14 -- in response to some back and forth with
8 Department of Labor -- given a list of 14 areas
9 where they had challenges and were asking us to
10 look into it. Solvents and hearing loss was one
11 of them.

12 And I wanted to agree with everything
13 you've said. There is a couple of additional
14 pieces that I would just like to say we further
15 support what you've outlined there. One of which
16 is that there's a recent publication from Korea
17 with 30,000 workers explored across a variety of
18 different industries based on surveillance that
19 took place in 2009. And at that point, they had
20 clearly established the additional deficit in
21 hearing beyond what's related to noise for
22 workers who had solvent exposure. And it was at

1 least a two-fold increase in the decibel loss and
2 then for workers who had heavy metal exposure.
3 So there was an additional category.

4 In addition, there are as you
5 mentioned new cases all the time. Sometimes and
6 in fact there were several human case reports of
7 exceptional amounts of solvent exposure that
8 resulted in acute and transient hearing loss
9 without noise exposure. So that's also been
10 reported.

11 And the types of solvents, the more
12 people look the more they add to it. It just
13 really confirms the things that you've said.

14 Getting into your development of
15 presumption, I think that list is really helpful.
16 I would like to ask because we're going to get
17 into that a little bit more with these 14
18 questions that only a handful of which did we
19 actually try to do.

20 I would also put in there that there
21 are some chemical disease associations that have
22 been established, but it's not clear whether or

1 not these types of exposures could or have
2 occurred in Department of Energy sites. That's
3 probably a step in there. And that may be just
4 an amplification of it's not only establishing
5 the dose exposure needed, but whether that that
6 substance would be used in that concentration in
7 a DOE facility. So it's maybe a part A and part
8 B of your second point there.

9 CHAIR MARKOWITZ: I'm not sure of the
10 order here. Let's just continue. Dr. Boden.

11 MEMBER BODEN: This is really good I
12 think. One thing I think that we might want to
13 consider here in light of the contributing to or
14 aggravating piece of this is that it's likely
15 that people who are exposed to solvents are also
16 exposed to noise. And I understand that noise is
17 not one of the things that can under this law be
18 used to get somebody compensation.

19 However, a threshold that might
20 otherwise for a solvent alone apply appropriately
21 to a presumption might be higher than a threshold
22 that might apply to a solvent in combination with

1 somebody who already has noise-induced hearing
2 loss or also who has noise-induced hearing loss.

3 CHAIR MARKOWITZ: So is there a
4 comment specifically in response to that? Dr.
5 Sokas.

6 MEMBER SOKAS: Yes, I'm sorry. So one
7 of the toxicology studies, a recent one, says in
8 addition to the fact that the solvent poison the
9 hairs themselves, the direct neurotoxicity of
10 that, there is some suggestion in animal studies
11 that they may also relax reflex that the ear has
12 that prevents noise damage.

13 You could say that the solvent itself
14 is allowing the person to go home and mow the
15 lawn and perhaps have more hearing damage from
16 that. So the interaction is probably in a
17 variety of different ways. And that what you've
18 said makes really good sense.

19 CHAIR MARKOWITZ: Ms. Pope.

20 MEMBER POPE: This question might have
21 been already answered. But my question is when a
22 claimant files a claim in relation to the solvent

1 and the hearing loss, are those studies from
2 different organizations and different agencies
3 accepted as supporting documents accepted for the
4 claim?

5 MEMBER WELCH: My understanding is
6 that if the worker can't demonstrate through the
7 SEM that they're exposed to one of those specific
8 solvents and their employment history has to
9 demonstrate they worked for 10 consecutive years
10 prior to 1990 it doesn't matter what else they
11 submit.

12 MEMBER POPE: Got you.

13 MEMBER WELCH: And if they do meet
14 those --

15 MEMBER POPE: It's pretty restrictive
16 already.

17 MEMBER WELCH: If they do meet those --
18 they have high frequency hearing loss on the
19 audiograms. So they have sensorineural hearing
20 loss and it was 10 years before 1990 and you're
21 on the occupation list and you're on the solvent
22 list. You can have your claim accepted.

1 Otherwise, if you send in more studies, it's not
2 going to help you.

3 MEMBER POPE: Thank you.

4 MEMBER WELCH: I actually haven't
5 reviewed any of those cases to see how it -- And
6 that's something we can look at when we're
7 looking at disease-specific cases. And it may be
8 that Dr. Sokas' committee already has. But
9 that's my understanding of how the presumption
10 is. That's the way it's written.

11 CHAIR MARKOWITZ: Dr. Friedman-
12 Jimenez.

13 MEMBER FRIEDMAN-JIMENEZ: Yes, just
14 real quick. Sliwinska-Kowalska has a nice review
15 in 2015 that's updated in the Textbook of
16 Occupational Neurology. It won't come up in the
17 MedLine search. I suggest you look at that.
18 It's basically agree with above. But it may have
19 some new references.

20 MEMBER WELCH: Yes, they're
21 responsible for most of this data. That's good.

22 MEMBER FRIEDMAN-JIMENEZ: Yes, she's

1 done some great work.

2 CHAIR MARKOWITZ: Mr. Whitley.

3 MEMBER WHITLEY: What's really
4 happening in reality is the CE uses this document
5 as a bible. And if you've got nine years and 11
6 months before 1990 but don't have the other
7 you're denied because of you don't have enough
8 time.

9 If you worked in two of the categories
10 that are both on there or three and you never had
11 a break in service, you'll still be denied most
12 of the time. Very seldom do we ever see one go
13 through unless it is 10 years in one of these
14 exact categories. Some of them have worked in
15 all the categories that are listed, but they've
16 split up and never had a break in service.
17 You'll still be denied saying you don't meet the
18 criteria.

19 The list has some holes in it. A good
20 example is carpenters and everybody knows all the
21 chemicals when they're laying tiles. That's not
22 on there. Welders are not on there.

1 But basically the CE use the document
2 as the bible. If you don't meet exactly what's
3 in the document -- I don't care if it's one week
4 and you don't have ten years -- you're denied and
5 you're denied because you don't meet the
6 criteria. You'll get a letter in 30 days that
7 says that.

8 CHAIR MARKOWITZ: Dr. Cassano.

9 MEMBER CASSANO: Yes. Since I have
10 lots of experience both establishing presumptions
11 for agencies as well as getting people granted
12 compensation when they don't necessarily meet the
13 criteria of a presumption, I have a couple of
14 things to say about this process. And it's not
15 specifically about the other toxicity issue, but
16 in general.

17 This, as everybody else concurs, this
18 is an extremely stringent and narrow presumption.
19 And the presumptions that I see while they may be
20 very strict as far as who it qualifies they are
21 usually very broad in terms of how much exposure
22 qualifies you for the presumption.

1 For instance, the Vietnam thing is
2 foot on the ground which is ridiculous to the
3 other extreme. But when you look at Camp Lejeune
4 presumptions they are I believe -- our
5 recommendation, the scientific recommendation,
6 was six months. They went to three months of
7 exposure. Now that is obviously very generous,
8 but it also depended upon the fact that these
9 guys were Marines and they were drinking maybe
10 five to six to eight liters of water. So the EPA
11 referenced dose didn't actually apply to these
12 guys.

13 And so I think we can help in making
14 these very fair but also very -- so that OMB when
15 they look at these things is not going to sit
16 there and say, you're giving away the farm.

17 I also think that these need to be
18 subjective to the entire rulemaking process as
19 they are in VA. Then they are set in statute and
20 they cannot be changed at the whim of
21 administration. Right now because these are
22 procedures, they can be changed just as we've

1 seen with the 1993 and 1995 criteria.

2 As far as if you don't meet the
3 presumption, at VA everybody has the right to
4 present additional evidence and have it
5 considered valid for evaluation purposes. At VA,
6 if the presumptive criteria are not met, then it
7 automatically goes to a medical examiner to look
8 at the evidence. In this case, I think at DOL it
9 should go to the industrial hygienist first and
10 then to the CMC. But it should not definitively
11 stop just because you don't meet the presumption.

12 CHAIR MARKOWITZ: Ms. Vlieger.

13 MEMBER VLIEGER: I have a question in
14 a claim that I'm familiar with. It was a
15 painter. And because he was exposed to mixtures,
16 they were saying it was not an exposure to the
17 chemicals on the list. Even though he met the
18 presumption as under the labor criteria, they
19 were saying, show us that he was actually exposed
20 to enough because in a mixture it would be a
21 lower dose than the pure chemical.

22 And I realize that all of you are

1 shaking your head and going, this is ludicrous.
2 I agree with you. However, we had to go to the
3 extent because he's a current worker where he
4 took photographs of the content labels of the
5 materials he used. We had to provide those to
6 the Department of Labor to show that those
7 materials were in a significant quantity in the
8 things he was applying high enough up on the
9 label to show that he was getting enough exposure
10 of the pure chemical from these mixtures that he
11 was applying as a painter.

12 I would like something about the
13 synergistic effect of the number of things that
14 are in a product or that the mixtures are
15 considered as well versus just these straight
16 chemicals. Because we run into this problem
17 where someone is trying to do their job and they
18 don't have that guidance that mixtures count too.

19 CHAIR MARKOWITZ: I'd like to make a
20 comment. I take it there's significant
21 disagreement with the elements of the
22 presumptions here. But I would say that the set

1 of presumptions on this issue would be extremely
2 useful to have. If you think about it if we were
3 to recommend eliminating these presumptions and
4 leaving it up to the claims examiner, the
5 industrial hygienist and the physician, that
6 would be very problematic.

7 The industrial hygienist is going to
8 have a very hard time trying to figure out what
9 the dose of solvents is. And the physician is --
10 most of the physicians will be clueless on this
11 particular issue.

12 This is a very specialized issue and
13 they won't be able to make an informed judgment
14 about the relationship because they won't know
15 about this. Even your standard occupational
16 medicine physician isn't going to be informed
17 about this issue.

18 I would say that it would be extremely
19 useful to come up with an alternative set of
20 presumptions that would facilitate the process.

21 MEMBER WELCH: I just want to mention
22 one thing that Fay made me think of which is that

1 the construction trades are not really addressed
2 by the SEM. The construction trades have a
3 general -- it makes sense. The exposures are
4 more similar across sites than they are
5 different.

6 But when you need to identify a
7 specific chemical, that's in the SEM. So it's
8 hard to place a construction worker using the SEM
9 database. So we would see for construction
10 workers -- what Ms. Vlieger was talking about
11 that painters know they're exposed to a lot of
12 solvents. And the presumptions suggest they do.

13 But their ability to demonstrate that
14 they were exposed to those specific solvents
15 can't come out of the SEM because you can't put a
16 construction painter into the SEM. A production
17 painter you could. It's another reason that
18 there needs to be more flexibility in the
19 presumption to be able to accommodate all the
20 workers at the sites.

21 CHAIR MARKOWITZ: My question is
22 initially for Dr. Welch but also others whether

1 there's enough scientific knowledge to enable us
2 to make a recommendation to DOL about changing
3 the number of years of solvent exposure, changing
4 the issue of 1990, changing the set of job titles
5 that predictably had solvent exposure. Do we
6 know enough that we can provide a rationale for
7 an alternative formulation of presumptions?

8 Dr. Sokas.

9 MEMBER SOKAS: I think the answer is
10 yes, but. I mean I would feel comfortable. I
11 think, Laura, we could probably sit down and do
12 it based on what we've looked up.

13 The problem is I think if you want to
14 do this in a really rigorous, really in-depth way
15 where you've got some evidence that you've
16 actually done a complete review and come up with
17 something that the program can actually point to
18 and use, I honestly think what we may be
19 suggesting is there needs to be some
20 subcontracting done here where that kind of work
21 gets done.

22 I mean it wouldn't take a huge amount.

1 It would take a relatively small amount. But I
2 put in a Saturday afternoon basically doing this.
3 I don't think that's necessarily got all the
4 information we're going to need.

5 So I would say what we as a Board
6 might be able to do is to propose where we think
7 those issues are that could benefit from a little
8 bit more thorough. Then we would offer to review
9 the results of that. Again I may be not
10 recognizing my full responsibility as a Board
11 member. But I don't think we can say, yes, we can
12 handle all of that.

13 MEMBER WELCH: I agree with you and we
14 could probably, the Board could probably, do a
15 couple. But if your committee comes up with 15
16 for which you want to make a presumption, I think
17 that for us to try to get it done is going to be
18 violating what we're generally recommending that
19 things be thorough and transparent.

20 But I agree. Probably if one of us
21 spent an additional day we'd find all the
22 literature and be able to read it all and

1 summarize it. But it shouldn't just be one
2 person because we all have implicit biases in
3 some way or another. So I think having a process
4 where you have a subcontractor do it and then
5 it's reviewed by the Board makes more sense or
6 some interaction between the expertise and the
7 Board and some technical assistance makes more
8 sense than having the Board do it.

9 I want to add one thing to your
10 question. I think that the law itself that says
11 the claim is accepted if it's determined that an
12 exposure cause, contributor, aggravated is what
13 we would say claimant-friendly because
14 contributed to there's no real definition of
15 contributed to.

16 I've spent time in court testifying as
17 an expert on behalf of injured workers and give
18 an opinion that this particular exposure was a
19 substantial contributing cause to the
20 individual's disease because most diseases have
21 multiple causes, some of which are smoking or
22 noise in this case. So I give an opinion and

1 I've had a thousand lawyers ask me what do you
2 mean? What's substantial?

3 And I say, well, in my eyes it's
4 substantial. I just kind of wiggle out of that
5 as quickly as I can.

6 It depends on the individual case
7 what's substantial. It depends on the amount and
8 degree of other exposures the individual has and
9 characteristics of the individual's
10 susceptibility. So it's not like there's a
11 number. But to develop a presumption and say
12 that if someone has this level of exposure
13 they're presumed to have the disease, we're going
14 to have to talk about what contributed means.

15 Cause won't be that hard. We'd
16 probably disagree, but I think we could come
17 closer. But contributed, there's a lot of
18 flexibility in contributed. I think that the
19 science is there once we decide what contributed
20 means. The science is there to set a presumption
21 that complies with the program standard.

22 CHAIR MARKOWITZ: Ms. Vlieger.

1 MEMBER VLIEGER: I just have an
2 administrative point that Dr. Cassano brought up.
3 I'm wondering after we do all of this work and we
4 provide our input at what level it's going to be
5 maintained because I'm not sure where our
6 recommendations fall under policy, procedure,
7 manuals, regulations. And so perhaps we could
8 get a briefing from the Department of Labor about
9 once we make these recommendations how sturdy
10 they're going to be, how long lasting the review
11 process.

12 My concern is we do all of this work
13 and then we get an administration change and the
14 baby goes out with the bathwater. So I believe
15 we need clarification so that when we write these
16 we know where we fall into that whole process.
17 And I'm looking at John Vance right now. Do we
18 have the capability of doing that?

19 CHAIR MARKOWITZ: Mr. Rios wants to
20 respond.

21 MR. RIOS: You provide your
22 recommendations to the Department through this

1 process. And the Department then determines
2 where they are in terms of existing priorities
3 that they have. Generally after about four or
4 five months after you submit your
5 recommendations, such a report can be requested.

6 However, to apply a broad brush and
7 say when you give us a report this is how long
8 it's going to take for us to process it is
9 unrealistic.

10 MEMBER VLIEGER: I'm sorry. I don't
11 understand what process means and I don't
12 understand what priorities mean.

13 MR. RIOS: It's dependent on the
14 recommendation that you provide. If you're going
15 to recommend that they add a sentence, for
16 example, to the procedure manual, that process
17 can take a very small amount of time. If you
18 recommend that they update the SEM and invest a
19 lot of resources into that, then obviously that's
20 going to require a significant amount of time.

21 It's all dependent on the
22 recommendations that you make. That's why I'm

1 saying for us to apply a broad brush and tell you
2 that it's going to be implemented in x, y, or z
3 number of months it's not realistic.

4 MEMBER VLIEGER: In order to be
5 expeditious about what we're doing and try and
6 fulfill what the Board's priorities are, could we
7 know where we are on the menu of the things? So
8 when we make recommendations, we can try and fit
9 them in an expeditious manner.

10 MR. RIOS: Like I said, you can
11 certainly pose that question to the Department
12 and we can get back to you on that. But first we
13 need to receive the recommendations.

14 CHAIR MARKOWITZ: Dr. Cassano.

15 MEMBER CASSANO: One additional
16 comment to get back to what I said about
17 rulemaking. These little circulars are guidance.
18 They're not mandated. You can follow them. You
19 don't necessarily have to follow them.

20 Even the procedure manual tells people
21 what to do, when to do it, but not how to do it.
22 Therefore, Fay is right in that an administration

1 change or even somebody in the hierarchy can
2 change this or say ignore it just like we saw
3 with the 1993 and 1995 menus.

4 The only way to get these set in stone
5 is to have them developed in a rulemaking
6 process. Otherwise they can go away. They can
7 be superseded or go away within six months of
8 being promulgated.

9 CHAIR MARKOWITZ: Any other comments?
10 We're approaching lunchtime. Dr. Welch is going
11 to not now but for tomorrow formulate a
12 recommendation regarding this issue which will
13 reflect I think the level which we discussed it
14 so far.

15 We will adjourn now. Any comments?
16 So we will reconvene at 1:00 p.m. Thank you.

17 (Whereupon, at 11:54 a.m., the above-
18 entitled matter went off the record and resumed
19 at 1:05 p.m.)

20 CHAIR MARKOWITZ: Okay. We're going
21 to get started. We're missing three Board
22 Members. But I think they will be here shortly,

1 because I just left them.

2 So, we're now going to hear from Dr.
3 Sokas, from the Industrial Hygiene and CMC
4 Subcommittee. This is the task of the board that
5 addresses the work of the industrial hygienists
6 and the physicians who assist the program. And
7 to take a look at the quality and consistency of
8 that work. So, Dr. Sokas.

9 IH & CMC SUBCOMMITTEE

10 MEMBER SOKAS: Thank you. And Dr.
11 Markowitz already explained what the committee's
12 about. The members of the committee are listed
13 up there, Mr. Domina, Mr. Griffon -- Dr. Griffon,
14 Dr. Friedman-Jimenez. Dr. Markowitz is also on
15 that, Ms. Vlieger, and Mr. Whitley. So, all of
16 whom will be participating in this update.

17 We had shared a number of the Board
18 Member's concerns that I think we heard at this
19 meeting, and at the previous meeting, about the
20 information that goes forward to the industrial
21 hygienists, and to the contract medical
22 clinicians. And I'll get to that in a minute.

1 We had our one teleconference Board
2 Meeting on July 18th. And at that time we
3 attempted to go through the original list of
4 questions from DOL to see what we could do, what
5 others were attempting to do.

6 And we nevertheless had a ton of
7 overlap, since several of the circulars,
8 including the post 1995, the asbestos circular,
9 and the information about solvents and
10 autotoxicity were all kind of, you know, shared
11 by our committee, as well as others.

12 So, we were not completely successful
13 with that. But we did then subsequently have
14 some additional information that we requested,
15 communication by email among the subcommittee,
16 and with the Department of Labor.

17 And I did want to share a little bit
18 of that first, before we get into our report. We
19 had a question about, do the claimants see,
20 and/or have input into the process of the CEs,
21 referring cases to the IH or to the CMC, and to
22 the IH/CMC response? This includes how the CEs

1 frame the question. Do the claimants
2 automatically get copies of the reports?

3 That was just sort of a general
4 question that we asked going forward. And I
5 think it's been a topic of conversation, as I
6 said at both of these face to face full Board
7 Meetings. The response was interesting. And
8 I'll read just the first sentence really, or two.

9 The type of claimant input the
10 referral process described in the question
11 resembles a method used by opposing parties in
12 litigation to agree upon the wording of a
13 question that are then submitted to an outside
14 independent expert are not appropriate for use in
15 the non-adversarial claim adjudication process
16 used by the program for several reasons.

17 And then they go through the reasons.
18 And I think that kind of illustrates. I didn't
19 think the question going forward had that context
20 to it. But clearly I think there is that set of
21 concerns. And what we did then review was, we
22 reviewed, there's a memo that is public that was

1 an informal review of the IH and CMC reports.

2 It turns out that that's much more of
3 a process memo than a quality memo. And
4 basically the concerns that were raised were ones
5 I think profoundly of communication, where there
6 were questions given that were not directly
7 responded to.

8 There were even comments by some of
9 the claims examiners that the clinician was
10 providing too much information, but not the
11 information that they really needed.

12 And so, there's a clear communications
13 gap that I think has again been highlighted over
14 and over and over again.

15 We also asked whether there were
16 referral opinions, which are really third
17 opinions that are supposed to break a tie vote,
18 both between either the CMC and what the treating
19 clinician says. And we were told that there were
20 zero referrals made in the preceding year.

21 So, I don't know if we had gone back
22 further there would have been more. But clearly,

1 there's no content evaluation for quality,
2 because there's really nobody to do that, you
3 know, for the CMC. So, that was something that
4 we were interested in finding out more about.

5 We received some CMC and IH
6 information in records. We didn't necessarily
7 have the -- how those were used in the results.
8 So, those are still a little bit of a question.

9 And then we were just given a new disk
10 with more information, more examples, and more
11 charts, that only arrived on Friday. So, we
12 haven't had a chance to really look at that and
13 talk about it.

14 We did, as I said, review the cases
15 that we were given, as well as very interesting
16 policy teleconference information, which I think
17 had an enormous amount of information in it.

18 We were also -- we also clarified with
19 the program the areas where they get most of the
20 questions about. And they gave us a list of 14.
21 I am going to read through them, because I think
22 there may be Members of the Board who have done

1 some in depth work on one or the other of these.

2 We will just kind of briefly highlight
3 six that we assigned to Board Members to go
4 through. And we'll do that in a moment. But the
5 14 were cadmium, arsenic, TCE relationship to
6 prostate cancer, occupational toxins related to
7 Parkinson's disease. There is a guidance on
8 this, but Board review was thought to be
9 additionally helpful.

10 The question about the hearing lost
11 and solvents, diabetic relationship to
12 occupational toxic substances, radiation
13 connection to glioblastoma/meningioma, non-
14 Hodgkin's lymphoma, and trichloroethylene or
15 benzene, hyper/hypothyroidism, goiter nodules and
16 ionizing radiation, breast cancer with different
17 exposures, immune system disorders, lupus and
18 others, and again, different exposures,
19 colorectal cancer and asbestos, and other
20 exposures, melanoma and other skin cancers,
21 kidney cancer, TCE, benzene, cadmium and
22 asbestos, bladder cancer, many exposures, and low

1 level radiation related to heart disease.

2 So, this is what the program is asking
3 for help with.

4 CHAIR MARKOWITZ: So, Kevin, could you
5 just advance, move up the slide a little bit?
6 The list, the end of the list that Dr. Sokas just
7 read isn't visible.

8 MEMBER SOKAS: Oh, I'm sorry. That
9 total, that list isn't all included in there.

10 CHAIR MARKOWITZ: Oh.

11 MEMBER SOKAS: So, I'm sorry. We only
12 took the first six to work on. So, I think with
13 that I'll turn it over. So, what we did was, we
14 asked Mr. Domina, Mr. Whitley, and Ms. Vlieger to
15 identify problems raised in the cases that were
16 reviewed. And we'll have that report out first.

17 After which we'll have the specific
18 toxic substances, questions that were raised.
19 And Dr. Friedman-Jimenez is going to lead off
20 that discussion. And then we have a number of
21 other items that we'll get to as time permits.
22 So, I'll turn it over to our first discussion.

1 MEMBER VLIEGER: Okay. So, we were
2 sent disks of information to use for our basis of
3 this analysis. And Kirk and I spent four and a
4 half hours last Tuesday together, just cursory
5 going through them, besides what we were doing on
6 the individual cases that we were assigned.

7 So, what we found is that the
8 information we were sent was incomplete in order
9 to follow the logic pattern of what was going on
10 in the claim. And essential things were missing.
11 The EE1, the EE3, and OHQ were all missing.

12 And then, because of the way the data
13 was separated in by the different subcommittees,
14 some of the claims were parsed. And so, I did a
15 quick data check on that last night. And of the
16 total number of cases they sent us they parsed a
17 number of them.

18 And, just a second, let me bring up my
19 Word document. So, after, what we did is a
20 cursory review, because we couldn't find all the
21 information in order to do our analysis. So, I
22 need to preface what I'm going to tell you with

1 this.

2 And of the approximately 77 claims,
3 because there was one claim that was not actually
4 included. Its file was a duplicate under a
5 different number.

6 Nine of the claims were used in more
7 than one of the four sections. So we had, it
8 parsed, a section of the claim was taken out and
9 moved under a different subcommittee. And so, in
10 order to find some of the information you had to
11 go into more than one file on the disk. So that
12 was part of the problem.

13 And then, we just found that the
14 documents that were provided seemed like they had
15 been, they're incomplete to make a logical
16 decision about what's going on. So, that being
17 said, from my experience what we have on those
18 disks is a very incomplete file, compared to what
19 you get when you request a file as a claimant.

20 The process on the claim that I
21 individually had to look at started, and repeated
22 through no less than four recommended decisions,

1 because of inadequate instructions to the
2 claimant of what was required to go through the
3 next process.

4 And so, this was a claim where it
5 falls under the CBD criteria in sarcoidosis.
6 This particular claim, multiple times through.
7 And the CMC was sent documents. And he said,
8 well, you said you're sending me a biopsy. But
9 there's no biopsy in the records you sent me.
10 And this kind of thing happened over and over.

11 Now, my particular claim may be an
12 outlier. But I, because I can't speak for the
13 other ones that everybody reviewed. But on my
14 review of my claim it started in early 2014, and
15 was finally resolved --

16 Actually, the initial biopsy that
17 happened was in 2010. And the claim was resolved
18 at the impairment ratings. They had already
19 gotten a final decision under Part B, and they'd
20 moved to Part E benefits in July of 2016, after
21 multiple reviews through CMCs.

22 But I didn't see all those CMC

1 reports. Multiple recommended decisions, and
2 multiple remand orders, because the evidence
3 wasn't properly considered. And everybody's
4 looking at me like --

5 MEMBER SOKAS: No, no. I just, is
6 that the conclusion of your portion of it? Or
7 did you want to --

8 MEMBER VLIEGER: That's the conclusion
9 of what I did.

10 MEMBER SOKAS: Okay.

11 MEMBER VLIEGER: Kirk can speak more
12 of what we found in our cursory review. But the
13 files that were sent were not what I would expect
14 of a claim file.

15 MEMBER DOMINA: Yes. Some of them
16 were extremely difficult to do, because some of
17 them only had three pieces of paper in them. We
18 found some where there were autopsies, death
19 certificates where it disagreed with the CMC on
20 the cause of death.

21 And then, that was it. They went with
22 what the CMC did. Where me, because I'm not a

1 medical person at all, is that, you know, why
2 didn't it go to a referee?

3 And a lot of them they used the SEM
4 against the person. They said, well, we didn't
5 find anything in the SEM, so this is why we're
6 saying no.

7 Some of the uranium miners, we found
8 that several, like 15 to 18, all went to a
9 certain CMC on the East Coast, which to me seems
10 a little odd when your uranium mines are in the
11 west.

12 I guess I just assumed that they
13 should have went to Dr. Sood, or somebody who has
14 more experience. Just my opinion.

15 And there was just, it was so
16 incomplete. Because, like, when I went through
17 this I didn't assume anything. I wasn't going to
18 say, well, they must have thought this or that.

19 Because I wanted to go with just the
20 evidence that's in front of me. And there's too
21 much of it that's missing by the way the claims
22 were parsed out. Because I didn't know that

1 initially going through, until Faye and I started
2 going through them, that we found some duplicate
3 numbers.

4 And then there would be a lot bigger
5 file for a different illness that they were
6 claiming. And so, it was extremely difficult
7 with the information that we were given, to try
8 and come to any conclusion on almost all of them.

9 And then, some of them were missing
10 the basic information on what their job title
11 was. Or a couple of them, and not even, it
12 didn't even say where they were.

13 MEMBER SOKAS: So, I don't know,
14 Garry, if you had anything to add to that, Mr.
15 Whitley, or -- So, one of the issues possibly,
16 and I just want to clarify that.

17 When we asked for files, we were told
18 that it was kind of in the midst of all the
19 different subcommittee asking for files. And
20 that maybe we could use some of the same records
21 that had been pulled for other purposes.

22 So, it's possible -- And the other

1 piece is that some of the files that we got, all
2 we got really was the information that went to
3 the CMC or, you know, that came back.

4 And so, it might have been the way in
5 which the request was made or processed. So, I
6 did want to clarify that. That this, that in
7 retrospect it would have been helpful for us to
8 have specified that we wanted every single piece
9 of the file. Because I think in a way we may
10 have inadvertently restricted the amount of
11 information.

12 I would like to say that even with
13 that restriction one of the things that, there
14 were a couple of points that I think were made
15 very clear, just from the few files that I
16 reviewed.

17 One is that, in fact, there are
18 enormous communication issues that take place
19 routinely. That there's also a serious need to
20 simplify.

21 So I think the conversations around
22 presumptions become more and more and more

1 important. And that as I think we've all
2 discussed, that transparency is probably very
3 helpful.

4 But, for example, there was a case
5 that we reviewed where the, clearly the treating
6 physician -- I mean, it gets back to the
7 fundamental expectations of the program, which
8 may have been inadvertently presented as, this
9 program will make injured individuals whole, when
10 in fact, no program is able to do that, right.

11 So, there's this, there may well be an
12 expectation there that's beyond the ability of
13 any program to fulfill. I say that because the
14 one case we had, a primary care treating
15 physician, clearly very engaged with a worker and
16 the worker's spouse, who are both failing in
17 health.

18 But writing a requirement for 24 hour
19 RN care, seven days a week, which would imply the
20 need for intensive care unit care basically,
21 which was clearly not, in fact, what was the
22 needs of the individual.

1 That somehow or another the CE, the
2 claims examiner managed to come up with what
3 objectively seemed to be a fairly realistic kind
4 of compromise about the level of home care that
5 would be useful for that individual.

6 And then, when they went to the CMC
7 for evaluation, the CMC did an incredibly
8 thorough, very complete evaluation. But almost
9 in reaction to the over the top recommendation
10 from the treating physician.

11 Then pulled back and said, but none of
12 these impairments are really related, I mean,
13 kind of, almost that adversarial, it wasn't due
14 to that anyway. So, they really don't, you know,
15 so the program itself shouldn't be on the hook
16 for this at all.

17 So, you wound up with these kind of,
18 on the one hand, on the other hand, communication
19 debates almost that clearly had an advocacy/anti
20 advocacy position when the CE was trying to
21 thread the needle in the middle. And it was
22 challenging.

1 So, there are clear examples of that I
2 think in almost every case. What I would like to
3 mention is that the, and ask if anybody on the
4 team has a different or additional comment on it.

5 The policy teleconference information
6 was incredibly helpful in a variety of ways.

7 It's a periodic phone conversation, as I
8 understand it, among, I don't know to what level
9 every CE can dial into it. And maybe Mr. Vance
10 can kind of let us know about, some of the
11 details of it.

12 But the logs that we were given to
13 review had important questions that were
14 reviewed, and that had major implications for
15 determinations in general. And some of which
16 seemed to be very clear cut, and some of which
17 seemed to be very problematic.

18 I mean, there's one whole conversation
19 about suicide, whether if it's just suicide, it's
20 not considered a follow on condition. But if
21 it's physician assisted suicide, somehow it takes
22 it outside of that. And then becomes, you know,

1 kind of okay.

2 And so, some of it would be helpful to
3 have real kind of in depth clarification, in
4 addition to that. So, that was a very useful,
5 and looked to be a very rich source of
6 information, especially around interpretation and
7 how things are done.

8 I think there was a conversation
9 around solvent induced hearing loss. There were
10 a number of conversations that looked as if they
11 would be very, that they would illuminate some of
12 the questions that come up repeatedly. Faye, you
13 wanted to --

14 MEMBER VLIEGER: On the claim that I
15 was asked to look at in particular, the claims
16 examiner early on put in a notation that the
17 person was a laundry worker. Yet, their EE3 said
18 that for five years they machined beryllium
19 parts.

20 And so, the laundry worker context
21 went to the CMC, where the claims examiner was
22 never challenged when they made the statement, in

1 the statement to the CMC for their opinion that
2 said, well, this is a laundry worker that claims
3 he did five years of beryllium work. And I don't
4 see how that could be true.

5 And then, when I read back, now, I
6 don't have the EE3, and I don't have the
7 occupational history questionnaire in front of
8 me. The CE do. When I went through, back to the
9 very beginning of the claim, they claimed as a
10 laborer. But it got transcribed as a laundry
11 person.

12 And so, the CMC was given the wrong
13 context for their exposures. So, I mean, this
14 kind of thing was kind of problematic. I don't
15 know. It's human error. It's going to happen no
16 matter what you do.

17 But in this particular claim it
18 confounded it very early. And it took another
19 two years to untie that knot.

20 MEMBER SOKAS: All right. Any other -
21 -

22 MR. RIOS: Dr. Sokas?

1 MEMBER SOKAS: Yes.

2 MR. RIOS: This is Tony Rios. I just
3 want to comment, I guess, on the completeness of
4 the file reviews that you, that Ms. Vlieger and
5 Mr. Domina were discussing.

6 First, I want to thank you for
7 clarifying that the nature of the request is
8 certainly going to affect the content of the file
9 that were provided.

10 I think Dr. Redlich, Dr. Welch, and
11 Dr. Markowitz have experienced that whenever a
12 file or data request was submitted, and that
13 there were any questions that, or subsequently
14 provided to the Department by the originator, the
15 Department has made themselves available to try
16 to provide clarification, or try to provide any
17 data that perhaps wasn't submitted initially.

18 As was the case with them, the
19 Department is more than happy to provide you
20 additional contents for any files that you
21 believe are incomplete.

22 MEMBER SOKAS: And again, these were

1 not the files we would have picked. They just
2 happened to be the ones that were being collected
3 for other people. So, I think this new,
4 hopefully the information that arrived, the disks
5 that we got this past week --

6 We were asking for other than, you
7 know, we were asking for both acceptances and
8 denials for these other commonly encountered
9 conditions, other than the lung conditions.

10 And as we move forward we'll be able
11 to look at those. And if we do have any
12 questions about completeness of the files, we'll
13 definitely get back through Garry to you.

14 CHAIR MARKOWITZ: Dr. Welch. I think
15 Dr. Welch has a comment.

16 MEMBER WELCH: Yes. Just, because we
17 went through that same exercise, trying to figure
18 out how we could request cases where, say for
19 example, where exposure assessment was an
20 important part of the denial.

21 And the, what I've learned is that
22 it's, you know, you kind of have to, we have to

1 get different levels of understanding about how
2 the cases are constructed, and how to find them.

3 But I think in a way what John and
4 Carrie did with the beryllium cases is most
5 useful. Because they were starting with a
6 smaller subset of diagnoses.

7 But the ICD-9 classification is added
8 for accepted claims, but not for claims that are
9 denied. And so, an individual could have had
10 multiple conditions that they claimed for. And,
11 you know, so two are accepted and eight were
12 denied.

13 It's hard to, it's much easier to
14 follow the stream of records and find that
15 information on claims. We started by asking for
16 ICD-9 or ICD-10 kind of reports. And then
17 realized, well that would get us a very small
18 subset of the claims.

19 And the folks at DOL had to do quite a
20 bit of work to try to create what looked like a
21 comprehensive review of all claims accepted and
22 denied. Because the denied ones are going to be

1 found with the text description in normal cases.
2 And John can explain that a little bit more in
3 one of the beryllium.

4 So, I think that we might want to
5 even, you know, try to, so that not each of the
6 four committees has to learn --

7 MEMBER SOKAS: It does the same thing,
8 yes.

9 MEMBER WELCH: -- what we've learned.
10 And our SEM Subcommittee has not yet gotten back
11 to the point to get back to the Department of
12 Labor, to say, here's, give us some actual claims
13 that we think are going to get us what we want to
14 look at.

15 Because, but now I understand what the
16 reasons for denials are, you know. So, we want
17 to focus in on the causation result, not the
18 medical. And so, we may, because if you get, you
19 know, 100 claims, but we want to look at a
20 specific issue, it may turn out that none of them
21 illustrate that issue.

22 So, it's how to request a subset that

1 fit within what we want to know, but also what
2 DOL can with assurity give us out of their data
3 system.

4 MEMBER SOKAS: Right. And what we're
5 trying to find out is the adequacy of the CMC and
6 the IH evaluations. And some of that I think, so
7 I think it's already, some of it's come through
8 where, you know, if they don't get the
9 appropriate information, they're not going to be
10 able to do that.

11 But it did look from Carrie, from Dr.
12 Redlich's slides that in fact there may be a
13 number of opportunities to see whether or not
14 perhaps there should have been, you know, an
15 additional referee opinion obtained, if some of
16 those either lack of causality or lack of medical
17 information include a CMC and a primary care,
18 treating physician's lack of agreement.

19 So, that would be interesting to find
20 out. And then maybe we could go and pull those.

21 MEMBER WELCH: You're not going to be
22 able to, I don't think you're going to be able to

1 get that. You're not going to ask, you're not
2 going to be able to get, give me cases where the
3 denial was for insufficient medical evidence, and
4 there was a CMC report.

5 MEMBER SOKAS: So, I'm not trying to
6 do it on a large data set. I mean, I think if,
7 as we look through these cases we see a sample,
8 or an example of that, that's what we're looking
9 for, yes.

10 CHAIR MARKOWITZ: Dr. Boden, did you
11 have a comment?

12 MEMBER BODEN: Yes. I'm still, it's
13 actually a question for people on this
14 subcommittee. I'm trying to understand what one
15 would need to request in order to get sort of a
16 full reading.

17 And my question is, does it seem like
18 one would need to request all the information
19 with respect to a person, rather than with
20 respect to a claim, in order to make sure that
21 you've got all the relevant information actually
22 for a particular claim?

1 MEMBER VLIEGER: My experience is that
2 you have to request the entire claim file.
3 Because you don't know what bit they took from
4 where, and whether it's the correct assumption of
5 what they're reading.

6 So, as with the labor category, or
7 with an area that they worked in, and because of
8 the multiple use of jargon in the documents, it
9 can be misconstrued. Because plain English words
10 mean something completely different on a
11 Department of Energy site.

12 Because when you went home at night
13 they didn't want you to alarm the public with the
14 actual facts. So, the jargon and the use of
15 terms. And the only way to check it is to have
16 the whole file.

17 And the same thing with all the doctor
18 records. You don't know where they pulled it
19 from.

20 MEMBER BODEN: So, my question was
21 actually a little broader than that. So, an
22 individual might have more than one claim,

1 correct?

2 MEMBER VLIEGER: It's all the same
3 file.

4 MEMBER BODEN: It will all be in the
5 same file?

6 MEMBER VLIEGER: Right.

7 MEMBER BODEN: Okay.

8 MEMBER VLIEGER: And it's a perpetuity
9 type of file. So, once you start it, everything
10 is in there, from the beginning to the end.

11 MEMBER SOKAS: And we did not specify
12 we wanted the entire claims file. So, I think
13 that was the problem at the beginning. So, that
14 pretty much explains it. So then, thank you.

15 The next set of brief reports are
16 going to be about the topic areas that DOL
17 specifically asked for. And I would ask us to
18 kind of keep in mind Dr. Welch's slide about what
19 you would need to create presumptive categories.

20 The first two are going to be
21 presented by Dr. Friedman-Jimenez. And then, as
22 time permits we'll have, you know, just brief

1 mentions of the other four.

2 MEMBER FRIEDMAN-JIMENEZ: All right.
3 Thank you. I thought I would go through the
4 process by which I do one of these searches. I'm
5 going to talk about four different associations.
6 And three of them are cancer.

7 So, typically what I do, I start out
8 with a cancer textbook, D'Adamo, Scheinfeld,
9 Nasca, or 2008, 2006, see if I find anything in
10 the textbook. I do a Google search to see if I,
11 what's out there in general.

12 But then I usually start with the
13 IARC, the International Agency for Research on
14 Cancer, which does very thorough reviews by
15 panels of real experts on cancer epidemiology,
16 and is really one of the two authoritative
17 organizations in the world that judge
18 carcinogenicity in chemicals.

19 I then look at the National Toxicology
20 Program review on carcinogens, which is the other
21 authoritative body that does these reviews.
22 There are other bodies. But these are the two

1 that do the most, and the most comprehensive
2 reviews.

3 Then I'll do a Medline search, review
4 abstracts, pull together the pdf files of what I
5 find that looks interesting, maybe critically
6 review a few of the articles as needed, and get
7 more references as I feel I need them. Then I
8 write up a review.

9 Typically it takes between one and six
10 hours to do one of these reviews for me. I do
11 occupational medicine. I also have training in
12 epidemiology. And it's quite labor intensive to
13 do a thorough review.

14 So, I'm going to start off with
15 trichloroethylene and prostate cancer. I didn't
16 find anything on that in either, any of the three
17 cancer epidemiology textbooks.

18 In Google I found one article from
19 2000 by Wartenberg, that was a pooled analysis
20 that reported a standardized incidence ratio of
21 1.3, 95 percent confidence from one to 1.6 for a
22 subset of the cohort studies that had the best

1 trichloroethylene, TCE exposures.

2 And they said that this suggested some
3 increased risk of prostate cancer in TCE exposed
4 working populations.

5 The next thing I looked at was the
6 IARC 2014 monograph on TCE, which really reviewed
7 cancer and TCE. They explicitly stated that TCE
8 causes kidney cancer. And they mentioned
9 positive associations with non-Hodgkin's lymphoma
10 and liver cancer.

11 They did not mention prostate cancer,
12 which is significant for an IARC review not to
13 mention prostate cancer in their overall
14 evaluation.

15 They did mention one study of prostate
16 cancer that had a positive association with an
17 odds ratio of 1.3, with 95 percent confidence,
18 from .7 to 2.6. Not even close to statistically
19 significant.

20 So, then they went through a lot of
21 mechanistic, in other words the biological
22 science on the mechanisms of cancer. And said

1 that it's plausible, that there is a plausible
2 mechanism for prostate cancer and TCE.

3 However, they, I'm sorry. There's a
4 plausible mechanism. But it was done only in
5 kidney cells, not in prostate cells. I misspoke.
6 So, their mechanism was really only applicable to
7 kidney.

8 And so, their bottom line is that TCE
9 is a known human carcinogen. However, some of
10 the mechanistic evidence suggests that this may
11 be specific to kidney.

12 So, bottom line for me is that I would
13 say that this is a fairly clear negative,
14 trichloroethylene, and prostate cancer. This is
15 what I would consider not much evidence in favor
16 of an association.

17 Typically, there may be one or several
18 positive studies, often with no statistical
19 significance of the result. But then other
20 negative studies, or null studies on the other
21 side.

22 So, this is an example I think of a

1 fairly clear negative. Although nothing is
2 absolute in this business.

3 The second association that I looked
4 at is cadmium and prostate cancer. And I'm going
5 to go into some detail here. Because I think
6 this is a complex and interesting evaluation.

7 I'm jumping straight to IARC. They
8 did a monograph in 2012 on cadmium, and concluded
9 that there was significant, sufficient evidence
10 that cadmium and cadmium compounds were human
11 carcinogens.

12 The did review prostate cancer
13 studies, and concluded that after a 1965 study
14 that reported increased prostate cancer in
15 workers in a nickel cadmium battery factory in
16 the U.K., nine additional studies up through 2004
17 did not confirm that finding.

18 There were several cohort studies
19 reported insignificantly elevated risks among
20 cadmium exposed workers. But the results were
21 inconsistent, and based on small numbers of
22 cases.

1 A small pooled standardized mortality
2 ratio study from four cohort studies that
3 overlapped, they were not all different
4 populations, reported a summary standardized
5 mortality ratio, SMR, of 1.26 that was not
6 statistically significant. There was a total of
7 27 total deaths.

8 There were several case control
9 studies that reported slight increases in odds
10 ratios, which is similar to a relative risk. But
11 the findings in a 1985 study that was positive
12 were not replicated in a 2002 study that used
13 toenail cadmium as an individual level exposure
14 measure.

15 We like to see individual level
16 exposure measurements. But it's not always done.
17 And it's not always clear what it means.

18 In this case they thought that maybe
19 the toenail cadmium reflected something that
20 happened after the tumor started, that reflected
21 a long term, an increase due to the tumor, and
22 not necessarily a good measure of exposure. They

1 didn't present the data on which they based that
2 conjecture.

3 A 2007 hospital based case control
4 study reported an elevated odds ratio in the
5 highest exposure group. A Japanese study in
6 Nagasaki reported elevated mortality risk, with
7 relative risk of 2.6 that was statistically
8 significant, and an increased incidence risk that
9 was not, in those with elevated urinary excretion
10 of microglobulin beta-2, which this is a test, a
11 sign of cadmium toxicity, and is somewhat of an
12 indicator of cadmium exposure. Although there
13 are other causes of elevation in beta-2
14 microglobulin.

15 IARC noted that the numbers were too
16 small for detailed analysis. And they
17 characterized the evidence for cadmium and
18 prostate cancer as suggestive of an association,
19 but inconsistent.

20 They also concluded sufficient
21 evidence in one, not species, one, a subtype of
22 rats, Wistar rats, for proliferative prostate

1 lesions and prostate cancer after oral ingestion
2 of cadmium chloride. But did not find in mice,
3 hamsters, or other rats a similar finding after
4 injection or inhalation.

5 They concluded there was limited
6 evidence in rats for cadmium metal and cancer.
7 Mechanistic evidence suggested disturbances of
8 DNA repair or tumor suppressor proteins leading
9 to chromosomal damage. So, they also mentioned
10 some DNA methylation patterns that may happen
11 epigenetically after the initiation of cancer.

12 So, their overall conclusion was that
13 evidence is sufficient that cadmium and cadmium
14 compounds are human carcinogens. Group 1 is how
15 they classify it. And noted lung cancer
16 specifically. But they did mention there were
17 positive associations for prostate and kidney
18 cancers.

19 IARC typically does not limit their
20 evaluation to a specific type of cancer. And
21 they don't generalize to all types of cancer
22 either. So, they do provide some guidance to

1 follow-up on this.

2 The NTP review of carcinogens in 2014
3 agreed with IARC. I'm going to speed this up a
4 little bit. They did mention that there was no
5 evidence that had been found that mechanisms of
6 carcinogenesis in animals would also not operate
7 in humans. So, they gave some basis for
8 generalizing from animals.

9 But since IARC and NTP there was an
10 important systematic review that was published in
11 2016 by Song, et al. Reviewed 478 articles, and
12 included 22 that met their criteria. They
13 calculated a pooled SMR of 1.66, 95 percent
14 confidence interval from 1.1 to 2.5 for
15 occupational cadmium exposure and prostate
16 cancer.

17 But there was evidence of
18 heterogeneity. In other words, the studies they
19 reviewed were quite different. And that showed
20 up statistically. They used a random effects
21 model, which seemed to be the right choice.

22 And they also looked at dietary

1 cadmium and environmental cadmium, and did not
2 find a strong association. So they concluded
3 overall that their meta-analysis added --

4 They said that their meta-analysis
5 found that high exposure to cadmium is a
6 potential risk factor for prostate cancer in
7 occupationally exposed populations, but not in
8 non-occupationally exposed populations.

9 They tempered their conclusion, and
10 urged caution because of the heterogeneity, the
11 differences among studies.

12 Overall their meta-analysis I think
13 added some evidence to the IARC and NTP. And
14 it's a good example of where IARC and NTP are not
15 the final word.

16 And you do need to do a literature
17 review after reviewing these definitive reviews.
18 Because usually they're several years old, and
19 there may be new studies. So, in this case it
20 paid off to do a follow-up Medline search.

21 All right. So that I think
22 illustrates a fairly middle of the road finding.

1 It's not definitive causation. But there are
2 enough suggestive studies that in a highly
3 exposed occupational group I think it's
4 reasonable to look at the case on a case by case
5 basis, and in some situations maybe conclude that
6 there is a causal relationship.

7 I don't think that the data preclude
8 causal relationships in this case. So, I thought
9 that was an interesting case to present in
10 detail. And I'm going to finish up with the last
11 two, which are fairly quick.

12 Arsenic and prostate cancer. IARC in
13 2012 said there's sufficient evidence in humans
14 and experimental animals that arsenic and arsenic
15 compounds are carcinogenic.

16 They specifically, explicitly list
17 lung, bladder, and skin cancers. They mentioned
18 positive associations for kidney, liver, and
19 prostate.

20 For prostate cancer, however, the
21 studies, mortality studies from China show
22 elevation with some dose response. But the study

1 from Chile in South America did not support this.

2 They concluded that for prostate
3 cancer, although the evidence suggests the
4 possibility of a causal association, the working
5 group could not rule out the possibility of
6 chance or bias.

7 They also made an interesting
8 statement that all of the different inorganic and
9 organic arsenic species shared the same common
10 metabolic pathway of arsenate to arsenite, to
11 methyl arsenate to dimethyl arsenite. So, they
12 say that carcinogenicity can be generalized among
13 the different inorganic arsenic species.

14 And there were a variety that were
15 looked at in different studies. And typically
16 this divide and conquer method is used. And
17 interestingly, in this case you can generalize.
18 And they looked at the mechanism, and it was
19 helpful.

20 So, the last one I'm going to do is
21 Parkinson's disease and occupational exposures.
22 There's no IARC for this. You have to do a

1 literature search. I don't have a general method
2 I could present.

3 But I did a Medline search. And I
4 found eight studies that reviewed pesticides.
5 And many of them were positive, either
6 statistically significant or not statistically
7 significant, but with an elevated risk in the
8 pesticide group.

9 Overall it looks like there's a
10 suggestion of an association of Parkinson's
11 disease with pesticide exposure. However, the
12 studies were not that well done that you could
13 rule out bias or confounding as explanations for
14 this.

15 So, if I were on an IARC like panel I
16 would have to say, well, it looks suggestive, but
17 it's not definitive for pesticides. And that was
18 the most strong relationship.

19 There was actually one particular
20 pesticide that came out statistically significant
21 elevation in one study, which is benomyl, which
22 is a benzimidazole fungicide.

1 And it was positive in a Netherlands
2 study that was null, negative for everything
3 else, including high dose insecticides,
4 herbicides, which were suggestive, as well as
5 endotoxin, which was strongly null.

6 Overall it looks like, well -- The
7 other things that I looked at were welding fumes.
8 The studies are mostly negative. Meta-analysis
9 by a guy named Mortimer.

10 And then when you read down at the
11 bottom of the study after this long negative
12 meta-analysis, you see that Mortimer was funded
13 by the Welding Industry Defense Group.

14 And he ends his analysis, his paper,
15 by saying, the absence of an association of
16 welding or manganese exposure with increased risk
17 for Parkinson's disease is consistent with
18 conclusions reached in previously published
19 reviews.

20 This finding does not preclude the
21 possibility that high manganese exposure, as
22 occurs in some miners and workers at manganese

1 processing facilities can lead to a form of
2 parkinsonism, not Parkinson's diseases,
3 parkinsonism, called manganism.

4 And he's correct in distinguishing
5 manganism from Parkinson's disease. However, he
6 does not make this at all clear in the article.
7 The article is written with minimal discussion of
8 manganism.

9 And in fact, there's a renewal of
10 research interest in manganism now. And it's
11 distinct from parkinsonism. If you look at the
12 MRI findings in parkinsonism, a part of the brain
13 called the substantia nigra is damaged. Whereas,
14 in manganism it's the globus pallidus, which is a
15 different part of the brain.

16 So, there is some technical
17 difference, although the symptoms are quite
18 similar between manganism and parkinsonism.

19 There was a conference several weeks
20 ago at Mt. Sinai, a three day conference on
21 manganese. I unfortunately couldn't go. But
22 there's a lot of research interest now on

1 manganism.

2 And I think that the problem for us
3 is, the disease is actually now called manganism.
4 But there's no ICD code for it. You're not going
5 to find it in, you know, in lists of diagnoses.
6 And Parkinson's disease is not really the
7 appropriate thing that we're looking for. It's
8 parkinsonism.

9 And so, the terminology makes it very
10 difficult for us to say, yes, this person has
11 manganese exposure, and a movement disorder
12 related to that, which there's fairly good
13 evidence supporting it.

14 So, I conclude by saying that it's a
15 tricky business trying to do these reviews. And
16 you really have to do it carefully sometimes.
17 And I think the idea of a claims examiner doing
18 this level of evaluation and critical reading of
19 the literature, it's not going to happen in most
20 cases.

21 And I think there needs to be some
22 structure for us to have difficult questions like

1 this triaged to a group, probably a group of
2 reviewers that have the skill set to do these
3 kinds of critical evaluations.

4 MEMBER SOKAS: Any questions or
5 comments? Okay. Dr. Cassano.

6 MEMBER CASSANO: Yes. A couple of
7 comments. On the TCE and kidney cancer I just
8 went down the exact same rabbit hole. Because I
9 was asked to look at it, and exactly the same
10 conclusions.

11 And I actually looked at exactly the
12 same sources of information that you did. But
13 also including the 2006 National Research Council
14 report on the health effects of
15 trichloroethylene.

16 On the arsenic and prostate, it's
17 interesting, because VA presumptively service
18 connects prostate cancer to Agent Orange. But in
19 actuality it is due to cacodylic acid, which is
20 an organic arsenical that veterans were also
21 exposed to.

22 I'm going, on the Parkinson's disease,

1 I'm going to disagree. Everything else, yes, I
2 agree with. But the Parkinson's disease I, well,
3 the manganese and Parkinson's like syndrome, yes,
4 it's not Parkinson's disease. It's very similar.
5 So, you may not be able to say Parkinson's
6 disease.

7 But on TCE and Parkinson's disease, I
8 think there is enough literature. Because VA
9 just presumptively service connected, is going to
10 presumptively service connect Parkinson's disease
11 or Parkinson like syndrome to TCE exposure at
12 Camp Lejeune.

13 And I just did another case on
14 straight TCE exposure. And there were at least
15 six or seven references on TCE and development of
16 Parkinson's disease, that I think give you enough
17 information to say there is maybe, not what IARC
18 would consider 1A, but at least a 2A level of
19 risk. So, that's, and I can give you those
20 references if you want.

21 MEMBER SOKAS: And tying this back to
22 our conversation this morning, I mean, I think

1 there's kind of a go/no go. So, it sounds to me
2 as if TCE and prostate cancer are probably not
3 high on the list. We throw that away.

4 But the other relationships might move
5 forward, based on a preliminary Board Member
6 evaluation, to go to this subcontractor to
7 develop, you know, whether or not there might be
8 something there. And then it gets reviewed again
9 by the Board.

10 And it may well be that some of the
11 presumptions made at the VA might be a useful
12 starting point, depending on the types of
13 exposure.

14 I'd like to just briefly mention,
15 we've already talked about solvents and noise,
16 which the more you read, the more you're
17 convinced. I mean, there's no real discussion
18 there, I don't think, except for how to frame,
19 you know, what the requirements are.

20 Diabetes mellitus, especially Type 2
21 diabetes is a huge issue obviously. And toxic
22 exposures. And there are, again, VA presumptions

1 based on Agent Orange exposure, and also
2 arsenicals, where the chlorophenoxy herbicides
3 and the, and arsenic in different types of
4 studies, in epidemiologic as well toxicologic
5 studies, have been demonstrated.

6 The question really would be, I think,
7 that second layer bullet for the Board here. And
8 I think that gets into, and what's the
9 plausibility of exposure for people on DOE sites?

10 Would there have been high levels of
11 persistent organic pollutant exposures that might
12 be, you know, worth developing further? If not,
13 then we let it go until we find some of these
14 other exposures.

15 The trouble with diabetes, and I just
16 want to make this really clear. There's a
17 British epidemiologist who once said, if
18 everybody smoked we'd think lung cancer was a
19 genetic disease.

20 And what's happening with diabetes
21 right now is, in addition to the genetic, and
22 behavioral, and dietary, and all these other

1 concerns, there are huge concerns about a whole
2 laundry list of persistent organic pollutants.

3 The research, a lot of it is looking
4 at environmental exposures that take place in
5 utero, for example. I mean, so it's not just,
6 you know, occupational exposures.

7 And, in point of fact, some of these
8 things, like bisphenols and phthalates, and that
9 are in cosmetics. They're in all kinds of
10 consumer products. So, in fact, it really is
11 true that there are very few, if any, unexposed
12 populations to evaluate those.

13 So, it's an enormous epidemiologic
14 challenge. None of which seem to really give
15 enough information to move forward within the
16 context of this program.

17 And I would again defer to industrial
18 hygiene assessment of what is the likelihood that
19 the few items that have been associated with
20 occupational exposures might be relevant
21 exposures in DOE facilities.

22 And so, that's a question back to the

1 program, back to the industrial hygiene people.
2 And that would determine whether or not there
3 would be any further look at diabetes mellitus at
4 this point.

5 I don't, oh, Victoria, you have a
6 question? I'm sorry.

7 MEMBER CASSANO: Yes. I just wanted
8 to make one comment, which may or may not be
9 relevant in the end process. But especially, you
10 know, when you're using Agent Orange or
11 chlorophenoxy herbicides, there are two issues
12 there.

13 Chlorophenoxy herbicides are cancer
14 promoters. They're not initiators. And
15 therefore, if you are exposed to something known
16 to initiate a cancer, it's going to basically
17 potentiate the development.

18 So, a lot of stuff over in Vietnam was
19 attributed to Agent Orange, that actually,
20 probably had a different causation. Because
21 Agent Orange became the scapegoat for everything
22 bad over there.

1 And those are the only two comments I
2 wanted to make. Because you can't, you have to
3 be able to equate similar things.

4 MEMBER SOKAS: So getting back to
5 diabetes. There are tons of tox studies that
6 look at everything from insulin resistance to
7 being able to produce insulin, to cellular
8 mechanisms.

9 So, all of these things have been
10 studied fairly substantive -- I mean, again, it's
11 such a huge epidemic these days that there's been
12 a ton of programmatic reports and interest, and
13 meta-analyses, or review papers, rather. There's
14 a need for meta-analysis. But there are review
15 papers.

16 But the challenges, the epidemiologic
17 challenges are also huge. And so, right now
18 we're kind of, we're starting to recognize I
19 think that there are chemical associations. But
20 for the purposes of occupational health, again,
21 the, probably the VA is the only place where
22 that's been recognized and compensated.

1 MEMBER SOKAS: Yes.

2 MEMBER REDLICH: So, these are the
3 questions that the DOL raised. But are they
4 asking the right question? Because just stepping
5 back they're, you know, so arsenic -- arsenic, TCE
6 related to Parkinson's disease and prostate
7 cancer. So, my guess is that there are probably
8 increasing number of claims related to those
9 diseases.

10 MEMBER SOKAS: It's on the claims
11 base.

12 MEMBER REDLICH: So, the question that
13 comes to me first is, what are the major
14 exposures that these workers have that, you know,
15 could these workers be at risk, increased risk of
16 these diseases?

17 So, they've, the DOL has picked out,
18 you know, one or two. But, you know, what about
19 mercury? So, it seems to me the question is,
20 let's start with the, you know, starting with
21 this disease, do we think these workers, given
22 what we know about their exposures, have an

1 increased risk?

2 MEMBER SOKAS: Got it.

3 MEMBER REDLICH: Or the second thing,
4 let's say non-Hodgkin's lymphoma, TCE and
5 benzene, okay. But the number of workers exposed
6 to mixed solvents is way greater than benzene.

7 And so, that's really the more
8 important question to answer. Because, you know,
9 there are just many more people exposed to
10 solvents. So, I feel that --

11 MEMBER SOKAS: Right.

12 MEMBER REDLICH: -- that's the
13 question they're asking. But I'm not sure it's
14 the most important question to answer.

15 MEMBER SOKAS: That's a great point.
16 That is a great point. And so because really
17 what's happening is they're getting these, it's
18 all claims driven. So the claims for the
19 conditions are what we should be paying attention
20 to, and then the associations we could
21 independently look at.

22 MEMBER REDLICH: And to me, maybe we

1 need an expert panel that takes the data and says
2 okay, these are the claims we're seeing, what do
3 we know about the risks of these workers.

4 MEMBER SOKAS: Right.

5 MEMBER REDLICH: And do we need some
6 presumptions --

7 MEMBER SOKAS: Yes, yes, yes.

8 MEMBER REDLICH: -- that if you worked
9 at this place and were exposed to mixed solvent
10 or mercury, then these would be accepted
11 conditions type of approach.

12 MEMBER SOKAS: Yes.

13 CHAIR MARKOWITZ: Dr. Welch?

14 MEMBER WELCH: I think there's two
15 thoughts I have, one of which is historically the
16 resource centers encouraged individuals to
17 include every medical condition they had on the
18 claim form.

19 So it was with the concept that this
20 was, the program was established to allow
21 individuals to have their conditions reviewed for
22 work relatedness within the Department of Labor

1 program without having to get an expert report
2 from an outside expert saying your, and laying
3 out why their Parkinson's disease was related to
4 cadmium exposure.

5 So what you'll be seeing when you look
6 at the pattern of claims is the diseases
7 prevalent in the general population for the
8 socioeconomic status and age of people that we're
9 seeing.

10 It is reasonable to say are those
11 conditions potentially caused by work, but you
12 don't have to, I think you can skip looking at
13 the pattern of claims because it would represent
14 what these workers have in terms of disease.

15 And as the population ages you're
16 going to see, I mean, at least among our
17 population of workers it's overwhelmingly men.
18 So you're going to see more questions about is
19 prostate cancer related, just a very common
20 condition.

21 But it is worth to say what agents do
22 we know cause prostate cancer because people will

1 be asking that question. Probably it's the case
2 that claims have come in identifying agents for
3 which there is some support already in the
4 literature, so somebody's done a basic review.

5 So I had another idea but I forgot it.

6 CHAIR MARKOWITZ: So can I just make a
7 comment? A large thing about that, we're
8 responding to particular requests from DOL for
9 assistance really on selected issues which is
10 great. And happy to do that.

11 To broaden that however into for
12 instance looking at all potentially toxic causes
13 of prostate cancer, is it enormous task
14 multiplied many times and essentially involves
15 perfecting the Haz-Map system.

16 And this committee doesn't have the
17 resources, doesn't have the charge to do that. I
18 think this morning we elaborated on the
19 recommendation around use of certain
20 authoritative materials in order to enhance the
21 SEM and the Haz-Map system, we'll continue to
22 think of ways to do that.

1 But in answering specific claims
2 driven questions of DOL, I would hesitate to
3 broaden the scope of what we're supposed to look
4 at because it will go on and on and on.

5 MEMBER SOKAS: Which is true. But I
6 think if we could come up with a presumption for
7 one or two that makes, and tell them not to worry
8 about some of the others.

9 So again, if there's no evidence that
10 there's a lot of chlorophenoxy herbicide use in,
11 or arsenicals use in DOE facilities, then don't
12 worry about diabetes mellitus for this coming
13 couple of years.

14 I did want to make sure that Mark
15 Griffin was not on the phone yet.

16 MEMBER SOKAS: Okay. So Dr. Cassano?

17 MEMBER CASSANO: I just forgot what
18 was going to say.

19 MEMBER SOKAS: Okay, that's great.
20 That's perfect. We can keep going. Sorry. No,
21 okay. Dr. Redlich?

22 MEMBER REDLICH: Well, I feel that our

1 mission is not necessarily to, I mean part of it
2 is yes, to address specific items that DOL
3 raised.

4 But hopefully we could make
5 suggestions to put in place a structure that
6 would improve this system and with future issues
7 come up, such as a suggestion of, you know, an
8 expert panel that made presumptions because I
9 sort of feel that we may not be, the question
10 they're answering really may not be the
11 fundamental problem.

12 So I don't want suggesting we address
13 the whole literature of prostate cancer and, you
14 know, causation. But one could say okay, knowing
15 what we know about the most common exposures
16 these workers have had, can we come up with a
17 presumption.

18 Or not we come up with it, but at
19 least suggest this is a way to approach this
20 different than what is currently being done.

21 CHAIR MARKOWITZ: I would agree with
22 that, that we ought to recommend the structure

1 for them to deal with that on an ongoing basis.

2 MEMBER SOKAS: Okay. And Dr. Cassano?

3 MEMBER CASSANO: I did remember what I
4 was going to say now. I agree with the idea of
5 doing a -- I think where something is patently
6 obvious or where there is a exposure of concern
7 at DOE facilities and a presumption has been
8 established by another agency that we should at
9 least list that as a possibly presumption to be
10 evaluated further.

11 So I think there is a happy medium
12 between going through everything and just saying
13 we're not going to establish anything.

14 MEMBER SOKAS: Right. And I think
15 we're in agreement on that. I did want to kind
16 of move on since Mark's not on the phone. We can
17 deal with the radiation questions later.

18 We had another question that came up
19 on the telephone, policy telephone which we asked
20 yesterday to see if DOL may be able to get us
21 back some information.

22 There was a considerable amount of

1 discussion in those meetings, in the policy
2 teleconference meetings about interactions with
3 NCI I believe around prostate cancer. I may be
4 wrong on what the topic was.

5 But it was interactions with NCI that
6 seem to be helpful to the program personnel and
7 then something happened that the SOL put a stop
8 to it.

9 And I did want to ask for
10 clarification on that because I'm a little
11 concerned that we may be following NCI down the
12 rabbit hole if in fact there are legal reasons
13 why some of these, some of the recommendations
14 because honestly I don't see us coming up with
15 something radically different than what NCI would
16 come up with and I just want a clarification. I
17 don't know if there's been a chance to get that
18 or not.

19 CHAIR MARKOWITZ: No. I mean, we've
20 put that question to Department of Labor and we
21 expect a formal response, not an ad hoc response
22 at this meeting.

1 MEMBER SOKAS: Okay.

2 CHAIR MARKOWITZ: So we will get it
3 and we will circulate it.

4 MEMBER SOKAS: Okay, great.

5 CHAIR MARKOWITZ: Dr. Redlich?

6 MEMBER REDLICH: Well, I think that
7 the decision of causation and where we draw that
8 bar, I think you do take into account information
9 in addition to, you know, what the NCI and other
10 people because I think this, in the setting of
11 some sort of compensation system, you might say
12 okay, how common is this cancer, what are the
13 most total number of this sorts of cancer.

14 So how much effort are we going to
15 spend for X type of cancer, teasing out, you
16 know, the cases that we think are related or are
17 not. So I think that the decision making about
18 presumption, one piece of information is what the
19 science shows but then there's also where you
20 draw that bar.

21 And I think, you know, different
22 systems I think do look at other pieces of

1 information to add to that decision making
2 because you do look at what the cost benefit
3 ratio is of implementing a presumption.

4 CHAIR MARKOWITZ: Dr. Boden?

5 MEMBER BODEN: I think that's not the
6 job of this committee though.

7 CHAIR MARKOWITZ: Very succinctly
8 said. Well I mean, where you place the bar is
9 essentially a policy issue. I mean, science
10 supports the facts about the spectrum of where
11 the bar could be, but ultimately where you set
12 the bar is ultimately a policy issue and we may
13 veer into that somewhat but it's probably not our
14 primary task.

15 MEMBER REDLICH: Just to clarify, I'm
16 not suggesting we come up with presumptions for
17 all these things. But I'm not actually clear if,
18 you know, it is a policy decision. But I'm not
19 actually clear where that is for this program.

20 MEMBER SOKAS: So that's what the
21 question really is to DOL that they'll get back
22 to us then because there was an example where

1 there was a scientific body part of the federal
2 government who had some interaction with the
3 program and was pretty much shut down based on
4 that. And so my question really is where is that
5 line, and that's what we'll find out.

6 We've got a couple of other items. I
7 want to mention that the asbestos memo 1505 is
8 going to be deferred until tomorrow's
9 conversation if there's time for it.

10 I did want to highlight a little bit
11 before that the question about medical expertise
12 in these policies, and that includes a number of
13 questions about terminology and language.

14 I personally feel like I'm listening
15 to chalk being scraped on a chalkboard every time
16 I hear the term alias for another word for a
17 disease. So when you talk about asbestos aliases
18 or asbestos' aliases, that just kind of grates.

19 I'm also not a big fan of opine
20 because a variety of reasons. So I do think that
21 there is an enormous need for the personnel in
22 this program to have a translator and that

1 translator should be a physician in the program.

2 I understand that there has been a
3 successful higher recently and that there is
4 someone there. And hopefully at our next meeting
5 in DC we'll have a chance to interact a little
6 bit.

7 But it would be very helpful to have
8 all of these issues engage internal medical
9 expertise as well, in particular if the memos
10 that are created are not coming through us for
11 approval. It would be useful to know that
12 they've had some level of oversight or input at
13 least at the program level.

14 So I'm just making that observation
15 and pleading again for just kind of an attention
16 to the way that words matter and the way that
17 physicians in particular but also other
18 healthcare professionals are trained through a
19 fairly long period to express themselves.

20 And so the fact that there are
21 disconnects in terms of whether a physician is
22 comfortable saying with a reasonable degree of

1 medical certainty, et cetera, you know, versus
2 the way that most clinicians would say things
3 which is that it's probably contributory. Right?

4 I mean, so again, these kind of
5 language differences, there may be other ways
6 than training the entire field of primary care
7 clinicians out there in order to address them.

8 I would like to then turn it over to
9 Faye -- oops, sorry.

10 (Off microphone comments)

11 MEMBER SOKAS: Oh, sorry.

12 MEMBER FRIEDMAN-JIMENEZ: I just,
13 going back a couple minutes. I want to agree
14 with Les that given our ever increasing
15 responsibilities as a committee, I agree that
16 it's probably not our best role, best use of time
17 to try and set these bars.

18 But rather I think it would be a good
19 use of our resources to develop and recommend
20 improvements on the triaging system so that we
21 don't see so many people getting blocked at early
22 stages of the system because of inadequate

1 information availability, so that we have a more
2 effective triage system that will really pick up
3 most or all of the cases of real occupational
4 disease and move them down the line so they can
5 be evaluated by people with the appropriate level
6 of expertise rather than have them be blocked
7 early on by an inappropriate triage system.

8 So I think that we could refocus maybe
9 our work to look at that rather than trying to
10 micro manage the individual bars that are being
11 set.

12 MEMBER SOKAS: I did want to turn it
13 over to Faye, but to note that we do have three
14 recommendations at the end that would like to at
15 least touch on before -- so we --

16 CHAIR MARKOWITZ: Okay, so just a time
17 check. We have about 20 minutes for this
18 subcommittee. So just if you want to get to
19 recommendations, let's just be cognizant of time,
20 that's all.

21 MEMBER VLIENER: We had discussed
22 these earlier during our subcommittee that I

1 wanted to bring them to everyone's attention
2 because we seem to all be going around the same
3 bush over and over again.

4 And that is the vetting of the CMCs
5 for the actual experience in the field of what
6 they're opining. And I've found in my CV
7 searches and through final adjudication branch
8 hearings is that they truly don't have the
9 experience level we're looking for.

10 They may have a certificate but they
11 really don't know what they're looking at, yet
12 they're being used as an expert level opinion.
13 So in the CMC contract that was just let, I think
14 it's important that they do look at how many
15 hours of clinic they're still doing so that
16 they're staying current in what's going on
17 because a number of the doctors they use are
18 retired and no longer stay active in any type of
19 clinic work.

20 And so, and that's something that I
21 always look at when I'm looking at who made the
22 opinion for a client.

1 Along with that, when you're looking
2 at the vetting of the CMCs, in all of the state
3 labor and industry vetting of doctors to do
4 independent medical exams, they're supposed to
5 sign an affidavit about how much of their work is
6 strictly done in these type of programs, and I
7 haven't seen that yet in anything that the
8 Department does.

9 So when Kirk and I reviewed the claims
10 and we found that no it doesn't add up because
11 there were multiple times claims were sent to
12 CMCs and sometimes twice to the same CMC. But in
13 the 77 cases we reviewed, 18 of the referrals
14 were to one doctor specifically for CBD,
15 sarcoidosis, and the silica claims.

16 One doctor got the majority of those.
17 The rest were onesies, twosies, and threesies of
18 the 26 doctors that were on the list. And that
19 was significant to us.

20 So we also would like to see instead
21 of going to a doctor who typically has been
22 saying no, at least keep track of how many times

1 he said no and maybe seek out someone else who is
2 equally qualified if there seems to be a pattern
3 occurring.

4 Then the other thing that we noticed
5 in the case review, and it's important in this
6 area, is that when the queries go from the CEs to
7 the CMCs that they're not adversarial queries
8 like we had mentioned earlier.

9 That they're an open question that
10 deserves an open and complete answer, not a one
11 word yea I agree with you or no I don't because
12 you've limited the information in front of me.

13 And then it appears, and we've all run
14 around this bush a few times with the references
15 that we used to substantiate our opinions is
16 that, we've talked about it yesterday, the
17 library of accepted materials needs to be, we
18 need to at least make a recommendation of what
19 that library includes.

20 So that was it, and it was what we had
21 talked about in our subcommittee.

22 MEMBER SOKAS: If we could move on --

1 thanks to Faye and also ask if we could move on
2 to the recommendations. Kevin, if you could
3 scroll down a little bit.

4 Okay, so there's the first
5 recommendation, I'll just, it's up there for
6 everybody to see. But that the policy
7 teleconference notes could be, should be
8 redacted, made searchable by topic and publically
9 posted that in fact there's a tremendous amount
10 of information that's provided in those. That's
11 very helpful to people.

12 And if there are concerns about some
13 of the way that some of the determinations are
14 made, having it publically available would also
15 be helpful to just in the interest of
16 transparency.

17 I don't know if there's any comments,
18 questions from the Board, any disagreements or
19 concerns?

20 CHAIR MARKOWITZ: Well, my only
21 concern is that would it change the nature of
22 those policy calls? In other words, if there's a

1 different sense of how that information would be
2 used and perhaps generalized, whether DOL is then
3 going to change the way they approach the policy
4 calls in such a way that they become less useful.

5 Now that's not a strong argument
6 against making them public, but it, I wonder what
7 actually is going to happen.

8 MEMBER SOKAS: Which is a good
9 question. I mean, obviously you don't want to do
10 anything that would inhibit communications
11 internally. I mean, I think that's really
12 important.

13 One approach would be that the person
14 who's most concerned about that would be the one
15 doing the redaction. So you could get rid of a
16 whole bunch of stuff if you thought that it was
17 not appropriate.

18 But it might then make people think
19 about what they're telling the claims examiners
20 about ways to proceed if in fact you're not
21 willing to have that information made public.

22 And the example I'm thinking of is the

1 suicide case. But there may be other questions
2 that it would make people think twice about and
3 then go back and maybe get a little bit more, you
4 know, of a response, at the worst. At the best,
5 it's incredibly useful information that everybody
6 would want to have.

7 MEMBER WELCH: So I would think that
8 some of the things that are discussed on those
9 calls would then become written guidance, and
10 there are periodically guidance issued in
11 circulars and, I forget, there are two terms,
12 bulletins and circulars.

13 And because you couldn't, you
14 shouldn't assume that everybody who's on the
15 call, everybody who needs to know the information
16 if a decision is made on the call, that everybody
17 that needs to know the decision would be on the
18 call and that they're taking appropriate notes.

19 So there should be some way in which a
20 policy decision that's brought up on that call
21 should be resolved and put into circulation. And
22 I don't know if you were able to see that

1 process. That makes more sense to me than
2 necessarily posting the results of the calls.

3 But some assurance that the decisions,
4 because if decisions are made on the calls and
5 half the claims examiners hear and half don't and
6 the second half never hear about it, you're going
7 to start to see the disparity in handling cases
8 that we're concerned about.

9 The part that seemed to be useful on
10 these calls was that it's how you actually apply.
11 So some of them did have written guidance already
12 available. It wasn't as if they were developing
13 the written guidance, but it was what does it
14 actually mean to apply this in a concrete
15 circumstance.

16 And again, you have to be careful that
17 the concrete circumstance isn't presented clearly
18 enough that you could figure out who the person
19 was obviously. So there's a lot of
20 confidentiality of the claims, for the examiner,
21 for the client, for everybody involved that needs
22 to probably redact location and site and things

1 like that.

2 But the way in which existing guidance
3 is implemented as well as these are problems that
4 are coming up for which there isn't current
5 guidance. You know, is some in the pipeline? It
6 just looked incredibly rich as a potential area
7 for communicate.

8 PARTICIPANT: So there's no more
9 comment on that one. I mean, if people are
10 concerned about, think about it and discuss it
11 tomorrow. So the next one was that --

12 PARTICIPANT: Microphone.

13 MEMBER SOKAS: Sorry. So the next
14 recommendation really grows out of what we've
15 been discussing and may need to be tweaked. But
16 that case file should be handled in the same
17 fashion that large medical practices currently
18 handle electronic patient records which is to
19 grant password protected access to the entire
20 file through an electronic portal.

21 And the goal there obviously is to
22 allow the claimant to look and see well, I'm

1 really a laborer, I'm not a launderer. So for
2 clarification where necessary, and also just in
3 the interest of transparency.

4 So I know, and I did have a question
5 for Faye. I know that files are available. I
6 don't know what the process is for that. If you
7 could?

8 MEMBER VLIEGER: They've always been
9 available. Most claimants don't know that it's
10 available to them. They have, you just do a
11 simple file request. DOL does the best they can
12 to get them to you.

13 We've had some long delays on
14 retrieving some of the files. Some have taken as
15 long as a year to get. That's not the
16 requirement. The regulatory requirement is much
17 shorter than that.

18 And they used to not provide them on
19 disks at all. The Seattle District Office is
20 starting to actually provide them on a searchable
21 disk which is much better.

22 But an average small file is still

1 1,000 pages. A new file is maybe 200 pages. But
2 a file that's gone on for five or six years, my
3 particular file, five years, was three banker's
4 boxes at the time.

5 So disks weren't available then. So
6 you can request them. They're totally
7 requestable. First copy is free, and then if you
8 want to supplement what you have over time, you
9 just ask for whatever's been added to the file
10 since the last request to date.

11 MEMBER SOKAS: So the question is
12 would it be, I mean there's two parts to this
13 question. One is would it be technologically
14 feasible and not all that expensive to make this
15 something that could be accessed through a
16 portal, and would there be any benefit to the
17 claimants for that to happen?

18 MEMBER VLIEGER: I'm speaking from
19 experience, and I'm sure someone out here from
20 the Department may have something to add.
21 However, not all the files are electronic at this
22 time.

1 Some are still paper or they're what
2 are called the hybrid file which is paper file
3 and electronic because the electronic system has
4 not been in effect for that long. So making
5 everything on a portal right now could be cost
6 prohibitive.

7 CHAIR MARKOWITZ: Dr. Friedman-
8 Jimenez?

9 MEMBER FRIEDMAN-JIMENEZ: In principle
10 I agree with this, however in real life,
11 sometimes it takes a lot of time to explain to
12 patients what you mean by something in your
13 medical note.

14 And we write things as physicians that
15 are short hand, that are abbreviations, that are,
16 you know, and we're under time pressure when
17 we're writing these notes.

18 And so sometimes we have to go back
19 and if they see it, explain to them what we meant
20 by this and sometimes it doesn't sound very good.
21 And to write a note that is user friendly for the
22 patient takes more time.

1 So I think you have to build that into
2 the process and have someone be there who will be
3 able to answer questions from the patients. I
4 think that it's useful to see what job title they
5 were assigned, et cetera.

6 And I would also say I think it's
7 useful for them to see the SEM for their
8 particular job to make sure that they agree with
9 their exposures. And if they have an issue, then
10 that can be discussed.

11 I think that could be included as part
12 of the process. But I agree that patients should
13 be, individual claimants should be involved with
14 their medical record. It's just that you're
15 going to have to budget some time and resources
16 to explaining some of the terminology.

17 MEMBER SOKAS: Well, and if what Faye
18 is saying is it's not necessary because it's
19 already available. Right? Okay, it may not be
20 necessary. Okay, so that -- yes, okay.

21 MEMBER WELCH: I mean, the advantage
22 of having it electronically available is as it is

1 now, if somebody gets three banker boxes it's a
2 little overwhelming to go through it.

3 If it were structured so that, you
4 know, the work history, the specific documents
5 were files that you could find, it's a big
6 project but it could be something if this program
7 is going on for a long time to build it in going
8 forward.

9 Then it would be possible for a worker
10 or someone acting on their behalf who could be
11 granted access, either an advocate or an attorney
12 or a physician could then look at points of
13 importance for the claim at that time.

14 It's like well I want to know how, I
15 know how this worker was characterized in our
16 database, but how is DOL doing that. And it
17 would be much easier to be able to go to an
18 electronic database than to have to request the
19 whole file.

20 MEMBER SOKAS: So maybe what we could
21 start with is to consider doing this for new
22 cases being filed moving forward. Okay.

1 MEMBER VLIEGER: So just so you're
2 aware, since they started the electronic
3 processing, they have a portal that has a
4 security code on it. A letter goes to the
5 claimant and says this is where you can check the
6 status of your claim.

7 I don't know that the age range of
8 people we're dealing with is really equipped to
9 be doing that, in many cases. But it is
10 available. And as the representative, I don't
11 get that letter. It goes strictly to the
12 claimant which is difficult because many times
13 the reason they're using someone to help them is
14 because they can't navigate computer systems.

15 So that is available for status
16 checking or, like, what's happened. And it's
17 bulleted type things, it's not full access to the
18 file. So that's a separate thing we've not
19 talked about that's available to the claimant.

20 And they get a letter. It has a
21 particular code on it that doesn't match anything
22 else in their file. And they get that letter

1 once at the beginning of a new claim that's in
2 the electronic system.

3 MEMBER SOKAS: So it may be that the
4 infrastructure is capable of doing something.

5 MEMBER POPE: Is there a process
6 within that electronic copy that the claimant has
7 the ability to edit that information?

8 MEMBER VLIENER: No, no. They
9 wouldn't have access to that. What you can do,
10 they have an electronic portal for submission
11 now. And it has taken two to three weeks out of
12 the mail system that they used and a week out of
13 the system of using the resource center where
14 they would send things for you where I can hit
15 transmit, be talking to the representative with
16 the Department of Labor and within two to three
17 minutes they have the security cleared document
18 up on their screen.

19 And that's very helpful in the
20 terminal claims. So they can't access DOL's
21 file. And I think for security reasons, I'm
22 putting my old military security hat on, I doubt

1 that that would ever happen. But they do have
2 that status checking portal they're given for
3 each claim.

4 So like I said, I'm not aware of many
5 people that are actually using that system, and
6 maybe John has numbers on the use rate for that
7 system.

8 MEMBER SOKAS: Okay. So moving on to
9 the last item, this is kind of in response to
10 Steve's mention of explaining what occupational
11 medicine was to the Secretary yesterday.

12 But that it might be helpful in terms
13 of some of these communication issues that the
14 Department of Labor consider reorganizing its
15 occupational physicians into an office comparable
16 to the structure of the Solicitor of Labor so
17 that you would have physicians organized in
18 groups that support OSHA, that support MSHA, that
19 support OWCP and as well as providing, you know,
20 as needed support to others within the Department
21 of Labor who currently have no access to
22 occupational health.

1 And the rationale is that there is a
2 pretty good model already in place that as a
3 group, physicians can have residents going
4 through and assisting them and other ways of
5 helping.

6 And if for example there is a gap when
7 they don't have a physician in OWCP or in this
8 dedicated to this program particularly, that
9 there could be backfilling, you know, that
10 somebody else could kind of help out for a while.

11 And it just would enhance the overall
12 ability to recruit and retain because of the
13 concerns around professionalism.

14 MEMBER WELCH: That's a brilliant
15 idea.

16 MEMBER SOKAS: Thank you.

17 CHAIR MARKOWITZ: Other comments?

18 MEMBER SOKAS: It's 2:31.

19 CHAIR MARKOWITZ: Okay, so we're
20 finished this subcommittee report. Thank you
21 very much, Dr. Sokas. Since you started three
22 minutes late, you're two minutes ahead of time.

1 Next we have Greg Lewis from
2 Department of Energy, the Office of Occupational
3 Safety and Health who is going to be discussing
4 the use access of DOE records for the EEOICP.
5 Welcome, Greg.

6 I want to also thank, while he's doing
7 that, thank Greg for arranging for our tour
8 yesterday. We had a terrific, short but terrific
9 tour of parts of Y-12 and X-10, ORNL to enhance
10 what we know about the DOE. So welcome.

11 PROVIDING DOW RECORDS FOR EEOICP

12 MR. LEWIS: All right, good afternoon,
13 Dr. Markowitz and Members of the Board. Thank
14 you for allowing me to speak with you today.

15 So last time you heard from my boss,
16 Dr. Pat Worthington. And she's the Director of
17 the Office of Health and Safety within DOE. So
18 I'm the Director of the Office of Worker
19 Screening and Compensation Support within her
20 office.

21 And I'm going to talk to you about how
22 we provide Department of Labor records and give

1 you a little bit of stats. If you remember from
2 Dr. Worthington's presentation, she kind of kept
3 it at a high level of in general what we do and
4 talked about our commitment to the program, our
5 commitment to the workforce.

6 And I'm going to try to take it down a
7 little bit and give you a little bit more detail
8 and again some stats. So let's see here.

9 All right, so you know, again, what we
10 do, what my office does is only work with former
11 worker programs. That's all we do. We support
12 this program, the EEOICPA and also the former
13 worker medical screening program. So former
14 workers are extremely important. That's what we
15 do, that's all we do at my office.

16 We work on behalf of program claimants
17 to ensure that all available worker and facility
18 records and data provided to DOL, NIOSH, and the
19 different advisory boards. So we provide
20 records.

21 And we do that in primarily three
22 ways. For individual claims, which is the bulk

1 of what we do is respond to individual claims,
2 provide records for those cases, is we respond
3 with the, via the SERT system to request from DOL
4 and NIOSH.

5 The SERT system stands for Secure
6 Electronic Records Transfer system, and this is
7 something we put in place a few years ago to do
8 two things, basically. One, to ease the
9 transition of records from us to DOL and NIOSH,
10 and two to protect those records.

11 Because of issues these days with PII
12 and people's information, before we were, you
13 know, originally we started mailing paper way
14 back when and then we got a little smarter and
15 we're mailing CDs back and forth and then we
16 password protected our CDs. And then we started
17 using encrypted thumb drives, but all of this was
18 going back and forth with the mail.

19 So in addition to being slow and
20 confusing to track, it was also not the most
21 secure method. So a few years ago we set up the
22 SERT system. And as soon as the Department of

1 Labor uploads a request for, you know, John Doe's
2 records into the system and selects a DOE site
3 like Y-12 or wherever, multiple sites and hit
4 send, it immediately shows up on our screen and
5 we're both responsible for it and our clock is
6 ticking in terms of 60 days.

7 So it's a very transparent system.
8 Everyone knows who has the ball and what the
9 timeframes are. So again, that's the bulk of
10 what we do is respond to individual claims.

11 However, we also provide support for
12 the large scale, you know, records projects. So
13 things like the site exposure matrix, we were
14 involved initially in helping Department of Labor
15 gather the records to put that together.

16 We've been involved since in, you
17 know, both providing records and validating the
18 questions that they have for us about the SEM.
19 We also work with NIOSH on a large scale with
20 special exposure cohort research projects, you
21 know, and do other projects at our sites to
22 enhance and improve the records.

1 The third responsibility is much
2 smaller. It's important but it's much, much
3 smaller in terms of level of effort, and that's
4 to conduct research into facility coverage.

5 You know, with the large sites, that's
6 really a non-issue. It's well defined, you know,
7 in general what they did and when they did it.
8 But for some of the smaller atomic weapons and
9 players, they may only have done work for DOE for
10 a couple years and that at the time would have
11 been AEC back in the, you know, '40s, '50s, or
12 '60s.

13 And even there's some facilities
14 covered on the list that did work for, you know,
15 ten days even for a very small project. So
16 because it was smaller work, it was a long time
17 ago, there may be questions, well do we have the
18 right time period or do we have the right work
19 covered. And so we'll do research into that.

20 So for individual claims, we respond
21 to three types of record requests, employment
22 verifications, NIOSH requests for dose records,

1 and what we call the DAR, the document
2 acquisition request which is more or less
3 everything else, everything that we have with
4 that individual's name on it.

5 And before I talk to you a little bit
6 more about that process, I'll just say at each
7 DOE site, or DOE location I should say, we have a
8 site POC responsible for the oversight of the
9 EEOICPA work.

10 So we send out funding to all of the
11 sites and those folks are the ones who manage
12 that funding and, you know, make sure the process
13 is complete and responses are getting in on time
14 and that sort of thing with a little bit of
15 oversight from us.

16 So they coordinate the research
17 activities like the SEM and the SEC projects.
18 They send us on tours like yesterday. And they,
19 you know, if there are specific questions from
20 DOE or NIOSH, they'll try to identify the right
21 people to talk to, site subject matter experts or
22 even retirees who they know who could be brought

1 back on site for interviews, things like that.

2 So these folks are, you know, they're
3 really the people out there that are making this
4 program happen at a site level. A lot of these
5 folks have been on site. We really try to get
6 folks in these positions that have been on site
7 for years, some of the people have been there for
8 20 or 30 years.

9 And that's important both for their
10 knowledge of the site and history, but also for
11 their knowledge of how the site operated and
12 where the records might be, and also their
13 contacts within the site. You know, if we have
14 an issue here, who can I talk to that's going to
15 make this happen. So they're extremely important
16 people for our program.

17 So for individual claims, I'll take
18 you through the process. And again, every site
19 is a little bit different. You know, we have
20 closure sites, we have smaller sites, larger
21 sites, labs, production facilities.

22 So it's always a little bit different.

1 But in general, our search process more or less
2 follows these steps. So I'll take you through
3 it.

4 So our EEOICPA POC is going to receive
5 the claim through the SERT system. Typically
6 some type of initial development is done on the
7 claim. A lot of sites had a site ID number
8 because they didn't want to use, you know,
9 whether it's birthday because that's duplicative,
10 or social security number or something like that.

11 They would have site ID. So you know,
12 our folks will take the information that's in the
13 claim from DOL and NIOSH and cross reference that
14 against something on site to see what was their
15 site ID number.

16 Or if there's missing information in
17 the claim like the social's incomplete or there's
18 no date of birth, we'll try to see if they can
19 find that in their records to help enable the
20 search.

21 So then for active site, for closure
22 sites, you know, everything may be in one records

1 archive location so the search may be a little
2 bit easier. But for a site that's still
3 operating, typically the EEOICOA POC will have to
4 send it out to a number of responsive locations,
5 human resources, medical, industrial hygiene,
6 radiation control, dosimetry, incident or
7 accident, or the records archive.

8 And again, sometimes that doesn't go
9 to all those. You know, some places the incident
10 or accident reports are in the medical file or
11 somewhere else. In some cases it goes to the
12 divisions like medical and HR and then they sort
13 of "own" the records in the records archive, so
14 each of them may be going to the records archive
15 to pull their record. You know, but essentially
16 those are the primary groups involved.

17 And then each of those areas will
18 conduct a search of their holdings. Sometimes
19 this can be pretty simple. In my experience,
20 typically medical is the most straightforward.
21 There is one medical file for one individual and
22 it just grows by the years. So it's pretty

1 straightforward in terms of finding that.

2 Although then again medical is
3 difficult because in the end you have to, many
4 times they're in paper so to scan them and to
5 process them you have to pull out all the staples
6 and all the different size pieces of paper and
7 writing in the margins. So there's challenges
8 everywhere.

9 But we'll go to those different groups
10 and they'll pull the records. So what I have
11 here, and I know you can't read this, I can't
12 read it either which is why I brought up my iPad.
13 So what I'll have, and I'll skip to the second
14 page, this is the first page and this is the
15 second page.

16 This is just a sample chart I picked.
17 It happens to be in the Nevada test site. And I
18 like this one because the way they put it
19 together it's more concise. It's two pages with
20 a lot of information jammed in it.

21 Most sites have it where each record
22 sources its own row so they can be 20 pages long.

1 And essentially this is a table of the possible
2 places that they might go to pull records. This
3 doesn't have a --

4 I don't want to blind anyone, I'll use
5 the pointer. So I'll skip to the, yes the second
6 page here. So if you look on the top left, it's
7 hard to read but it says industrial hygiene
8 records. I'll use that as an example.

9 That's the general type of record.
10 And if you move two columns to the right of that,
11 sort of the middle column there, it gives the
12 different databases that could have industrial
13 hygiene records.

14 And so just to sort of read down and
15 give you an idea, you know, you've got the
16 LRC/FRC, I assume that's the Local Records
17 Center, Federal Records Center. That contains
18 records, if you move one column over, from 1945
19 to 2014. They're paper files, and there's 850
20 boxes.

21 And so for each source, we've kind of
22 detailed, you know, the years that that source

1 covers, if possible. It's not always possible,
2 the type of records, you know, whether it's
3 electronic, microfilm, microfiche, paper, or all
4 three and then sort of a rough idea of the
5 volume.

6 So moving down, there's the ERS
7 database, that's 1945 to 2005 electronic files
8 and it has over a million records in it.

9 Skipping down, you've got microfilm index and
10 HRC, that's 1961 to 1992. And it's microfilm and
11 that's also over a million records.

12 So every single entry in that third
13 column over going down, and of course back to
14 that as well, that third column, that's a record
15 source that we may go to. So again, it could be
16 boxes, it could be a database.

17 For your typical individual you
18 certainly, you would never have to go to all of
19 those sources. But for each one of those items
20 on the left, you know, it's HR, on the left
21 medical, you probably can't read it. And
22 skipping down, IH accident and incident,

1 dosimetry and other information.

2 For each of those you probably have to
3 go to at least one source and probably multiple
4 sources for each individual depending on, you
5 know, what time period and how long they worked.
6 So if you're a 30 year employee, you know, we're
7 probably having to go to 15 to 20 different
8 sources for your records at least.

9 And skipping ahead. Actually, you
10 know what, I'll go back to that one. But
11 skipping ahead, so this is what we find. On
12 average on individuals, this is across the
13 complex, so averages are always, you know, a
14 little bit misleading.

15 But typically for an employment
16 verification, our average response is about 14
17 pages. You know, and again, that's the shortest,
18 that's the easiest, that's just what do we have
19 at HR saying yes, this person worked here and
20 here were their start date and term date or
21 multiple start and term dates.

22 And then the average number of

1 patients for a NIOSH request is about 50. So
2 NIOSH is typically dosimetry records, you know,
3 or the RadCon record. Sometimes there might be
4 some medical in there because at some sites,
5 particularly back in the old days there might be
6 dosimetry records in medical.

7 But that's about 50 pages, and then
8 the average number of pages for a DAR is 150.
9 And that's somewhat duplicative because the DAR
10 would typically have some of the dosimetry stuff.
11 So you know, part of that 50 or maybe all of that
12 50 at some sites are included in the 150.

13 And even within that, that's across
14 all of our sites. So some sites may have more,
15 some less depending on, you know, their record
16 keeping, how long they've been in existence, what
17 they do, that kind of thing.

18 And it also runs the gamut. You know,
19 for a subcontractor that we don't have much on, a
20 DAR might, we might not be able to find anything.
21 It might be not much, it might be literally
22 nothing. And then for some other folks, you

1 know, I've seen responses that are over 3,000
2 pages for a single individual.

3 So it really runs the gamut. And I
4 know, Faye, you mentioned earlier that many times
5 we don't have the records. And I will say
6 sometimes we don't have the records. Many times
7 we do. We certainly don't always have all the
8 records and we certainly don't know in any given
9 case that we have all the records. There may be
10 some missing.

11 MEMBER VLIEGER: I noticed on your
12 search list that list that you look for IH
13 records.

14 MR. LEWIS: Yes.

15 MEMBER VLIEGER: But where do you look
16 for them? They aren't appearing. So I guess my
17 question is where is that database?

18 MR. LEWIS: I mean, it's funny. I
19 picked IH, so at Nevada, you know, we did search
20 any of those different databases for records.
21 Now again, on any given case, there may not be
22 industrial hygiene records for an individual.

1 You know, maybe there should have been
2 or maybe they either should have been kept or
3 should have been saved and weren't. But all we
4 can do is go to sources where IH records are kept
5 and do as exhaustive a search as possible.

6 And we don't know what we don't know,
7 so it's hard to tell if something's missing or
8 whether something should be there. But we try to
9 do as thorough a search as possible in the
10 databases that we have that contain IH records.

11 So I'll skip back for a second to give
12 you an idea of volume. Last year, according to
13 the SERT system, we did 18,621 records responses
14 to DOL and NIOSH. Now that's of the three
15 different types, employment verification, NIOSH,
16 and DAR.

17 So one individual could have three
18 separate types, you know, different requests. So
19 18,600 is not individuals, the individuals is
20 less, but that's the type of request and that's
21 for over 25 different DOE locations and some with
22 sub-sites. Not too many with sub-sites.

1 So that's, so I talked about kind of
2 how many we do, what we typically find from a
3 very general sense, and then timeliness. We work
4 with Department of Labor and NIOSH under a 60 day
5 timeframe.

6 So we're trying to get every request,
7 EV, NIOSH, and DAR back within 60 days. And last
8 year, last fiscal year, so October 1 to September
9 30 we responded to 17,600 out of 18,600 which was
10 95 percent under 60 day response rate.

11 And actually typically, that's not
12 really an average. Most sites are either, you
13 know, very close to perfect and then there's some
14 sites that we struggle with.

15 And the sites that we struggle with
16 always kind of rotate around based on, you know,
17 staffing issues or something going on at the site
18 and you kind of work with them to get it back up,
19 and it's a little bit of whack-a-mole. But
20 again, we have a pretty good response rate across
21 the board.

22 And just to highlight a few sites, you

1 know, at K-25 they had in the last year six late
2 out of 2,112. Richland had six late out of
3 1,564. And Savannah River was the all-star with
4 zero late out of 1,316. So they worked very hard
5 to stay under that 60 day timeframe. With some
6 pushing and prodding from the folks in my office.

7 Sam, I'll kind of skip over this.

8 This slide was in there last time, you know, you
9 guys are very familiar with SEM, but I will say
10 we did help Department of Labor gather the
11 information and do work with them on ongoing data
12 requests.

13 And then we also work together with
14 Department of Labor and NIOSH on outreaching
15 issues. We were part of what we call the Joint
16 Outreach Task Group which is NIOSH, DOL, my
17 office, the DOL Ombudsman, NIOSH Ombudsman, and
18 the members of the Former Worker Medical
19 Screening Programs all get together to join
20 forces and outreach.

21 We're all essentially trying to reach
22 the same folks. And by, you know, working

1 together we can both be more efficient with our
2 dollars and also, you know, be all in the same
3 place at the same time to answer all the
4 questions because invariably when you go, you
5 know, if we were to go somewhere, half of our
6 questions would really should have been answered
7 by DOL. So we can make sure that the right
8 person is answering the right question.

9 And then of course I also mentioned
10 the other thing that my office does is fund and
11 support the Former Worker Medical Screening
12 Programs, and I don't need to tell some of you
13 that. But you know, it's a program that provides
14 free medical screens to all former workers from a
15 federal contractor and subcontractor workers from
16 all DOE sites.

17 You know, wonderful program, and
18 anyone in the audience that is not familiar
19 should certainly talk to me or look it up online.
20 It's a wonderful program you can take advantage
21 of. Here's some information, the website and a
22 brochure about the program.

1 And then I would be happy to take
2 questions on anything that we do, whether I've
3 talked about it or not.

4 CHAIR MARKOWITZ: Thank you, Mr.
5 Lewis. We especially appreciate the plug for the
6 Former Worker Programs. How many people, how
7 much effort is used in retrieving these records
8 at each site? I just want to get a sense of
9 because the volume is amazing and the record of
10 timeliness is incredible. Just wondering what
11 kind of resources it takes to do this.

12 MR. LEWIS: I'm trying to think of
13 how, I mean, that really depends on the site and
14 on the claim. Like for example, the Office of
15 Legacy Management is the group that, they handle
16 most of the closure sites.

17 So they built one single database that
18 at least has a finding aid for all of the records
19 in its one database, and the records are at three
20 different places. But really, you know, Mound
21 and Fernald are in one place, Rocky is in
22 another, and then a lot of the food scrap sites

1 are handled in Grand Junction.

2 So they have one search tool that will
3 tell them where to go for, you know, an
4 individual, x number of boxes. And they can go
5 pull it, so that's a fairly simple, you know, at
6 least they put in the name, they get the we need
7 to go to these 20 boxes or someone's going to go
8 pull it.

9 Most places, you know, each of those
10 organizations like medical, IH, and RAD, they'll
11 have a few people at least working on this
12 program. And where and how deep they have to go
13 for a claim, you know, is going to depend on when
14 the individual worked and for how long.

15 You know, at certain sites the, at
16 most sites the recent records, a lot of them are
17 both n electronic index and an electronic record.
18 So they can kind of find the different things,
19 drag and drop them into a folder, and then upload
20 them into SERT. Very easy.

21 For going back to the '90s, '80s and
22 before, a lot of that stuff hasn't been scanned

1 in, so you know, you're going to have to use from
2 15 to 20 search tools on the front end and there
3 might be five or six people actually using those
4 search tools.

5 And then that will lead you to boxes
6 of records. Sometimes it will lead you to some
7 scanned electronic records, you know, woo-hoo,
8 that's great. But then a lot of times it will
9 lead you to, you know, you've got to go to our
10 record center and aisle 27 row 52 box 5. And it
11 will be, you know, about 20 boxes like that.

12 So we'll have the record center staff,
13 you know, pull them all out and we'll bring a
14 cart over and someone will go through them all to
15 pull the folder.

16 And then of course on the back end,
17 you've got to scan those. So depending on, you
18 know, if it's a few pages, great. Again, if it's
19 a big medical file, those are a nightmare
20 typically because it's different size pages and
21 onion skin and you have to work to get the copy
22 correct and you're messing with the dark and the

1 light and trying to get the right contrast
2 because it's old records.

3 So it's a labor intensive, it can be a
4 labor intensive process. And sometimes we have
5 to go offsite for records, so we'll have to
6 request something from the Federal Records Center
7 and they'll pull it, but then they'll have to
8 ship it back to site.

9 And we'll go through and, you know,
10 pull those records and get it all scanned. I
11 mean, I don't know if that answered your
12 question, but it's really --

13 CHAIR MARKOWITZ: No, no. That's
14 fine. That's fine.

15 Dr. Cassano?

16 MEMBER CASSANO: I have a question as
17 to in what form does this go into the claims file
18 at DOL? Do you synthesize the 150 pages at all,
19 or does it just get sent as raw information to
20 the claims holder and therefore the CE has to
21 figure out what's relevant and what isn't?

22 MR. LEWIS: The only thing that gets

1 synthesized is the employment verification, when
2 we can do it because that we're required to say
3 okay, yes they worked here and here's their start
4 date and here's their term date.

5 And that gets a little tricky too
6 because for subcontractors and some employees
7 that were, you know, employees with the prime and
8 then they were there with the sub or multiple
9 subs, you know, we may verify employment for a
10 certain set of time, but then when we go do the
11 DAR, we'll find evidence of site presence outside
12 the time of that employment verification.

13 When we know that's going to happen at
14 the onset it's clear that yes, this person is a
15 subcontractor, we'll just go start pulling the
16 DAR records right away because we know that an
17 employment verification is essentially use, you
18 know, the HR office is not going to have a formal
19 file on this person.

20 But we may be able to provide many
21 different records that show they're on site, or
22 unfortunately none, but we'll go to that right

1 away. But sometimes when they were a prime
2 contractor we'll pull the employment
3 verification, think it's pretty straight forward,
4 send it back.

5 And when we start working on the DR we
6 realize oh, you know, we've got records from
7 outside that time period. But you know, sorry to
8 get back to the question, the rest of the stuff
9 that DAR, whatever we find, that 150 pages, I
10 mean, it's usually, it's organized by the
11 different, you know, here's the medical, here's
12 the RAD.

13 We just send that back. We don't get
14 into interpretation of the record. We let
15 Department of Labor do the interpretation.

16 MEMBER VLIEGER: I had a question.
17 Listed on your list of things that you look for,
18 that incident, accident, occurrences. When those
19 reports were generated in the heyday at Hanford,
20 there's only one page that actually lists the
21 workers involved by name. And that one page
22 seldom ends up in their personnel folder.

1 So how, do you have a database with
2 the names associated to those incident reports?

3 MR. LEWIS: I mean, I can't answer
4 that question for the whole complex. At some
5 sites they will have a database where they can,
6 you know, type in a name and see what comes up
7 for incident and accident reports.

8 At others they don't. They may have
9 the incident and accident reports listed
10 chronologically. So if we don't have anything in
11 the file or anything that suggests that a person
12 was involved in an accident, in this specific
13 incident and this specific time, there may not be
14 a way for us to search those records in any
15 logical fashion.

16 But when we can search based on a
17 name, we absolutely do. Or if it was included in
18 the medical file.

19 MEMBER VLIEGER: And then I had one
20 follow-on to that. There's a system called
21 CAIRS, C-A-I-R-S. Is that system searched when
22 you're looking for accident type reports?

1 MR. LEWIS: You know, I may have to
2 get back to you. My impression of CAIRS was it
3 was a de-identified database. But if it has a
4 name in it, we would certainly search that.

5 MEMBER VLIEGER: The copy of the file
6 that I got at one point for my particular claim
7 had all the names on it, and they hadn't redacted
8 any of the ones, my name and then a number of
9 other names were on it.

10 So it can be hand redacted, but it's
11 my understanding when the report goes to
12 headquarters, DOE, it's fully listed.

13 MR. LEWIS: Okay. And actually, you
14 know what, now that you mention it, for CAIRS I
15 don't think a lot of them check CAIRS because the
16 sites submit to CAIRS in the first place.

17 So theoretically each site should have
18 that record in the first place because they were
19 the ones who submitted it. So a lot of times
20 they would search their own database first and
21 then CAIRS if necessary.

22 MEMBER VLIEGER: Okay. In my case it

1 was omitted. I had to make a special request for
2 it.

3 MR. LEWIS: And if there are issues
4 like that, I mean, I could certainly look into
5 it. We do try to adjust our process as
6 necessary. We've certainly gotten a lot smarter
7 in the last, you know, 10 to 15 years in terms of
8 how we do record searches. But there's, we could
9 certainly improve.

10 CHAIR MARKOWITZ: One last, we have
11 time for one last question or comment. Dr.
12 Silver?

13 MEMBER SILVER: Do you in DOL have a
14 way of closing the loop so that ultimately you
15 get some feedback on the value of the information
16 that you've taken a deep dive to retrieve and
17 whether it's determinative in winning claims or
18 is that just something you've figured out
19 intuitively over the years?

20 I'm thinking of the Los Alamos County
21 Warehouse that we prevailed upon DOE to come up
22 with a few million dollars to put in order.

1 MR. LEWIS: Well yes, I mean, that's a
2 good example. There's not really a formal
3 feedback mechanism because typically what we find
4 is what we find.

5 You know, when we realized that there
6 are additional sources of records like that
7 warehouse, and warehouse is kind of putting it,
8 it was sort of a tumbled down shack. I mean,
9 those records were rescued.

10 But when we find additional records,
11 whether it be in an offsite warehouse, whether
12 it's we found them under staircases in people's
13 offices when they retire, or even actually what's
14 most typical is we open a box, you know, for the
15 program we open a box either for NIOSH or on a
16 claim and it's labeled as something and it turns
17 out to be maybe that something and something else
18 or just something totally different.

19 And you know, when we find that we'll
20 pull the thread. Well, what is this box labeled,
21 what collection is it part of. So we'll kind of
22 look at the rest of that collection and see is

1 this something we need to index.

2 And actually the most recent example
3 of that, there was, I'm a little fuzzy on the
4 details but it was basically a collection of
5 remediation records that were, and the
6 remediation was done by Bechtel National.

7 And the Office of Legacy Management
8 was looking for something else in response to a
9 NIOSH request. This was about a year ago. And
10 they realized that oh, you know, wow. Here are a
11 lot of Bechtel National records, we didn't
12 realize we had these, we had thought the company
13 had them and the company said they didn't have
14 them.

15 So again, it was sort of some
16 confusion. We found them. We did about a six
17 months, might have been nine, it was a fairly
18 significant effort on LM's part to index all of
19 those records and get sort of an organized list
20 of what we have, including names of individuals
21 that were in there.

22 And right now, we're just starting to

1 work with DOL to both make sure they know those
2 are available for future claims, but then we'll
3 ask for, we let DOL assemble the list but I think
4 it's typically previously denied claims that
5 would be relevant to that records collection.

6 And they'll send us over a list of
7 past claims and we'll run that list to see if we
8 have anything that might impact old claims, and
9 they may reopen if necessary.

10 And that's what we did with the Los
11 Alamos records collection, went through them for
12 past claims and now we're also using that for new
13 claims. And actually in that collection we found
14 the medical records of the gentleman mentioned on
15 the tour yesterday. So his records were in
16 there.

17 CHAIR MARKOWITZ: Well, thank you very
18 much, Mr. Lewis. And we will take a break and
19 reconvene at 3:30 in a half hour.

20 (Whereupon, the above-entitled matter
21 went off the record at 3:01 p.m. and resumed at
22 3:32 p.m.)

1 CHAIR MARKOWITZ: Okay. While they're
2 doing the phone, I do have something to say to
3 people who are present here. At 5:00 we're going
4 to have a public comment session. There are
5 seven people who have requested, in advance, for
6 time to speak.

7 We, I think, previously communicated
8 it would be a maximum of seven minutes per
9 person. Happy to say that the number of people
10 here have also decided that they would like to
11 speak. So we're going to ask the people who made
12 an advance request who believe that they have
13 seven minutes, if you could shrink your comments
14 to five minutes because we want to make sure we
15 have time for everybody else to speak.

16 So just for the next hour and a half,
17 as you rework your comments and shrink it from
18 seven to five minutes that would be great.

19 A couple of announcements before we
20 begin the session. First, the Advisory Board
21 received two letters from ANWAG, the Alliance of
22 Nuclear Worker Advocacy Groups, over the last

1 several months. They were addressed to me, and I
2 belatedly distributed them to the Advisory Board
3 last Friday. You received them by email.

4 They are on topics mostly familiar to
5 us, in part, because we've discussed part of
6 them. But we will explicitly discuss those
7 letters tomorrow morning. So for the Advisory
8 Board Members, take a look at your email last
9 Friday. You'll see two letters, relatively short
10 letters, addressing the specific topics.

11 As far as tomorrow, we will start
12 tomorrow by discussing the recommendations that
13 have come out of the discussions over the past
14 day. So we're going to reconfigure our schedule
15 tomorrow to accommodate that.

16 Dr. Cassano, this next Subcommittee is
17 the Weighing Medical Evidence Subcommittee. This
18 is one of the tasks assigned to the Board to
19 evaluate how claims examiners look at medical
20 evidence, and see whether we can make some
21 recommendations around that.

22 Dr. Cassano?

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

WEIGHING MEDICAL EVIDENCE SUBCOMMITTEE

DR. CASSANO: Good afternoon, everybody, and thank you for attending. Our subcommittee was charge with the task of looking at how the claims examiner develops claims then determines what medical evidence is relevant, and then how they decide a claim based on the medical evidence that they get.

Subcommittee members were myself, Dr. Boden, though Dr. Markowitz was on all of the Subcommittees as an ex officio member. I actually impressed him into service on my subcommittee, Duronda Pope, Dr. Silver, and Fay Vlieger. As we go along I'll explain why we really -- we broke up into work groups to look at some stuff, and I wanted one doc, one industrial hygienist and one member of the community on each work group, so that's why Dr. Markowitz got a little bit of extra work to do.

What we looked at were the materials that were available to assist the CEs in

1 determining the development and adjudication of
2 medical claims, the logic processes. This is
3 where we want to look at the logic process used
4 from getting from what the claimant submitted to
5 what goes to the industrial hygienist, what goes
6 to the CMC, and then, finally, their final
7 decision based on all this information.

8 And then what training materials are
9 available on specific toxicants outside of the
10 SEM and to make recommendations for some of them.
11 A lot of these points have actually been
12 discussed, in part, by all of the other
13 subcommittees, so I'm hoping that when I finish a
14 lot of this will get tied together a little
15 better.

16 So on our first meeting on the 12th of
17 July we were asked by Dr. Markowitz to define the
18 issues and scope of the area, to find the data
19 and information need, and draft an initial work
20 plan. I think we got bogged down a little bit in
21 what information and data we needed, but I think
22 everybody did.

1 Then what we did at that first meeting
2 was we reviewed the procedural manual in pretty
3 detail, especially Chapter 2, and this is what we
4 found. In general, the procedural manual tells
5 the CE what to do and when to do it, but it
6 doesn't tell them how to do it. It doesn't give
7 them any information on, gee, how do you parse
8 between this piece of medical information and
9 another piece of medical information. So we
10 found that was missing.

11 In cases going to the CMC, all
12 submitted medical evidence should go to the CMC,
13 not just that which the CE determines to be valid
14 or relevant. Because we were not sure how the CE
15 actually determines what is considered relevant
16 or whether there is actually enough medical
17 expertise at the CE level to say, gee, this piece
18 of medical evidence is not relevant, but this one
19 is.

20 So we were a little leery of allowing
21 the CE to make that decision, and the same thing
22 goes for what goes to the industrial hygienist.

1 This is something that was brought up and I'm
2 just -- there are publications and consensus
3 documents available which provide better
4 information on causation and outcome, but that
5 it's not the CE's place to parse this
6 information. These are the IARC and the National
7 Toxicology Program. They need some kind of
8 document or guidance that parses it.

9 Then there were problems with the type
10 of medical evidence utilized to determine a
11 diagnosis. Again, that's already been discussed.
12 Whether it's a death certificate or in a death
13 case versus the CT scan versus a treating
14 physician's opinion, and a CMC's opinion.

15 Then, affirmative assistance. That
16 basically says that the CE may not be aware of
17 the necessary medical information needed to
18 adequately adjudicate the claim, and therefore,
19 they can't tell the claimant what's needed. And
20 the issue is with the restrictive reasons for
21 sending a case to IH or CMC.

22 Because the procedure manual tells

1 them it should be sent to a CMC when this occurs
2 or when that occurs, but it's, as far as we were
3 concerned, it was pretty restrictive. Please,
4 anybody on my subcommittee that wants to chime in
5 on any of this, feel free to do so.

6 What we did was we then set a request
7 for information, just like everybody else, to
8 Department of Labor. We had questions that we
9 needed answered, and also we had some specific
10 information and data calls that we wanted. So we
11 talked about, again, the consensus document from
12 IARC that they should be available to the CE in
13 some form, but not as raw documents because they
14 were not be able to parse them.

15 The expertise to review these and they
16 may be ignored if submitted, and I think they,
17 basically, affirmed that a lot of these are not
18 even sent to the CMC because the CE determines
19 that they're not relevant. Again, we went
20 through that same problem.

21 Deficient evidence referring to wage
22 loss. We don't believe that the treating

1 physician can make this determination at all and
2 that there has to be some other way to make that
3 decision.

4 We really wanted to know how the CE is
5 trained to weigh medical evidence. We found that
6 most of the training is basically done on the
7 job, and that a senior claims examiner sits down
8 with a new person and says, oh, this is how you
9 do this and this is how you do that. There's no
10 real standardization, from at least what we saw,
11 on how that is done. When we looked at cases it
12 was very obvious that very, very similar cases
13 were adjudicated very differently based on where
14 they were adjudicated from and who was looking at
15 them.

16 Therefore, what we did was we
17 requested to form a focus group of CEs that we
18 could sit with, at least parts of our work group
19 could actually sit with, go through claims with
20 them, and say, okay, how do you -- this is what
21 you get on this required form. How do you use
22 that? Do you use it? Do you dismiss it or what

1 happens with this information? And so we think
2 the only way we can do that is with a smaller
3 working group sitting down with CEs and actually
4 talking to them about that.

5 Then we requested the training
6 materials that are available to CEs besides the
7 procedure manual. Then we also requested the
8 Part E claims to review, specifically from the 14
9 priority areas, but there may be others as well
10 that we would want to look at.

11 So when we reviewed the cases, what we
12 did was we actually -- I was asked to develop a
13 template so we could review these cases in some
14 side of standardized format. So we asked for,
15 and this is where we found out, why Rosie found
16 out that the claim -- the information that we got
17 as the claim was not complete. We wanted to know
18 what was the original contention or contentions
19 of the claimant, and was it available -- and the
20 first question was, was it available to review?

21 The answer was no because the EE1 or
22 in a death case the EE2 was not in the claim

1 folder that we got. Was the occupational history
2 questionnaire available? Many times it was not,
3 and in sometimes the occupational history
4 questionnaire we saw one case where it was
5 actually completed after the initial decision was
6 made, went to final decision, and we don't even
7 know whether the occupational history
8 questionnaire was looked at before the final
9 decision.

10 Is there a definitive diagnosis and
11 are there alternative diagnosis possible? Most
12 of the time there was some definitive diagnosis,
13 but in a lot of cases, especially because we were
14 only looking at Part B cases the only thing that
15 we really honed in on, which is what everybody
16 else honed in on was the sarcoidosis versus the
17 CBD. But, again, the claim only went forward as
18 a sarcoidosis claim, and if there wasn't an LPT
19 it was denied and never got to a CMC.

20 Was the diagnosis accepted by the
21 claims examiner? I think most of the time it
22 was. We really didn't get a lot of information

1 on that because, again, we don't have access to
2 their thought process.

3 Were all exposures that might have
4 called the claim condition evaluated? We
5 couldn't evaluate that because we didn't have the
6 EE3 which is the work history or the occupational
7 health questionnaire. So we really couldn't and
8 we didn't get any of the industrial hygiene
9 information that DOE so nicely provides to DOL.
10 So we really couldn't do a very good job in
11 evaluating these cases.

12 Then, was it referred to a contracted
13 medical consultant? We found that if the claim
14 that was submitted had relatively good medical
15 causation information -- there were a couple that
16 were done by some occupational medicine
17 physicians who had been involved in either the
18 Former Worker Program or some residence in
19 occupational medicine where they submitted a very
20 good evaluation.

21 At which point the claim was usually
22 accepted, but if that wasn't there and it was

1 left to the CE to determine whether or not it
2 should go to a CMC for an opinion. A lot of times
3 it was not, sometimes it was, sometimes it
4 wasn't. But again, when it's sent to the CMC
5 there are very specific questions that the CE
6 asks and it's not just, hey, look at this case
7 and see if there is a nexus between any exposure
8 and disease.

9 I think sometimes the CE when in
10 asking those very specific questions misdirects
11 the CMC, and the CMC doesn't look at the whole
12 picture which I think is probably more
13 appropriate. The same thing with the industrial
14 hygienist.

15 Again, we really couldn't do much of
16 this because we didn't see a lot of what the
17 source documents were that went to the CMC. A
18 lot of times we felt that the denials were not
19 necessarily appropriate. But, again, without
20 having all the information there it's hard to say
21 that all of them were appropriate or not.

22 So we can go back to the PowerPoint

1 now. So claims folder was incomplete, all we had
2 was medical information and probably not all of
3 it, and statement of case by CE. Did not have
4 EE1, did not have EE2, did not have EE3. Did not
5 have occupational health questionnaire.

6 I guess, pretty much I already sort of
7 went through my results as I was going through
8 the template, claims denied simply on lack of
9 radiological evidence regardless of treating
10 physician's diagnosis, and maybe a myriad of
11 other medical information. But the CE decision
12 was based on a requirement for some radiological
13 diagnosis.

14 What we are going to try to do in the
15 future is to do a CE form and discuss how they
16 develop claims. We want to do a more complete
17 review of Part E claims. If our data call was
18 not clarified, I'm going to clarify it now. I
19 want the whole claims folder. I want every piece
20 of information in the claims folder because
21 that's the only way we can do this.

22 Yes?

1 CHAIR MARKOWITZ: When we make a new
2 request we're going to formulate it in detail and
3 we're going to discuss it with DOL after we
4 formulate it to make sure that we're
5 communicating what it is that we want. Also,
6 from their end, what they're able to deliver. So
7 we will do it in writing and be quite specific.

8 MEMBER CASSANO: Okay. Thank you.
9 Then finally, this whole question which we've
10 talked about already. How to operationalize
11 causation, contribution, and aggravation really
12 needs to be somehow defined, determined, and
13 there has to be some structure for how that is
14 parsed as far as a medical opinion or a denial is
15 determined.

16 Certainly, the recommendation's
17 develop better training materials that provide
18 some standardization across the process,
19 initially, for those 14 priority areas. There
20 may be others. Next recommendation is that all
21 medical evidence needs to be submitted to the CMC
22 and all of the exposure information needs to be

1 submitted to the industrial hygienist, I might
2 add. Not just that which is determined to be
3 relevant by the CE.

4 Quite frankly, the two other agencies
5 that I've been involved in, in doing this, the CE
6 does not decide what the doctor gets to see or
7 what the industrial hygienist gets to see. And
8 other evidence of exposure must be utilized other
9 than the SEM for determining work relatedness.

10 In some cases, the IH should evaluate
11 on a case by case basis. Again, this is
12 something that everybody else is already
13 determined and, again, consider presumptions.

14 With the little bit of time I have
15 left I want to go to -- and, you know, I'm not --

16 CHAIR MARKOWITZ: So, Dr. Cassano?

17 MEMBER CASSANO: Yes.

18 CHAIR MARKOWITZ: This committee has
19 until 5:00.

20 MEMBER CASSANO: So I've got time.

21 Well, you told me to go quickly.

22 CHAIR MARKOWITZ: No. Just to clarify

1 though, you have over an hour so you can, you
2 know.

3 MEMBER CASSANO: Okay. If we can skip
4 down to where you can find exposure to asbestos
5 because I think that's very relevant. Keep going
6 down the document. Sorry, I couldn't extract all
7 of this. Go past the ionizing radiation. It's
8 going to be several pages down.

9 So basically, this is -- and, you
10 know, I'm not a real apologist for VA, but I
11 think in some of these areas I think DOL can
12 learn a little bit from what VA does. So this is
13 a document that does not go to doctors. This
14 goes to the claims examiners on asbestos
15 exposure.

16 Just scroll down a little bit for me.
17 This I something that a CE can't understand. It
18 talks about fibrosis and tumors and cancer of the
19 lung. It talks about all the potential cancers
20 that can be related to asbestos exposure: lung,
21 bronchus, gastrointestinal, larynx, pharynx and
22 interestingly enough, urogenital system except

1 for the prostate.

2 We can skip the rest of this and just
3 go to the next page. So they tell you,
4 specifically, lung cancer that originates in the
5 parenchyma rather than bronchi. It talks about
6 how it's -- and then they talk about cor
7 pulmonale and significant asbestosis. I'm not
8 sure, you know, we would agree with all that.

9 But then it does talk about the
10 synergy between smoking and asbestos exposure
11 which basically says just because somebody smokes
12 you don't discount their asbestos exposure in
13 determining a claim. And then it talks about a
14 latency period.

15 A clinical diagnosis requires this.
16 But, again, this is guidance. This isn't policy.
17 Then a whole list of the tasks and occupations
18 that could possibly be exposed.

19 MEMBER FRIEDMAN-JIMENEZ: Sorry, could
20 you go back up to the definition of asbestosis?

21 MEMBER CASSANO: No, it doesn't say it
22 requires cor pulmonale. It says that in late

1 stages if they don't die of asbestos they may die
2 of cor pulmonale. It doesn't require it.

3 But it doesn't say a history of
4 exposure and radiographic evidence of parenchyma
5 lung disease symptoms and signs may include. But
6 that doesn't mean they are required for the
7 diagnosis. Only the history of exposure and
8 radiologic evidence of parenchyma lung disease.

9 It's not perfect, but it's better than
10 what DOL has now.

11 MEMBER FRIEDMAN-JIMENEZ: So it doesn't
12 include pleural plaques?

13 MEMBER CASSANO: Well, because
14 asbestosis is the disease. Pleural plaques is
15 just a marker for exposure.

16 Again, this is more military specific,
17 and it talks about some of the other things. So
18 I just wanted to give you an idea of what could
19 be done. I don't know if we want to go all the
20 way to the end of the document because that does
21 talk about mixed solvent exposure at Camp
22 Lejeune.

1 I will stop doing this if you don't
2 want to look at it. You do? Okay. Thank you.
3 If we go down to the end of the document and then
4 scroll up. I think it's Page 52. Go up a couple
5 of slides.

6 So this is a basically a mixed solvent
7 exposure. What they did here, even though they
8 don't know about it was this was based on IOM
9 report and these are all, the following is a non-
10 exclusive list of diseases potentially associated
11 with containments present at Camp Lejeune.

12 The exposures were benzene, vinyl
13 chloride, TCE, PCE, some heavy metals, and
14 several other organic solvents. So basically
15 they did a presumption on mixed solvent exposure.
16 They had esophageal cancer, lung cancer, breast
17 cancer, bladder cancer, kidney cancer, multiple
18 myeloma, neurobehavioral effects, and then they
19 have since added, believe it or not, Parkinson's
20 Disease.

21 So this, again, this is not a
22 presumption, but a lot of these are going into

1 the VA presumption. But it also talks about when
2 it's manifested, how it's manifested, how the
3 diagnosis is made, et cetera, et cetera. So,
4 again, these, I think, we don't need to copy them
5 verbatim, but I think documents like these that
6 are developed by good medical personnel.

7 This was, by the way, not developed by
8 medical personnel. This was developed by VBA
9 personnel. Sometimes with medical input, but I
10 think more documents like this are necessary.

11 I do have one other document, but we
12 can take questions now.

13 MEMBER SOKAS: Just a quick question.
14 The claims examiners at the VA what is their
15 background and what kind of training do they get?
16 Do you know?

17 MEMBER CASSANO: Basically, I think
18 their backgrounds are very similar to the claims
19 examiners at DOL. They are anywhere from GS-7s
20 to GS-10s or, very rarely, they are supervisory
21 if they are 12s. So this is not somebody with a
22 -- I mean, I believe they all have college

1 degrees, but they're not, you know, they don't
2 have graduate degrees. They don't have MPHs.
3 They don't have toxicology degrees or anything
4 like that.

5 But, you know, since 1945 the VA has
6 been building a body of evidence for these
7 people. The Central Office is very good at
8 developing, when there is a new exposure of
9 concern, of developing some kind of guidance
10 based on that exposure to tell their CEs how they
11 should start to evaluate it.

12 So, essentially, a CE looks at or
13 should look at that list of potential cancers
14 from asbestos, and if it matches up it will
15 automatically, and the person has exposure, it
16 will automatically go to a medical examiner for
17 either a disability exam or for what's called a
18 medical opinion. A determination of whether or
19 not they consider the disease service-connected
20 to asbestos exposure, whatever exposure the
21 contention is in.

22 They have to give, the CMC has to --

1 not CMC, the claims examiner, the C&P examiner in
2 this particular instance has to give a
3 rationalized opinion for why that is, including
4 references that they've used to make that
5 decision. Even if those references are not
6 included in the training document.

7 I think at the end of some of these
8 there are references in the training document,
9 and the examiner is free to use whatever other
10 information they can glean. So it becomes, you
11 know, it becomes a more inclusive process rather
12 than a restrictive process.

13 Any other questions? Yes, sir?

14 CHAIR MARKOWITZ: So if there are
15 exposure criteria that the claimant needs to meet
16 that are specific, and if the diseases are
17 specified by the VA as to what may be related to
18 that exposure then why is a medical opinion even
19 needed? Because if a person meets the exposure
20 criteria and if they have a disease that's linked
21 what is the role of the physician in actually
22 reviewing this information on that specific case?

1 MEMBER CASSANO: Because it's not a
2 presumption. Again, they recognize the fact that
3 the CE can't say with medical certainty that,
4 gee, in this case the disease was caused by the
5 exposure in the military.

6 Let's say a guy is an aircraft
7 mechanic in the military and then he spent
8 another 20 years as an aircraft mechanic, you
9 know, working for Pratt & Whitney, or somebody
10 like that. The CE can't say, gee, you know, they
11 don't rely on the CE's expertise to say, oh, the
12 20 years at Pratt & Whitney was way more
13 injurious than the seven years in the military.

14 That would be left to a C&P examiner.
15 Also, but what is more interesting is the claims
16 examiner, if they cannot rule on a claim based on
17 a presumption it is supposed to go to a medical
18 examiner to get a medical opinion. That's final.
19 A lot of times it doesn't happen, but every case
20 that I've seen that comes back on appeal the
21 board or the court will sit there and say it's
22 remanded because there is no medical opinion.

1 MEMBER BODEN: Just one quick question
2 about the VA system. Does that person see a
3 doctor rather than the doctor seeing their
4 records, which is the case here?

5 MEMBER CASSANO: It depends on what's
6 needed. If there is, again, sufficient evidence
7 to determine disability by the treating
8 physician, and I can bring up another document
9 that would help with that, it goes for medical
10 opinion.

11 Because, remember, the VA has its own
12 schedule of rating disabilities that has nothing
13 to do with AMA guides at all. It's arcane. It's
14 old. So what they will do is they send them for
15 a C&P exam. That confirms the diagnosis. It
16 confirms the exposure.

17 Then, based on their disability rating
18 there are specific questions asked as to -- for
19 instance, for heart disease. You know, is there
20 a stress test? What METS was the person able to
21 accomplish on a stress test? Is there angina
22 with walking upstairs? Is there angina, you

1 know, walking down the street? Is there rest? I
2 mean, all those kind of questions which will help
3 determine disability.

4 So it might be very easy in this, not
5 easy, but at least theoretically easy, with a lot
6 of work, to look at the conditions, look at the
7 AMA five and basically for each condition say,
8 okay, these are the criteria for impairment and
9 certain levels of impairment. We need to be
10 making sure the treating physician answers all of
11 these questions.

12 Any other questions? Any members of
13 my committee that wish to talk about some of the
14 cases they reviewed? I know this was sort of
15 quick and dirty, but we didn't really have a lot
16 of information to go on in order to do a deep
17 dive into any of this.

18 That's it? No discussion? No
19 questions? Go ahead.

20 MEMBER BODEN: Just a question for the
21 committee as a whole. So we've been on several
22 subcommittees talking about the possibility of

1 developing presumptions, which I think to the
2 extent that we can do something like that will be
3 quite helpful to DOL.

4 Have we talked about who and how we
5 would do that? Which subcommittee or which group
6 of people who might be on different subcommittees
7 might take on specific covered diseases to see
8 how far we could get or whether that should be
9 something that we might start the process, but
10 might end up being developed outside this
11 advisory committee?

12 MEMBER WELCH: I think our committee
13 thought it might help to also start with an
14 understanding of the major diseases that are
15 being claimed. You know, some presumptions will
16 be easier to write, but there may not be that
17 many claims for them, so it might not ever be
18 helpful.

19 So one of the things we're going to
20 request is a list that gets us an idea, just to
21 start with by very broad categories, and see if
22 we can kind of over some iterative process drill

1 down to better understand the major kinds of
2 claims that are coming in at the present time.
3 And there are, I don't know how many presumptions
4 exist.

5 I mean, there's one for asbestos
6 related disease. There's one for COPD. There's
7 the legislative ones for beryllium disease. Then
8 we talked about the solvent hearing loss. There
9 are probably others that I'm not familiar with.
10 So we may end up deciding, one of the first
11 things would be to improve the ones.

12 If COPD's a major number of claims --
13 that doesn't really answer your question of who's
14 going to do it. I think when we were talking
15 about the hearing loss one, Dr. Sokas had raised
16 the question earlier when we were talking also
17 about adding new data sources to the SEM that
18 either this committee or EEOICPA needs a
19 subcontractor to do some of the technical --
20 gathering papers, doing assessment.

21 But that's more than this board can
22 take on. We'd need that for development of

1 presumption. So I'm assuming it would be some
2 combination of the board's expertise with
3 oversight, review, and a contractor. That was my
4 thought.

5 CHAIR MARKOWITZ: Dr. Redlich?

6 MEMBER REDLICH: I would just suggest
7 before we decide who does what if we came up with
8 what we thought would be a better system to
9 address these issues, and let's say, come up with
10 presumptions, and to then reevaluate them going
11 forward. If we came up with that then the next
12 step would be, you know, how one would implement
13 that.

14 Because I think, realistically, if you
15 do come up with presumptions then there's also
16 the education, the implementation. There has to
17 be a feedback on how all of that is working, a
18 re-evaluation as more data comes in. It's not
19 that I want to pass this off to another body, but
20 I think we should first think about how this
21 would be better working and then what sort of
22 manpower would be needed to do that.

1 Because it's clearly a lot of manpower
2 that's being spent on SEM and other activities.
3 So I think if we came up with a plan there should
4 be, then, resources to implement that.

5 CHAIR MARKOWITZ: Dr. Cassano?

6 MEMBER CASSANO: I do have one other
7 document. It actually pertains to multiple
8 sclerosis.

9 CHAIR MARKOWITZ: I'm sorry, let me
10 just say, is this about presumptions or this
11 about the committee?

12 MEMBER CASSANO: It's about the
13 committee. It's about the subcommittee and
14 another document that might be useful for the CPs
15 to use or for DOL to use to get information from
16 treating physicians.

17 CHAIR MARKOWITZ: I'm wondering whether
18 we should just hold off for a couple minutes on
19 that and just continue the presumptions
20 discussion?

21 MEMBER CASSANO: Okay.

22 CHAIR MARKOWITZ: I mean, if you think

1 it's highly relevant.

2 MEMBER CASSANO: No, it's not highly
3 relevant right now.

4 CHAIR MARKOWITZ: Okay. Then we'll get
5 back to it, for sure, today.

6 So, you know what? Presumptions can
7 be useful or not useful. They can be good or
8 bad. We discussed the post-1995 exposure memo.
9 That was a presumption. Presumption was that
10 exposure was controlled after 1995, unless proven
11 otherwise, and we disagreed with that
12 presumption.

13 So presumptions aren't inherently good
14 or bad. That's one of the things I've learns
15 from Dr. Boden. So I thought it would be useful
16 to look at the way DOL has used presumptions. So
17 when we think about presumptions we think about a
18 way of efficiently characterizing claimants and
19 their exposures and diseases in a way that will
20 facilitate arrival at the proper claims'
21 decision.

22 That can be a tricky process, and I

1 think it would be useful if we look at the
2 specific ways in which presumptions have been
3 used and I think, to some extent, not used
4 properly. The intention was to continue to
5 discuss some of that tomorrow morning by looking
6 at some of the instances of presumptions, which
7 we could begin to do this afternoon if there's
8 time. We'll see.

9 Dr. Redlich, did you want to say
10 something?

11 MEMBER REDLICH: No.

12 MEMBER CASSANO: I wanted to bring the
13 one up for pulmonary diseases, but somehow, and
14 maybe it's better that it's multiple sclerosis
15 that I'm bringing up because you won't have
16 objections to some of the content.

17 But, again, the concept, and this is a
18 disability benefits questionnaire, and I never
19 thought I would be advocating these because I
20 fought vehemently against them. But they
21 basically go through what is required for the
22 treating physician, to the treating physician, or

1 it could be to the C&P examiner as well, exactly
2 what is required to meet the criteria for service
3 connection for a certain disability.

4 So, unfortunately, I brought up -- and
5 remember, they're relating this to a document, a
6 schedule of rating decisions that was originally
7 written in 1942, and therefore, has not kept up
8 with modern medicine much. But, again, the
9 concept.

10 So this is the name of the patient.
11 All of the diagnoses that the patient is going to
12 claim. The ICD-9 code for all of them and the
13 date of diagnosis. So is there additional
14 diagnoses related to MS? List and use the above
15 format. So any secondary conditions would be
16 listed here.

17 Then they ask, because this is
18 important for determining disability, are they
19 right-handed or left-handed. Then all of the
20 conditions, signs, and symptoms that the patient
21 has that are due to MS. And so you can see how
22 this is walking down to get to a particular line

1 on a rating disability scale so that you can go
2 across and say, okay, this person has this. They
3 have this. They have the other thing.

4 Even in the AMA guides, when you look
5 at that, again, they talk about disability. This
6 is really rating impairment, as we all know,
7 those of us in this profession, impairment and
8 disability are two different things. So this is
9 really rating impairment, but they say it's
10 rating disability because there is a direct link
11 in VA between impairment and disability.

12 Are there any respiratory conditions?
13 And so, again, we don't need to belabor this, but
14 I want to get down to where the medical opinion
15 is and where the person that actually opines as
16 to what -- I know you hate that word, but opines
17 as to the causation.

18 So are there sleep disturbances? Are
19 there bowel functional impairments due to MS?
20 Voiding dysfunction? History of recurrent
21 symptomatic urinary tract infections? Then, I
22 mean, this is how specific this is, it goes

1 through strength and range of motion, et cetera.

2 So the treating physician, when they
3 get this, knows exactly what they have to write
4 to get somebody's claim denied and get reasonable
5 disability from them. Then they talk about
6 financial responsibility. They always ask this
7 question. Then any remakes and I think that's
8 the end of it.

9 So that's just, again, not specifics,
10 but a concept for what could be utilized to tease
11 the appropriate information out rather than phone
12 calls back and forth, and did you do this? And
13 did you do that? It says exactly what diagnostic
14 tests, obviously, in MS there aren't a whole lot,
15 but diagnostics tests.

16 You need to say whether they were done
17 and what the results were. Just a thought. Any
18 comments or questions or suggestions?

19 MEMBER WELCH: The only comment I have
20 is that, you know, when people apply for
21 disability, which is usually managed by a state
22 program there are similar forms that are

1 completed by the examining physician in terms of
2 impairments. It's not as disease specific.

3 So, I mean, this is great, but then
4 you'd need one for each disease. But to make it
5 a little bit easier one could use the, you know,
6 Medicaid disability form. Then the Social
7 Security examiners use that to determine
8 impairment directly from the form.

9 MEMBER CASSANO: What's nice about this
10 thought is that it's -- well, it's not always
11 disease specific. Sometimes it's organ system
12 specific, so it will be peripheral neuropathy or,
13 you know, pulmonary diseases all lumped into on.

14 So the Medicaid one you have to go
15 through a whole bunch of things that aren't
16 relevant to that disease. So when you're looking
17 at the claim it becomes very complicated to see
18 what's relevant and what isn't.

19 MEMBER REDLICH: I just wanted to make
20 a correction to something I said earlier, because
21 I said that I thought coming up with presumptions
22 was beyond, potentially, the scope of what we

1 could do while I also proposed a presumption
2 relating to sarcoidosis and CBD. Those are
3 contradictory statements. So I think that there
4 may be certain areas where we could come up with
5 presumptions, but I do think that the process
6 could become quite extensive.

7 CHAIR MARKOWITZ: Dr. Boden?

8 MEMBER BODEN: So the idea of a form
9 that directs treating physicians is always a good
10 one I think because, especially because most of
11 the treating physicians are not going to be
12 occupational physicians. They're not going to
13 have the kind of experiencing and understanding
14 that occupational physicians would have.

15 It could also be, if we end up
16 thinking that specific presumptions are a good
17 way to go, a way to direct physicians to make
18 sure that they do the tests that are called for
19 in the presumption, and would short circuit a
20 little bit the back and forth, and back and forth
21 that I gather.

22 CHAIR MARKOWITZ: Any other comments at

1 this point? Because we do have a little bit of
2 time, and I'll go onto Dr. Silver in minute. We
3 could actually move on to begin the discussion
4 about causation which we won't be able to
5 complete, necessarily, but then come back to it
6 tomorrow. We can entertain any additional final
7 comments here.

8 Dr. Silver, did you want to say
9 something?

10 MEMBER SILVER: Maybe I shouldn't admit
11 this, but in early 2000 an Atomic Veterans
12 Advocate contacted those of us who were working
13 closely with Senator Bingaman, people refer to
14 EEOICPA as his baby. He said, stay away from
15 that radiation dose reconstruction. It's
16 horrible. He was right. We didn't really have
17 that much pull with the senator who was
18 straddling a line.

19 Anyway, if we had a room full of Camp
20 Lejeune people and Vietnam dioxin exposed
21 individuals, and others covered by this VA
22 program, and a stack of GAO reports, and a stack

1 of Congressional hearings what would be the flaws
2 with the VA's use of presumption that all of them
3 would be pointing out to us?

4 MEMBER CASSANO: I'm not sure I
5 understand the question.

6 MEMBER SILVER: The VA has, evidently,
7 a much longer track record of developing what
8 appear to be fairly permissive or flexibly --

9 MEMBER CASSANO: Generous.

10 MEMBER SILVER: -- written
11 presumptions. We have EEOICPA, the devil we
12 know. Tell me more about the devil we don't
13 know.

14 MEMBER CASSANO: Okay. I think what
15 happens in VA is a lot of times VA will drag its
16 feet to that point that they are forced to do
17 something. Therefore, what happens is they come
18 up with these overly generous presumptions
19 because they didn't do all of the appropriate
20 scientific analysis early on enough to be able to
21 get good epidemiology and/or good toxicology.
22 Agent Orange is a perfect example of that.

1 So what happens is their hand is
2 forced and they get into this overly generous
3 process because they don't want to waste anymore
4 time trying to figure out what really is
5 reasonable and what isn't. In the Camp Lejeune
6 case, this has been going on, they knew about
7 this in 1987, 1988. It took them 30 years to get
8 to this point.

9 It was only in the late 1990s, early
10 2000s that they actually asked ATSDR and IOM to
11 look at it. By that time, you can't get very
12 good information. So you're looking at other
13 cohorts, and then you have to somehow extrapolate
14 the information you get, primarily from
15 occupational cohorts to an environment -- this
16 was an environmental exposure.

17 What happens is nobody could really do
18 it to any extent that would, basically, satisfy
19 the people that are looking at the pot of money
20 that there is to spend and the claimant
21 community. And so what happens is we had
22 recommended in my task force on Camp Lejeune that

1 the time period should be a minimum of six
2 months. We thought maybe a year would be better.

3 But then, even at six months, if you
4 weren't doing a presumption that you need to
5 figure out, you know, what this person was doing.
6 Six months at Camp Lejeune if you're a grunt
7 running around out in the field in the middle of
8 the summer where it's 110 degrees and you're
9 drinking six liters of water is very different
10 than the legalman sitting in an air conditioned
11 office, you know, drinking a cup of tea.

12 But they don't want to -- they don't
13 have the capacity to deal with that. So
14 therefore, they end up making these overly
15 generous presumptions. But what I was showing
16 you on asbestos is not a presumption. That is
17 not a presumption. If it was a presumption
18 they'd say, basically, you show you have asbestos
19 exposure or you were on a ship whose keel was
20 laid before 1978, and you have pulmonary fibrosis
21 or you have mesothelioma, or you have lung cancer
22 you are compensated.

1 There's none of that logic process.
2 This is for somebody that does not fall under a
3 presumption, that training document that I
4 showed. So, again, it helps the CE to figure
5 out, gee, do I have all the information I need to
6 send to the medical examiner.

7 Did I answer that?

8 MEMBER SILVER: What about the cost of
9 program administration when card-carrying MDs are
10 more extensively involved in each claim?

11 CHAIR MARKOWITZ: If you could give a
12 brief answer to that.

13 MEMBER CASSANO: You want a brief
14 answer to that? I think because some of the
15 card-carrying MDs actually were employed by VA
16 they're doing other things besides this. So your
17 neurologist is doing the neurology stuff, but now
18 that they're going more to contracts, and again,
19 people that may not know all this I think you're
20 going to see a less efficient process.

21 Was that short enough?

22 CHAIR MARKOWITZ: Yes, thank you. So

1 we're going to spend -- we've got about 35
2 minutes, so we're going to entertain a new topic.

3 I'm sorry, Duronda, go ahead.

4 MEMBER POPE: I just wanted to comment
5 on the responsibility that our team was charged
6 to do. I think if we start to address the
7 responsibility of the CE and them collecting all
8 this information from the claimant, and their
9 responsibility of determining whether this goes
10 to the CMC or not. If we remove that
11 responsibility from them I think that that would
12 move the process of this claim being moved
13 forward. I just wanted to comment on that.

14 CHAIR MARKOWITZ: Okay. Thank you. So
15 I prepared a few slides to begin the discussion,
16 really, about causation. It's a little bit of an
17 orientation to how we think about causation.
18 Some of you may disagree with some of these
19 things. That's great. That's the purpose of
20 having a discussion.

21 Is this PowerPoint meant to resolve
22 this problem or really just to raise the issues

1 as points for discussion? I wanted to start
2 with, actually, looking at the language from the
3 act that is used to link exposures that DOE
4 workers have had with illnesses. At least as
5 likely as not that an exposure to a toxic
6 substance at a DOE facility was a significant
7 factor in aggravating, contributing to, or
8 causing an illness.

9 Actually, there are three points in
10 this phrasing that could have been different. At
11 least as likely as not is as generous as standard
12 as you will see. It could have been more likely
13 than not which would make it above 50 percent.
14 By the way, numbers aren't used in this standard.
15 It's really qualitative language which is fine or
16 it could have been highly likely or most probably
17 or something like that. But instead Congress
18 used at least as likely as not.

19 A significant factor. That's somewhat
20 in the eye of the beholder, but normally we would
21 think of that as a non-trivial factor, right?
22 And significant can be 10 percent, can be 90

1 percent. It's not quantified. But it's
2 important that that language is in here.

3 Then, finally, it's not just causing,
4 but it's also aggravating or contributing. We
5 normally think of contributing as being somewhat
6 less rigorous as causing something, although I
7 would disagree with that for reasons I'll show
8 you in a minute.

9 So it's useful to think about the
10 problems the DOE workers have in terms of the
11 timeline, this horizontal line as a timeline in
12 which a person in the middle of a timeline
13 develops the disease, is diagnosed with the
14 disease, and before that time the disease is
15 incubating, right?

16 In that incubation period a toxin may
17 act to cause that disease's onset. There may be
18 other factors as well that are active during that
19 incubation period. Then after the person has the
20 disease, that's the period of onset, there's the
21 course of the illness, what happens, how that
22 illness develops, arrests, or not. How it's

1 treated or not.

2 The toxin can influence then that
3 course of illness. There, I think, we talk about
4 how a toxin affects the course of illness or
5 really kind of into aggravation of disease.

6 Before the disease onset we're onto causation of
7 disease. I would say that contribute to disease
8 can occur, actually, before or after disease
9 onset. It could be during the incubation period
10 or it can be throughout the course of the
11 illness.

12 So we talk about cause and effect and
13 I want to introduce the idea of a complete cause
14 producing a certain effect. This would be an
15 instance in which there is an exposure, a risk
16 factor, however you want to think about, but an
17 exposure in which in and of itself it will cause
18 the health problem. Nothing else is needed for
19 that person to develop a health problem from that
20 exposure, from that toxin.

21 In fact, we would expect 100 percent
22 of people who are expose to that cause, to that

1 toxin, to develop the effect. That's what we
2 would say would be a complete effect. An example
3 of that is acute inhalation of chlorine.

4 So chlorine's a toxic gas and
5 everybody exposed to enough chlorine will develop
6 respiratory irritation. There won't be any
7 exceptions, and they all show particular outcome
8 which is the respiratory irritation. No other
9 co-factors are needed. They don't have to be
10 genetically susceptible to that. They don't have
11 to have emphysema or anything like that. They
12 merely need to be exposed to enough chlorine gas.
13 So chlorine gas would be a complete cause.

14 But there's another type of cause, and
15 I think it's much more common, which is a partial
16 cause which is a risk factor, toxin, or however
17 you want to think about it which causes a health
18 problem, but it only does so in concert with
19 other causes, with other risk factors. Meaning
20 that in and of itself it won't produce the
21 outcome, but it is active when there are other
22 causes, even when those other risk factors

1 aren't, necessarily, identified.

2 A common example of that is smoking
3 and lung cancer. So when a person develops lung
4 cancer and they smoke you say that smoking caused
5 their lung cancer. But, in fact, you know, of
6 course that majority of people who smoke don't
7 develop lung cancer. Right? Only 10 percent do.
8 So, clearly, there has to be something else going
9 on with those people who have lung cancer from
10 smoking such that they develop the lung cancer.

11 So smoking played a role. It was a
12 cause. But it wasn't the complete cause because
13 there is something else going on for that 10
14 percent that the 90 percent who smoked who didn't
15 develop lung cancer didn't have. This, actually,
16 is what Dr. Sokas said before when if everybody
17 was a smoker we would blame it on genetics.

18 Because that 10 percent probably has
19 some genetic predisposition. That's probably the
20 most commonly other cause that's unspecified. We
21 don't know exactly what those genes are yet. So
22 it's an unknown cause, but nonetheless, those

1 genes represent a partial cause in addition to
2 the partial cause of smoking.

3 The reason why I make that distinction
4 is because partial cause, another way, in my
5 view, is to simply call that a contributing
6 cause. So that risk factor contributed to that
7 cancer. So in this way of thinking a
8 contributing cause is no less than what we would
9 normally consider a cause.

10 So in the standard where it says,
11 caused, aggravated, or contributed, most of that
12 causing is actually contributing. It, in my
13 view, elevates contributing where it's not
14 secondary to cause it is. It is a cause. In
15 fact, an equal case to ways in which we think
16 about other causes. So contributing factors are
17 causal factors.

18 Now, talking about partial causes,
19 let's discuss a familiar example. This isn't
20 really a DOE condition, though it could be if I
21 changed the risk factors to, say, carbon monoxide
22 exposure. But here are four common risk factors

1 for heart attacks: high blood pressure, smoking,
2 elevated cholesterol, and a family history of
3 coronary artery disease.

4 This represents the norm which is that
5 most diseases are multi-factorial. Most of them
6 have multiple causes, and multiple causes are
7 active in any given persons' particular illness.
8 So if a person has a heart attack, chances are
9 they have two, or three, or maybe all of these
10 risk factors, and each of these would be a
11 contributing cause to their heart disease.

12 We don't normally say how much they
13 contribute. We would say if a person had
14 hypertension and had a heart attack, if they had
15 a history of untreated elevated serum
16 cholesterol, if they had a family history of
17 early heart disease we would say they were all
18 contributing factors.

19 But we wouldn't say the smoking was 20
20 percent and the cholesterol was 30 percent. In
21 fact, I would maintain we would have a hard time
22 actually putting a number on that, and for

1 complicated reasons. Even for the most
2 researched and common health outcome which is
3 coronary artery disease we'd probably have a hard
4 time putting a number on the contribution in any
5 particular case for these risk factors.

6 Think about it, an individual may have
7 hypertension, but it was treated for five years,
8 maybe untreated for another five years. A person
9 had mild elevation in cholesterol as opposed to a
10 very high elevation. They had a family history,
11 but it wasn't so strong. You'd have to quantify
12 each of those risk factors, figure out how they
13 relate to each other, do they interact with each
14 other in order to put a number on that.

15 We don't do that. There's no need to
16 do that. We simplify the situation. We say
17 those are contributing causes to this person's
18 heart attack, and we'd be right by characterizing
19 it as such.

20 And so those risk factors would be, at
21 least as likely as not, to be significant factors
22 in contributing to that person's illness. That

1 would meet this standard set up under EEOICPA.

2 I would maintain that, in fact, most
3 contributing causes probably contribute less than
4 50 percent of the causation. Now, mind you,
5 unlike on the radiation side of EEOICPA no one's
6 putting a percentage on the contribution. We
7 don't have to add up the radiation dose and
8 calculate a Probability of Causation. We can't
9 do that, actually, on the toxic substances side.
10 That's one of the reasons we don't do that.

11 But in thinking about it, most of
12 these contributing causes would probably be less
13 than 50 percent of the contribution towards
14 causation. Nonetheless, we would recognize them
15 as contributing factors and accept them as
16 contributing factors.

17 So I want to make a distinction then
18 between the level of certainty that a toxin is a
19 cause of disease. Does benzine, in general,
20 cause leukemia as opposed to the degree to which
21 a toxin contributes to an illness which I just
22 said is routinely less than 50 percent. Right?

1 So the level of certainty that a toxin
2 is a cause of an illness, and that's really what,
3 for instance, Dr. Friedman-Jimenez was reviewing
4 when he was talking about different exposures and
5 are they related to prostate cancer or the like.
6 And so the way IARC approaches this issue of
7 level of certainty, and this is for cancer.
8 Carcinogens are the cancer producing agents they
9 look at, and they have a classification system.

10 They said Group 1, which is after they
11 review all the relevant studies that say it's
12 carcinogenic to humans. That's definite. Group
13 2A is probable. Group 2B is possible, and Group
14 3 is we don't really know enough to be able to
15 say, and Group 4 is we've looked at all the data
16 and it's pretty conclusive that it doesn't cause
17 cancer.

18 You can actually see how many agents
19 they've reviewed that fall into these different
20 categories. So if we're thinking about level of
21 certainty that a toxin produces a disease we
22 would think normally that Group 1 and 2A are the

1 level of certainty that we would accept. It was
2 definite or it was probable.

3 If it was only possible we probably
4 wouldn't accept that level of certainty as
5 causing the disease. And so level of certainty
6 is more likely than not, and that's where the
7 definite or probable comes in. Whereas, possible
8 doesn't meet that standard of more likely than
9 not.

10 So the second issue was the degree to
11 which a toxin contributes to an illness. Here,
12 routinely I just said that most contributing
13 factors do contribute less than 50 percent and
14 that's perfectly fine with us. That's
15 acceptable. That's the way we recognize things.

16 So I want to give you an example then
17 of, we're all familiar with, which is second-hand
18 smoke. And is it more likely -- again, this is
19 not a DOE exposure, per se, not now, maybe it was
20 in the past. But not necessarily subject to
21 EEOICPA, I don't really know. But it's an
22 example to begin just to understand causation.

1 Is second-hand smoke more likely than
2 not in aggravating, contributing, or causal
3 factor to lung cancer? So what's the answer to
4 that? Well, the answer is, sure. We recognize
5 second-hand smoke causes lung cancer.

6 So let's look at the kind of numbers
7 that Dr. Friedman-Jimenez was discussing a little
8 bit before, and understand what's that based on.
9 Well, the Surgeon General in 2006 reviewed this.
10 They had reviewed it in 1986, but they re-
11 reviewed it in 2006 and they looked at over 75
12 studies, so a lot of studies of second-hand smoke
13 and lung cancer.

14 They determined the best estimate of
15 all those studies was that there was a relative
16 risk of lung cancer due to second-hand smoke of
17 1.2. So what that means is that people subject
18 to second-hand smoke had a 20 percent increase in
19 risk of lung cancer. Okay? The risk in the
20 people exposed to second-hand smoke relative to
21 the risk of people who are not exposed to second-
22 hand smoke.

1 If that relative risk were two-fold
2 then that meant there would be a doubling of risk
3 among people exposed to relative risk. By the
4 way, relative risk of 1.2, a 20 percent increase
5 in risk is what we would consider to be a very
6 modest increase of risk by way of looking at
7 toxins or risk factors or the like. Or
8 cigarettes, for instance, the relative risk of a
9 moderate amount of cigarette smoking is probably
10 10, relative risk would equal 10. It would be 10
11 fold that of the never smoker.

12 So to express this slightly
13 differently, if there were a population of 100
14 people and ten of them who never smoked and
15 weren't exposed to second-hand smoke, let's say
16 10 would develop lung cancer, which is a little
17 high, but let's just use that to make the numbers
18 easier. If 10 out of 100 would develop lung
19 cancer, among the group exposed to second-hand
20 smoke there would be 12, right? A 20 percent
21 increase, 12 out of 100 who would develop lung
22 cancer.

1 Note that of those 12 that's only two
2 higher than 10, right? Most of those lung
3 cancers in the people exposed to second-hand
4 smoke would have occurred anyway, even without
5 the second-hand smoke. Right? They would be in
6 the base 10 that went up 12. Nonetheless, they
7 would say among those 12 that second-hand smoke
8 contributed to their lung cancer risk.

9 So there's a question that is current
10 in medical/legal circles and I need to raise it
11 because it's sort of in the back of some of our
12 minds which is does a toxin have to have a two-
13 fold increase in risk for a disease to be a
14 contributing factor. The answer, I think we just
15 agreed upon from second-hand smoke is no.

16 It doesn't have need to a relative
17 risk of two because we just acknowledged that
18 second-hand smoke, which has a relative risk of
19 1.2, we recognize as a contributing factor. So
20 we can reject the two-fold increase in risk as
21 being a threshold which is important.

22 Now, EEOICPA doesn't specify a level

1 of contribution. It doesn't say 10 percent
2 contribution, 90 percent contribution or the
3 like. I raise the question, is it even possible
4 in most multi-factorial diseases to quantify the
5 contribution? The answer is no. We really can't
6 do that. We can't quantify it.

7 But, fortunately, EEOICPA doesn't
8 require that we do that. It simply sets the
9 standard of it is a contributing factor? Is it
10 an aggravating factor or a causal factor?

11 That's all for my comments on
12 causation. I don't think I've solved our
13 problem, but at least I've been able to, I hope,
14 to kick off a discussion.

15 Dr. Welch?

16 MEMBER WELCH: I would say, of course
17 I've got a comment. Because the other thing that
18 you add to that is the word significant. So if
19 you have someone who, let's use second-hand smoke
20 for example. If you have someone whose only
21 exposure to second-hand smoke was as a lifelong
22 career as a bartender.

1 When you look at all those studies
2 that were included in the Surgeon General report
3 a lot of the studies, the occupational studies,
4 were people who had -- that's much higher
5 exposure than the second-hand smoke you get being
6 in an office environment, so there's some
7 relative -- but if they were not a cigarette
8 smoker themselves, but were a bartender then that
9 relative risk of 20 percent was really their only
10 identified risk factor. Because they didn't have
11 other identified risk factors, except maybe the
12 genetics that we don't know. So it's easy to say
13 that second-hand smoke was a significant factor
14 in contributing to their lung cancer.

15 But if they, themselves, had been a --
16 smoked one pack a day for 30 years which then
17 gave them a 20 fold increase risk or how do I put
18 that in a relative risk? It's 20, so then it
19 goes to 20.2 when you add in the second-hand
20 smoke. It would be hard for me to say that .2 is
21 a significant factor.

22 So it's looking at the relationship.

1 You know, by itself, second-hand smoke is a
2 causal factor. But then in an individual case it
3 has to be a significant factor in contributing.
4 So it's balancing what we know about the risks
5 for that other individual, and this is a
6 statement on an individual person.

7 So it's not going to come up with
8 that, but it would come up with, for example, we
9 talked about solvents and hearing loss. I have
10 no idea where I would put the concept of
11 significant. You know, how much solvent exposure
12 it would take for me to say that -- because I
13 don't really know the literature well enough, but
14 there's probably a place where you could say,
15 okay, reasonable scientists who understand it
16 would say a year of exposure to solvents or ten
17 years of exposure to solvents is a good level to
18 say it's a significant factor.

19 There's literature that would let you
20 do that. So I think -- I loved your talk,
21 actually, I shouldn't have started out by jumping
22 in because I thought it was really good. You

1 kind of say is that substance known to cause,
2 including the contributing, the illness, and then
3 how do you move forward to say it was a
4 significant factor in the cause of that
5 individual? So those are two different steps.

6 But I think all the points you made
7 are really, really good. That it's at least as
8 likely as not is applied to the opinion that it
9 was a significant factor. It's not the definite
10 of significant. It's not the definition of
11 contribute or cause. It means if I'm expressing
12 an opinion I'm expressing it with a certain level
13 of probability, but not certainty that the
14 exposure was a significant factor.

15 So that anything that has to do with
16 saying 50 percent becomes kind of irrelevant to
17 this statement. Really it's once you know that
18 toxic substance cause that illness how you define
19 it as significant contribution. Thanks.

20 MEMBER CASSANO: Two comments. I
21 liked your presentation and I think it was right
22 on as far as level of contribution and level of

1 significance. Let's throw diesel exhaust into
2 the smoking. You know? Somebody smokes and
3 they're also a diesel mechanic and they're
4 exposed to diesel exhaust for, you know, 20 years
5 you're not going to be able to parse the
6 contribution of those two things.

7 So I think the legal term that we see
8 and should be used is that it does not have to be
9 necessary and sufficient in and of itself to
10 cause the disease. And that the other part of it
11 that we don't understand a lot, at all about,
12 except for in the case of asbestos and smoking is
13 the synergy between two causes.

14 I think if we were thinking about
15 going to the more than likely bar I think people
16 when they see that, especially legal folks, when
17 they say more than likely they want definitive
18 statement that in every single solitary case if
19 you are exposed you will develop the disease. So
20 I would stay at, you know, for this type of thing
21 I would stay at the at least is likely is not
22 level. Because that is equipoise and that, you

1 know, allows a little bit more wiggle room.

2 MEMBER WELCH: The law says that
3 actually. So Dr. Boden and Dr. Friedman-Jimenez?

4 MEMBER BODEN: So just a short side
5 comment. I mean, there is also, which is maybe
6 marginally important for us, the concept of a
7 necessary cause. So you're not going to
8 beryllium disease without beryllium exposure or
9 asbestos or mesothelioma. And those, I think,
10 are important, probably, concepts although not
11 central to the argument that you make which I
12 think is really very good.

13 I do think in terms of trying to
14 communicate to claims examiners that the most
15 difficult thing to communicate is going to be the
16 significance. Because I think they would
17 probably appreciate some magical number which we
18 can't give them, as you pointed out. It might be
19 worth our thinking a little bit about how to help
20 people decide whether something is significant or
21 not significant. I think is an issue.

22 CHAIR MARKOWITZ: Let me just respond

1 to that. But if it's really a question of
2 judging the significance that shouldn't be in the
3 hands of the claims examiner. That really needs
4 to go to the physician with the help of the
5 industrial hygienist.

6 Because if there's a question about
7 the significance, if it's a clear cut case, I
8 mean, hopefully it can meet a presumption and not
9 have to go to the expert. But if it's a question
10 of is this significant or not I don't think the
11 CE has the knowledge expertise to make that.

12 MEMBER BODEN: Oh good. That's
13 actually a very helpful comment which suggests,
14 and I don't know if this is part of the manual
15 that the claims examiners use, that should be
16 clearly stated. That if there's a question at
17 all about whether something is significant that
18 question should be referred.

19 CHAIR MARKOWITZ: Dr. Friedman-Jimenez?

20 MEMBER FRIEDMAN-JIMENEZ: The
21 terminology of as least as likely as not is
22 problematic mathematically. And there have been

1 papers written and criticisms of it for 40 years.
2 The problems are well-understood. Nobody has
3 figured out a way around it in the last 15 years
4 since the last papers have been written on this.

5 My question is, is there a possibility
6 of changing the causal standard? For example,
7 like in New York State the Workers Comp law says
8 within a reasonable degree of medical certainty
9 which gives the physician some leeway and is not
10 a fundamentally quantitative statement. At least
11 as likely as not can be translated into
12 probability of causation greater than 50 percent
13 or greater than equal to 50 percent.

14 But there's no way to calculate the
15 probability of causation. That's the problem.
16 It's a theoretical thing that cannot be
17 calculated from epidemiologic data. Even if you
18 add aggravating or contributing to there's no
19 epidemiologic data that you can use to calculate
20 this newly defined probability of causation or
21 aggravation or contribution.

22 So my question is, should we be

1 thinking about changing the standard to something
2 like, with a reasonable degree of medical
3 certainty. That gives the physician some leeway
4 to make a decision. One example I would give
5 you, physicians prescribe hormone replacement
6 therapy which can cause cancer, uterine cancer
7 and other cancers.

8 The relative risk is about 1.3.
9 There's no way that you can calculate a
10 probability of causation of greater than .5.
11 It's a reasonable degree of medical certainty,
12 enough to keep the vast majority of physicians
13 prescribing hormone replacement therapy even
14 though the relative risk is below 2 which is the
15 magic cutoff that has been evolved in the courts.

16 So my question is, is this something
17 that is on the table or is this carved in stone
18 as the causal standard?

19 CHAIR MARKOWITZ: So the short answer
20 is it's in the 2000 Energy Employees Occupational
21 Illness Compensation Act. It's unlikely to
22 change. But, also, you know, they were not

1 concerned about the mathematics. They were
2 trying to communicate something which is to be as
3 claimant friendly as possible in the decision
4 making process.

5 I think that's what this was meant to
6 communicate, even as complicated as it is. But
7 it would take a Congressional -- it would take an
8 act of Congress.

9 MEMBER WELCH: Can I add something?

10 CHAIR MARKOWITZ: Sure.

11 MEMBER WELCH: I just want to add
12 something too because I think you're saying it's
13 a 50 percent probability of causation would be
14 true if you left out significant factor. But here
15 you have at least as likely as not that exposure
16 was a significant factor in aggravating or
17 causing. Not that at least is likely not
18 exposure was a cause. So when you have
19 significant factor in causing it's another fudge
20 factor.

21 MEMBER FRIEDMAN-JIMENEZ: It makes it
22 even harder to estimate a probability of

1 causation. It makes it even --

2 MEMBER WELCH: Fine. Because the law
3 doesn't require a probability of causation. That
4 statement does require a probability of
5 causation.

6 MEMBER FRIEDMAN-JIMENEZ: But that's a
7 probabilistic statement.

8 MEMBER WELCH: Yes. But there's no --

9 MEMBER BODEN: But significant factor
10 is not a probabilistic statement.

11 MEMBER WELCH: Right.

12 MEMBER BODEN: So you can't multiple a
13 probability by something that is not a
14 probability and come out with something.

15 MEMBER VLIEGER: Getting back to the
16 nuts and bolts of administering this program and
17 what the claimants deal with. If we remove this
18 decision making piece from the claims examiner it
19 will streamline the process enormously. Be a
20 number of our claims examiners, god bless them,
21 are attorneys.

22 They like numbers. They think in

1 definitions that we don't think in. So when we
2 don't give them something to hang onto they still
3 want something tangible to say, well this is as
4 likely as not, and when they throw in
5 significant, many times I've been told, well that
6 means it's higher.

7 I understand what you just tried to
8 explain from a statistics point of view. But
9 they're not doing statistics. They're doing
10 definitions that they can write into a decision.
11 So this definition, while it is in the law, is
12 still problematic in claims adjudication because
13 everybody wants to say, well, I've got a good 50
14 percent handle on this. Then they throw in
15 significant and then it goes above.

16 MEMBER VLIEGER: Well, maybe that's an
17 education job that we could help with Department
18 with. It is really difficult.

19 PUBLIC COMMENT SESSION

20 CHAIR MARKOWITZ: So I just want to
21 interrupt this. We can continue to tomorrow.
22 The reason I say that, in five minutes the public

1 comment period begins. I just want to give
2 people a moment to stand up and stretch if they
3 want to.

4 Also, just for the public commenters
5 we're going to start with Deb Jerison and then go
6 to Terrie Barrie. Then Paige Gibson. Then the
7 fourth is Glen Bridges. Then Tim Lerew, Ti Le
8 Ong, and finally Walt Schuman. Then we'll go
9 into additional people who have signed up.

10 If there's anybody who decided they
11 would like to make a comment please let Carrie
12 Rhoads know over by the table.

13 MEMBER REDLICH: And for those folks on
14 the phone you want to hang up and call 1-800-369-
15 1712 and enter code 5522817. This information is
16 located on our website. Thank you.

17 (Whereupon, the above-entitle matter
18 went off the record at 4:56 p.m. and resumed at
19 5:02 p.m.)

20 CHAIR MARKOWITZ: So each of the next
21 seven speakers gets five minutes, and then we'll
22 call others. At four minutes we'll give you

1 notice, but please then stop speaking at five
2 minutes.

3 First is Deb Jerison.

4 MS. JERISON: Dr. Markowitz and members
5 of the Board thanks very much for this
6 opportunity to speak. I'll make this brief
7 because I know we have a lot of people.

8 Last week DEEOIC reversed 14 years of
9 proving claims under special disclosure cohorts
10 for people with uterine cancer, fallopian tube
11 cancer, and chondrosarcoma of the cricoid
12 cartilage of the larynx by rescinding final
13 bulletins in circulation from 2002 to 2012.

14 This means that workers with these
15 cancers with an SEC period, before last week,
16 were paid while those with the same cancers after
17 last week will not be paid. This is inequitable
18 and unfair. Making these changes in the policy
19 and procedure manual may also be improper.
20 Changes like this need to go through the rule
21 making process since they reduce workers'
22 benefits.

1 Speaking of rules, I strongly
2 encourage DOL to withdraw the proposed rule
3 changes. These changes are detrimental to the
4 workers for all the reasons I stated at the last
5 meeting.

6 Medical reimbursement issues remain
7 very difficult. Claimants who don't have or are
8 not comfortable with the internet cannot see
9 which charges have been paid. Another huge
10 problem is that submitted claims are sometimes
11 ignored by ACS rather than being paid or denied.
12 One claimant had over \$30,000 of medical
13 reimbursement charges at ACS just ignored.

14 This month EECAP developed a survey on
15 medical benefits for claimants. With Cold War
16 Patriots we were able to get 1,700 respondents
17 already, with 450 of those reporting on the
18 medical benefits. That survey will be open until
19 the end of October.

20 The report's divided into five parts.
21 I did a put down and dirty thing for the Board,
22 just so you could see what I was coming up with

1 so far. Part 1 is on the claimants' experience
2 with medical benefits. This shows that 21
3 percent of all respondents have had problems with
4 medical billing, 13 percent have had problems
5 finding providers who will take the EEOIC medical
6 card, commonly known as the white card.

7 Part 2 is on the claimants' doctor's
8 experience. Respondents report that their
9 doctors have asked them to use a different
10 insurance 35 percent of the time. The doctors
11 have asked sick workers to self-pay 27 percent of
12 the time, and 18 percent of the doctors have
13 stopped taking the white card at all.

14 Part 3 is on the claimants' experience
15 with home healthcare benefits. Twenty two
16 percent of the respondents found accessing their
17 home healthcare benefits difficult. Part 4 was
18 on problems claimants who have authorized
19 representatives have had getting their medical
20 benefits. Twenty five percent of the respondents
21 found DOL restricted their choice of an
22 authorized representative.

1 Part 5 looks at how the different
2 district officers deal with medical benefit
3 problems. There's some large differences. For
4 example, claimants' doctors dealing with the
5 Denver District Office had problems 41 percent of
6 the time as opposed to 11 percent of the time at
7 the Cleveland District Office.

8 I'll leave you to look at the rest of
9 it on your own. Thanks.

10 CHAIR MARKOWITZ: Thank you very much.

11 Ms. Barrie?

12 MS. BARRIE: Good evening, Dr.

13 Markowitz and members of the Board. I thank you
14 for allowing this public comment time to hear
15 from the stakeholders.

16 My name is Terri Barrie and I'm with
17 the Alliance of Nuclear Worker Advocacy Groups.
18 Considering the number of people who wish to
19 speak I'll keep my comments very brief and submit
20 written comments for your consideration.

21 The written comments address issues
22 with travel, concerning travel requirements for

1 sick workers, some inaccuracies, medical evidence
2 for wage loss and consequential disease claims,
3 and DEEOIC's changing policy without consulting
4 the Board.

5 The last discussion was about the
6 statutory requirement for causation under Part E.
7 I'd like to inform the Board that the Department
8 of Labor does have, and went through the
9 solicitors, for a definition on what the
10 causation, the legal standard is for causation
11 under Part E. When Dr. Eugene Schwartz was the
12 medical director he developed the DMC handbook,
13 in consultation with the Solicitor's Office from
14 what Dr. Schwartz told me.

15 The legal standard is the causation
16 has to be more than reasonably suspicious, but
17 less than the preponderance of the evidence which
18 means that it's less than 50 percent. In fact,
19 thanks to Donna Hand, she reminded me that in
20 OWCP's regulations of 2006 OWCP defined
21 significant factor as any factor.

22 So, you know, on paper it's a really

1 good piece of legislation, a really good program.
2 We just need to implement it, and I look forward
3 to all of your help doing that. Thank you.

4 CHAIR MARKOWITZ: Thank you very much.
5 Next is Paige Gibson.

6 MS. GIBSON: Hi, Dr. Markowitz, Board.
7 My name is Paige Gibson. I'm a former worker
8 protection employee and I also worked at Mound of
9 Miamisburg. I have a couple points to make and
10 I'll try to make it quick.

11 On the transmittal 1609 which Deb
12 Jerison mentioned, as did Terri Barrie this hits
13 the former worker program very deeply because Sam
14 Ray started that program. He was instrumental in
15 going to Congress and speaking, and he had the
16 cricoid cartilage cancer, and it was allowed
17 under the guidelines then, and now he wouldn't be
18 paid. Unfortunately, he passed away.

19 I also wanted to say that I agree with
20 on the occupational worker questionnaires that
21 former workers should be in the resource centers.
22 We know the questions to ask. We know the

1 routine of the workers. Even if we started late,
2 the stories went around and we know each building
3 just like we know our home.

4 What I brought was, this is an actual
5 claim form, and as you can see, I've marked the
6 jobs from October 24, 1966 through September
7 1987. This gentleman was turned down because he
8 didn't have ten years in the same job for hearing
9 loss.

10 Those all are the same job and salary.
11 They just change them up every once in a while
12 just to keep you in a job because their budget
13 got cut. He went from B to A, and that was
14 instead of getting a raise, so that's the kind of
15 common sense we're dealing with when it comes to
16 these job classifications.

17 Also, I have a gentleman who he worked
18 at Mound for ten years. He was a janitor and
19 eight as a lab technician, and because those ten
20 years weren't in the same job category he was
21 also turned down for hearing loss, even though he
22 was diagnosed with it.

1 DOE says that they have IH reports,
2 and from 1943 through 2006 other than maybe
3 sitting in their office and writing a report, an
4 industrial hygienist was never on a job at
5 Portsmouth Mound, Paducah, and Oak Ridge, to my
6 knowledge, and I have a pretty good history with
7 that.

8 I just wanted to show you what we're
9 dealing with. This is a denial. This is how
10 much paperwork came with that denial, and it's
11 for an illness and hearing. This is breast
12 cancer, one whim, and that's how much paperwork
13 we're dealing with, with a sick lady.

14 Then I also wanted to show you, I
15 printed out the SEM incident reports from the 90s
16 for seven WHPP programs. I'm sorry, this is
17 after '95, incidents that are on the SEM, and not
18 one of them has a job title or a person that was
19 involved in these incidents. So you can't
20 connect them to a person even though you have
21 affidavits and witnesses. That's how that SEM
22 works so well. Thank you for your time.

1 CHAIR MARKOWITZ: Thank you.

2 Next is Mr. Glen Bridges.

3 MR. BRIDGES: I'm a little shorter than
4 most, but I'm louder than most. My name is Glen
5 Bridges. I'm a 49 year employee at Y-12. I'm
6 still employed at Y-12 on a part time basis.

7 What I wanted to come and talk to you
8 about is I've read the SEM. I've looked at that,
9 and we've been through an awful lot of this, and
10 I've listened to you all today and I'm very
11 appreciative of what you're listening to today
12 and what you all are going through. But the
13 tasks is the biggest problem I have.

14 We have an awful lot of people out
15 here that do an awful lot of different tasks
16 under the same job classification and that's not
17 being very well taken care of. I agree with what
18 the lady said just a moment ago, that we need
19 some former workers, retirees, or even current
20 workers to work with the resource centers to try
21 to determine exactly what these job tasks were
22 for these people that worked in these areas.

1 Also, with the employee advocates and
2 the claims examiners they need some training.

3 And they don't need the decision making process
4 with them, unless it's cut and dry, yes. If it's
5 cut and dry, yes, than that's fine and dandy.

6 But otherwise, they need to move that on up and
7 let somebody else, a doctor or whatever, take a
8 look at that and make sure. Because these
9 people, like it was determined a little while
10 ago, are mostly lawyers and they like to make
11 lawyerese.

12 We also heard today disability versus
13 impairment. Those two go hand in hand,
14 especially when you work in nuclear weapons
15 plant. If you have a disability caused by that
16 plant then you also have an impairment. That
17 goes right along with that, and those two things
18 need to be taken into consideration also.

19 The causation thing that you brought
20 up earlier, Dr. Markowitz, was wonderful and I
21 really enjoyed that. I thought that was quite a
22 good way to put that. We really need to look at

1 those things, especially when it comes to those
2 things that aren't determined: prostate cancer,
3 hearing loss. Those things that can't be
4 directly determined to asbestos or to the chronic
5 beryllium disease or whatever.

6 Fortunately, I've worked in it for
7 almost 50 years and haven't got it, but I'd say
8 thank you to my parents. Thank you very much.

9 CHAIR MARKOWITZ: Thank you.

10 Next is Mr. Tim Lerew.

11 MR. LEREW: Thank you, Dr. Markowitz
12 and Board. It's a pleasure to address you again.
13 When last we met it was April in Washington D.C.
14 and a lot's happened since then. A lot of work's
15 taken place that we've seen the good work product
16 from today and yesterday. We just wanted to
17 first say thank you on behalf of Cold War
18 Patriots for the sacrifices you've made on behalf
19 of the worker community.

20 And also thank you for this particular
21 venue and this particular meeting. By coming
22 into the field here at Oak Ridge, into the heart

1 of the complex you have the opportunity to hear
2 directly from the former workers.

3 That makes a real constructive
4 difference, I believe, in how this program's
5 going to be working out and the information and
6 input you'll have. I'd encourage you to have
7 future meetings elsewhere around the nuclear
8 weapons complex and hear directly from the worker
9 community.

10 Now, Cold War Patriots, and now we
11 have more than 40,000 members, has been following
12 with keen interest the work of this Board. We'd
13 like to encourage you in a couple of ways. You
14 have the direction and the opportunity to look at
15 presumptive causation.

16 Now, how many times, let me take you
17 back to that meeting in Washington D.C. How many
18 times did you hear, I wrote down the number that
19 I heard, did you hear the senior leadership at
20 Department of Labor use the word we are
21 challenged by different aspects of administration
22 of the program? Looking to this Board for your

1 leadership in trying to meet those challenges to
2 meet the needs of the sick workers community.

3 Now, how many times did you hear that
4 word? I heard it at least nine times that I
5 wrote down on my notes from Washington D.C.
6 Maybe some of you heard it even more. But that's
7 an opportunity, a request for help from
8 Department of Labor to act on behalf of this
9 worker community.

10 I remember Dr. Sokas, you used the
11 phrase, words matter, and they surely do, and I
12 heard the same from Dr. Markowitz in other
13 context. Just one word in one case I want to
14 share right now. I'm the Lucero v. Department of
15 Labor case in U.S. Federal District Court in New
16 Mexico on August 5 of this year they found that
17 the claimant, that the DOL's interpretation of
18 one word, compensation, as described in the
19 Energy Employee Compensation Act was arbitrary
20 and capricious.

21 This is just one instance of DOL rule
22 or policy potentially changing the intent to the

1 Energy Employee Compensation Act in practice.
2 The law was created to compensate and care for
3 those made ill by their nuclear weapons' work.
4 Not to impose unnecessary legal and
5 administrative burdens on those already
6 struggling with sickness.

7 Unfortunately, most sick worker
8 claimants or their survivors lack the resources
9 or, indeed, the time necessary to resort to
10 Federal Court to resolve or clarify DOL's rules,
11 procedures, and administrative practices that
12 adversely affect not only their claims, but by
13 precedent, the claims or benefits of many other
14 affected workers now and into the future, along
15 with their families.

16 This Board has both the charter and
17 the ability to respond to Labor's own many
18 requests to provide clarify and appropriate
19 processes when Labor's claims examiners are
20 challenged to fairly decide and administer
21 claims.

22 Finally, therefore, we ask that this

1 Board support Cold War Patriot's request that the
2 Department of Labor formally withdraw its 60 plus
3 rule changes proposed in the fall of 2015.

4 Instead, engage with relevant stakeholders and
5 workers in a negotiation rule making process
6 consistent with prior executive orders, and in
7 the best interest of those the Energy Employees
8 Compensation Act was created to serve. Thank you
9 very much.

10 CHAIR MARKOWITZ: Thank you.

11 We'll hear from Mr. Ti Le Ong next.

12 MR. ONG: Thank you. I had a feeling
13 they'll be a lot of people that want to speak, so
14 I'm going to cut my short. But instead I ran out
15 and print it, so I make it succinct. Is it okay
16 if I hand it out?

17 CHAIR MARKOWITZ: Sure.

18 MR. ONG: This is just a map and this
19 is a three page word document. Thank you, again,
20 for the opportunity to comment and appreciate
21 your time again. Kudos to you for a very, very
22 thorough job on all the topics.

1 The topic I'd like to share with the
2 Advisory Board today is about MSO, medical second
3 opinions. The topic I would like to raise to
4 your attention is that medical second opinion
5 often times are asked of our clients. We serve a
6 lot of clients who are very sick, who live at
7 home.

8 They were often times given short
9 notice and/or not consulted in prior to being set
10 up, and they are required. If you do not attend
11 a medical second opinion that could result in
12 your benefits being withheld. So it's difficult
13 to begin with.

14 If you look at the procedure manual it
15 calls for a travel distance of 25 miles in order
16 to get a medical second opinion from a CMC
17 appointed by the Department of Labor. Now, with
18 that said, in recent months we've seen an
19 increase in distances that workers are asked to
20 travel in order to get the medical second
21 opinion, to the tune of about 100 miles each way.

22 Now, we may think that that might be a

1 one-off situation, but in the handout that I gave
2 out just now, the Word document, the actual
3 document is 108 pages long, and I will send the
4 link to this. It's actually on the DOL website.
5 I'll just have to provide, I guess, the link that
6 you can go download it. It actually is not a
7 very clear document because we had to find it via
8 Google searches, and it's not an easy way to find
9 it. But this is the document that the DOL used
10 to solicit bidders to come in and bid for the CMC
11 contract.

12 As you can see, the bidding period has
13 just closed about two weeks ago, so it was a
14 pretty thorough process starting in August. On
15 Page 11, which I've attached to the document, the
16 entire document has a lot more substance to it.
17 So it's the last page of that document which is
18 Page 11. It points out that the CMC is supposed
19 to bid for serving people within a 200 mile
20 radius for medical second opinions.

21 So if you think about 200 miles, in
22 terms of what kind of difficulty it creates for

1 people, especially for fairly sick former
2 workers. If you have to travel with oxygen and
3 you have a previously scheduled doctor's
4 appointment that you now have to go cancel in
5 order to go make the medical second opinion it is
6 a very difficult and new topic that is not in the
7 spirit of the original intent of OPA, and it's
8 spelled out in the procedural manual.

9 This change from where it was stated
10 in the procedural manual to a 200 mile was, as
11 far as we know, not communicated to the Advisory
12 Board as well as to other complaints, as well as
13 people, stakeholders. So we found it quite by a
14 roundabout way by Google searches. So just to
15 give you a sense, 200 mile radius, on the map you
16 can take a look and see.

17 That could potentially expose a formal
18 worker in Oak Ridge all the way in the South to
19 Atlanta to get an MSO or to the East to
20 Charlotte, or to the North to Cincinnati. Just
21 to give you a sense of how far it is. If you
22 think about, I know some of us flew in and

1 transferred planes in Charlotte or in Atlanta.
2 It gives you a sense of how far it is.

3 So I just want to make sure that
4 you're all aware of the topic of what slight
5 change in some of these rules could really mean
6 for a sick former worker. In this case, the
7 change was not even -- has probably not been
8 through medical advice from this Board. I can
9 think of two subcommittees who would be
10 interested in that.

11 For instance, the Medical Evidence
12 Group as well as the CMC discussion this morning.
13 That you might want to look into this and say, is
14 this medically necessary to require a sick person
15 to travel that far in order to get an MSO. We
16 respectfully ask that you'll help, I know you
17 don't like that word, opine, on whether there's a
18 need to have MSOs conducted 200 miles away versus
19 the intent that's spelled out in the procedural
20 manual of 25 miles or less.

21 Finally, just a second to re-comment.
22 Would urge the DOL as well as with the Board's

1 advice to communicate clearly when this sort of
2 slight, perhaps slight changes, but that has
3 large impact on the sick former worker community
4 to have that communicated clearly to the people.
5 Because the process of transmittal bulletin,
6 procedural manual changes is often times not
7 well-understood, and we didn't know about it
8 until very recently.

9 The last bit of that is that, in this
10 case, I think there's original intended of OPA to
11 make it claimant friendly. With this sort of
12 change, it's a very major change that is actually
13 not claimant friendly, and we urge that the MSO
14 process be confined to what the procedural manual
15 spells out, and any changes that impacts further
16 workers are communicated clearly, not relying on
17 the former worker to have to go see out this
18 information. Thank you.

19 CHAIR MARKOWITZ: Thank you.

20 Mr. Walt Schuman?

21 MR. SCHUMAN: My name is Winnfred E.
22 Schuman. I'm 42 and a half year past employee at

1 Y-12. My mission today is to talk to you and let
2 me say first for the opportunity to come and
3 listen. I gained a lot of knowledge and I know I
4 won't retain a lot of it, but some of it I will
5 and I appreciate that.

6 I'm here because of a group of workers
7 at Y-12 that have been left off of the workers
8 compensation. They don't fit into the category
9 for hearing loss. I know that the Department of
10 Labor is here and I appreciate that, and I know
11 that you're an advisory committee, and maybe you
12 could take into advisement what I'm saying and
13 pass it on.

14 But this group has called an assembly
15 person. They're made up of machinists and
16 they're made up of chemical operators. They have
17 the have the qualification to be a machinist or
18 have been a machinist, and they have to have the
19 chemical training that deals with toxic
20 chemicals. And so both of those come together.
21 We are the final product of the weapon system
22 that's made at Y-12.

1 That's before it's shipped out. We
2 get the small parts in. We get the large parts
3 in and we make them go together. Sometimes it
4 requires machining and our groups to do that, and
5 something it requires us to use methyl ethyl
6 ketone, perc, Freon, and all the solvents. Five
7 of the seven that were listed earlier is what we
8 use in there and I've been doing it for 40 years.

9 I do have a claim in on a hearing
10 loss. But this group has been left out of the
11 categorical labor communities that have been put
12 together and they needed to be added. Because
13 it's not a large group, but they handle both
14 chemicals and machining. I'm going to give you
15 some examples of what they do.

16 We had a uranium bomb. We had it
17 welded. When it came out of the welder it had a
18 high rim on it from the weld joint. We would
19 take it, this is back in the 70s, and we would
20 take this ball. We'd put it on a fixture and
21 we'd sit down with it. No respirators, no
22 protective equipment whatsoever, and we would

1 file this with a file until we get the tolerance
2 down to where it would touch that tape, and then
3 we would know it would go into the weapon system.

4 We would have our cup of coffee on one
5 side of that ball and a sandwich or cookies on
6 the other, and we continue to file that.

7 MEMBER VLIEGER: Was that beryllium?

8 MR. SCHUMAN: Uranium. Yes, ma'am.
9 That's just one job and we did that for years and
10 years.

11 We would take weapons parts and clean
12 them. It's my responsibility for years and years
13 to clean those parts to make sure that they were
14 clean when they would go in these weapon systems.
15 We would use toluene and we would use methyl
16 ethyl chloroform, methylene chloride, and it
17 would be in big vats. You would put these piece
18 parts or tooling or whatever you had to clean and
19 put in these vats that were open in the areas
20 that we worked in.

21 We would clean those with the
22 chemicals. I had a rubber glove on my hand one

1 day and I took my glove off and I just put it in
2 that vat of methyl ethyl chloroform. Went to
3 lunch, and when I came back -- now, you see how
4 large my hand is. This glove was this long. It
5 was this wide. And I'm thinking, if that's doing
6 that to that glove what is it doing to the people
7 that work day in and day out there with no
8 protection?

9 Around 1985, '87, '88, somewhere, we
10 started doing plans and we would actually
11 incorporate PPE into the system, into our jobs.
12 But before that, they used to hand us a 3 X 5
13 card in the morning and they would say, go do
14 your job. Whatever it takes to get this job
15 done, do this job.

16 Of course, we had training to do that.
17 But what I'm trying to say is the jobs that you
18 have, you have the buildings where the chemicals
19 are used, but you don't have how these processes
20 were put together and what we did. It just seems
21 to me that this group has been left out. Many,
22 many of them have passed away because of cancers

1 and things like that.

2 I'm here because, just to let you know
3 that the toxic chemicals that we use have been
4 affecting us and our hearing losses as well.
5 That's what my claim is about. But we machine,
6 and --

7 CHAIR MARKOWITZ: Mr. Schuman, if you
8 could begin to wrap up.

9 MR. SCHUMAN: I will. Thank you. I'm
10 just going to say this, and then I'll leave.
11 Assembly at Y-12.

12 I think that the SEM database is
13 lacking, I don't know if you put the job
14 processes in that or not, but I think it's
15 critical that when we go into an area and we
16 identify that we go back and see what was done in
17 the past history of these units instead of just
18 saying that the chemical was used there. But
19 find out how it was used and what it was used on
20 and, you know, was it open or not. Thank you. I
21 appreciate the time.

22 CHAIR MARKOWITZ: Thank you very much.

1 Claude Martin, the next speaker.

2 MR. MARTIN: Hello. I'm Claude Martin.

3 I'm 86 years old. When I was 15 years old I was
4 in World War II in the Pacific. Then I got
5 called into Korean War and I went through that.

6 After everything was over and we
7 settled down, why, I went to work at K-25. I
8 worked there for a while. I'm going to make this
9 short. My nose would bleed. My eyes would
10 bleed. My eyes would bleed. So the doctor's
11 told me, they guys that I worked with, every one
12 of those guys is five stone. The doctor told me,
13 he says, Claude, you better do something.

14 So I quit. Then I went to Y-12 and I
15 stayed down there and everything was all right.
16 But, you can see my arms. It looks like a
17 leprosy. I've had cancers, skin cancer, big
18 ones, little ones. I've got them everywhere.
19 But I've been denied from anything.

20 I appreciate it if you could tell me
21 why and whatever. Thank you very much.

22 CHAIR MARKOWITZ: Okay. Thank you.

1 Louise Presley?

2 MS. PRESLEY: Good afternoon. Thank
3 you for the Board for being here and what you're
4 doing and being in East Tennessee. My name is
5 Louise Presley. I'm retired from Y-12 after 36
6 and a half years of service in administrative
7 capacity, part of the product certification
8 division in the production area, buildings.

9 My late husband, Robert W. Presley
10 worked at Y-12 for a total of 44 plus years as an
11 employee and as a contractor. In full
12 disclosure, for the record, I must let you know
13 that he was appointed to the ORCA Advisory Board
14 on Radiation and Worker Health in the fall of
15 2001, and served on that board until his death in
16 2011.

17 I was privileged to attend many of
18 those meetings, so I'm seeing this process and
19 not everybody has that opportunity in filing a
20 claim. They recognized me with a memorial in
21 Bob's honor after he passed. He was first a
22 materials dispatcher in the production areas at

1 Y-12, carrying parts from shop to shop and eating
2 lunch in the work areas.

3 I want to read something that a co-
4 worker of his just gave to me last night. We
5 worked in weapon materials dispatch as weapon
6 materials dispatchers starting in the 1970s. He
7 went there in February of 1969. Responsible for
8 preparing documentation that transferred the raw
9 materials and weapon components' parts from one
10 production area to another.

11 Traveling with each part was an
12 envelope they called a shuck containing an IBM-
13 type card with the parts' identification such as
14 part number and type of material. These cards
15 and shucks were handled by production employees
16 handling the weapon material as well as us, as we
17 processed the parts from one area to another.

18 Each card was pulled from the shuck by
19 the production operators and ourselves to clock
20 the production operation completed as the parts
21 travel through the various shops and production
22 areas. The shucks and cards were highly

1 contaminated just from being handled by the
2 workers wearing gloves and placing the parts
3 coming out of the production area to a pallet or
4 inside a container.

5 We'd place these cards on our desk
6 while preparing the parts for transfer. These
7 desks were the same desk we all shared for work,
8 often for eating our lunches, where our coffee
9 and other drinks sat while working, and where
10 those that smoked cigarettes sat and smoked.

11 Bob nor I smoked, but in those days we
12 all inhaled the smoke from cigarettes as well as
13 smoke coming from the production areas: raw toxin
14 materials, enriched Uranium, depleted Uranium,
15 lithium, beryllium, and other weapons and non-
16 weapons materials I won't mention because of
17 classification. It often overwhelmed the old
18 equipment that was supposed to filter the air.

19 Even though we worked in these
20 contamination areas as office workers we were not
21 supplied company clothing or shoes, even though
22 we had to walk through the same production areas,

1 floors, as the machinists, chemical operators,
2 and other workers to perform work
3 responsibilities.

4 Bob then became an engineering
5 assistant and a special nuclear weapons'
6 production engineer in product engineering
7 division. His work took him, often, to Los
8 Alamos, Sandia, Albuquerque, Pantex, Livermore,
9 and to the Nevada test site where he stayed on
10 site and went down into the ground to set up
11 items for testing.

12 One question I have there is how do
13 you find out the rad exposure from all those
14 different sites, and I'll tell you why later. In
15 September 2011 he passed away after only seven
16 and a half weeks from first pain acknowledgment
17 to last breath of a stomach tumor, esophageal
18 cancer, metastatic liver cancer, and cancer of
19 the lymph nodes.

20 A claim was filed immediately after
21 his diagnosis. I literally picked his brain in
22 those last weeks and those of his friends for

1 specific information provided for inclusion of
2 the claim on his behalf. As the end approached
3 for him I was on a three-way call with the
4 Jacksonville office and received a verbal
5 approval for a total claim payout over the phone
6 from the supervisor there.

7 He passed away before the check was
8 deposited in the bank and the employee claim was
9 immediately closed. In early 2012 I attempted to
10 open a survivor claim. Five calls were made to
11 Jacksonville to my contact there and I never
12 received a return call.

13 With claim records in tow I went to
14 Susan Atkinson's office on Oak Ridge and she
15 literally got the ox out of the ditch. Your home
16 becomes the claims' library with all the
17 paperwork that you have. Over a year after his
18 death I received a survivor payout that was
19 denied the radiation testing portion payout.

20 Now, you heard me tell how he worked.
21 I was notified that only two radiation testing
22 results were located from his 44 plus years of

1 work at Y-12. No one who worked with him can
2 believe that is possible. Could records not have
3 been looked for? Were they lost or were they
4 destroyed? That's why this person came up with
5 that document that I read.

6 The rest of my story is that a year
7 after Bob's diagnosis I was diagnosed with breast
8 cancer and had a bilateral mastectomy. When I
9 received the initial diagnosis, and before
10 surgery, I went through the BRAC-1 and 2 and
11 advanced genetic testing. The results were
12 negative.

13 I've also had three skin cancer
14 legions removed. I filed a claim and it was
15 saying denied. I worked in salary
16 administration, so the old key punch cards that
17 used to be created in payroll would come to our
18 office. We would send them out into the
19 production areas where they would communicate to
20 the employees the raises, and job titles, and
21 things like that.

22 Supervisors would sign them. They

1 would come back to our office and we had the
2 personnel records vault responsibility, and we
3 would file those cards that had been out. From
4 1963 when I went to work out there we had the
5 electric typewriters and I used to clean my
6 typing keys with a solvent that was called
7 carcinogenic in later years, and I think it had
8 toluene in it.

9 I can't remember the name. I have it
10 in my claim. But, you know, that was hands on.
11 It was so strong that your nose smelled for at
12 least a day from the odor from that cleaner.

13 Working just across the valley from
14 the Oak Ridge Gaseous Diffusion Plant which was
15 approved for a special exposure cohort for
16 employees who worked there for 250 days and who
17 received diagnosis of one of the approved cancer
18 categories. It is hard to be a Y-12 or ORNL
19 worker or retiree in Oak Ridge and not receive
20 probable claim approvals.

21 We are not and should not be the
22 stepchildren and should not be the stepchildren.

1 These approved claims are not handouts. They are
2 medical insurance payouts for those who have
3 survived after surgery and treatment, or life
4 insurance payouts to the families of those
5 employees who did not survive. Thank you.

6 CHAIR MARKOWITZ: Thank you.

7 Next will be Jan Lovelace.

8 MS. LOVELACE: Thank you for all for
9 coming to Oak Ridge, and I hope on your tour
10 yesterday that you got to see some of the things
11 that we have at the nuclear sites. I am a widow
12 of a fireman from ORNL who had worked there 26
13 years, and each one of his six cancers were not
14 from another one. They were all separate
15 cancers. None of them metastasized from any
16 others.

17 The problem I have is with a couple
18 things. It's with the SEMs. That there were no
19 firemen in the SEMs for ORNL, but they were for
20 Y-12 and they were for K-25. So I was able to
21 get some classifications put in that were given
22 by the commander now. Unfortunately, truck

1 driver and dispatcher does not tell you that that
2 fireman went into the nuclear waste barrel
3 grounds on an hourly basis every day he worked to
4 be sure there were no fires.

5 In 2008 when my husband was in the ICU
6 the headlines here in August were, 70 mason jars
7 of radioactive material was found on top of the
8 ground, so this was something that they had. But
9 he has been denied over and over and over. After
10 he died and one of his, I can't forget it, that's
11 why I'm here again today. Few last words he said
12 to me before he went into a coma and died about
13 12 hours later, don't give up. Get my justice.

14 I made a video after his death which
15 is on the YouTube with Y-12 clearings and several
16 others have made those here in Oak Ridge. We
17 have more claimants here than most any places.
18 But the duties of a job description or a category
19 does not tell those people what that person did.

20 I think that needs to be updated and
21 more data put into the SEM and into the
22 classifications. Because, like I said, a truck

1 driver and a dispatcher does not tell what that
2 fireman does. My husband was -- when he first
3 went to work in '74 he had worked there at Y-12
4 during construction which his time there was
5 discounted because we had only the records of
6 where he employed in and where he was out of work
7 because of no more working in there at that time.

8 But there are so many things we ran up
9 on. I could go on for days, I tell you, and get
10 on my soapbox. But, you know, there's so many
11 things that we have encountered as claimants. We
12 have an unbelievable case, and anyone who's read
13 his case and seen what has happened, the
14 screaming fits that one of the Washington
15 adjudicators, he screamed my head off and
16 threatened me.

17 He just was on that phone, told me
18 he'd have me arrested and all because he sent me
19 the Social Security numbers and salaries of about
20 14 people, and I called him up to tell him about
21 it and he started screaming at me. He told me
22 he'd have me arrested by the FBI. That's another

1 story.

2 But what we want -- I told you I could
3 go on and on, but I won't. We had so many
4 incidents where he was denied over and over.
5 They would not, the CE, boy, you all got on a
6 subject because they are not trained. Rachel
7 told me, Ms. Leiton, please, in June of 2009 when
8 I was on teleconference call that I didn't know
9 what I was talking about because her CEs were
10 very well-trained.

11 I had one of them. We had 17 in six
12 years. This one did not know where that file
13 was. It was lost for a year and a half. It went
14 to dead file on time where he was deceased when
15 he wasn't. It just goes on and on.

16 But this one particular claims
17 examiner asked me what an expediter did. Well, I
18 was dumbfound because I knew what he did and I
19 thought, you don't know? And I said, did you
20 look it up? And she said, no.

21 Well, if had been me in her position I
22 would have looked it up to find out what an

1 expediter did instead of asking the claimant
2 which, when he worked at Y-12, that's what he
3 did. But that was his, again, his title. But he
4 went all over those construction sites when they
5 were building and working with the weapons and
6 all there.

7 The other thing we encountered,
8 greatly was the loss of his records. He worked
9 27 years and we had proof of that, but even his
10 dosimeter record for '87 year, he had two
11 exposures, was called in and kept for two days in
12 quarantine. That record for '87 is totally blank
13 when we have all the evidence.

14 From his records it says failed
15 limits. I've never got an answer why those were
16 on his records, but didn't have. I have a scant
17 eight years for 27 and Peter Turek in 2007,
18 maybe, he told me my husband didn't work there in
19 1987. That's why I explained. Well, we put in
20 22, and I think it's called an EE-4. Is that the
21 number? I wasn't too sure. I'm getting old.

22 And so those forms were filled out by

1 his chief, his commander, and the man he worked
2 with that they had worked with him. We had the
3 plaque that said he worked 27 years. He died a
4 horrible death and we did not get medical
5 services. His oncologist letters were denied and
6 that, again, comes back to the CE.

7 So you all are all to a minefield of
8 errors when you get into what the CEs know, what
9 they say to you, and how they decide, just like
10 this one that we had the last six years. She
11 said she wasn't accepting his fifth cancer. It's
12 in there now, and I was told by, I've forgotten
13 some of the people I've talked with because, like
14 I said, I've sort of distanced myself from it a
15 little bit because I was getting sick myself.

16 But this is not a claimant-friendly
17 program. We have to prove everything, and when
18 they won't accept your own personal oncologist
19 report that's bad. Again, that's coming back to
20 the power of the CE, and it's mister -- well, I
21 won't call his name, in Washington told me. He
22 said, you shouldn't -- well, I got tickled and

1 giggled when he kept on. I kept saying, I'm
2 going to send it back to you. I'm sending it
3 back to you. It's me that called you. You sent
4 it to me.

5 He just kept on and on, and I got
6 tickled and he got so mad and he said, you
7 shouldn't upset people that you want something
8 from. We were denied again. So --

9 CHAIR MARKOWITZ: If you could wrap it
10 up pretty soon?

11 MS. LOVELACE: Yes, yes. Like I told
12 you, I could go on for weeks and weeks. But
13 these CEs need more training and the contaminated
14 buildings, 2500, the firehall, is still
15 contaminated on the D&D list of the demolish and
16 destroy from DOL and men are still working there.

17 My husband, they burned beryllium in
18 the back parking lot, and just lots of things
19 that don't go into those job classifications.
20 Thank you. I'm sorry, like I said, I could talk
21 for two weeks on all the problems we had. Thank
22 you.

1 CHAIR MARKOWITZ: Okay. Thank you.
2 The next speaker is Leisha Tremmel.

3 MS. TREMMEL: Hi. Thank you for
4 allowing us to come and do this. My name is
5 Leisha Tremmel and my father worked at Y-12 as a
6 construction laborer in 1953. He was declined
7 and they said that the IH report was sent and he
8 had found several exposures that my dad was
9 exposed to.

10 But he determined that it was in 1953
11 and how would he know exactly what he was -- you
12 know, how much exposure he was exposed to in
13 these chemicals of asbestos and all these others?
14 They also indicated that he wore protective
15 equipment, and in 1953 I'm sure there were no
16 protective equipment for these construction
17 laborers.

18 I have an affidavit from a guy that
19 worked there, and he said that my dad's duties
20 was to clean up after all these different crafts
21 that were there. Like, if there was an asbestos
22 person there he had to clean up after him. The

1 painters, the iron workers, the welders, whatever
2 the craft was. He had to clean up after them.

3 Also, they sent the letter, the report
4 to the CMC and he also determined his exposures
5 of 1953 and we are in question as to how he knows
6 what my dad and the level of exposure he was
7 exposed to in 1953. Also, my father-in-law
8 worked at Union Carbide, not for a contractor,
9 but actually for Union Carbide for ten years.

10 He was exposed to many, many different
11 things. He was also declined. They didn't -- he
12 has tried to get his claim since it started, and
13 he has now died, and even his mother, or his
14 wife, I'm sorry. She's still alive. These
15 people that I'm just talking about, my dad and
16 his dad, would be 93.

17 We don't have a lot of records,
18 especially for my father who died 43 years ago.
19 They don't keep hospital records and doctor's
20 records after ten years. You know, we can't
21 exactly tell everything that happened to him, to
22 them, because we didn't have any doctor records.

1 We only know what happened with our father at
2 home as we saw the struggles that he went through
3 and the same with my father-in-law. So, thank
4 you very much.

5 CHAIR MARKOWITZ: Thank you.

6 Our next speaker is by phone. It's
7 Herschel and Becky Moore.

8 MR. MOORE: Hello?

9 CHAIR MARKOWITZ: We can hear you.

10 MR. MOORE: Hello?

11 CHAIR MARKOWITZ: We're here.

12 MR. MOORE: I worked out there as a
13 roofer on a radiological areas declared. Our
14 duties literally pegged the meters and we were
15 only give Tyvek suits. We weren't even given
16 respirators. We were given just these paper
17 masks. I worked out there just a year and I'm a
18 carcinoma cancer survivor.

19 I've been listening to all these
20 people out there that worked all these years and
21 I think it's pathetic that the Department of
22 Labor, it would cost them billions of dollars to

1 settle these claims to these poor people. I'm
2 appalled about it really, and I feel bad because
3 I only worked a year out there and they have so
4 many years inside there.

5 What gets me is I haven't heard one
6 comment to these people and that's all I'm going
7 to say. Thank you.

8 CHAIR MARKOWITZ: Thank you. Our next
9 speaker is Larry Lane. Is there a Larry Lane
10 here? Okay. Take your time.

11 MR. LANE: Thank you all for being here
12 and taking our concerns. I sort of have the same
13 concerns as the gentleman from Y-12 long ago. I
14 filed a claim for hearing loss based on chemical
15 exposure and I worked for 39 years at X-10 as an
16 instrument technician.

17 When I filed a claim my claims
18 examiner recommended acceptance, but the final
19 education branch turned it down because my work
20 classification is not in the SEM. At one time
21 there were 160 instrument technicians at X-10,
22 but that category is not in the SEM.

1 So they turned it down, said they
2 could not -- I couldn't prove exposure because
3 there is no work category. I provided
4 information to the SEM administrator, the fact
5 that there were a classification there, and he
6 has modified the SEM. Now, the problem is the
7 SEM is still incomplete because it does not list
8 me as being exposed to any of the solvents.

9 As you know, here at Oak Ridge there's
10 basically three installations, and at K-25 and Y-
11 12, folks doing this are referred to as
12 instrument mechanics, and at X-10 we were
13 instrument technicians. As budgets, throughout
14 the years, we would swap between plants several
15 times. We'd go from X-10 to K-25, Y-12 to X-10.

16 We were all doing the same work,
17 exposed to the same solvents. If you were K-25
18 their SEM is complete. There is a link there.
19 Y-12, their SEM is complete. There's a link
20 there, but at X-10 it's incomplete. There's not
21 a link. So I was asked to write an affidavit and
22 also get other people to submit an affidavit.

1 So we submitted about five and SEM
2 administrator informed me that he cannot change
3 the SEM based on affidavits. It has to be on
4 some kind of information that he can call inside
5 the laboratory and them confirm it. But the
6 claims examiner can use those affidavits, so he
7 has submitted those to Washington D.C. to the
8 industrial hygienist to try and come back in and
9 make the SEM correct.

10 I guess my concern is how can, you
11 know, my exposure happened in the 70s and 80s.
12 Back then we had no work procedures, work
13 control. How is someone in Washington D.C. going
14 to be able to determine my exposure?

15 It's as if there's a catch-22 and
16 someone from outside, being retired, not having
17 access to resources inside the lab, I'm at a loss
18 of what to do. You know? I was there for 39
19 years and I met all the criteria. I used the
20 solvents, but I can't dot every I can cross every
21 T, and it's very frustrating. Thank you very
22 much.

1 CHAIR MARKOWITZ: Thank you.

2 Our last speaker is Tim Badie.

3 MR. BADIE: Can you hear me? Because I
4 have a condition that effects my short-term
5 memory I have to read this, so good afternoon.
6 My name is Timothy Badie. I was a production
7 machinist at Y-12 from 1980 through 1990. Like
8 most machinists, I machined a wide variety of
9 toxic materials, exposed to a wide variety of
10 solvents and chemicals.

11 One thing in particular that I'd like
12 to address is the materials that the machinist
13 does with this machine that didn't have a name
14 that I can tell my doctor. One thing that sticks
15 out back in the early 80s is a particular
16 assignment that they would have us go up to the
17 third floor and say, you're a machinist, but it
18 will put off a smell. It was a very odd smell.

19 Said, it will cause an ice cream
20 headache, so after you breath it for a while
21 stop, go outside, breath fresh air, and it will
22 go away. So we did that. Machine it for an hour

1 or two and back then we didn't have any -- I've
2 got a picture of me on a machine, actually on my
3 phone.

4 We had no protection or anything.
5 You'd breath this for a while, get a headache, go
6 outside, walk around, breath fresh air, go back
7 up, and after a few months you finally went up
8 and asked them, what in the heck is this I'm
9 breathing because now I've got a headache all
10 weekend? It hurts. Nobody could ever tell us.

11 So it's hard to sit down and explain
12 to your doctor what it is for him to try to help
13 you when you didn't even know. They didn't even
14 have a code name, which a lot of the things did.

15 The other thing I wanted to address is
16 solvents, a lot of them used as de-greasers. The
17 list I got back from the Department of Labor
18 industrial hygiene that they know that I used
19 trifluoroethylene, perfluoroethylene, methyl
20 ethyl ketone, anyway, there's a long laundry
21 list.

22 This caused, what they're calling,

1 chronic encephalopathy. They've looked at me and
2 said your hearing loss and all this ringing that
3 you have in your head is definitely caused by
4 exposure to these chemicals. Because back then
5 we didn't have rubber gloves. We didn't have any
6 ventilation. We just got in there and worked
7 with it.

8 They even took the labels off of it.
9 They just gave us the little plastic bottles. We
10 would use it and you would breath a lot of this
11 stuff until you felt just drunk, I mean, really
12 your head was spinning. You'd go outside, you'd
13 breath fresh air for a little bit, come back, and
14 it would absorb into your skin, but we weren't
15 told that.

16 So they told me to go see a person to
17 check my hearing and all the things that's going
18 on. They did it and sent in my claim to the
19 Department of Labor, and they came and they said,
20 well, yes, you were exposed to the materials and
21 solvents, but you had to have been there 10 years
22 to cover your hearing loss. You were only there

1 nine years. Have a good afternoon. Thank you.

2 CHAIR MARKOWITZ: Thank you very much.

3 That concludes our public comment session and we
4 will reconvene tomorrow morning at 8:30. Thank
5 you.

6 (Whereupon, the above-entitled matter
7 went off the record at 6:03 p.m.)

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

A		
a.m 1:11 4:2 90:22 91:2 91:3 145:17	accident 236:7,10 239:22 252:18 253:7 253:9,12,22	256:6,10 290:13 295:6 327:9
abbreviations 221:15	accidents 96:21 97:9	additionally 151:9
ability 12:6 137:13 160:12 225:7 227:12 341:17	accommodate 137:19 260:15	additive 120:6
able 10:17 16:8 19:10 34:11 45:6 50:18 53:13 65:21 112:11 118:9 136:13 137:19 139:6,22 160:10 166:10 169:10,22,22 170:2 190:5 195:3,7 203:20 216:22 222:3 223:17 241:20 251:20 265:14 272:6 282:20 295:4 296:20 310:14 315:13 319:5 329:16 361:20 373:14	accomplish 282:21	address 7:8 62:18,22 64:7 65:17 73:4 75:19 106:10 112:21 118:1 202:2,12 209:7 286:9 300:6 331:21 338:12 374:12 375:15
above- 145:17	account 50:3 205:8	addressable 64:11
above-entitle 327:17	acid 189:19	addressed 14:8,20 22:2 65:8 137:1 260:1
above-entitled 91:1 258:20 377:6	acknowledged 314:17 acknowledgment 357:16	addresses 146:5
absence 30:17 92:21 186:15	acquiring 18:1	addressing 14:21 260:10
absolute 177:2	acquisition 108:5 233:2	adequacy 169:5
absolutely 84:3 253:17	ACS 329:11,13	adequate 100:10
absorb 376:14	act 61:9 301:3 302:17 323:21 324:8 340:8 340:19 341:1 342:8	adequately 94:8 104:3 107:16,18 264:18
abstracts 174:4	acting 223:10	adjoin 3:18 145:15
accept 56:8 78:15 309:15 311:1,4 366:18	actions 111:2	adjudicate 5:18 20:18 112:16 264:18
acceptable 311:15	active 211:18 235:21 302:18 304:21 307:7	adjudicated 266:13,14
acceptance 36:2,7 37:20 47:22 51:4 52:14 74:9 83:6 88:2 371:18	activities 31:22 233:17 287:2	adjudication 124:3 148:15 211:7 262:1 326:12
acceptance/denials 47:19	activity 15:22 23:13	adjudicators 363:15
acceptances 166:7	acts 33:17	adjust 255:5
accepted 37:17,22 40:11 45:1 46:8 50:10 53:15,20 54:4,11,16 54:19,20 62:5 76:9 86:2,22 87:6,16,19,21 90:7,12 93:6 116:20 119:13 129:3,3,22 140:11 167:8,11,21 198:10 213:17 268:20 269:22	actual 9:11 105:16 168:12 171:14 211:5 334:4 344:2	administer 28:12 29:8 107:5 341:20
accepting 69:8 366:11	actuality 189:19	administered 28:22 105:12
access 27:9 62:17 218:19 223:11 224:17 225:9,20 226:21 228:4 269:1 373:17	acute 126:8 304:3	administering 325:16
accessed 220:15	ad 204:21	administration 28:14 133:21 142:13 144:22 299:9 339:21 359:16
accessing 330:16	add 4:18 5:4 6:21 21:2 21:5 89:6 90:16 107:20 119:16 126:12 140:9 143:15 158:14 206:1 212:10 220:20 273:2 309:7 315:18 316:19 322:18 324:9 324:11	administrative 11:8 142:2 341:5,11 354:6
	added 4:12 16:1 95:15 119:8 167:7 182:3,13 220:9 277:19 349:12	administrator 372:4 373:2
	adding 6:14 285:17	admit 295:10
	addition 5:19 14:22 15:5 95:14 110:3 116:21 117:15 121:8 123:4 126:4 128:8 163:4 192:21 205:9 230:19 306:1	advance 38:4 152:5 259:5,12
	additional 20:22 25:5 29:19 35:16,18 57:18 58:9 78:3 85:14 86:1 111:15 117:4 123:17 124:22 125:13,20 126:3 134:4 139:21 144:15 147:14 162:4 165:20 169:15 177:16	advanced 359:11
		advantage 9:19 222:21 246:20
		adversarial 161:13 213:7
		adversely 341:12
		advice 346:8 347:1
		advisement 348:12
		advisory 1:3,10 4:4 229:19 259:20 260:2 260:7 284:11 343:2 345:11 348:11 354:13
		advocacy 96:10 161:20 259:22 331:17
		advocacy/anti 161:19
		advocate 56:15 223:11 295:12
		advocates 108:1 111:21 337:1
		advocating 289:19
		AEC 232:11
		affect 165:8 341:12
		affidavit 212:5 368:18 372:21,22
		affidavits 335:21 373:3 373:6
		affirmative 264:15
		affirmed 265:17
		afternoon 139:2 228:12 261:3 289:7 354:2 374:5 377:1
		age 43:14,17 199:8 224:7
		agencies 119:14 129:2 132:11 273:4
		agency 173:13 203:8
		agenda 31:2,6
		agent 121:20,21 189:18 192:1 194:10,19,21 296:22
		agents 93:2 199:21 200:2 310:8,18
		ages 199:15
		aggravated 124:16 140:12 306:11
		aggravating 127:14 301:7 302:4 312:2 315:10 322:18 324:16
		aggravation 272:11 303:5 322:21
		ago 51:9 62:7 107:8 115:12 187:20 230:7 230:21 232:17 257:9 336:18 337:10 344:13 369:18 371:13
		agree 4:20 6:19 11:21 25:11 44:19 60:8 62:13 64:16 68:14 101:1 122:10 125:12 130:18 135:2 139:13 139:20 148:12 190:2 202:21 203:4 209:13 209:15 213:11 221:10 222:8,12 275:8 333:19 336:17
		agreed 5:7 85:13 181:3 314:15
		agreement 70:18 105:20 169:18 203:15
		agrees 121:13
		ahead 43:22 227:22 240:9,11 283:19

300:3
aid 247:18
air 120:19 298:10
 356:18 374:21 375:6
 376:13
aircraft 281:6,8
aisle 249:10
al 181:11
Alamos 255:20 258:11
 357:8
alarm 171:13
Albuquerque 357:8
algorithm 8:6 75:19
alias 207:16
aliases 207:17,18
alive 369:14
all-star 245:3
alleging 111:14
Alliance 259:21 331:17
allow 5:8 76:7 95:17
 102:18 198:20 218:22
allowed 36:6 43:19 91:6
 333:16
allowing 9:17 12:9
 128:14 228:14 263:20
 331:14 368:4
allows 44:8 320:1
alternative 115:9
 136:19 138:7 268:11
AMA 54:1 282:13 283:7
 291:4
amazing 247:9
America 184:1
amount 86:12,12 120:1
 138:22 139:1 141:7
 143:17,20 150:17
 159:10 203:22 214:9
 313:9
amounts 64:15 126:7
amplification 127:4
analyses 8:7
analysis 33:1,10 35:3
 109:21 123:21 153:3
 153:21 174:19 179:16
 186:14 296:20
and/or 93:8 95:6 147:20
 296:21 343:9
angina 282:21,22
animal 118:5 119:1
 120:1,3 121:13,18
 128:10
animals 122:5 181:6,8
 183:14
announcements
 259:19
annual 108:2
answer 7:10 11:20
 13:11 15:15,18 46:16

46:17 53:13 56:21
 73:7 75:13 78:8 138:9
 197:8,14 213:10
 222:3 246:3 253:3
 267:21 285:13 299:7
 299:12,14 312:3,4
 314:14 315:5 323:19
 365:15
answered 128:21 246:6
 250:11 265:9
answering 201:1
 202:10 246:8
answers 60:11 63:21
 283:10
antibiotics 90:6
ANTONIO 2:9
ANWAG 259:21
anybody 8:19 53:12
 123:2 162:3 265:4
 327:10
anybody's 44:3 96:14
anymore 297:3
anytime 40:1
anyway 92:10 161:14
 295:19 314:4 375:20
apologist 274:10
appalled 371:2
apparent 65:20
appeal 281:20
appear 55:12 296:8
appeared 74:4
appearing 242:16
appears 110:12 213:13
applicable 29:14 176:6
application 100:20
applied 53:17 85:21,21
 88:4 318:8
applies 55:20 117:5
apply 46:7 53:19 55:21
 55:22 88:11 100:18
 115:7 127:20,22
 133:11 143:6 144:1
 217:10,14 292:20
applying 99:5 118:1
 135:8,11
appointed 343:17
 354:13
appointment 345:4
appreciate 32:9 247:5
 320:17 342:20 348:5
 348:10 352:21 353:20
appreciative 336:11
approach 17:6 30:7
 113:12 198:11 202:19
 215:3,13
approached 358:2
approaches 310:6
approaching 12:11

14:3 145:10
appropriate 84:4
 105:15 113:5 148:14
 169:9 188:7 210:5
 215:17 216:18 270:13
 270:19,21 292:11
 296:19 341:18
appropriately 127:20
approval 39:6 41:7,13
 42:2,10 43:8 208:11
 358:5
approvals 39:3,21
 360:20
approved 39:7,12,17,18
 40:13,14 41:10 56:18
 360:15,17 361:1
approving 59:21
approximately 154:2
April 338:13
arbitrary 340:19
arcane 282:13
archive 236:1,7,13,14
area 58:8 60:22 63:8
 90:2 99:20 171:7
 213:6 218:6 262:18
 352:15 354:8 355:10
 355:17 356:3
areas 29:13 32:18
 33:14 65:20 125:8
 150:19 172:16 236:17
 267:9 272:19 274:11
 294:4 336:22 350:19
 354:22 355:2,22
 356:13,20,22 359:19
 370:13
argument 215:5 320:11
arms 353:16
arranging 228:7
arrested 363:18,22
arrests 302:22
arrival 288:20
arrived 150:11 166:4
arsenate 184:10,11
arsenic 151:5 183:12
 183:14,14 184:9,13
 189:16 192:3 196:5
arsenical 189:20
arsenicals 192:2
 201:11
arsenite 184:10,11
artery 307:3 308:3
article 174:18 187:6,7
articles 174:6 181:11
asbestos 101:7 115:6
 147:8 151:19,22
 207:7,17 274:4,14,20
 275:10,12 276:1
 279:14,20 285:5

298:16,18 319:12
 320:9 338:4 368:13
 368:21
asbestos' 207:18
asbestosis 275:7,20
 276:14
asenic 196:5
asked 63:20 83:8 108:2
 108:12 148:4 149:15
 152:14 158:17 163:15
 172:17 189:9 203:19
 262:17 267:12,14
 282:18 297:10 330:9
 330:11 343:5,19
 364:17 372:21 375:8
asking 8:14 21:18
 24:20 28:20 125:9
 152:2 158:19 166:6,7
 167:15 196:4 197:13
 200:1 270:10 365:1
asks 270:6
aspect 87:22
aspects 13:1,7 339:21
assay 76:2 80:20
assemble 258:3
assembly 348:14
 352:11
assessing 16:21
assessment 7:8 9:4
 10:9,16,19 11:18 12:4
 102:18 106:17 166:19
 193:18 285:20
assessments 8:14 16:7
assigned 151:3 153:6
 222:5 260:18
assignment 374:16
assist 10:22 29:18,21
 56:3 146:6 261:22
assistance 61:8 140:7
 200:9 264:15
assistant 357:5
assisted 162:21
assisting 227:4
associated 3:7 117:19
 118:6 193:19 253:2
 277:10
association 49:15
 175:16 176:16 177:3
 179:18 182:2 184:4
 185:10 186:15
associations 126:21
 173:5 175:9 180:17
 183:18 195:19 197:20
assume 55:19 74:18
 98:11 100:6 101:20
 157:17 216:14 238:16
assumed 117:3 157:12
assuming 48:13 286:1

assumption 95:22
 171:4
assumptions 13:13
assumptions/presu...
 124:8
assurance 29:5 217:3
assurity 169:2
asthma 49:6,22 57:20
 57:21
Atkinson's 358:14
Atlanta 345:19 346:1
atomic 109:7 232:8
 295:11
ATSDR 297:10
attached 344:15
attack 307:8,14 308:18
attacks 307:1
attempted 147:3 358:9
attempting 147:5
attend 343:10 354:17
attending 261:4
attention 197:19 208:15
 211:1 343:4
attorney 223:11
attorneys 325:21
attributed 113:2 194:19
audience 29:20 246:18
audio 28:4
audiograms 129:19
audit 94:10
August 340:16 344:14
 362:6
authoritative 173:16,21
 200:20
authorized 330:18,22
automatically 134:7
 148:2 279:15,16
autopsies 156:18
autotoxicity 147:10
availability 210:1
available 8:17 34:12
 92:7 94:2 122:7
 165:15 214:14 217:12
 219:5,9,10 220:5
 222:19,22 224:10,15
 224:19 229:17 258:2
 261:22 262:9 264:3
 265:12 267:6,19,20
 268:2
Avenue 1:10
average 219:22 240:12
 240:16,22 241:8
 244:12
averages 240:13
aware 43:13 44:10 97:3
 224:2 226:4 264:16
 346:4
AWE 88:22

awful 336:9,14,15

B

B 3:3 31:21 32:1 33:13
 34:2 36:8 37:2,5,8,12
 41:14 45:15,21 46:4
 48:17 54:7 55:7 86:7
 87:1,5,6,9,10,13,16
 88:19 127:8 155:19
 268:14 334:13
baby 142:14 295:14
back 9:17 12:6 19:3
 28:9 31:3 35:17 40:3
 50:21 52:10,19 57:6,7
 59:2 69:7 70:9,16,21
 72:16 99:6 108:9,14
 112:1 119:3 122:7
 124:20 125:4,7
 144:12,16 149:21
 159:3 160:6 161:11
 164:5,8 166:13
 168:10,11 190:21
 193:22 194:1 195:4
 196:5 203:21 206:21
 209:13 216:3 221:18
 230:14,15,18 232:11
 234:1 239:13 240:10
 241:5 243:11 244:7
 244:18 248:21 249:16
 250:8 252:4,8,13
 254:2 270:22 275:20
 281:20 288:5 292:12
 294:20,20 295:5
 314:11 325:15 339:17
 349:19 351:3 352:16
 360:1 366:6,19 367:2
 367:3,18 373:8,12
 374:15 375:1,6,17
 376:4,13
backfilling 227:9
background 95:11
 278:15
backgrounds 278:18
bad 47:21 194:22 288:8
 288:14 366:19 371:2
Badie 374:2,3,6
baffling 97:22
balance 116:5
balancing 317:4
ball 47:21 231:8 349:20
 350:5
bank 358:8
banker 223:1
banker's 220:3
bankruptcy 115:6
bar 48:10 117:8 205:8
 205:20 206:8,11,12
 319:15

barrel 362:2
Barrie 327:6 331:11,12
 331:16 333:12
bars 209:17 210:10
bartender 315:22 316:8
base 196:11 314:6
based 8:16 43:14,17,19
 50:19 51:16 57:22
 103:4 105:14 113:4
 114:2 121:15 125:18
 138:12 177:21 179:1
 179:3 191:5 192:1
 207:3 244:16 253:16
 261:8 262:7 266:13
 271:12 277:8 279:10
 281:16 282:17 312:8
 371:14 373:3
basic 13:13 158:10
 200:4
basically 14:18 35:21
 81:18 83:17 84:19
 94:2 95:14 99:1
 130:18 132:1 139:2
 149:4 160:20 194:16
 230:8 257:4 264:16
 265:17 266:6 274:9
 275:11 277:6,14
 278:17 283:7 289:21
 297:18 298:18 372:10
basis 99:9 153:2 181:7
 183:5 203:1 273:11
 336:6 362:3
bathwater 142:14
battery 177:15
Bechtel 257:6,11
Becky 370:7
began 8:15 121:4
beginning 164:9 172:10
 172:13 225:1
begins 327:1
behalf 140:17 223:10
 229:16 338:17,18
 340:8 358:2
behavioral 192:22
beholder 301:20
belabor 291:13
belatedly 260:2
believe 26:19 90:15
 108:17 110:18 117:11
 133:4 142:14 165:21
 204:3 259:12 265:22
 277:19 278:22 339:4
 359:2
believing 109:7
belong 33:6
BeLPT 33:15 64:3 69:6
 71:8,20,21,22 72:1,4
 73:11,17,20 75:9,22

76:9 79:4,20 80:3
benefit 16:2 54:6,7,13
 86:8,16 139:7 206:2
 220:16 331:2
benefits 43:19 44:8
 53:18 54:2 86:1,9,10
 86:15,18 87:4,11,17
 88:1,11 107:4,5,9
 155:20 289:18 328:22
 329:15,18 330:2,15
 330:17,20 341:13
 343:12
benomyl 185:21
benzene 101:17 151:15
 151:21 197:5,6
 277:12
benzimidazole 185:22
benzine 309:19
berylliosis 70:9
beryllium 37:7 40:10,14
 44:7 52:16 54:5 57:12
 57:13 62:3 63:10
 66:21 67:4,6,12,18,19
 68:1 70:10 71:10,17
 76:7,8 78:16 79:11,14
 84:2 85:6 86:7 87:8
 87:18,21 88:13,22
 163:18 164:3 167:4
 168:3 285:7 320:8,8
 338:5 350:7 356:15
 367:17
best 35:10 43:16,20
 73:7 174:22 209:16
 209:16 216:4 219:11
 312:14 342:7
beta-2 179:10,13
better 5:22 13:12 19:22
 26:22 33:17 42:5 44:5
 44:8 53:15 75:13
 90:15 118:9 219:21
 262:15 264:3 272:17
 276:9 285:1 286:8,21
 289:14 298:2 353:13
beyond 125:21 160:12
 293:22
bias 184:6 185:13
biases 140:2
bible 131:5 132:2
bid 344:10,19
bidders 344:10
bidding 344:12
big 115:18 120:14
 121:12 123:19 207:19
 223:5 249:19 350:17
 353:17
bigger 52:10 158:4
biggest 38:9 122:19
 336:13

bilateral 359:8
billing 330:4
billions 370:22
Bingaman 295:13
biological 76:2,15 78:2
 95:2 120:4,5 175:21
biology 114:4 121:22
biopsy 74:20 155:8,9
 155:16
birth 235:18
birthday 235:9
bisphenols 193:8
bit 16:16 33:16 62:16
 106:14 119:2 126:17
 139:8 147:17 150:8
 152:5 167:20 168:2
 171:3 181:4 207:10
 208:6 214:3 216:3
 229:1,7,7 233:5,14
 234:19,22 236:2
 240:14 244:19 261:20
 262:20 273:14 274:12
 274:16 293:5 294:20
 295:1 300:16 312:8
 320:1,19 347:9
 366:15 376:13
bladder 151:22 183:17
 277:17
blame 305:17
blank 16:14 55:8
 365:12
bleed 353:9,10,10
bless 325:20
blew 109:14
blind 238:4
blinded 58:15
blocked 209:21 210:6
blood 72:1,6,10 76:16
 76:22 79:17 307:1
blow 79:20
board 1:3,10 4:4 6:18
 6:21 10:22 20:13
 24:19 58:13 92:7
 96:13 112:13 139:5
 139:10,14 140:5,7,8
 145:21 146:4,17
 147:1 148:6 150:22
 151:3,8 191:5,9 192:7
 214:18 228:13 244:21
 259:20 260:2,8,18
 281:21 285:21 328:5
 329:21 331:13 332:4
 332:7 333:6 338:12
 339:12,22 341:16
 342:1 343:2 345:12
 346:8 354:3,13,15
board's 144:6 286:2
 346:22

boards 229:19
Bob 356:11 357:4
Bob's 354:21 359:7
Boden 1:16 6:22 8:11
 9:22 12:21 21:7 25:3
 27:21 37:15,21 47:10
 52:21 69:7 99:22
 100:1 115:10 127:10
 127:11 170:10,12
 171:20 172:4,7 206:4
 206:5 261:11 282:1
 283:20 288:15 294:7
 294:8 320:3,4 321:12
 325:9,12
Boden's 11:3
bodies 173:22
body 173:21 207:1
 279:6 286:19
bogged 262:20
bolts 325:16
bomb 349:16
books 94:3
borderline 76:4 80:11
boss 228:15
bothers 69:15
bottles 376:9
bottom 62:1 176:8,12
 186:11
bowel 291:19
box 249:10 256:14,15
 256:20
boxes 220:4 223:1
 238:20 239:16 248:4
 248:7 249:5,11
boy 364:5
BRAC-1 359:10
brain 187:12,15 357:21
branch 2:16 211:7
 371:19
break 3:5,14 31:4 50:19
 90:22 131:11,16
 149:17 258:18
breakout 41:7
breast 151:16 277:16
 335:11 359:7
breath 357:17 374:20
 374:21 375:5,6
 376:10,13
breathing 375:9
Bridges 327:7 336:2,3
 336:5
brief 172:15,22 299:12
 299:13 328:6 331:19
briefing 94:3 142:8
briefly 6:13 151:2
 191:14
brilliant 227:14
bring 95:9 112:11

153:18 211:1 249:13
 282:8 289:12
bringing 25:3 289:15
British 192:17
broad 132:21 143:6
 144:1 284:21
broaden 200:11 201:3
broadening 16:6
broader 171:21
brochure 246:22
broke 38:10 261:16
broken 40:22 45:8
bronchi 275:5
bronchus 274:21
brought 27:13,14,15,18
 69:11 142:2 216:20
 233:22 237:12 264:1
 290:4 334:4 337:19
brush 143:6 144:1
BTMed 67:8
budget 222:15 334:12
budgeting 87:13
budgets 372:13
build 123:22 222:1
 223:7
building 17:21 24:11
 29:2 67:4 77:7 97:12
 100:13 122:20 279:6
 334:2 365:5
buildings 67:3 351:18
 354:8 367:14
built 247:17
bulk 229:22 231:9
bullet 21:1 24:20 25:7
 192:7
bulleted 224:17
bulletin 347:5
bulletins 216:12 328:13
bunch 215:16 293:15
burdens 341:5
burned 367:17
bush 211:3 213:14
business 177:2 188:15
bypass 111:7

C

C-A-I-R-S 253:21
C&P 280:1 281:14
 282:15 290:1
cacodylic 189:19
cadmium 151:5,21
 177:4,8,10,10,15,20
 178:13,19 179:11,12
 179:17 180:2,6,13,13
 181:15 182:1,1,5
 199:4
CAIRS 253:21 254:2,14
 254:15,16,21
calculate 75:11 309:8
 322:14,19 323:9
calculated 86:20 104:5
 181:13 322:17
calibrated 51:1
call 24:13,14 44:18 91:5
 216:15,16,18,20
 233:1 245:15 271:17
 306:5 327:14,22
 358:3,12 364:8
 366:21 373:4
called 108:5 187:3,13
 188:3 221:2 253:20
 269:4 279:17 294:18
 348:14 353:5 355:12
 360:6 363:20 365:11
 365:20 367:3
calling 85:16 375:22
calls 31:14 110:17
 214:22 215:4 216:9
 217:2,4,10 265:10
 292:12 343:15 358:10
Camp 133:3 190:12
 276:21 277:11 295:19
 297:5,22 298:6
cancel 345:4
cancer 104:15 151:6,16
 151:19,21,22 173:6,8
 173:14,15 174:15,17
 175:3,7,8,10,11,13,16
 175:22 176:2,14
 177:4,12,14 179:18
 180:1,6,11,15,20,21
 181:16 182:6 183:12
 183:20 184:3 189:7
 189:18 191:2 192:18
 194:13,16 196:7
 199:19,22 200:13
 202:13 204:3 205:12
 205:13,15 274:18
 275:4 277:16,16,17
 277:17,17 298:21
 305:3,4,5,7,9,10,15
 306:7 310:5,7,8,17
 312:3,5,13,16,19
 313:16,19,22 314:8
 316:14 323:6,6
 328:10,11 333:16
 335:12 338:2 353:17
 357:18,18,18 359:8
 359:13 360:17 366:11
 370:18
cancers 151:20 180:18
 183:17 274:19 279:13
 314:3 323:7 328:15
 328:16 351:22 353:17
 361:13,15
capability 142:18

- capable** 225:4
capacity 298:13 354:7
capricious 340:20
captioner 28:3
capture 19:4,10
captured 18:21,21
captures 29:6
capturing 19:16
Carbide 369:8,9
carbon 306:21
carcinogen 176:9
carcinogenesis 181:6
carcinogenic 104:14
 183:15 310:12 360:7
carcinogenicity 173:18
 184:12
carcinogens 104:4
 173:20 177:11 180:14
 181:2 310:8
carcinoma 370:18
card 330:6,6,13 351:13
 355:13,18
card-carrying 299:9,15
cards 355:14,22 356:5
 359:16 360:3
care 22:13 87:7 132:3
 160:14,19,20,20
 161:4 169:17 209:6
 336:17 341:2
career 43:22 315:22
careful 67:17 217:16
carefully 57:20 75:3
 188:16
carpenters 131:20
Carrie 1:21 3:4 21:22
 42:12 78:18 167:4
 169:11 327:11
carry 8:11
carrying 355:1
cart 249:14
cartilage 328:12 333:16
carved 323:17
case 16:13 22:18,19
 41:11 42:3 46:7 55:16
 56:16 57:3 58:21
 59:13 70:2 78:15
 83:14 87:10 88:4
 100:4 101:16,20,21
 103:9 110:13 114:5
 115:8 116:7 122:4
 126:6 134:8 140:22
 141:6 160:4,14 162:2
 165:18 178:8,18
 179:3 182:19 183:4,4
 183:4,8,9 184:17
 190:13 200:1 213:5
 216:1 218:16 242:9
 242:21 254:22 264:13
 264:21 267:22 268:4
 270:6 271:3 273:11
 273:11 280:22 281:4
 281:19 282:4 297:6
 306:15 308:5 317:2
 319:12,18 321:7
 340:13,15 346:6
 347:10 363:12,13
Cassano 1:22 3:15
 12:12 19:19 25:10
 55:18 60:13 70:8
 84:16 85:15 98:3 99:2
 111:21,22 132:8,9
 142:2 144:14,15
 189:5,6 194:7 201:16
 201:17 203:2,3
 250:15,16 260:16,22
 261:3 272:8 273:16
 273:17,20 274:3
 275:21 276:13 278:17
 281:1 282:5 287:5,6
 287:12,21 288:2
 289:12 293:9 296:4,9
 296:14 299:13 318:20
catch-22 373:15
categorical 349:11
categories 48:6 116:18
 118:11 131:9,14,15
 172:19 284:21 310:20
 360:18
category 109:22 118:12
 126:3 171:6 334:20
 348:8 362:18 371:22
 372:3
caught 109:6
causal 115:17 183:6,8
 184:4 306:17 312:2
 315:10 317:2 322:6
 323:18
causality 169:16
causation 48:12 49:10
 49:14 50:1 56:1 59:17
 59:22 70:4,5 93:18
 96:5 102:6 104:12
 111:17 119:9 168:17
 183:1 194:20 202:14
 205:7 264:4 269:15
 272:11 291:17 295:4
 300:16,17 303:6
 309:4,8,14 311:22
 315:12 322:12,15,20
 323:10 324:13 325:1
 325:3,5 332:6,10,10
 332:15 337:19 339:15
cause 23:1 50:19
 112:19 113:15 140:12
 140:19 141:15 156:20
 199:22 302:17 303:12
 303:13,17,22 304:13
 304:14,16 305:12,12
 305:20,22 306:1,2,4,6
 306:8,9,14,14 307:11
 309:19,20 310:2,16
 318:1,4,11,18 319:10
 320:7 323:6 324:18
 374:19
caused 67:1 113:21
 124:13,15 199:11
 281:4 305:4 306:11
 337:15 375:22 376:3
causes 140:21 175:8
 179:13 200:12 304:17
 304:19,22 306:16,18
 307:6,6 308:17 309:3
 309:12 312:5 319:13
causing 12:8 104:14
 301:8 302:3,6 306:12
 311:5 324:17,19
caution 182:10
CBD 33:19 39:7,10,13
 40:11,13 41:17 43:7
 45:12 61:3,6,10 62:3
 62:22 63:12 64:18
 67:2,20 71:3,13,21
 72:3 75:22 77:8,15
 78:6 83:6 85:22 88:4
 155:5 212:14 268:17
 294:2
CDs 230:15,16
CE 12:15 13:2,2 21:7,15
 21:18,19 25:4,16,17
 56:5 60:17,22 61:4
 108:21,22 131:4
 132:1 161:1,20 162:9
 164:8 250:20 263:5
 263:13,14,17,21
 264:16 265:12,18
 266:4 270:1,5,9 271:3
 271:11,15 273:3,5
 274:17 279:12 281:3
 281:10 299:4 300:7
 321:11 364:5 366:6
 366:20
CE's 264:5 281:11
cell 81:3
cells 80:13 81:5,11
 176:5,5
cellular 80:17 195:7
center 225:13 238:17
 238:17 249:10,12
 250:6
centers 29:9 198:16
 333:21 336:20
central 279:7 320:11
certain 13:15 57:12
 58:1,20 65:20 77:14
 95:18 109:8 157:9
 200:19 248:15 251:10
 283:9 290:3 294:4
 303:14 318:12
certainly 14:11 16:18
 48:11 70:12 144:11
 165:8 239:18 242:7,8
 246:19 254:4 255:4,6
 255:9 272:16
certainty 209:1 281:3
 309:18 310:1,7,21
 311:1,4,5 318:13
 322:8 323:3,11
certIFICATE 211:10
 264:12
certificates 156:19
certification 354:7
CEs 60:15 84:17 147:20
 147:22 213:6 261:22
 266:17 267:3,6
 279:10 364:9 366:8
 367:13
cetera 209:1 222:5
 278:3,3 292:1
chain 47:19
chalk 207:15
chalkboard 207:15
challenge 11:15 193:14
challenged 163:22
 339:21 341:20
challenges 125:9
 195:16,17 237:7
 340:1
challenging 161:22
chance 14:1 21:11 32:4
 150:12 184:6 204:17
 208:5
chances 307:8
change 23:1 51:3 58:5
 58:11 90:8 142:13
 145:1,2 214:21 215:3
 323:22 334:11 345:9
 346:5,7 347:12,12
 373:2
changed 18:19 19:15
 19:15 107:8 133:20
 133:22 306:21
changes 328:18,20
 329:3,3 342:3 347:2,6
 347:15
changing 10:2 138:2,3
 138:4 322:6 323:1
 332:3 340:22
Chapter 263:3
characteristic 61:11
characteristics 8:3
 64:2 141:9
characterization 22:14

- characterize** 22:3 74:21
characterized 179:17
 223:15
characterizing 288:18
 308:18
charge 32:18 37:2
 200:17 261:5
charged 300:5
charges 329:9,13
Charlotte 345:20 346:1
chart 237:16
charter 341:16
charts 17:9 150:11
chastened 109:15
check 99:18 153:15
 171:15 210:17 224:5
 254:15 358:7 376:17
checking 224:16 226:2
chemical 14:5,19 95:1
 116:16 126:21 134:21
 135:10 137:7 195:19
 348:16,19 352:18
 357:1 371:14
chemicals 14:22 27:11
 131:21 134:17 135:16
 173:18 348:20 349:14
 350:22 351:18 352:3
 368:13 374:10 376:4
chest 59:11 65:15
chief 2:16 366:1
Chile 184:1
chime 32:5 265:4
China 183:21
chloride 180:2 277:13
 350:16
chlorine 304:3,5,12,13
chlorine's 304:4
chloroform 350:16
 351:2
chlorophenoxy 192:2
 194:11,13 201:10
choice 181:21 330:21
cholesterol 307:2,16,20
 308:9
chondrosarcoma
 328:11
chromosomal 180:9
chronic 37:7 44:7 45:16
 46:1 62:4 70:9 86:7
 87:8,18,21 338:4
 376:1
chronically 53:21
chronologically 253:10
cigarette 313:9 316:7
cigarettes 313:8 356:10
 356:12
Cincinnati 345:20
circle 31:3
circles 314:10
circling 112:1
circuit 294:19
circular 3:7 92:3 93:19
 95:12 147:8
circulars 96:12,19 97:4
 97:11 144:17 147:7
 216:11,12
circulate 205:3
circulating 72:10
circulation 216:21
 328:13
circumstance 113:13
 117:6 217:15,17
circumstances 26:21
 58:1 105:15
claim 5:19 11:15 17:16
 18:4 20:18 39:17,18
 50:8 54:20 56:9,17
 81:22 83:6 86:1 88:20
 88:20 89:3 100:4
 116:19 128:22 129:4
 129:22 134:14 140:11
 148:15 153:10 154:3
 154:8,20 155:4,6,11
 155:14,17 156:14
 163:14 164:9,17
 170:20,22 171:2,22
 198:18 223:13 224:6
 225:1 226:3 235:5,7
 235:13,17 247:14
 248:13 254:6 256:16
 261:8 264:18 267:16
 267:17,22 268:17,18
 269:4,13,21 275:13
 281:16 290:12 292:4
 293:17 299:10 300:12
 334:5 349:9 352:5
 354:20 357:20 358:2
 358:5,8,10,13 359:14
 360:10,20 369:12
 371:14,17 376:18
claimant 2:1 5:17 23:3
 55:20 56:14 60:18
 112:3 128:22 148:9
 154:19 155:2 218:22
 224:5,12,19 225:6
 262:4 264:19 267:19
 280:15 297:20 300:8
 324:3 329:12 340:17
 347:11,13 365:1
claimant's 108:17
claimant-friendly
 140:13 366:16
claimants 20:16 26:21
 29:14,22 50:11 51:22
 90:11 147:19 148:1
 219:9 220:17 222:13
 229:16 288:18 325:17
 329:7,15 330:18
 341:8 362:17 363:11
claimants' 330:1,7,14
 331:4
claimed 18:9 54:15
 62:12 164:9 167:10
 284:15
claiming 158:6
claims' 288:20 358:16
clarification 24:17,21
 33:18 84:11 142:15
 163:3 165:16 204:10
 204:16 219:2
clarified 73:14 78:20
 84:13 150:18 271:18
clarify 24:14 32:18
 54:18 74:19 83:11,19
 158:16 159:6 206:15
 271:18 273:22 341:10
 341:18
clarifying 82:17 83:1,22
 93:21 165:7
clarity 15:10
Clarke 109:20
classic 58:14 101:17
classification 36:7 45:7
 167:7 310:9 336:16
 356:17 371:20 372:5
classifications 36:22
 45:10 334:16 361:21
 362:22 367:19
classified 118:14
classify 36:2 180:15
Claude 353:1,2,13
clean 350:11,13,14,18
 350:21 360:5 368:20
 368:22 369:2
cleaned 103:17
cleaner 360:12
clear 17:8 25:6 33:4
 74:7 83:7 84:6 99:7
 99:10,13 100:8 106:8
 121:17 124:18 126:22
 149:12 159:15 162:1
 162:16 176:13 177:1
 178:17 187:6 192:16
 206:17,19 251:14
 321:7 344:7
cleared 225:17
clearings 362:15
clearly 76:22 101:5
 110:7 121:13 124:7
 125:20 148:20 149:22
 160:5,15,21 161:19
 217:17 287:1 305:8
 321:16 347:1,4,16
Cleveland 331:7
client 211:22 217:21
clients 343:5,6
clinic 103:4 211:15,19
clinical 275:15
clinician 149:9,19
clinicians 58:2 99:13
 146:22 209:2,7
clock 231:5 355:19
close 28:2 31:15 175:18
 244:13
closed 27:9 344:13
 358:9
closely 295:13
closer 141:17
closing 255:14
closure 234:20 235:21
 247:16
clothing 356:21
clueless 136:10
CMC 3:11 25:15 59:3,7
 134:10 146:3,9
 147:21 149:1,18
 150:3,5 155:7,22
 156:19,22 157:9
 159:3 161:6,7 163:21
 164:1,12 169:5,17
 170:4 211:13 212:12
 262:6 263:11,12
 264:21 265:1,18
 268:19 270:2,4,11,11
 270:17 272:21 279:22
 280:1 300:10 343:16
 344:10,18 346:12
 369:4
CMC's 264:14
CMCs 61:5 83:4,13
 155:21 211:4 212:2
 212:12 213:7
co- 355:3
co-factors 304:9
Coast 157:9
code 188:4 224:4,21
 290:12 327:15 375:14
coffee 350:4 356:8
cognizant 210:19
cohort 174:22 177:18
 178:2 231:20 360:15
cohorts 297:13,15
 328:9
coined 109:19
Cold 329:15 338:17
 339:10 342:1
colleagues 65:5
collected 166:2
collecting 300:7
collection 23:16 30:3
 57:1 256:21,22 257:4
 258:5,11,13

collectively 52:17
college 278:22
colorectal 151:19
column 42:16 238:11
 238:18 239:13,14
columns 238:10
coma 362:12
combination 45:16
 76:12 127:22 286:2
combined 88:20
come 4:13 17:7 30:12
 32:4,21 59:1 60:10
 64:18,20 68:13,20
 82:5 86:13,18,21 87:1
 89:18 97:21 116:5
 117:2,9 118:19
 124:22 130:16 136:19
 137:15 138:16 141:16
 158:8 161:2 163:12
 169:7 200:2 201:6
 202:7,16,18 204:16
 206:16 255:21 260:13
 286:9,15 294:4 295:5
 296:17 317:7,8
 325:14 336:7 344:10
 348:2,20 359:17
 360:1 368:4 373:8
 376:13
comes 21:21 53:17
 54:7 72:16 124:18
 139:15 196:13 253:6
 281:20 286:18 311:7
 334:15 338:1 366:6
Comfort 1:10
comfortable 57:18
 70:20 138:10 208:22
 329:8
coming 35:17 90:11
 201:12 204:14 208:10
 218:4 285:2 293:21
 329:22 338:21 356:3
 356:13 361:9 366:19
commander 361:22
 366:1
comment 3:16 12:19
 13:6 18:18 20:8 25:8
 26:17 35:7 40:9 43:13
 48:21 50:4 61:20
 65:21 66:19 79:2
 89:21 110:15 112:1
 128:4 135:20 144:16
 162:4 165:3 166:15
 170:11 194:8 200:7
 218:9 255:11 259:4
 292:19 300:4,13
 315:17 320:5 321:13
 326:19 327:1,11
 331:14 342:20 371:6

377:3
commenters 327:4
comments 6:20,21
 10:21 11:4 18:5 20:5
 29:7 30:17 42:11,12
 64:22 66:15 71:15
 85:14,17 90:20 105:1
 106:10 145:9,15
 149:8 189:5,7 195:1
 209:10 214:17 227:17
 259:13,17 292:18
 294:22 295:7 315:11
 318:20 331:19,20,21
Commission 109:7
commitment 229:4,5
committee 6:9 16:4
 17:7 31:11 32:3,6
 66:14 102:18 119:5
 124:4,17 130:8
 139:15 146:12 147:11
 200:16 206:6 209:15
 273:18 283:13,21
 284:11,12 285:18
 287:11,13 348:11
committee's 146:11
committees 168:6
common 50:2 58:2
 184:9 199:19 202:15
 205:12 304:15 305:2
 306:22 308:2 334:15
commonly 82:2 166:8
 305:20 330:6
communicate 320:14
 320:15 324:2,6 347:1
 359:19
communicated 259:7
 345:11 347:4,16
communicating 272:5
communication 108:18
 147:15 149:5 159:18
 161:18 226:13
communications 91:10
 96:7 149:12 215:10
communiqué 218:7
communities 109:11
 349:11
community 1:13,17 2:1
 113:1 261:18 297:21
 338:19 339:9 340:2,9
 347:3
Comp 85:7 322:7
companies 115:6
company 85:5 257:12
 257:13 356:21
comparable 226:15
compared 154:18
comparing 78:3 115:2
compelling 92:21 93:9

compensate 341:2
compensated 195:22
 298:22
compensation 2:15
 43:18 44:5,10 86:8,12
 86:12,19,20 116:1,9
 127:18 132:12 205:11
 228:19 323:21 340:18
 340:19 341:1 342:8
 348:8
complaints 345:12
complete 138:16 161:8
 213:10 233:13 267:17
 271:16 295:5 303:13
 304:2,13 305:12
 372:18,19
completed 268:5 293:1
 355:20
completely 14:11 101:1
 101:12 102:2 147:12
 171:10
completeness 165:3
 166:12
complex 19:3 23:22
 71:18 110:19 177:6
 240:13 253:4 339:1,8
complicated 11:10
 13:10 113:6 293:17
 308:1 324:6
complications 33:21
 89:8,14,15,17,19
complies 141:21
compliment 90:3,14,20
component 74:8,12,22
 75:1 89:2
components' 355:9
compound- 121:16
compounds 177:10
 180:14 183:15
comprehensive 167:21
 174:1
compromise 161:4
computer 224:14
concentrate 7:16
concentration 120:19
 127:6
concept 198:19 289:17
 290:9 292:10 317:10
 320:6
concepts 31:13 320:10
concern 22:9 99:12
 142:12 203:6 214:21
 279:9 373:10
concerned 51:5 204:11
 215:14 217:8 218:10
 265:3 324:1
concerning 33:13
 110:9 331:22

concerns 38:10 146:18
 148:21 149:4 193:1,1
 214:12,19 227:13
 371:12,13
concert 304:18
concise 237:19
conclude 121:16,22
 183:5 188:14
concluded 4:11 177:8
 177:13 179:20 180:5
 182:2 184:2
concludes 377:3
conclusion 40:3 62:13
 156:6,8 158:8 180:12
 182:9
conclusions 32:4 33:11
 62:18 64:16 66:16
 71:1 186:18 189:10
conclusive 310:16
concrete 5:15 217:14
 217:17
concur 103:3
concurrent 116:18
Concurring 100:1
concurs 132:17
condition 12:8 36:3,14
 36:16 38:21 39:3 41:6
 45:17,21 47:8,14 48:7
 52:3 53:15,20,22
 54:22 55:22 60:4
 69:18 87:5,16 90:12
 90:18 162:20 198:17
 199:20 269:4 283:7
 306:20 374:4
conditioned 298:10
conditions 23:2 33:13
 36:10 37:16,22 38:2,3
 43:11 44:13 45:5,6
 46:15 47:7 48:22 49:5
 52:1,15 54:4,11,14
 55:9,11,15,21 62:12
 86:4 90:4,5 110:19
 111:2,12 166:9,9
 167:10 197:19 198:11
 198:21 199:11 283:6
 290:15,20 291:12
conduct 26:20 232:4
 236:18
conducted 346:18
conference 187:19,20
confidence 174:21
 175:17 181:14
confidentiality 217:20
confined 347:14
confirm 177:17 373:5
confirms 126:13 282:15
 282:16
confounded 164:18

- confounding** 185:13
confusing 63:5 73:8
 230:20
confusion 48:6 63:2
 257:16
Congress 301:17 324:8
 333:15
Congressional 296:1
 324:7
conjecture 179:2
conjunction 9:16
connect 190:10 335:20
connected 190:9
connection 100:10
 151:13 290:3
connections 15:5
connects 189:18
conquer 184:16
consecutive 129:9
consensus 122:6 264:2
 265:11
consequence 100:7
consequential 86:4
 87:8 90:4 332:2
consider 57:14 82:16
 107:22 127:13 176:15
 190:18 223:21 226:14
 273:13 279:19 306:9
 313:5
considerable 203:22
consideration 331:20
 337:18
considered 15:14 71:12
 90:17 113:8 118:15
 124:13 134:5 135:15
 156:3 162:20 263:15
Considering 331:18
consistency 146:7
consistent 42:9 61:9,10
 61:15 186:17 342:6
constructed 14:9 167:2
construction 7:17 11:7
 11:11 77:17 100:16
 100:19 118:21 122:20
 137:1,2,8,9,16 363:4
 365:4 368:6,16
constructive 339:3
consultant 269:13
consultation 332:13
consulted 343:9
consulting 332:3
consumer 193:10
contact 77:10 93:13
 358:11
contacted 295:12
contacts 234:13
contain 243:10
container 356:4
containing 355:12
containments 277:11
contains 238:17
contaminants 109:13
contaminated 67:4
 356:1 367:13,15
contamination 356:20
content 135:4 150:1
 165:8 289:16
contention 267:18
 279:21
contentions 267:18
contents 3:1 165:20
context 18:12 148:19
 163:20 164:13 193:16
 340:13
continue 4:6 31:13 81:9
 82:6,12 85:2 127:10
 200:21 287:19 289:4
 326:21 350:6
continued 3:2 4:9 98:17
continues 107:17
continuous 122:22
 123:3
continuum 10:18
contract 5:1 8:18 18:19
 19:15 146:21 211:13
 344:11
contracted 269:12
contractor 87:19 88:15
 246:15 252:2 286:3
 354:11 369:8
contractors 98:6,12
contracts 299:18
contradictory 26:6
 294:3
contrary 92:22
contrast 250:1
contribute 303:7
 307:13 309:3 311:13
 318:11
contributed 124:13,15
 140:14,15 141:14,17
 141:18,19 306:6,11
 314:8
contributes 309:21
 311:11
contributing 12:7,8
 56:14 127:13 140:19
 301:7 302:4,5 306:5,8
 306:12,13,16 307:11
 307:18 308:17,22
 309:3,12,15,16
 311:12 312:2 314:14
 314:19 315:9 316:14
 317:3 318:2 322:18
contribution 113:3
 272:11 308:4 309:6
 309:13 315:1,2,2,5
 318:19,22 319:6
 322:21
contributor 140:12
contributory 112:19
 113:10,15 114:9,11
 115:18 209:3
control 99:17 178:8
 179:3 236:6 373:13
controlled 94:8 102:3
 288:10
controls 92:17
conversation 83:18
 91:14,20 148:5 162:7
 162:18 163:8 190:22
 207:9
conversations 25:5
 159:21 163:10
convinced 103:6
 191:17
cookies 350:5
coordinate 233:16
coordinators 29:17
COPD 13:14 49:6,22
 57:19 58:19 59:9,10
 59:11 64:19,22
 123:19,20 285:6
COPD's 285:12
copied 57:8
copies 148:2
copy 220:7 225:6
 249:21 254:5 278:4
cor 275:6,22 276:2
coronary 307:3 308:3
correct 23:16 55:2 66:7
 68:5,11 86:5 94:15
 171:4 172:1 187:4
 249:22 373:9
correction 293:20
correctly 68:5 98:14
cosmetics 193:9
cost 206:2 221:5 299:8
 370:22
costs 87:7
Council 189:13
count 37:13 135:18
counted 37:18 86:16
County 255:20
couple 4:14,15 10:21
 30:11 33:17 35:21
 62:6 74:3 75:15 81:1
 93:20 104:22 123:1
 125:13 132:13 139:15
 158:11 159:14 189:6
 201:13 207:6 209:13
 232:10 259:19 269:15
 277:4 287:18 333:9
 339:13 361:17
course 52:2 54:6
 239:13 246:9 249:16
 302:21 303:3,4,10
 305:6 315:16 351:16
court 107:14 140:16
 281:21 340:15 341:10
courts 323:15
cover 53:7 85:8 87:6
 376:22
coverage 232:4
covered 9:19 17:14
 45:17,22 46:6 47:7
 48:8 54:11 69:14,19
 87:5 92:22 93:3 95:4
 107:11 232:14,19
 284:7 295:21
covers 239:1
CPs 287:14
craft 369:2
crafts 368:20
cream 374:19
create 15:10 88:19 89:1
 167:20 172:19
created 8:18 95:15
 208:10 341:2 342:8
 359:17
creates 344:22
cricoid 328:11 333:16
criteria 33:19 46:14
 47:8 58:21,22 61:13
 73:16 74:9 82:16,19
 83:5,15 114:19 115:2
 115:3,10 116:3,6,9,11
 117:12,22 118:4
 119:16 131:18 132:6
 132:13 134:1,6,18
 155:5 181:12 280:15
 280:20 283:8 290:2
 373:19
critical 188:18 189:3
 352:15
critically 174:5
criticisms 322:1
cross 235:13 373:20
cross-cutting 26:2,4
CT 59:10 65:6,11,13
 74:10 264:13
cup 298:11 350:4
curious 97:6
current 43:21 44:6
 101:8 135:3 211:16
 218:4 314:9 336:19
currently 5:9 7:21 38:9
 43:15 51:7 54:9 64:4
 64:11 73:9 74:9 107:1
 202:20 218:17 226:21
cursor 153:4,20
 156:12

cut 95:17 162:16 321:7
334:13 337:4,5
342:14
cutoff 66:3 323:15
cuts 91:15
CV 211:6

D

D 2:2
D'Adamo 173:8
D&D 367:15
D.C 338:13 339:17
340:5 373:7,13
dad 368:8 369:6,15,16
dad's 368:19
damage 128:12,15
180:9
damaged 187:13
dandy 337:5
dangerous 74:1
DAR 108:12 233:1
241:8,9,20 243:16
244:7 251:11,16
252:9
dark 249:22
data 4:12 14:15 15:3
23:17,21 32:20,22
33:10 34:2,7,13,14,19
34:19 35:3,12,15,19
36:11 38:10 44:18
46:13 51:17 55:17
56:20 60:9,13 62:12
63:1 66:17 72:18,20
92:21 119:1 120:1,3,3
121:17 130:21 153:12
153:15 165:12,17
169:2 170:6 179:1
183:7 198:1 229:18
245:11 262:18,21
265:10 271:17 285:17
286:18 310:15 322:17
322:19 362:21
database 8:22 17:19,21
137:9 223:16,18
239:7,16 242:17
247:17,19 253:1,5
254:3,20 352:12
databases 6:15 9:5
238:12 242:20 243:10
date 32:5 62:19 111:1
122:7 220:10 235:18
240:20,20 251:4,4
290:13
dated 92:4
dates 240:21
day 85:16 103:20
139:21 187:20 244:4
244:10 245:5 260:14

316:16 351:1,7,7
360:12 362:3
days 70:17 132:6
160:19 195:11 230:11
231:6 232:15 241:5
244:7 356:11 360:16
363:9 365:11
DC 208:5
de-greasers 375:16
de-identified 254:3
dead 364:14
deal 91:17 203:1,17
298:13 325:17 331:2
dealing 43:4 224:8
331:4 334:15 335:9
335:13
deals 348:19
dealt 98:4 122:15
death 156:18,20 264:12
264:12 267:22 354:15
358:18 362:14 366:4
deaths 178:7
Deb 327:5 328:3 333:11
debates 161:19
decades 122:8
deceased 364:14
December 92:4
decibel 126:1
decide 16:1 21:11
141:19 261:8 273:6
286:7 320:20 341:20
366:9
decided 7:15,19 16:5
112:21 124:21 259:10
327:10
decides 21:9
deciding 285:10
decision 11:13 13:3
48:11,13 57:22 58:5
58:11 59:17 101:19
118:2 154:16 155:19
205:7,17 206:1,18
216:16,17,20 262:7
263:21 266:3 268:5,6
268:9 271:11 280:5
288:21 323:4 324:3
325:18 326:10 337:3
decisions 10:17 69:14
124:19 154:22 156:1
217:3,4 290:6
declared 370:13
decline 42:1
declined 368:6 369:11
dedicated 227:8
DEEOIC 2:13,16 4:19
93:13 95:2 328:8
DEEOIC's 332:3
deep 248:12 255:16

283:16
deeper 36:20
deeply 333:13
Defense 186:13
defer 193:17
deferred 207:8
Deficient 265:21
deficit 125:20
define 32:19 61:9,15
114:14 262:17 318:18
defined 232:6 272:12
322:20 332:20
definite 310:12 311:2,7
318:9
definitely 67:20 115:19
166:13 376:3
definition 19:5 83:21
140:14 275:20 318:10
326:11 332:9
definitions 326:1,10
definitive 73:12 182:17
183:1 185:17 268:10
268:12 319:17
definitively 134:10
degree 141:8 208:22
309:20 311:10 322:8
323:2,11
degrees 279:1,2,3
298:8
delays 219:13
deliver 272:6
Dement 1:14 7:10 9:10
10:6 11:21 16:10 32:8
33:9 34:15 35:9,14
37:9,19 38:2,12,22
39:2,8,11,20 40:6,15
40:20 41:1,4 42:19
43:2 44:14 45:4 46:16
47:17 48:15 49:2,4,9
50:13,17 51:14 52:7
55:3 56:19 74:2
104:21,22
Dement's 110:16
demographics 43:14
demolish 367:15
demonstrate 116:8
117:3 129:6,9 137:13
demonstrated 66:21
117:18 118:5 192:5
demonstrating 123:8
denial 36:3,7,15 37:20
41:13 45:8 47:11,13
47:14,22 50:2 52:15
166:20 170:3 272:14
335:9,10
denials 39:21 45:13
166:8 168:16 270:18
denied 37:17,22 39:13

41:10 56:2 62:5
114:22 131:7,11,17
132:4,5 167:9,12,22
167:22 258:4 268:19
271:8 292:4 329:11
353:19 358:19 359:15
362:9 364:4 366:5
367:8
Denver 72:6 108:2
331:5
department 1:1 24:22
34:14,17 35:16 56:4
90:3,21 91:11 92:18
94:5,12 96:11,11,17
97:6,7 100:14 108:3,6
108:10,19 109:6
116:4,11 125:8 127:2
135:6 142:8,22 143:1
144:11 147:16 165:14
165:15,19 168:11
171:11 198:22 204:20
212:8 220:20 225:16
226:14,20 228:2,22
230:22 231:14 244:4
245:10,14 252:15
265:8 326:17 332:7
339:20 340:8,14
342:2 343:17 348:9
370:21 375:17 376:19
depend 48:9 60:2 88:8
248:13
depended 133:8
dependent 143:13,21
depending 22:4 53:21
191:12 240:4 241:15
249:17
depends 77:1 80:9
141:6,7 247:13 282:5
depleted 356:14
deposited 358:8
depth 11:13 151:1
163:3
described 68:6 148:10
340:18
description 109:16
168:1 362:18
deserves 213:10
DESIGNATED 2:7
designed 105:12
desk 356:5,7
desks 356:7
destroy 367:16
destroyed 359:4
detail 16:12 177:5
183:10 229:7 263:3
272:2
detailed 12:9 179:16
238:22

- details** 162:11 257:4
determination 266:1
 279:18
determinations 162:15
 214:13
determinative 255:17
determine 116:4 194:2
 264:10 270:1 282:7
 283:3 293:7 336:21
 373:14
determined 25:14
 140:11 272:12,15
 273:2,13 312:14
 337:9 338:2,4 368:10
 369:4
determines 12:15 25:17
 112:17 143:1 261:7
 263:13,15 265:18
determining 262:1
 273:9 275:13 290:18
 300:9
detrimental 329:3
develop 26:4,9 81:5
 113:17 124:17 141:11
 191:7 209:19 267:12
 271:16 272:17 303:19
 304:1,5 305:7,10,15
 313:16,18,21 319:19
developed 5:1 18:6
 42:6 61:16 62:7 67:2
 75:18 80:22 112:15
 145:5 278:6,7,8
 284:10 329:14 332:12
developing 192:12
 217:12 279:8,9 284:1
 296:7
development 18:15
 29:4 126:14 190:15
 194:17 235:6 262:1
 285:22
develops 261:6 302:13
 302:22 305:3
device 105:18
devil 296:11,12
devoted 11:17 15:22
diabetes 191:20,21
 192:15,20 194:3
 195:5 201:12
diabetic 151:11
diagnosed 53:16 55:21
 302:13 334:22 359:7
diagnoses 167:6 188:5
 290:11,14
diagnosis 39:19 59:20
 63:11 69:1 71:9 74:18
 79:9,16,19 84:7 85:12
 114:19 116:13 264:11
 268:10,11,12,20
 271:10,13 275:15
 276:7 278:3 282:15
 290:13 357:21 359:7
 359:9 360:17
diagnostic 33:18 78:4,6
 78:6 84:8 292:13
diagnostics 292:15
diagram 13:19 17:6
 19:22 22:2
dial 162:9
die 276:1,1
died 80:13 362:10,12
 366:3 369:13,18
diesel 319:1,3,4
dietary 181:22 192:22
differ 73:3
difference 54:5 60:20
 102:5 187:17 339:4
differences 182:11
 209:5 331:3
different 14:3,5 15:8
 19:1,14 29:13,14 48:6
 53:2,7 54:6,22 55:11
 64:14 78:10 79:6,18
 98:5,5 100:15 102:7
 106:14 112:7 113:9
 125:18 128:17 129:2
 129:2 137:5 151:16
 151:18 153:13 154:5
 154:9 158:5,19 162:4
 167:1 171:10 173:5
 178:3 181:19 184:8
 184:13,15 187:15
 192:3 194:20 202:20
 204:15 205:21 215:1
 229:19 234:19,22
 237:6,9 238:12 240:7
 242:20 243:15,18,21
 247:20 248:18 249:20
 251:21 252:11 256:18
 284:6 291:8 298:9
 301:10 310:4,19
 318:5 330:9 331:1
 336:15 339:21 357:14
 368:20 369:10
differentiate 71:20
differentiation 84:19
differently 64:4 266:13
 313:13
difficult 4:20 7:14 69:5
 72:13 82:14 90:7
 100:9 156:16 158:6
 188:10,22 224:12
 237:3 320:15 326:18
 329:7 330:17 343:12
 345:6
difficulty 84:12 344:22
Diffusion 360:14
dimethyl 184:11
dioxin 295:20
direct 128:9 291:10
 294:17
directing 23:13
direction 339:14
directly 5:18 7:11 20:16
 96:3 149:6 293:8
 338:4 339:2,8
director 2:13,14 228:16
 228:18 332:12
directs 294:9
dirty 283:15 329:21
disabilities 282:12
disability 279:17 282:7
 282:17 283:3 289:18
 290:3,18 291:1,5,8,10
 291:11 292:5,21
 293:6 337:12,15
disagree 141:16 190:1
 300:18 302:7
disagreed 156:19
 288:11
disagreement 135:21
disagreements 214:18
disclosure 328:9
 354:12
disconnects 208:21
discount 275:12
discounted 363:5
discredited 65:16
discuss 6:6,9,18 17:15
 22:10 31:21 33:5
 66:14 112:13 218:10
 260:6 271:15 272:3
 289:5 306:19
discussed 30:21 31:10
 83:3 106:12 145:13
 160:2 210:21 216:8
 222:10 260:5 262:12
 264:11 288:8
discussing 20:4 65:4
 91:10 165:5 218:15
 228:3 260:12 312:7
discussion 4:6,11 6:10
 6:16 12:9 25:13 26:13
 41:19 52:17 63:15
 70:11 82:7,12 96:8
 106:5 112:7 122:9
 124:14 125:6 152:20
 152:22 187:7 191:17
 204:1 283:18 287:20
 295:3 300:15,20
 301:1 315:14 332:5
 346:12
discussions 60:17
 99:13 260:13
disease's 302:17
disease-specific 130:7
diseases 14:7 37:8,8
 89:12 103:6 123:18
 140:20 187:2 196:9
 196:16 199:6 277:10
 280:16 284:7,14
 288:19 289:13 293:13
 307:5 315:4
disk 150:9 154:11
 219:21
disks 153:2 154:18
 166:4 219:19 220:5
dismiss 266:22
disorder 188:11
disorders 151:17
disparate 65:7 68:20
disparity 217:7
dispatch 355:5
dispatcher 354:22
 362:1 363:1
dispatchers 355:6
distance 343:15
distanced 366:14
distances 343:19
distinct 187:11
distinction 83:19 95:15
 306:3 309:17
distinguishing 187:4
distributed 260:2
distributions 52:11
district 219:19 331:2,5
 331:7 340:15
disturbances 180:7
 291:18
disturbing 109:5
ditch 358:15
dive 255:16 283:17
divide 184:16
divided 329:20
division 93:21 354:8
 357:7
divisions 236:12
DMC 332:12
DNA 180:8,10
doc 261:17
doctor 171:17 212:14
 212:16,21 273:6
 282:3,3 337:7 353:12
 369:22 374:14 375:12
doctor's 330:7 345:3
 353:10 369:19
doctors 83:7 211:17
 212:3,18 274:13
 330:9,10,12 331:4
document 17:15 18:3
 18:10 21:6 63:3 73:9
 95:8 108:5 131:4
 132:1,3 153:19

225:17 233:1 264:8
 265:11 274:6,13
 276:20 277:3 278:11
 280:6,8 282:8 287:7
 287:14 290:5 299:3
 342:19 344:2,3,7,9,15
 344:16,17 359:5
documentation 355:8
documented 67:19
 68:7 74:16
documents 17:20 18:13
 19:5,11 93:10 103:22
 109:8,19,22 129:3
 154:14 155:7 171:8
 223:4 264:3 265:13
 270:17 278:5,10
DOE 2:15 3:13 23:22
 29:16 87:19 88:15
 93:3 94:9,14,21 95:4
 96:22 99:5 100:17,19
 100:20 105:4 107:3,4
 107:15 109:11,14,15
 127:7 192:9 193:21
 201:11 203:7 228:4
 228:10,17 231:2
 232:9 233:7,7,20
 243:21 246:16 254:12
 255:21 269:9 301:3,6
 302:10 306:20 311:19
 335:1
Doe's 231:1
doing 7:22 8:4 12:3
 19:9 23:12 73:3 78:9
 79:17 84:17 98:13
 102:21 105:2 139:2
 142:18 144:5 153:5
 188:17 203:5 211:15
 215:15 223:16,21
 224:9 225:4 228:6
 259:2 273:5 277:1
 285:20 298:4,5
 299:16,17 326:9,9
 333:3 349:8 351:5,6
 351:10 354:4 372:11
 372:16
DOL 4:17 8:18 10:12,22
 27:8 29:4 33:8,13
 50:22 55:13 61:7
 63:19 71:3 73:3,6
 76:6 91:21 95:8 96:7
 112:20 114:20 118:2
 123:17 134:8 138:2
 147:4 167:19 169:2
 172:16 196:3,17
 200:8 201:2 202:2
 203:20 206:21 215:2
 219:11 223:16 229:18
 230:3,9 235:13

243:14 245:16,17
 246:7 250:18 255:13
 258:1,3 269:9 272:3
 274:11 276:10 278:19
 284:3 287:15 288:16
 329:2 330:21 340:21
 344:4,9 346:22
 367:16
DOL's 225:20 340:17
 341:10
dollars 246:2 255:22
 370:22
Domina 2:2 27:5 32:8
 43:12 106:12,13
 146:13 152:14 156:15
 165:5
Donna 332:19
doors 27:9
dose 77:12 114:1,15
 120:2 124:9,11 127:5
 133:11 134:21 136:9
 183:22 186:3 232:22
 295:15 309:7
dosimeter 365:10
dosimetry 236:6 240:1
 241:2,6,10
dot 373:20
doubling 313:2
doubt 109:14 225:22
DOW 3:12 228:11
download 344:6
downs 43:4
downward 41:18 43:8
 44:16
dozen 103:5
draft 63:21 262:19
drag 248:19 296:15
draw 40:2 205:7,20
drew 13:19
drill 36:19 49:13 284:22
drilling 50:11
drinking 133:9 298:9,11
drinks 356:9
driven 197:18 201:2
driver 7:17 8:1 45:15
 362:1 363:1
drives 230:17
drop 248:19
drunk 376:11
dry 337:4,5
due 103:16 161:13
 178:21 189:19 290:21
 291:19 312:16
dumbfound 364:18
duplicate 154:4 158:2
duplicative 88:6 235:9
 241:9
Duronda 2:2 261:14

300:3
duties 362:18 368:19
 370:14
duty 56:3
dysfunction 291:20

E

E 36:8 37:9,9,12 41:16
 42:22 43:11 44:12
 46:7 48:16,19,21 49:1
 53:18 55:7 85:22 86:1
 86:2,6,8,10,17,18
 87:2,5,10,13,16,20
 88:2,5,12,14,19 89:2
 92:22 155:20 267:8
 271:17 332:6,11
 347:21
ear 128:11
earlier 18:10 50:4 54:21
 55:2 64:21 70:15
 210:22 213:8 242:4
 285:16 293:20 337:20
 349:7
early 42:3 94:13 155:14
 163:16 164:18 209:21
 210:7 295:11 296:20
 297:9 307:17 358:9
 374:15
ears 116:14
ease 230:8
easier 59:20 62:22
 90:11 167:13 223:17
 236:2 284:16 293:5
 313:18
easiest 84:18 240:18
East 157:9 345:19
 354:4
easy 115:15 116:5
 248:20 283:4,5,5
 316:12 344:8
eating 355:1 356:8
edit 225:7
edition 54:2
education 286:16
 326:17 371:19
EE-4 365:20
EE1 153:11 267:21
 271:4
EE2 267:22 271:4
EE3 17:15 18:3,13,16
 19:20 30:1 153:11
 163:17 164:6 269:6
 271:4
EE3s 18:6
EECAP 329:14
EEOIC 330:5
EEOICOA 236:3
EEOICP 3:8,12 112:7,9

228:4,11
EEOICPA 8:12 30:8
 229:12 233:9 235:4
 285:18 295:14 296:11
 309:1,5 311:21
 314:22 315:7
effect 121:7,8,14 122:1
 122:6 135:13 221:4
 303:12,14 304:1,2
effective 210:2
effects 122:2 181:20
 189:14 277:18 374:4
efficient 246:1 299:20
efficiently 288:18
effort 15:21 16:6 63:17
 205:14 232:3 247:7
 257:18
efforts 60:12
eight 51:9 80:2,7
 133:10 167:11 185:4
 334:19 365:17
either 55:20 58:4 74:20
 85:10 103:21 118:5
 149:18 169:16 174:16
 180:22 185:5 223:11
 237:12 243:2 244:12
 256:15 269:17 279:17
 285:18
EJTA's 108:8
elaborated 200:18
electric 360:5
electronic 218:18,20
 220:21 221:3,3
 223:18 224:2 225:2,6
 225:10 230:6 239:3,7
 248:17,17 249:7
electronically 222:22
elements 135:21
elephant 58:16
elevated 177:19 179:4
 179:6,9 185:7 307:2
 307:15
elevates 306:13
elevation 179:13
 183:22 185:21 308:9
 308:10
eligibility 66:1
eligible 66:6,8,9 88:11
eliminating 136:3
email 97:3 147:15 260:3
 260:8
emailed 112:12
emphysema 59:12
 304:11
employed 299:15 336:6
 363:6
employee 69:14 88:16
 88:18 94:22 95:4

116:12,15 240:6
 333:8 336:5 337:1
 340:19 341:1 347:22
 354:11 358:8
employees 93:1 95:22
 251:6,7 323:20 342:7
 355:15 359:20 360:16
 361:5
employees' 92:20
employer 103:17
employment 88:9 129:8
 232:21 240:15 243:15
 251:1,9,12,17 252:2
enable 138:1 235:19
encephalopathy 376:1
encountered 166:8
 363:11 365:7
encourage 329:2 339:6
 339:13
encouraged 198:16
encrypted 230:17
end-stage 89:16
endorsed 30:7
endotoxin 186:5
ends 186:14 252:22
Energy 92:18 94:6,12
 96:12,17 108:3,6,10
 108:20 109:7 127:2
 171:11 228:2 323:20
 340:19 341:1 342:7
enforcement 92:17
engage 208:8 342:4
engaged 160:15
engineer 357:6
engineering 11:8 92:17
 357:4,6
English 171:9
enhance 200:20 227:11
 228:9 231:22
enjoyed 337:21
enormous 150:17
 159:18 193:13 200:13
 207:21
enormously 325:19
enriched 356:14
ensure 229:17
enter 327:15
entertain 295:6 300:2
entire 45:9 133:18
 171:2 172:12 209:6
 218:19 344:16
entirely 74:7 97:6
entitled 145:18
entry 239:12
envelope 355:12
environment 93:12
 100:11 297:15 316:6
environmental 109:20

182:1 193:4 297:16
environments 72:21
EPA 119:9,19 122:7
 133:10
epidemic 195:11
epidemiologic 120:12
 192:4 193:13 195:16
 322:17,19
epidemiologist 192:17
epidemiology 114:3
 118:6 173:15 174:12
 174:17 296:21
epigenetically 180:11
episodes 99:15
equal 85:9 306:15
 313:10 322:13
equally 213:2
equate 195:3
equipment 6:4 105:7
 349:22 356:18 368:15
 368:16
equipoise 319:22
equipped 224:8
era 109:14
error 164:15
errors 366:8
ERS 239:6
esophageal 277:16
 357:17
especially 38:6 163:6
 191:20 194:9 247:5
 263:3 268:13 294:10
 319:16 337:14 338:1
 345:1 369:18
essential 13:4 153:10
essentially 39:13 78:14
 104:13 116:9,22
 117:1 200:14 206:9
 236:15 238:1 245:21
 251:17 279:12
establish 20:15 21:14
 74:11 121:14 123:17
 124:21 203:13
established 46:14
 115:3 125:20 126:22
 198:20 203:8
establishing 124:6
 127:4 132:10
estimate 312:14 324:22
et 181:11 209:1 222:5
 278:3,3 292:1
ethyl 349:5 350:16
 351:2 375:20
Eugene 332:11
EV 244:7
evaluate 193:12 260:19
 269:5 273:10 279:11
evaluated 203:10 210:5

269:4
evaluating 269:11
evaluation 99:3 103:8
 106:20 134:5 150:1
 161:7,8 175:14 177:6
 180:20 188:18 191:6
 269:20
evaluations 78:4 169:6
 189:3
evening 331:12
events 94:4,9
everybody 27:22 35:5
 45:20 67:9 98:10
 115:22 121:12 122:10
 131:20 132:17 134:3
 155:13 192:18 214:6
 216:5,14,15,16
 217:21 259:15 261:4
 262:22 265:7 268:15
 273:12 304:5 305:16
 326:13 354:19
everybody's 156:3
everyone's 32:9 211:1
evidence 3:15 54:16
 57:15 60:16,20,21
 65:12 93:10 99:10
 107:22 109:1 115:1
 123:4 134:4,8 138:15
 156:2 157:20 170:3
 176:10,15 177:9
 179:17,21 180:6,7,13
 181:5,17 182:13
 183:13 184:3 188:13
 201:9 251:11 260:17
 260:20 261:2,7,9
 263:12,18 264:10
 265:21 266:5 271:9
 272:21 273:8 276:4,8
 279:6 282:6 332:1,17
 346:11 365:13
evidence- 103:3
evidently 296:6
evolved 323:15
ex 261:12
exact 12:10 131:14
 189:8
exactly 25:7 49:8 61:22
 111:6 132:2 189:9,11
 290:1 292:3,13
 305:21 336:21 368:11
 369:21
exam 279:17 282:15
examiner 5:11 18:8
 59:4 91:12 93:12
 108:4,13 134:7 136:4
 161:2 163:16,21
 188:17 217:20 261:6
 266:7 268:21 279:16

280:1,1,9 281:14,16
 281:18 290:1 299:6
 321:3 325:18 364:17
 371:18 373:6
examiners 58:20 59:13
 59:21 60:3 112:16
 149:9 215:19 217:5
 260:19 274:14 278:14
 278:19 293:7 320:14
 321:15 325:20 337:2
 341:19
examining 293:1
example 41:14 45:12
 74:10 101:8 105:10
 112:3 118:21 131:20
 143:16 160:4 166:19
 170:8 176:22 182:14
 193:5 206:22 215:22
 227:6 238:8 247:14
 256:2 257:2 296:22
 304:2 305:2 306:19
 311:16,22 315:20
 317:8 322:6 323:4
 331:4
examples 109:18
 150:10 162:1 349:15
exams 212:4
exceptional 126:7
exceptions 304:7
excerpts 92:1
excessive 111:9
excluded 123:11
exclusive 118:11
 277:10
excretion 179:9
Excuse 17:13
executive 342:6
exercise 166:17
exhaust 319:1,4
exhaustive 243:5
exist 9:6 24:5 56:4
 125:2 285:4
existed 92:18
existence 241:16
existing 8:16,17 9:7
 23:19 93:8 95:5 101:3
 143:2 218:2
exists 113:5
expanded 17:1
expect 102:4 156:13
 204:21 303:21
expectation 160:12
expectations 160:7
expected 94:6
expediter 364:17 365:1
expeditious 144:5,9
expense 84:13
expensive 220:14

experience 28:15 40:12
40:18 53:14 72:15
81:19 102:14 132:10
154:17 157:14 171:1
211:5,9 220:19
236:19 330:1,8,14
experienced 165:11
experiencing 294:13
experimental 183:14
experiments 118:5
121:19
expert 15:6 115:10
140:17 148:14 198:1
199:1,2 202:8 211:12
321:9
expertise 14:15 140:6
207:11 208:9 210:6
263:17 265:15 281:11
286:2 321:11
experts 81:15 173:15
233:21
explain 35:11 40:1
168:2 221:11,19
261:15 326:8 375:11
explained 146:11
365:19
explaining 102:5 113:8
222:16 226:10
explains 94:4 172:14
explanations 185:13
explicitly 175:7 183:16
260:6
explored 125:17
expose 121:19 303:22
345:17
exposed 19:18 22:20
22:21,22 23:4,9 27:17
56:7 67:5 93:2 116:15
121:9 127:15,16
129:7 134:15,19
137:11,14 175:3
177:20 182:7,8 183:3
189:21 194:15 197:5
197:9 198:9 275:18
295:20 304:5,12
312:20,21 313:3,15
313:19 314:3 319:4
319:19 368:9,12
369:7,10 372:8,17
374:9 376:20
exposure-disease
113:19 115:19 119:17
exposures 3:6 7:4 8:9
11:9,18 12:2,6 14:6
15:8 16:18 17:22
19:12 22:4,13 65:2
66:3 67:1 91:7,12
93:6,10,11 94:7,16

95:16 96:1 102:2
104:14 105:2 108:22
117:7 127:1 137:3
141:8 151:17,18,20
151:22 164:13 175:1
184:21 191:22 192:11
192:14 193:4,6,20,21
196:14,22 202:15
222:9 269:3 277:12
288:19 301:3 310:4
365:11 368:8 369:4
express 111:16 208:19
313:12
expressed 67:7
expressing 318:11,12
extensive 22:14 24:10
294:6
extensively 299:10
extent 4:18 5:3,14 7:13
7:19 9:11,13,21 10:5
61:3,4,12 135:3 284:2
289:3 297:18
extra 261:20
extract 274:6
extracted 35:22
extrapolate 297:13
extreme 133:3
extremely 30:5 132:18
136:1,18 156:16
158:6 229:14 234:15
eye 301:20
eyebrows 78:14
eyes 141:3 353:9,10

F

face 78:16 148:6,6
facilitate 136:20 288:20
facilities 79:10 92:19
94:10 96:22 99:5,14
105:3,5 123:3 187:1
193:21 201:11 203:7
232:13 234:21
facility 24:4 89:1 93:3
95:4 127:7 229:17
232:4 301:6
fact 18:9 27:14 51:21
57:7 67:5 120:6 126:6
128:8 133:8 159:17
160:10,21 169:12
187:9 193:7,10
204:12 208:20 214:9
215:20 281:2 303:21
305:5 306:15 307:21
309:2 332:18 372:4
factor 56:14 182:6
301:7,19,21 303:16
304:16 306:6 312:3
314:14,19 315:9,10

315:10 316:10,13,21
317:2,3,18 318:4,9,14
324:14,16,19,20
325:9 332:21,21
factors 105:17 124:9
302:18 304:19,22
306:16,17,21,22
307:10,18 308:5,12
308:20,21 309:15,16
311:13 313:7 316:11
factory 177:15
facts 171:14 206:10
failed 365:14
failing 160:16
failure 105:10
fair 16:9 133:14
fairly 39:6 84:6 161:3
176:13 177:1 182:22
183:11 188:12 195:10
208:19 248:5 257:17
296:8 341:20 345:1
fall 86:6 142:6,16 299:2
310:19 342:3 354:14
fallopian 328:10
falls 22:19 155:5
false 78:19
familiar 30:22 31:1 34:3
38:7 53:12 134:14
245:9 246:18 260:4
285:9 306:19 311:17
families 341:15 361:4
family 307:2,16 308:10
fan 207:19
fantasy 109:19,22
far 32:15 33:22 44:20
47:20 64:17 66:17
100:2 106:11 132:20
134:2 145:14 260:11
265:2 272:14 284:8
318:22 330:1 345:11
345:21 346:2,15
farm 107:13 133:16
fashion 218:17 253:15
faster 124:2
father 368:5 369:18
370:1
father-in-law 369:7
370:3
favor 20:14 176:15
Fay 85:20 136:22
144:22 261:14
Faye 2:5 158:1 163:12
209:9 210:13 214:1
219:5 222:17 242:4
FBI 363:22
feared 48:5
feasible 220:14
February 95:13 355:7

federal 2:7 98:12
107:14 207:1 238:17
246:15 250:6 340:15
341:10
feedback 255:15 256:3
286:17
feel 20:2 33:6 57:17
58:13 66:16 138:10
174:7 197:10 201:22
202:9 207:14 265:5
371:2
feeling 72:7 342:12
feels 58:10
feet 296:16
fell 33:14
felt 34:1,4 270:18
376:11
fence 109:13
Fernald 29:19 107:6
247:21
fewer 102:9
fibrosis 274:18 298:20
field 105:16 209:6
211:5 298:7 338:22
fields 34:19 35:13,16
35:19
fifth 366:11
figure 18:22 21:2,12
23:8 24:15 113:11
120:15 136:8 166:17
217:18 250:21 297:4
298:5 299:4 308:12
figured 255:18 322:3
file 35:18 37:12 38:3
53:7 55:7 56:20 154:4
154:11,18,19 156:14
158:5 159:9 165:4,8
165:12 171:2,16
172:3,5,9,12 218:16
218:20 219:11,22
220:1,2,3,9 221:2,2
223:19 224:18,22
225:21 236:10,21
249:19 250:17 251:19
253:11,18 254:5
350:1,1,6 360:3
364:12,14
filed 36:10,14,16 37:11
39:9 41:6,12 45:5,6
50:14 55:9,10,11,15
223:22 357:20 359:14
371:14,17
files 18:6,7,8 109:3
128:22 156:13 158:17
158:19 159:1,15
165:20 166:1,12
174:4 219:5,14
220:21 223:5 238:19

239:7
filing 56:15 354:19
filled 365:22
filling 29:22
filter 17:10 356:18
final 110:15 155:19
 182:15 211:7 262:6
 268:6,8 281:18 295:6
 328:12 348:21 371:18
finally 50:22 95:7
 155:15 262:6 272:9
 302:3 327:8 341:22
 346:21 375:7
financial 292:6
find 9:3 22:7 65:12 75:3
 97:6 123:2 139:21
 153:20 154:10 157:5
 167:2,14 169:5,19
 173:9 174:5,16 180:2
 182:2 188:5 192:13
 207:5 223:5 235:19
 240:11 241:20 244:2
 248:18 251:11 252:9
 256:3,4,10,19 262:18
 274:4 344:7,8 352:19
 357:13 364:22
finding 42:3 61:10
 150:4 177:17 180:3
 182:22 186:20 237:1
 247:18 330:5
findings 93:15 178:11
 187:12
finds 69:2 95:2
fine 15:18 35:9 82:11
 92:14 106:9 250:14
 250:14 301:15 311:14
 325:2 337:5
fine-tuning 13:16 15:9
 22:11
finish 61:18 183:10
 262:13
finished 4:11 227:20
fire 21:16
firehall 367:14
fireman 361:12 362:2
 363:2
firemen 361:19
fires 362:4
first 6:14,22 21:22 32:2
 35:4,14 38:20 40:14
 47:11,14 50:16,17
 92:3 94:19 95:10 96:9
 98:9 125:4 134:9
 144:12 147:18 148:8
 152:12,16,22 165:6
 172:20 196:13 214:4
 220:7 237:14 254:16
 254:18,20 259:20

262:16 263:1 267:20
 285:10 286:20 328:3
 338:17 348:2 354:21
 357:16 363:2
fiscal 244:8
fit 51:13 144:8 169:1
 348:8
fits 363:14
five 51:16 133:10 143:4
 163:18 164:3 220:2,3
 249:3 259:14,18
 283:7 308:7,8 326:22
 327:21 328:1 329:20
 330:20 349:6 353:12
 358:10 373:1
fix 51:6 65:21
fixing 13:16
fixture 349:20
Flats 77:13 107:6,7
flaws 296:1
flew 72:6 345:22
flexibility 137:18
 141:18
flexibly 296:8
flipped 20:7
floating 30:14
floor 374:17
floors 357:1
flow 88:1
focus 60:12 168:17
 266:17
fold 313:11 314:13
 316:17
folder 248:19 249:15
 252:22 268:1 271:1
 271:19,20
folks 50:22 107:5,13
 167:19 233:11 234:2
 234:5,6 235:12
 241:22 245:6,22
 319:16 327:13 372:11
follow 82:14 144:18,19
 153:9 162:20 167:14
follow-on 253:20
follow-up 73:1 181:1
 182:20
followed 93:20 97:17
 101:16 121:3
following 13:5 98:11
 204:11 277:9 339:11
follows 235:2
food 247:22
foot 133:2
force 297:22
forced 296:16 297:2
forces 245:20
forget 216:11 362:10
forgot 200:5 201:17

forgotten 366:12
form 18:16 19:21,22
 29:12 35:2 62:7 187:1
 198:18 250:17 265:13
 266:17,21 271:15
 293:6,8 294:8 334:5
formal 93:14 204:21
 251:18 256:2 345:17
formally 342:2
format 267:14 290:15
former 7:2,12 11:4,6
 28:12 29:8,11,15,17
 29:21 30:6,9 112:22
 229:10,12,13 245:18
 246:11,14 247:6
 269:18 333:7,13,21
 336:19 339:2 345:1
 346:6 347:3,17
forms 29:22 292:22
 365:22
formulate 26:14 106:1
 145:11 272:2,4
formulation 138:7
forth 50:21 125:7
 230:15,18 292:12
 294:20,20
fortunately 89:12 315:7
 338:6
forward 17:7 41:17,20
 97:2 119:15 146:20
 148:4,19 166:10
 191:5 193:15 223:8
 223:22 252:3 268:17
 286:11 300:13 318:3
 333:2
forwarded 96:13
 108:17
fought 289:20
found 18:7 77:6,7
 103:10 153:7 154:13
 156:12,18 157:7
 158:2 168:1 174:18
 181:5 182:5 185:4
 211:6 212:10 256:12
 257:16 258:13 263:4
 263:10 266:5 267:15
 267:15 269:13 330:16
 330:21 340:16 345:13
 362:7 368:8
four 77:16 81:20 121:4
 143:3 153:3 154:7,22
 168:6 173:1,5 178:2
 306:22 327:22
fourth 327:7
frame 148:1 191:18
frankly 273:4
free 220:7 246:14 265:5
 280:9

Freon 349:6
frequency 7:21 8:4
 129:18
frequently 104:5
fresh 374:21 375:6
 376:13
Friday 150:11 260:3,9
Friedman- 102:22
 130:11 221:7
Friedman-Jimenez
 1:16 75:7 76:18 78:12
 103:2 104:9 130:13
 130:22 146:14 152:19
 172:21 173:2 209:12
 221:9 275:19 276:11
 310:3 312:7 320:3
 321:19,20 324:21
 325:6
friendly 221:21 324:3
 347:11,13
friends 357:22
front 22:7 157:20 164:7
 213:12 249:2
frustrating 373:21
fudge 324:19
fulfill 144:6 160:13
fulfilling 13:4
full 47:15 94:19 139:10
 148:6 170:16 224:17
 295:19 354:11
fully 254:12
fumes 186:7
function 59:9,14
functional 291:19
fund 115:7 246:10
fundamental 160:7
 202:11
fundamentally 322:10
funded 186:12
funding 233:10,12
fungicide 185:22
funny 242:18
further 32:17 42:6 58:9
 60:12 63:16 94:20
 106:5,10 111:12
 125:14 149:22 192:12
 194:3 203:10 347:15
Furthermore 97:12
future 31:14 202:6
 258:2 271:15 339:7
 341:14
fuzzy 257:3

G

gained 348:3
gamut 241:18 242:3
GAO 295:22
gap 149:13 227:6

Garry 2:3 158:14
166:13
Gary 29:18 79:2,22
gas 304:4,12,13
Gaseous 360:14
gastrointestinal 274:21
gatekeeper 21:8 25:4
gatekeeping 21:16
gather 24:8 231:15
245:10 294:21
gathering 285:20
gee 263:7,17 281:4,10
299:5
general 30:17 33:14
81:7 118:3 132:16
137:3 148:3 162:15
173:11 185:1 199:7
229:3 232:7 235:1
238:9 244:3 263:4
309:19 312:9 316:2
generalize 26:19
180:21 184:17
generalized 122:1
184:12 215:2
generalizing 181:8
generally 4:10 113:1,17
121:19 139:18 143:3
generated 252:19
generous 116:2 133:7
296:9,18 297:2
298:15 301:11
genes 305:21 306:1
genetic 192:19,21
305:19 359:11
genetically 304:10
genetics 305:17 316:12
gentleman 258:14
334:7,17 371:13
GEORGE 1:16
getting 7:3 54:12 84:1
126:14 132:11 135:9
195:4 197:17 209:21
233:13 262:4 325:15
330:19 334:14 365:21
366:15
Gibson 327:6 333:5,6,7
giggled 367:1
give 104:11 121:1
140:17,22 143:7
168:12 169:2 170:2
190:16,19 193:14
228:22 229:7 238:15
243:11 263:6 276:18
279:22 280:2 299:11
311:16 320:18 323:4
326:2 327:1,22
345:15,21 349:14
362:13 370:15

given 16:22 27:10 83:4
125:6,8 149:6 150:9
150:15 158:7 162:12
164:12 196:21 209:14
226:2 242:8,21 307:7
343:8 361:21 370:15
370:16
gives 7:22 47:15 238:11
322:9 323:3 346:2
giving 79:16 93:22
133:16
glean 280:10
Glen 327:7 336:2,4
glioblastoma/mening...
151:13
globus 187:14
glove 350:22 351:1,4,6
gloves 356:2 376:5
go/no 191:1
goal 94:21 218:21
goals 33:4
god 325:20
goiter 151:15
gold 75:10 76:20 78:11
78:13,17
Google 173:10 174:18
344:8 345:14
Gosh 57:17
gotten 124:4 155:19
168:10 255:6
government 207:2
graduate 279:2
Grand 248:1
grant 218:19
granted 132:11 223:11
granulomas 72:9 77:4
grates 207:18
greater 15:10 52:8
104:12 197:6 322:12
322:13 323:10
greatly 365:8
Greg 228:1,5,7
Gregory 2:14 3:13
grew 80:14
Griffin 201:15
Griffon 1:15 92:6,8
99:19 146:13,13
ground 133:2 357:10
362:8
grounds 362:3
group 5:20 22:10 26:11
30:11,18 35:3 91:18
124:20 179:5 180:14
183:3 184:5 185:8
186:13 189:1,1 227:3
245:16 247:15 261:19
266:17,18 267:3
284:5 310:10,12,13

310:13,15,22 313:19
346:12 348:6,14
349:10,13 351:21
groups 53:1 96:10
226:18 236:16 237:9
259:22 261:16 331:17
349:4
growing 80:20
grows 218:14 236:22
growth 81:3,5,11
grunt 298:6
GS-10s 278:20
GS-7s 278:19
guess 7:10 10:12 13:18
15:20 21:13 22:1 36:4
41:17 45:2 47:19
49:16 51:11,14 52:9
67:21 83:22 104:22
106:13 157:12 165:3
196:7 242:16 271:6
344:5 373:10
guidance 13:2 60:22
92:5 93:14 135:18
144:17 151:7 180:22
216:9,10 217:11,13
218:2,5 264:8 275:16
279:9
Gush 54:1
guidelines 54:1 64:8
93:9 95:6 96:2 100:7
105:14 109:9 333:17
guides 282:13 291:4

H

H 2:4
hairs 128:9
half 52:8 62:4,5 153:4
217:5,5,6 246:5
258:19 259:16 347:22
354:6 357:16 364:13
hamsters 180:3
hand 14:18 161:18,18
221:15 254:10 297:1
312:22 332:19 337:13
337:13 342:16 350:22
351:4,12
handbook 332:12
handful 126:18
handle 7:22 139:12
218:18 247:15 326:14
349:13
handled 218:16 248:1
355:15 356:1
handling 217:7 355:16
handout 344:1
handouts 361:1
hands 10:17 20:13,18
20:19 321:3 360:10

Hanford 34:8 72:20
107:4,13 252:19
hang 326:2 327:14
happen 55:5 56:9 65:12
111:20 112:4 164:15
180:10 188:19 215:7
220:17 226:1 234:4
234:15 251:13 281:19
happened 6:2 96:22
99:16 155:10,17
166:2 178:20 204:7
224:16 338:14 363:13
369:21 370:1 373:11
happening 28:17 51:6
82:2 131:4 192:20
197:17
happens 55:19 237:17
267:1 296:15,17
297:1,17,21 302:21
happy 29:3 165:19
200:10 203:11 247:1
259:9
hard 4:21 9:13 24:6
78:8 89:18 136:8
137:8 141:15 167:13
238:7 243:7 245:4
270:20 307:21 308:3
316:20 360:18 375:11
harder 324:22
harm 79:17
hat 225:22
hate 291:16
Haz-Map 119:9 200:15
200:21
hazard 101:22 103:8
hazardous 101:3
102:10 124:12
hazards 95:1 110:21
head 119:4 135:1
363:15 376:3,12
headache 374:20 375:5
375:9
headlines 362:6
headquarters 254:12
health 1:3 4:5 92:16
94:10,13 103:7
110:20 122:2 160:17
189:14 195:20 226:22
228:3,17 269:7 271:5
303:18,19 304:17
308:2 354:14
healthcare 208:18
330:15,17
healthy 79:5,15,17
hear 10:12 146:2
207:16 217:5,6
331:14 339:1,8,18,19
340:3 342:11 370:9

374:3
heard 4:22 8:13 110:18
 146:18 228:15 337:12
 339:19 340:4,6,12
 358:20 371:5
hearing 3:8 112:8,9,19
 112:21 113:7 114:9
 116:12,13,15,20
 117:20 119:13 120:9
 121:14 125:10,21
 126:8 128:1,2,15
 129:1,18,19 151:10
 163:9 285:8,15 317:9
 334:8,21 335:11
 338:3 348:9 349:9
 352:4 371:14 376:2
 376:17,22
hearings 211:8 296:1
heart 152:1 282:19
 307:1,8,11,14,17
 308:18 338:22
heavy 126:2 277:13
heck 85:4,5 375:8
Hello 353:2 370:8,10
help 5:20,21 31:8 32:20
 74:10 112:15 123:17
 123:20 124:16 125:1
 130:2 133:13 152:3
 224:13 227:10 235:19
 245:10 282:9 283:2
 284:13 320:19 321:4
 326:17 333:3 340:7
 346:16 375:12
helped 83:19 115:11
helpful 15:12 16:1 22:7
 34:4 60:5 75:6 84:11
 89:19 126:15 151:9
 159:7 160:3 162:6
 163:2 184:19 204:6
 208:7 214:11,15
 225:19 226:12 284:3
 284:18 321:13
helping 227:5 231:14
helps 15:18 114:14
 120:5 121:10 299:4
herbicide 201:10
herbicides 186:4 192:2
 194:11,13
Herschel 370:7
hesitate 201:2
heterogeneity 181:18
 182:10
hey 270:6
heyday 252:19
HHEs 103:12
Hi 333:6 368:3
hierarchy 59:17 145:1
high 8:8 46:5 48:10

76:6 77:16,16 103:21
 115:17 117:6,8
 129:18 135:8 182:5
 186:3,21 191:3
 192:10 229:3 307:1
 308:10 313:17 349:18
higher 56:16 72:18 76:5
 83:15 127:21 208:3
 314:2 316:4 326:6
highest 179:5
highlight 60:11 92:2
 151:2 207:10 244:22
highlighted 44:15
 149:13
highly 183:2 288:1,2
 301:16 355:22
hired 99:9
historically 198:15
Histories 11:12
history 5:12 7:20 9:15
 10:3,8,14 11:1,22
 13:20 15:16 16:13
 17:16 24:7 28:11,17
 30:1 63:10 67:17 69:3
 129:8 164:7 223:4
 234:10 268:1,3,7
 269:6 276:3,7 291:20
 307:2,15,16 308:10
 335:6 352:17
hit 225:14 231:3
hits 333:12
hoc 204:21
Hodgkin's 151:14
hold 20:5 25:22 108:1
 119:3 287:18
holder 250:20
holdings 236:18
hole 189:8 204:12
holes 131:19
home 128:14 161:4
 171:12 330:15,17
 334:3 343:7 358:15
 370:2
honed 268:15,16
honestly 138:18 204:14
honor 354:21
hook 161:15
hope 112:10 315:13
 361:9
hopefully 26:12 64:6
 166:4 202:4 208:4
 321:8
hoping 60:9 262:13
horizontal 302:11
hormone 323:5,13
horrible 295:16 366:4
hospital 179:3 369:19
hour 24:11 160:18

258:19 259:16 274:1
 374:22
hourly 362:3
hours 153:4 174:10
 211:15 362:13
HR 236:12 239:20
 240:19 251:18
HRC 239:10
huge 138:22 191:21
 193:1 195:11,17
 329:9
hugely 11:9
human 118:6 120:3
 121:13 126:6 164:15
 176:9 177:10 180:14
 236:5
humans 181:7 183:13
 310:12
hundred 104:6
hurts 375:10
husband 354:9 362:5
 363:2 365:18 367:17
hybrid 221:2
hygiene 13:22 23:3,21
 95:18 114:17 117:7
 121:21 146:3 193:18
 194:1 236:5 238:7,13
 242:22 269:8 375:18
hygienist 5:2,9,17 9:17
 12:16 20:16,17 21:9
 21:11,17 22:19 23:7
 25:15,16 26:20 93:13
 109:1 111:4 112:2
 123:22 134:9 136:5,7
 261:18 262:5 263:22
 270:14 273:1,7 321:5
 335:4 373:8
hygienists 5:10,21 27:7
 146:5,21
hyper/hypothyroidism
 151:15
hypertension 307:14
 308:7

I

IARC 173:13 175:6,12
 177:7 179:15 180:19
 181:3,9 182:13,14
 183:12 184:22 185:15
 190:17 264:6 265:12
 310:6
IBM- 355:12
ICD 188:4
ICD-10 167:16
ICD-9 167:7,16 290:12
ice 374:19
ICU 362:5
ID 235:7,11,15

idea 9:2 22:17 29:8,11
 30:18 99:16 110:16
 113:16 188:17 200:5
 203:4 227:15 238:15
 239:4 243:12 276:18
 284:20 294:8 303:13
 317:10
ideal 29:11
ideas 22:5 71:4
identification 355:13
identified 12:7 61:7
 66:22 67:10 305:1
 316:10,11
identify 23:17 38:8
 58:15 60:4 114:18
 137:6 152:15 233:20
 352:16
identifying 71:19 200:2
idiopathic 101:21
ignore 145:2
ignored 265:16 329:11
 329:13
IH 3:11 10:9 12:6 27:1
 62:12 93:14 146:9
 147:21 149:1 150:5
 169:6 239:22 242:12
 242:19 243:4,10
 248:10 264:21 273:10
 335:1 368:7
IH/CMC 147:22
II 353:4
ILD 49:6,22 50:9 57:20
 64:19
ill 53:21 341:3
illegible 49:21
illness 83:21 87:9 99:9
 100:11 158:5 301:8
 302:21,22 303:3,4,11
 307:7 308:22 309:21
 310:2 311:11 318:2
 318:18 323:21 335:11
illnesses 301:4
illuminate 163:11
illustrate 168:21
illustrates 148:18
 182:22
ILO 65:5,9,12
imagine 53:5 57:19
immediately 231:4
 357:20 358:9
immune 151:17
impact 25:18 258:8
 347:3
impacts 347:15
impairment 53:22 54:8
 54:9 86:13 87:1 88:1
 155:18 283:8,9 291:6
 291:7,9,11 293:8

- 337:13,16
impairments 161:12
 291:19 293:2
imperfect 57:22
implement 29:4 63:5
 286:12 287:4 333:2
implementation 286:16
implemented 144:2
 218:3
implementing 206:3
implications 162:14
implicit 140:2
imply 160:19
importance 223:13
important 16:6 70:6
 160:1 162:13 166:20
 181:10 197:8,14
 211:14 213:5 215:12
 229:14 232:2 234:9
 234:15 290:18 302:2
 314:21 320:6,10
impose 341:4
impressed 261:13
impression 254:2
improper 328:19
improve 28:11 51:6
 94:12 110:20 111:2
 125:1 202:6 231:22
 255:9 285:11
improved 18:16,17
 28:19 111:12
improvements 92:15
 209:20
improving 11:1
in-depth 11:18 138:14
inaccuracies 332:1
inadequate 155:1
 209:22
inadvertently 159:10
 160:8
inappropriate 210:7
inception 45:10
incidence 174:20 179:8
incident 236:6,9 239:22
 252:18 253:2,7,9,13
 335:15
incidental 93:16
incidents 96:20 97:9
 335:17,19 364:4
include 19:21 108:6
 116:2 117:12 169:17
 198:17 276:5,12
included 54:20 55:1
 94:9 152:9 154:4
 181:12 222:11 241:12
 253:17 280:6 316:2
includes 147:22 207:12
 213:19
- including** 18:12 30:1
 93:15 95:1 147:8
 186:3 189:13 257:20
 280:3 318:2
inclusion 358:1
inclusive 80:2,7 280:11
incomplete 153:8
 154:15,18 157:16
 165:21 235:17 271:1
 372:7,20
inconclusive 80:10,13
inconsistent 177:21
 179:19
incorporate 351:11
increase 126:1 178:21
 312:18 313:4,6,21
 314:13,20 316:17
 343:19
increased 72:21 175:3
 177:14 179:8 186:16
 196:15 197:1
increases 178:9
increasing 196:8
 209:14
incredible 247:10
incredibly 161:7 162:6
 216:5 218:6
incubating 302:15
incubation 302:16,19
 303:9
independent 69:12
 148:14 212:4
independently 197:21
index 239:9 248:17
 257:1,18
indicated 368:14
indications 99:8
indicator 179:12
individual 5:3,6 36:21
 37:10 38:19 43:20
 45:5 46:19 55:6 57:5
 76:13 78:2 81:4 91:17
 101:16,19 102:18,19
 108:16,20 141:6,8
 153:6 160:22 161:5
 167:9 171:22 178:13
 178:15 210:10 222:13
 229:22 230:1 231:10
 232:20 234:17 236:21
 239:17 240:4 242:2
 242:22 243:17 248:4
 248:14 308:6 317:2,5
 317:6 318:5
individual's 80:19
 140:20 141:9 233:4
individually 120:10
 154:21
individuals 8:7 28:22
- 36:9,15 37:10 41:5
 42:4 88:10,12 160:9
 198:16,21 240:12
 243:19,19 257:20
 295:21
induced 117:20 163:9
industrial 5:2,9,10,17
 5:21 12:16 13:21
 20:15 21:9,10 22:18
 23:3,21 25:15,16
 26:20 27:6 93:13
 95:18 108:22 111:4
 112:2 114:17 117:7
 121:20 123:22 134:9
 136:5,7 146:3,5,20
 193:17 194:1 236:5
 238:7,12 242:22
 261:17 262:5 263:22
 269:8 270:13 273:1,7
 321:5 335:4 373:8
 375:18
industries 98:5 125:18
industry 186:13 212:3
inequitable 328:17
infections 291:21
influence 303:2
inform 332:7
informal 149:1
informed 28:4 136:13
 136:16 373:2
infrastructure 225:4
infrequent 93:16
ingestion 180:1
inhalation 180:4 304:3
inhaled 356:12
inherently 288:13
inhibit 215:10
initial 22:2 32:11,16,22
 33:10,11 35:2,15
 64:13 112:1 155:16
 235:6 262:19 268:5
 359:9
initially 106:15 137:22
 158:1 165:17 231:14
 272:19
initiate 194:16
initiation 180:11
initiators 194:14
injection 180:4
injured 96:22 140:17
 160:9
injurious 281:13
injury 99:9
Inn 1:10
inner 75:16
inorganic 184:8,13
input 29:12 32:10 34:9
 142:4 147:20 148:9
- 208:12 278:9 339:6
inquiry 15:19
insecticides 186:3
inserting 13:10 27:3
inside 356:4 371:4
 373:4,17
insight 61:5
insights 61:16
insignificantly 177:19
inspection 103:7
inspections 96:20 97:8
 97:15 103:13,18
installations 372:10
instance 133:1 200:12
 280:2 282:19 303:15
 310:3 313:8 340:21
 346:11
instances 289:6
instantaneously 99:16
Institute 4:17 119:11
instructed 60:4
instructions 83:4 155:1
instrument 371:16,21
 372:12,13
instrumental 333:14
insufficient 27:2 45:17
 46:11 47:9 48:9 56:12
 57:15 58:19 59:16,16
 60:1 61:13 69:21
 115:1 170:3
insulin 195:6,7
insurance 85:3,5
 330:10 361:2,4
intelligent 10:17 12:11
intended 68:16 347:10
intensive 160:20
 174:12 250:3,4
intent 83:9 340:22
 345:7 346:19
intention 289:4
interact 208:5 308:13
interaction 128:16
 140:6 207:2
interactions 204:2,5
interest 187:10,22
 195:12 214:15 219:3
 339:12 342:7
interested 95:11 150:4
 346:10
interesting 110:15
 148:7 150:15 169:19
 174:5 177:6 183:9
 184:7 189:17 281:15
interestingly 184:17
 274:22
interjoined 52:18
internal 208:8
internally 215:11

International 173:13
internet 329:8
interpret 63:5
interpretation 48:16
 65:14 163:6 252:14
 252:15 340:17
interpreting 61:8 70:1
interrupt 117:11 326:21
interstitial 37:4,6 39:5
 39:10,13,16 44:16
 45:2
interval 181:14
interview 7:13 13:22
 23:7 24:12 25:20
interviewed 17:22
interviewing 7:3 25:18
 112:2
interviews 5:17 9:8
 20:16 26:21 234:1
introduce 303:13
introduced 32:7
intuitively 255:19
invalid 60:21
invariably 246:4
invasive 73:22
invest 143:18
investigated 101:18
investigating 99:21
investigation 111:7,13
invited 10:22
involve 66:11
involved 27:19 34:9
 53:3 68:21 87:14 97:5
 217:21 222:13 231:14
 231:16 236:16 252:21
 253:12 269:17 273:5
 299:10 335:19
involvement 74:5,16
involves 200:14
involving 112:8
IOM 14:21 277:8 297:10
ionizing 151:16 274:7
iPad 237:12
iron 369:1
irrelevant 69:16 318:16
irritation 304:6,8
issuance 94:14
issue 12:14 13:15 31:9
 52:16,17 54:17 91:15
 96:7 100:15 102:7
 109:15 132:15 136:1
 136:11,12,17 138:4
 145:12 168:20,21
 191:21 206:9,12
 222:9 234:14 264:20
 310:6 311:10 320:21
issued 216:10
issues 7:15,18 26:2

31:20 33:5 35:12,13
 64:17 65:22 73:11
 87:13 106:11 139:7
 158:15 159:18 194:11
 200:9 202:6 208:8
 226:13 230:11 244:17
 245:15 255:3 262:18
 286:9 300:22 329:6
 331:21

item 37:11 40:4 55:5,6
 226:9

items 152:21 193:19
 202:2 207:6 239:19
 357:11

iterative 284:22

J

Jacksonville 358:4,11

JAMES 2:4

jammed 237:20

Jan 361:7

janitor 334:18

janitors 27:18

January 97:20

Japanese 179:5

jargon 171:8,14

jars 362:6

Jerison 327:5 328:3,4
 333:12

Jewish 30:13 80:21

81:13

Jim 32:8

Jimenez 103:1 130:12

221:8

job 16:16 22:4,17 27:16

122:22 135:17 138:4

158:10 206:6 222:4,8

266:7 269:10 326:17

334:8,10,12,16,20

335:4,18 336:16,21

342:22 350:9 351:14

351:14,15 352:13

359:20 362:18 367:19

jobs 18:20 334:6

351:11,17

John 1:14 2:16 7:7 8:22

16:9 24:9 32:8 35:1,6

35:11 37:15 38:13,15

40:1 43:1 47:10 48:21

50:7 51:12 52:4 54:18

86:17,22 87:3 142:17

167:3 168:2 226:6

231:1

John's 35:2

join 245:19

joint 245:15 349:18

judge 173:17

judgement 15:6

judging 321:2

judgment 136:13

July 108:15 147:2

155:20 262:17

jumping 177:7 317:21

Junction 248:1

June 32:14,16 364:7

justice 362:13

justified 78:20

K

K 1:20

K-25 245:1 353:7

361:20 372:10,15,17

keel 298:19

keen 339:12

keep 14:4 36:17 94:16

172:18 201:20 212:22

274:5 323:12 331:19

334:12 369:19

keeping 10:1 241:16

keeps 27:8

KENNETH 1:15

kept 229:2 243:2,4

290:7 365:11 367:1,1

367:5

ketone 349:6 375:20

Kevin 4:15 28:5 95:8

112:10 152:4 214:2

key 359:16

keys 360:6

kick 315:14

kidney 151:21 175:8

176:5,7,11 180:17

183:18 189:7 277:17

kinds 97:1 189:3 193:9

285:1

Kirk 2:2 18:18 32:8

153:3 156:11 212:9

knew 18:14 297:6

364:18

knot 164:19

knowing 75:1 202:14

knowledge 56:5 90:16

138:1 234:10,11

321:11 335:6 348:3

knowledgeable 6:5

known 66:21 68:7 75:9

101:2,22 176:9

194:15 318:1 330:6

knows 45:20 131:20

231:8 292:3 369:5

Korea 125:16

Korean 353:5

Kudos 342:21

L

lab 334:19 373:17

label 135:9

labeled 256:16,20

labels 135:4 376:8

labor 1:1 34:14,17

35:16 90:3,21 91:11

96:11 97:6 100:14

109:6 116:4,11,18

118:10,12 125:8

134:18 135:6 142:8

147:16 168:12 171:6

174:12 198:22 204:20

212:3 225:16 226:14

226:16,21 228:22

231:1,14 244:4

245:10,14 250:3,4

252:15 265:8 332:8

339:20 340:8,15

342:2 343:17 348:10

349:11 370:22 375:17

376:19

Labor's 341:17,19

laboratory 75:17 373:5

laborer 18:11 118:14

164:10 219:1 368:6

laborers 368:17

labs 81:19 234:21

lack 45:13 46:12 49:14

49:15 65:1 81:3

169:16,18 271:8

341:8

lacking 352:13

lady 335:13 336:18

laid 298:20

Lane 371:9,9,11

language 26:14 61:8

67:15 68:13 117:1

207:13 209:5 301:2

301:15 302:2

large 170:6 200:7

218:17 231:12,19

232:5 331:3 347:3

349:2,13 351:4

larger 11:5 51:22

234:20

Larry 371:9,9

larynx 274:21 328:12

lasting 142:10

late 227:22 245:1,2,4

275:22 297:9 334:1

354:9

latency 114:15 275:14

Laughter 122:12

launderer 219:1

laundry 18:9,11 27:18

27:19 163:17,20

164:2,10 193:2

375:20

Laura 1:19 3:2,9 4:7

32:9 50:4 69:11 75:12
117:10 138:11
Laura's 112:1
lavage 73:18,21,22
76:18,20,21 77:3
law 83:9 127:17 140:10
320:2 322:7 325:2
326:11 341:2
lawn 128:15
lawyere 337:11
lawyers 141:1 337:10
layer 192:7
laying 131:21 199:2
lays 125:5
Le 327:7 342:11
lead 12:4 93:13 98:17
112:7 152:19 187:1
249:5,6,9
leadership 339:19
340:1
leading 180:8
learn 168:6 274:12
learned 166:21 168:9
learns 288:14
leave 93:5 116:6 331:8
352:10
leaving 136:4
led 4:7
Lee 109:20
leery 263:20
leeway 322:9 323:3
left 72:10 146:1 238:6
239:20,20 270:1
273:15 281:14 324:14
348:7 349:10 351:21
left-handed 290:19
Legacy 247:15 257:7
legal 204:12 319:7,16
332:10,15 341:4
legalman 298:10
legible 62:9 64:1
legions 359:14
legislation 333:1
legislative 285:7
Leisha 368:2,5
Leiton 2:13 46:21 47:2
47:6 364:7
Lejeune 133:3 190:12
276:22 277:11 295:20
297:5,22 298:6
leprosy 353:17
Lerew 327:7 338:10,11
Les 12:18 20:6 209:14
lesions 180:1
LESLIE 1:16
Leslie's 13:6
let's 6:6 28:8,20 127:10
196:20 197:4 210:19

229:8 281:6 286:9
306:19 312:6 313:15
313:17 315:19 319:1
letter 81:18 132:6 224:4
224:11,20,22 369:3
letters 57:6 259:21
260:7,9,10 366:5
leukemia 101:21
309:20
level 29:21 48:10 50:11
76:6 93:10 101:8
102:4 103:10 104:19
141:12 142:4 145:13
152:1 161:4 162:8
178:13,15 188:18
190:18 208:12,13
210:5 211:9,12 229:3
232:3 234:4 263:17
309:18 310:1,7,20
311:1,4,5 314:22
317:17 318:12,22,22
319:22 369:6
levels 94:17 103:19,21
104:1 167:1 192:10
283:9
Lewis 2:14 3:13 228:1
228:12 242:14,18
247:5,12 250:22
253:3 254:1,13 255:3
256:1 258:18
library 213:17,19
358:16
life 221:10 361:3
lifelong 315:21
light 12:19 127:13
250:1
liked 318:21
likelihood 58:10 76:4
101:13 115:16,17
193:18
limit 92:20 106:4
180:19
limitations 40:4 66:1
121:17
limited 61:6 94:16
112:14 118:4 123:5
180:5 213:12
limiting 117:22
limits 108:22 365:15
line 21:15 37:11 40:4
55:5,6,12,15 71:8
94:20 99:19 109:12
109:13 176:8,12
207:5 210:4 290:22
295:18 302:11
link 17:18 24:1 291:10
301:3 344:4,5 372:18
372:19,21

linked 15:2 280:20
linking 18:1
links 17:2 23:20
list 31:14 69:17 89:7
90:1,10 116:16
117:17,21 118:10,17
118:18,22 119:9
123:12 125:6,8
126:15 129:21,22
131:19 134:17 147:3
150:20 152:6,6,9
183:16 191:3 193:2
203:9 212:18 232:14
242:12,12 252:17
257:19 258:3,6,7
275:17 277:10 279:13
284:20 290:14 367:15
372:7 375:17,21
listed 90:15 116:18
119:11 131:15 146:12
252:17 253:9 254:12
290:16 349:7
listen 348:3
listened 336:10
listening 100:22 207:14
336:11 370:19
lists 188:5 252:20
literally 91:22 241:21
357:21 358:15 370:14
literature 74:14 79:14
113:4 139:22 182:16
185:1 188:19 190:8
200:4 202:13 317:13
317:19
liters 133:10 298:9
lithium 356:15
litigation 148:12
little 6:18 16:16 33:16
42:9 53:20 59:20 60:6
62:16 106:14 126:17
139:7 144:17 147:17
150:8 152:5 157:10
168:2 171:21 181:4
204:10 207:10 208:5
214:3 216:3 223:2
229:1,7,7 230:14
233:5,14 234:19,22
236:1 240:14 244:19
251:5 257:3 261:20
262:14,20 263:20
273:14 274:12,16
293:5 294:20 295:1
300:16 312:7 313:16
320:1,19 336:3 337:9
353:18 366:15 376:9
376:13
live 343:6
liver 175:10 183:18

357:18
Livermore 357:8
LM's 257:18
local 29:21 238:16
located 327:16 358:22
location 7:16 23:22
217:22 233:7 236:1
locations 236:4 243:21
logic 97:10 153:9 262:2
262:3 299:1
logical 154:15 253:15
logs 162:12
long 54:10,15 77:20
142:10 143:7 178:21
186:11 208:19 219:13
219:15 221:4 223:7
232:16 237:22 240:5
241:16 248:14 344:3
351:4 371:13 375:20
longer 62:17 211:18
296:7
look-see 47:21
looked 8:20 17:19 18:1
47:12 51:12 61:6
74:21 75:3 79:3 82:3
84:16 123:6 138:12
163:5,10 167:20
175:5 177:3 181:22
184:15,18 186:7
189:11 218:6 261:21
266:11 268:8 310:15
312:11 336:8 359:3
364:22 376:1
looking 20:6 22:18,19
31:20 40:17 41:12,16
47:14 52:10 58:13
59:8 62:10 86:17
88:10,20 94:2 113:3
130:7 142:17 156:4
170:8 188:7 193:3
199:12 200:12 211:9
211:11,21 212:1
253:22 257:8 261:5
266:14 268:14 289:5
293:16 297:12,19
301:2 313:6 316:22
339:22
looks 41:17 43:7 174:5
185:9,16 186:6
279:12 331:1 353:16
loop 255:14
Los 255:20 258:10
357:7
lose 18:13
loss 3:8 54:8 86:13 87:1
88:1 112:8,9,19,22
113:7 114:9 116:12
116:13,15,20 117:20

119:13 120:9 125:10
 126:1,8 128:2,2 129:1
 129:18,20 163:9
 265:22 285:8,15
 317:9 332:2 334:9,21
 338:3 348:9 349:10
 365:8 371:14 373:17
 376:2,22
losses 352:4
lost 151:10 359:3
 364:13
lot 7:2,17 12:14 14:7
 16:11 18:12,15 19:8
 24:12 25:11,14 26:13
 26:16 27:19 30:4
 40:17 43:5 44:8 49:10
 55:19 60:2 63:17
 72:15 79:13 84:12
 100:16 105:1 107:2
 115:5 118:22 119:7
 123:19 137:11 141:17
 143:19 157:3 158:4
 175:20 187:22 193:3
 194:18 201:10 217:19
 221:11 234:4 235:7
 237:20 247:22 248:16
 248:22 249:8 254:15
 254:19 255:6 257:11
 262:11,14 265:17
 268:13,22 270:2,16
 270:18 277:22 281:19
 283:5,15 287:1
 292:14 296:15 312:12
 316:3 319:11 328:7
 336:9,14,15 338:14
 342:13 343:6 344:16
 348:3,4 367:18
 369:17 375:14,16
 376:10
lot's 338:14
lots 42:4 132:10 367:18
louder 336:4
Louise 354:1,5
loved 317:20
Lovelace 361:7,8
 367:11
low 8:8 39:6 44:20
 103:13 104:7 120:19
 151:22
lower 77:7 102:4,8
 105:17 134:21
lowers 101:13
LPT 84:20 268:18
LPTs 85:2
LRC/FRC 238:16
Lucero 340:14
lucky 16:16
ludicrous 135:1

lump 86:11
lumped 293:13
lunch 3:10 351:3 355:2
lunches 356:8
lunchtime 145:10
lung 3:3 31:21 32:1
 37:4,6 39:5,10,14,17
 44:16 45:2 53:15,19
 54:3,10 72:8,9 77:5
 84:4,7 90:5,12,17
 166:9 180:15 183:17
 192:18 274:19,20
 275:4 276:5,8 277:16
 298:21 305:3,3,5,7,9
 305:10,15 312:3,5,13
 312:16,19 313:16,18
 313:21 314:2,8
 316:14
lungs 77:11
lupus 151:17
lymph 357:19
lymphocyte 71:11 77:4
lymphocytes 72:8 77:1
 80:19
lymphoma 151:14
 175:9 197:4
lynchpin 13:2

M

M 1:14 2:2,3
ma'am 350:8
machine 352:5 374:13
 374:22 375:2
machined 163:18 374:8
machining 349:4,14
machinist 118:15,16
 348:17,18 374:7,12
 374:17
machinists 348:15
 357:1 374:8
mad 367:6
magic 114:5,6 323:15
magical 320:17
magnitude 8:2
mail 225:12 230:18
mailing 230:13,15
maintain 307:21 309:2
maintained 17:20 93:7
 142:5
maintenance 11:8
major 25:18 31:13
 38:10 48:4 162:14
 196:13 284:14 285:1
 285:12 347:12
majority 40:11 63:20
 64:10 67:10,11 75:4
 212:16 305:6 323:12
making 10:2 11:14 13:3

64:21 83:12 97:5
 118:7 133:13 205:17
 206:1 208:14 215:6
 221:4 234:3 283:10
 298:14 324:4 325:18
 328:18,21 337:3
 342:5
man 30:12 366:1
manage 210:10 233:11
managed 161:2 292:21
management 86:17
 97:15 106:20 247:15
 257:7
mandated 108:11
 144:18
manganese 186:16,21
 186:22 187:21 188:11
 190:3
manganism 187:3,5,8
 187:10,14,18 188:1,3
manifested 278:2,2
manner 144:9
manpower 286:22
 287:1
manual 82:14,18,22
 83:11 143:16 144:20
 263:2,4 264:22 267:7
 321:14 328:19 343:14
 345:8,10 346:20
 347:6,14
manuals 142:7
map 342:18 345:15
marginally 320:6
margins 237:7
Marines 133:9
Mark 1:15 92:6,8 99:19
 201:14
Mark's 203:16
marked 334:5
marker 114:5,6 276:15
Martin 353:1,2,2
masks 370:17
mason 362:6
mastectomy 359:8
match 104:19 224:21
matches 279:14
material 23:20 355:14
 355:16 362:7
materials 92:20 135:5,7
 200:20 213:17 261:21
 262:8 267:6 272:17
 354:22 355:5,6,9
 356:14,16 374:9,12
 376:20
mathematically 321:22
mathematics 324:1
matrices 4:8
matrix 231:13

matter 87:12 89:13 91:1
 129:10 145:18 164:16
 208:16 233:21 258:20
 327:17 340:11 377:6
maximum 259:8
MDs 299:9,15
mean 9:11 14:11 15:13
 27:17 37:10 44:21
 46:12 59:5 75:14,22
 76:20 79:20 80:4
 95:20 98:10 106:4
 110:18 112:20 138:10
 138:22 141:2 143:12
 160:6 161:12 162:18
 164:13 170:6 171:10
 190:22 191:17 193:5
 195:10 199:16 202:1
 204:19 206:8,9 209:4
 215:9,11 217:14
 218:9 220:12 221:12
 222:21 242:18 247:13
 250:11 252:10 253:3
 255:4 256:1,8 276:6
 278:22 283:2 285:5
 287:22 291:22 293:3
 320:5 321:8 346:5
 376:11
meaning 73:16 76:13
 80:11 304:19
meaningful 78:3
means 46:12 80:3
 81:20 100:3 102:8
 124:16 141:14,20
 143:11 178:17 312:17
 318:11 326:6 328:14
 332:18
meant 34:11 46:10 48:7
 67:21 68:4 221:19
 300:21 313:2 324:5
measurable 93:11
 101:9
measure 78:10 178:14
 178:22
measured 75:10
measurements 105:16
 178:16
measures 92:19 94:11
mechanic 281:7,8
 319:3
mechanics 372:12
mechanism 120:4,5
 176:2,4,6 184:18
 256:3
mechanisms 175:22
 181:5 195:8
mechanistic 175:21
 176:10 180:7
media 81:11

- Medicaid** 293:6,14
medical/legal 314:10
medically 54:12 346:14
medications 72:5
medicine 4:17 119:11
 136:16 174:11 226:11
 269:16,19 290:8
medium 8:8 80:20
 203:11
MedLine 130:17 174:3
 182:20 185:3
meet 46:14 47:8 58:21
 115:9,9 116:1,9,10
 117:3,9 119:15
 129:13,17 131:17
 132:2,5,12 134:2,11
 280:15 290:2 309:1
 311:8 321:8 340:1,2
meeting 1:5 4:4 5:1
 21:3 32:12,16 83:4
 95:10 108:2 112:14
 146:19,19 147:2
 204:22 208:4 262:16
 263:1 329:5 338:21
 339:17
meetings 148:7 204:1,2
 339:7 354:18
meets 280:19
MEK 123:9
melanoma 151:20
mellitus 191:20 194:3
 201:12
Member's 146:18
members 1:12 32:3,6
 97:13 145:22 146:12
 150:22 151:3 228:13
 245:18 260:8 261:10
 283:12 328:4 331:13
 339:11
memo 3:7 30:22 93:20
 94:19 95:13 102:20
 148:22 149:3,3 207:7
 288:8
Memo/Policy 3:8 112:9
memorandum 100:14
memorial 354:20
memory 374:5
memos 208:9
men 58:14 199:17
 367:16
mention 13:6 136:21
 162:3 175:11,13,15
 180:16 181:4 191:14
 207:7 226:10 254:14
 356:16
mentioned 78:18 82:13
 100:13 126:5 175:8
 180:9 183:17 213:8
 242:4 246:9 258:14
 333:12
mentions 173:1
menu 144:7
menus 145:3
mercury 196:19 198:10
merely 304:12
mesothelioma 101:7,10
 298:21 320:9
messing 249:22
met 1:10 115:20 134:6
 134:17 181:12 338:13
 373:19
meta-analyses 195:13
meta-analysis 182:3,4
 182:12 186:8,12
 195:14
metabolic 184:10
metal 69:3 126:2 180:6
metals 277:13
metastasized 361:15
metastatic 357:18
meters 370:14
method 148:11 184:16
 185:1 230:21
methods 81:4
methyl 184:11 349:5
 350:15 351:2 375:19
methylation 180:10
methylene 350:16
METS 282:20
Mexico 340:16
Miamisburg 333:9
mice 180:2
micro 210:10
microfiche 239:3
microfilm 239:3,9,10
microglobulin 179:10
 179:14
microphone 20:8 28:1
 28:2 61:20 71:15
 89:21 209:10 218:12
middle 161:21 182:22
 238:11 298:7 302:12
midst 158:18
mild 308:9
mile 344:19 345:10,15
miles 343:15,21 344:21
 346:18,20
military 225:22 276:16
 281:5,7,13
million 104:6 239:8,11
 255:22
mind 10:1 13:18 36:18
 172:18 309:4
minds 314:12
mine 66:18
minefield 366:7
miners 66:4 157:7
 186:22
mines 157:10
minimal 187:7
minimum 121:4 298:1
minor 65:3
minute 119:4 146:22
 295:2 302:8
minutes 82:9 209:13
 210:17 225:17 227:22
 227:22 259:8,13,14
 259:18 287:18 300:2
 326:22 327:21,22
 328:2
misconstrued 171:9
misdirects 270:10
misleading 102:12
 240:14
missed 103:22
missing 145:21 153:10
 153:11 157:21 158:9
 235:16 242:10 243:7
 263:10
mission 13:4 19:15
 202:1 348:1
misspoke 176:5
mister 366:20
misunderstanding
 79:13
mitigating 94:22
mixed 197:6 198:9
 276:21 277:6,15
mixture 134:20
mixtures 14:22 134:15
 135:10,14,18
model 181:21 227:2
moderate 313:9
modern 290:8
modest 313:6
modified 25:12 372:6
moment 151:4 327:2
 336:18
money 124:3 297:19
monograph 175:6
 177:8
monoxide 306:21
month 329:14
months 93:21 103:14
 115:12 131:6 133:6,6
 143:4 144:3 145:7
 257:17 260:1 298:2,3
 298:6 343:18 375:7
Moore 370:7,8,10,12
morning 4:3 31:6
 190:22 200:18 260:7
 289:5 346:12 351:13
 377:4
mortality 178:1,5 179:6
 183:21
Mortimer 186:9,12
mother 369:13
motion 292:1
Mound 29:20 107:6
 247:20 333:8 334:18
 335:5
mouth 28:2
move 6:7 20:12 28:6
 31:16 42:14 49:4
 58:22 61:4 107:3
 112:6 119:15 152:5
 166:10 191:4 193:15
 203:16 210:4 213:22
 214:1 238:10,18
 295:3 300:12 318:3
 337:6
moved 154:9 155:20
 300:12
movement 188:11
moving 223:22 226:8
 239:6
mow 128:14
MPHs 279:2
MRI 187:12
MSHA 226:18
MSO 343:2 345:19
 346:15 347:13
MSOs 346:18
Mt 187:20
multi- 100:13
multi-factorial 307:5
 315:4
multiple 36:10 38:19
 39:21,21 47:13 52:1
 53:1,7 54:14 55:10,21
 65:2 90:6 140:21
 155:6,21 156:1,2
 167:10 171:8 212:11
 231:3 240:3,21 251:8
 277:17 287:7 289:14
 307:6,6 325:12
multiplied 200:14
mute 47:1,3
myeloma 277:18
myriad 271:10

N

n 248:17
Nagasaki 179:6
name 233:4 248:6
 252:21 253:6,17
 254:4,8 290:10
 331:16 333:7 336:4
 347:21 354:4 360:9
 366:21 368:4 374:6
 374:13 375:14
named 186:9

names 253:2 254:7,9
257:20
narrow 79:21 132:18
Nasca 173:9
nasty 27:20
National 30:13 80:21
81:13 119:10 173:19
189:13 257:6,11
264:6
nature 4:18 5:3,13 7:12
9:20 10:5 88:9 165:7
214:21
navigate 224:14
Navy 72:19
NCI 204:3,5,11,15 205:9
necessarily 9:9 15:12
47:15 55:16 76:19
98:18 114:16 121:1
123:21 132:12 139:3
144:19 150:6 178:22
202:1 217:2 270:19
295:5 305:1 311:20
necessary 5:18 20:17
219:2 222:18,20
254:21 255:6 258:9
264:17 278:10 319:9
320:7 341:9 346:14
need 10:16 16:3 19:3
19:20 20:22 21:4,12
21:14 22:3,6 25:20
27:22 28:1 44:10
49:13,17,18 58:10
63:13 69:7 72:12
73:10,16,17 79:12
85:6 94:16 111:4,8,14
112:5 114:1,18 116:1
119:18,20 133:17
137:6 139:4 142:15
144:13 153:22 159:19
160:20 170:15,18
172:19 174:7 182:16
195:14 198:1,5
207:21 213:18 218:15
246:12 248:6 257:1
262:19 264:7 278:4
283:9 285:22 291:13
292:16 293:4 298:4
299:5 304:12 308:15
314:10,16 328:20
333:2 336:18 337:2,3
337:6,18,22 346:18
367:13
needed 11:13 13:17
34:1 48:11 71:8 114:2
127:5 149:11 174:6
226:20 262:21 264:17
264:19 265:9 280:19
282:6 286:22 303:18

304:9 349:12
needle 161:21
needless 87:15
needs 19:22 32:20
33:22 78:20 101:18
101:19 111:16,17
116:7,13 124:5
137:18 138:19 160:22
188:21 213:17 216:15
216:17 217:21 272:12
272:21,22 280:15
285:18 321:3 340:2
362:20
negative 48:12 49:10
49:14,22 59:22 71:10
71:20,21 72:4,16
76:21 78:16 80:14
176:13,20 177:1
186:2,8,11 359:12
negatives 78:19
negotiation 342:5
neither 5:13
Netherlands 186:1
neurobehavioral
277:18
neurologist 299:17
neurology 130:16
299:17
neuropathy 293:12
neurotoxicity 128:9
Nevada 46:2 237:17
242:19 357:9
never 107:9 109:13
122:22 131:10,16
163:22 217:6 239:18
268:19 289:18 313:11
313:14 335:4 358:11
365:15
nevertheless 147:6
new 21:20 84:10 106:11
106:11 126:5 130:19
150:9 166:3 182:19
220:1 223:21 225:1
258:12 266:8 272:1
279:8 285:17 300:2
322:7 340:15 345:6
newly 322:20
nexus 56:1,8 270:7
nice 130:14 293:9
nicely 269:9
nickel 177:15
night 153:15 171:12
355:4
nightmare 249:19
nigra 187:13
nine 131:5 154:6
177:16 257:17 340:4
377:1

NIOSH 19:8,11 103:7
103:10 122:7 229:18
230:4,9 231:19
232:22 233:20 235:13
241:1,2 243:14,15
244:4,7 245:14,16,17
256:15 257:9
nodes 357:19
nodules 151:15
noise 113:2,14 114:10
120:7,8 125:21 126:9
127:16,16 128:12
140:22 191:15
noise-induced 113:8
128:1,2
non 37:8
non- 151:13 277:9
356:15
non-adversarial 148:15
non-CBD 64:19
non-evidence-based
104:17
non-Hodgkin's 175:9
197:4
non-issue 232:6
non-occupationally
182:8
non-routine 105:2
non-trivial 301:21
nonpulmonary 74:3,5
74:12
norm 307:4
normal 168:1
normally 301:20 302:5
306:9 307:12 310:22
North 345:20
nose 353:9 360:11
notation 163:16
note 3:7 95:8 210:13
221:13,21 314:1
noted 179:15 180:15
notes 214:7 216:18
221:17 340:5
notice 328:1 343:9
noticeable 64:22
noticed 12:14 213:4
242:11
notified 358:21
NTP 181:2,9 182:13,14
nuancing 102:15
nuclear 259:22 331:17
337:14 339:7 341:3
357:5 361:11 362:2
nudging 20:10
null 176:20 186:2,5
number 12:2 15:11
24:20 33:12 40:2
44:21 47:11 51:22

61:6 62:10 64:5,12,16
64:20 66:11,19 70:5,7
71:2 72:19 94:8 96:10
97:13,14 98:14,15
101:13 112:14 121:1
135:13 138:3 141:11
144:3 146:17 152:20
153:16,17 154:5
163:10 169:13 196:8
197:5 205:13 207:12
211:17 235:7,10,15
236:4 240:22 241:8
248:4 254:8 259:9
285:12 307:22 308:4
308:14 320:17 325:20
331:18 339:18 355:14
365:21
numbers 38:18,20 43:5
51:8 158:3 177:21
179:15 226:6 301:14
312:6 313:17 325:22
363:19
nuts 325:16

O

Oak 1:10,11 335:5
338:22 345:18 358:14
360:14,19 361:9
362:16 372:9
objections 98:1 289:16
objectively 161:3
observation 208:14
obtain 26:22
obtained 169:15
obviate 102:20
obvious 203:6 266:12
obviously 77:3 133:7
143:19 191:21 215:9
217:19 218:21 292:14
occupation 114:16
129:21
occupational 5:12 7:20
9:15 10:3,8,14 11:1
11:12,22 13:20 15:16
24:7 28:11,17 92:4,16
100:11 103:4 130:16
136:15 151:6,12
164:7 174:11 181:15
183:3 184:21 193:6
193:20 195:20 210:3
226:10,15,22 228:2
268:1,3,7 269:6,16,19
271:5 294:12,14
297:15 316:3 323:20
333:20
occupationally 182:7
occupations 275:17
occur 89:3 91:13 102:9

105:2 117:12,15
303:8
occurred 67:13 94:5
95:5 99:15 101:16,22
111:18 127:2 314:4
occurrences 96:21
97:9 252:18
occurring 77:10 213:3
occurs 80:17 102:7
121:7 186:22 265:1,2
October 1:8 244:8
329:19 334:6
odd 157:10 374:18
odds 175:17 178:9
179:4
odor 360:12
off-normal 96:21 97:9
offer 139:8
office 2:14 219:19
226:15 228:2,17,18
228:20 229:10,15
245:6,17 246:10
247:14 251:18 257:7
279:7 298:11 316:6
331:5,7 332:13 335:3
356:20 358:4,14
359:18 360:1
officers 331:2
offices 256:13
official 2:7 109:12
officially 26:11
officio 261:12
offsets 44:10
offsite 250:5 256:11
OHQ 153:11
old 109:12 182:18
225:22 241:5 250:2
258:8 282:14 353:3,3
356:17 359:16 365:21
OMB 133:14
Ombudsman 245:17,17
omitted 255:1
once 50:10 53:19 59:15
59:19 90:11 124:20
141:19 142:9 172:9
192:17 225:1 318:17
334:11
oncologist 366:5,18
one's 309:5
one-off 344:1
one-page 73:8
ones 29:13,19,21 49:5
57:4 112:17 115:5
118:4,17 125:1 149:4
155:13 166:2 167:22
233:11 254:8,19
285:7,11 353:18,18
onesies 212:17

Ong 327:8 342:11,12,18
ongoing 203:1 245:11
onion 249:21
online 94:3 246:19
onset 251:14 302:17,20
303:6,9
oops 209:9
OPA 345:7 347:10
open 32:13 96:8 213:9
213:10 256:14,15
329:18 350:19 352:20
358:10
openness 109:14
operate 181:6
operated 234:11
operating 236:3
operation 355:20
operationalize 272:10
operations 105:3
operators 348:16
355:19 357:1
opine 93:17 111:16
207:19 346:17
opines 291:15,16
opining 211:6
opinion 65:9 96:4 100:5
110:8 111:16 124:19
140:18,22 157:14
164:1 169:15 211:12
211:22 264:14,14
270:2 272:14 279:18
280:3,18 281:18,22
282:10 291:14 318:8
318:12 343:4,11,16
343:21 345:5
opinions 149:16,17
213:15 343:3 344:20
opportunities 169:13
opportunity 118:13
328:6 339:1,14 340:7
342:20 348:2 354:19
opposed 81:3 308:9
309:20 331:6
opposing 148:11
opposite 111:11
oral 180:1
Orange 189:18 192:1
194:10,19,21 296:22
ORCA 354:13
order 26:22 35:8 40:13
69:13 85:9 91:5 94:14
94:21 109:15 127:10
144:4 153:8,21
154:10 170:15,20
200:20 209:7 255:22
283:16 308:14 343:15
343:20 345:5 346:15
orders 109:9 156:2

342:6
organ 293:11
organic 112:18 113:3,9
118:3 119:12 122:1
184:9 189:20 192:11
193:2 277:14
organization 116:3
organizations 129:2
173:17 248:10
organized 226:17
252:10 257:19
orientation 300:17
original 52:20 147:3
267:18 345:7 347:10
originally 230:13 290:6
originates 275:4
originator 165:14
ORISE 80:21 81:13
ORNL 228:9 360:18
361:12,19
OSHA 99:3 101:5 102:3
103:7,10,11,13 104:2
104:2,5,16 120:20
226:18
ostensibly 99:4
ought 26:8 109:9,16
202:22
outcome 49:16 98:19
264:4 304:7,21 308:2
outlier 155:12
outlined 24:19 44:15
125:15
output 51:15
outreach 245:16,20
outreaching 245:14
outset 36:4
outside 148:13 162:22
199:2 251:11 252:7
262:9 284:10 373:16
374:21 375:6 376:12
overall 19:2 36:6,18
42:16 45:9 50:18
175:13 180:12 182:3
182:12 185:9 186:6
227:11
overgrowth 80:18 81:6
overlap 13:22 14:1
32:18 33:20 37:14
40:9,12 54:18 62:22
147:7
overlapped 178:3
overlaps 40:17,19
overly 296:18 297:2
298:14
oversight 97:15 208:12
233:8,15 286:3
overwhelmed 356:17
overwhelming 223:2

overwhelmingly 199:17
OWCP 20:15 21:14
114:20 121:11 122:17
226:19 227:7 332:20
OWCP's 332:20
ox 358:15
oxygen 345:2

P

P-R-O-C-E-E-D-I-N-G-S
4:1

p.m 145:16,19 258:21
258:22 327:18,19
377:7

Pacific 353:4

pack 316:16

package 54:6

packet 57:14

Paducah 335:5

page 91:21 100:14

237:14,14,15 238:6

252:20,21 275:3

277:4 342:19 344:15

344:17,18

pages 220:1,1 237:19

237:22 240:17 241:7

241:8 242:2 249:18

249:20 250:18 252:9

274:8 344:3

paid 87:11,12,17

182:20 328:16,17

329:9,11 333:18

Paige 327:6 333:5,7

pain 357:16

painter 134:15 135:11

137:16,17

painters 137:11 369:1

pallet 356:3

pallidus 187:14

panel 185:15 198:1

202:8

panels 173:15

Pantex 357:8

paper 13:19 156:17

186:14 221:1,2

230:13 237:4,6

238:19 239:3 332:22

370:16

papers 75:15 77:21

195:13,15 285:20

322:1,4

paperwork 335:10,12

358:17

paragraph 94:20

parenchyma 275:5

276:4,8

parents 338:8

park 47:21

- parking** 367:18
Parkinson 190:11
Parkinson's 151:7
 184:21 185:10 186:17
 187:2,5 188:6 189:22
 190:2,3,4,5,7,10,16
 196:6 199:3 277:19
parkinsonism 187:2,3
 187:11,12,18 188:8
parse 263:7 264:5
 265:14 319:5
parsed 153:14,16 154:8
 157:22 272:14
parses 264:8
partial 304:15 306:1,2,4
 306:18
PARTICIPANT 25:1
 104:8 122:13 218:8
 218:12
participate 92:6 97:10
participated 99:3
participating 2:21
 146:16
participation 96:18
particular 22:12 31:9
 38:3 40:4 93:19 95:11
 96:13 98:19 99:21
 104:4 111:1,1,13
 113:20,21,21 114:4
 120:20 121:2 124:11
 136:11 140:18 155:6
 155:11 163:15 164:17
 170:22 185:19 200:8
 208:9,17 220:3 222:8
 224:21 254:6 280:2
 290:22 304:7 307:7
 308:5 338:20,21
 364:16 374:11,15
particularly 9:1 20:6
 61:3 90:5 106:10
 123:18 124:9 227:8
 241:5
parties 148:11
partly 48:9
parts 37:12 55:8 86:2
 87:5 88:19 92:2
 163:19 220:12 228:9
 266:18 329:20 349:2
 349:2 350:11,13,18
 355:1,9,17,20 356:2,6
parts' 355:13
pass 286:19 348:13
passed 100:19 110:9
 333:18 351:22 354:21
 357:15 358:7
password 218:19
 230:16
Pat 96:16 228:16
- patently** 203:5
pathetic 370:21
pathologic 64:1
pathology 73:13
pathway 184:10
patient 79:18,22 103:15
 218:18 221:22 290:10
 290:11,20
patients 34:9 73:21
 103:5 221:12 222:3
 222:12 241:1
Patriot's 342:1
Patriots 329:16 338:18
 339:10
pattern 51:4 113:9
 116:14 153:9 199:6
 199:13 213:2
patterns 180:10
paying 197:19
payout 358:5,18,19
payouts 361:2,4
payroll 359:17
PCE 277:13
pdf 174:4
pegged 370:14
people's 230:12 256:12
perc 349:6
percent 39:6,16 45:13
 46:5 48:2,2 52:6 70:3
 70:5,6 174:21 175:17
 181:13 244:10 301:13
 301:22 302:1 303:21
 305:7,14,14,18
 307:20,20 309:4,13
 309:22 311:13 312:18
 313:4,20 315:1,2
 316:9 318:16 322:12
 322:13 324:13 326:14
 330:3,4,10,11,12,16
 330:20 331:5,6
 332:18
percentage 52:5 56:13
 56:16 309:6
percentages 69:12
perfect 72:2 112:3
 201:20 244:13 276:9
 296:22
perfecting 200:15
perfectly 98:14 311:14
perfluoroethylene
 375:19
perform 357:2
period 77:15 116:19
 208:19 232:18 240:5
 252:7 275:14 298:1
 302:16,19,20 303:9
 327:1 328:15 344:12
periodic 162:7
- periodically** 216:10
periods 55:12
peripheral 72:10 76:22
 293:12
permissive 296:8
permits 152:21 172:22
perpetuity 172:8
persistent 192:11 193:2
person 18:8 23:12
 43:21 56:6 57:17,20
 65:15 71:9 72:17 73:7
 75:5 79:8,18 85:2
 88:21 128:14 140:2
 157:1,4 163:17
 164:11 170:19 188:10
 215:13 217:18 240:19
 246:8 251:14,19
 253:11 259:9 266:8
 279:15 280:19 282:2
 282:20 291:2,15
 298:5 302:12,19
 303:19 305:3 307:8
 307:13 308:8 317:6
 335:18,20 346:14
 348:15 359:4 362:19
 368:22 376:16
person's 43:14 101:18
 308:17,22
personal 6:4 26:20
 105:7 366:18
personally 207:14
personnel 11:9 108:7
 109:2 204:6 207:21
 252:22 278:6,8,9
 360:2
persons' 307:7
perspective 6:3 15:21
 98:4 105:1
perspectives 68:21
 98:20
pertains 287:7
pesticide 185:8,11,20
pesticides 185:4,17
Peter 365:17
pharynx 274:21
phone 2:21 92:7,9
 110:17 162:7 201:15
 203:16 259:2 292:11
 327:14 358:5 363:17
 370:6 375:3
phones 47:1
photographs 135:4
phrase 340:11
phrasing 301:10
phthalates 193:8
physician 22:22 93:17
 96:4 100:9 111:15
 136:5,9,16 160:6,15
- 161:10 162:21 208:1
 208:21 223:12 227:7
 266:1 280:21 282:8
 283:10 289:22,22
 292:2 293:1 321:4
 322:9 323:3
physician's 169:18
 264:14 271:10
physicians 136:10
 146:6 208:17 221:14
 226:15,17 227:3
 269:17 287:16 294:9
 294:11,12,14,17
 323:5,12
pick 210:2
picked 166:1 196:17
 237:16 242:19 357:21
picture 47:15 49:17
 270:12 375:2
piece 107:21 127:14
 159:1,8 205:18 263:8
 263:9,17 271:19
 325:18 333:1 350:17
pieces 84:1 125:14
 156:17 205:22 237:6
PII 230:11
pipeline 218:5
place 14:4 41:16 47:1
 98:10 109:22 110:12
 125:19 137:8 159:18
 193:4 195:21 198:9
 202:5 206:8 227:2
 230:7 246:3 247:21
 254:16,18 264:5
 317:14 338:15 356:5
places 236:9 238:2
 247:20 248:9 362:17
placing 356:2
plain 171:9
plan 10:13 33:1 82:5
 262:20 287:3
planes 346:1
plans 351:10
plant 337:15,16 360:14
plants 372:14
plaque 366:3
plaques 276:12,14
plastic 376:9
plausibility 192:9
plausible 176:1,1,4
play 16:22 17:4
played 305:11
players 232:9
plays 17:3
pleading 208:15
please 32:5 265:3
 327:11 328:1 364:7
pleasure 338:12

- plenty** 109:18
pleural 276:12,14
plug 247:5
plus 342:2 354:10
 358:22
pneumoconiosis 65:13
 65:15
POC 233:8 235:4 236:3
point 6:6 7:5 19:19
 24:10 26:8 30:20 36:5
 38:5 59:1,3 60:17
 69:9 70:14 73:20
 97:18 104:10 120:18
 125:19 127:8 138:17
 142:2 168:11 191:12
 193:7 194:4 197:15
 197:16 254:6 269:21
 295:1 296:16 297:8
 326:8
pointed 95:12 97:14
 320:18
pointer 238:5
pointing 39:14 296:3
points 20:5 21:1 62:10
 159:14 223:12 262:11
 301:1,9 318:6 333:9
 344:18
poison 128:8
policies 207:12
policy 2:16 71:3 73:5
 97:5 111:21 112:7
 142:6 150:16 162:5
 203:19 204:1 206:9
 206:12,18 214:6,22
 215:3 216:20 275:16
 328:18 332:3 340:22
pollutant 192:11
pollutants 193:2
pool 115:18
pooled 174:19 178:1
 181:13
poor 28:4 371:1
Pope 2:2 29:10 56:11
 128:19,20 129:12,15
 130:3 225:5 261:14
 300:4
population 199:7,15,17
 313:13
populations 175:4
 178:4 182:7,8 193:12
portal 218:20 220:16
 221:5 224:3 225:10
 226:2
portion 60:16 156:6
 358:19
Portsmouth 335:5
pose 144:11
position 161:20 364:21
- positions** 234:6
positive 73:17,18 76:3
 76:3,9,11,22 80:5
 175:9,16 176:18
 178:11 180:17 183:18
 185:5 186:1
possibilities 53:8
possibility 88:18 93:17
 104:4 184:4,5 186:21
 283:22 322:5
possible 10:7 36:11,21
 51:14 68:10 158:22
 223:9 238:1 239:1,1
 243:5,9 268:11
 310:13 311:3,7 315:3
 324:3 359:2
possibly 56:13 158:15
 203:9 275:18
post 63:7 71:9 73:15
 82:15,19,20 84:22
 91:7 92:4 95:16 97:20
 100:4 147:8
post-1993 40:15 41:21
post-1995 3:6 288:8
posted 214:9
posting 217:2
pot 297:19
potential 16:17,21 93:6
 182:6 218:6 274:19
 279:13
potentially 12:7 57:21
 199:11 200:12 277:10
 293:22 340:22 345:17
potentiate 194:17
power 366:20
PowerPoint 270:22
 300:21
PPE 105:14 351:11
practice 341:1
practices 218:17
 341:11
Pratt 281:9,12
pre 63:6 73:9 82:15,21
 84:21 91:7 95:16
Pre- 3:6
precedent 341:13
preceding 149:20
preclude 183:7 186:20
predict 105:10
predictably 138:5
predicted 105:17
predictive 75:21 76:1
 77:4,12
predisposition 305:19
preface 153:22
preliminary 191:5
prepared 300:15
preparing 355:8 356:6
- preponderance** 332:17
prescribe 323:5
prescribing 323:13
presence 251:11
present 2:11 31:12 33:9
 134:4 179:1 183:9
 185:2 259:3 277:11
 285:2
presentation 112:11
 229:2 318:21
presented 160:8 172:21
 217:17
presenting 35:5
presiding 1:11
Presley 354:1,2,5,9
pressure 99:10 221:16
 307:1
presumably 100:5
presume 67:12 104:15
 113:14,20
presumed 63:11,13
 71:2 72:18 78:17
 82:21 89:19 100:10
 141:13
presuming 71:17
 122:14,15
presumption 63:3,9
 66:20 67:7 73:8,10
 75:6 89:10 98:21,21
 105:13 113:12,17
 114:2,12 115:4,9,14
 115:16,21 116:1,10
 116:21 117:4,9 118:7
 122:13,16 124:1,10
 124:18 126:15 127:21
 130:9 132:13,18,22
 134:3,11,18 137:19
 139:16 141:11,20
 201:6 202:17 203:7,9
 205:18 206:3 277:15
 277:22 278:1 281:2
 281:17 286:1 288:9,9
 288:12 294:1,19
 296:2 298:4,16,17,17
 299:3 321:8
presumptions 112:15
 114:13 115:13 121:11
 123:17,20 124:6
 125:1 132:10,19
 133:4 135:22 136:1,3
 136:20 137:12 138:7
 159:22 191:11,22
 198:6 202:8 206:16
 273:13 284:1,15
 285:3 286:10,15
 287:10,19 288:6,13
 288:16,17 289:2,6
 293:21 294:5,16
- 296:11,18 298:15
presumptive 90:10,17
 134:6 172:19 339:15
presumptively 189:17
 190:9,10
presupposition 98:6,21
pretty 7:13 14:2 16:14
 17:8 21:1 45:15 52:12
 77:16 100:8 106:3
 129:15 172:14 207:3
 227:2 236:19,22
 244:20 252:3 263:2
 265:3 271:6 310:16
 335:6 344:14 367:10
prevailed 255:21
prevalent 112:22 199:7
prevent 101:15 110:6
Prevention 44:7
prevents 128:12
previous 38:17 83:3
 146:19
previously 186:18
 258:4 259:7 345:3
primarily 45:13 49:6
 74:12 229:21 297:14
primary 160:14 169:17
 206:14 209:6 236:16
prime 251:7 252:1
principle 221:9
print 342:15
printed 335:15
prior 129:10 342:6
 343:9
priori 12:1
priorities 143:2,12
 144:6
priority 267:9 272:19
privileged 354:17
probabilistic 325:7,10
probability 104:11
 309:8 318:13 322:12
 322:15,20 323:10
 324:13,22 325:3,4,13
 325:14
probable 310:13 311:2
 311:7 360:20
probably 13:7 15:1,11
 20:22 26:16 34:22
 35:10 41:18 46:5
 52:13 55:19 60:1
 63:17 64:21 75:12
 82:3 84:12 85:20
 103:5 105:4 109:11
 114:7 118:18 120:6
 127:3 128:16 138:11
 139:14,14,20 141:16
 160:2 189:1 191:2
 194:20 195:21 196:7

- 200:1 206:13 209:3
209:16 217:22 239:21
240:2,3,7 270:12
271:2 285:9 301:16
305:18,19 308:3
309:3,12 311:3 313:9
317:14 320:10,17
346:7
probative 93:9
problem 11:20 15:14
81:6 83:2 122:19
135:16 138:13 154:12
172:13 188:2 202:11
265:20 300:22 303:18
303:19 304:18 315:13
322:15 329:10 336:13
361:17 372:6
problematic 17:12
110:12 136:6 162:17
164:14 321:22 326:12
problems 38:9 71:18
99:14 105:21 152:15
218:3 264:9 302:10
322:2 330:3,4,18
331:3,5 367:21
procedural 263:2,4
345:8,10 346:19
347:6,14
procedure 74:1 82:14
82:18,22 83:11 142:6
143:16 144:20 264:22
267:7 328:19 343:14
procedures 2:17
133:22 341:11 373:12
proceed 215:20
process 4:13 5:7,16 7:5
7:8 8:12 10:10,18
12:11 13:3,8,10 18:4
19:10 20:15,21 21:14
25:18 27:3 29:5 34:2
34:10,15 38:8 53:12
64:15 67:6 75:4 84:8
84:17 88:7 89:20
91:12 95:19 97:5
103:20 105:22 108:3
110:5,10,11 124:6,17
132:14 133:18 136:20
140:3 142:11,16
143:1,8,11,16 145:6
147:20 148:10,15
149:3 154:20 155:3
173:4 194:9 217:1
219:6 222:2,12 225:5
233:6,12 234:18
235:1 237:5 250:4
255:5 262:3 269:2
272:18 280:11,12
284:9,22 288:22
- 294:5 297:3 299:1,20
300:12 324:4 325:19
328:21 337:3 342:5
344:14 347:5,14
354:18
processed 56:17 159:5
355:17
processes 17:17 19:2
19:12 262:2 341:19
351:19 352:14
processing 19:7 53:4
108:4 187:1 224:3
prodding 245:6
produce 195:7 304:20
produces 310:21
producing 303:14
310:8
product 135:14 338:15
348:21 354:7 357:6
production 11:7 137:16
234:21 354:8,22
355:10,15,19,20,21
356:3,13,22 357:6
359:19 374:6
productive 34:21
products 193:10
profession 291:7
professionalism
227:13
professionals 208:18
profoundly 149:5
program 8:15 9:5,19
11:4,5,16 19:3 29:3
29:16 30:6,10 41:21
42:4,20,21 43:16,19
43:20 44:6,7,9 45:9
46:17 54:10 66:9
67:16,22 68:3 72:14
77:7 79:10 80:4,6
83:5,9,14,20 84:3
85:2,11 87:22 105:11
105:11 107:10 114:21
119:10 138:17 141:21
146:6 148:16 150:19
152:2 160:7,9,10,13
161:15 173:20 193:16
194:1 198:20 199:1
204:6 206:19 207:3
207:22 208:1,13
223:6 227:8 229:4,12
229:13,16 234:4,16
246:13,17,20,22
248:12 256:15 264:7
269:18 292:22 295:22
299:9 325:16 333:1
333:13,14 339:22
366:17
program's 339:4
- programmatic** 195:12
programs 11:6 44:2
67:8 68:22 75:17,18
81:14 92:16 105:6,7
212:6 229:11 245:19
246:12 247:6 335:16
Progress 106:17
prohibitive 221:6
project 223:6 232:15
projects 7:2,12 231:12
231:20,21 233:17
proliferation 71:11
proliferative 179:22
promoters 194:14
promulgated 145:8
prone 105:8
proof 63:13 365:9
proper 288:20
properly 156:3 289:4
proportion 77:8
proposal 82:17
propose 139:6
proposed 294:1 329:2
342:3
prostate 151:6 174:15
175:3,11,13,15 176:2
176:5,14 177:4,12,14
179:18,22 180:1,17
181:15 182:6 183:12
183:19,20 184:2
189:16,18 191:2
196:6 199:19,22
200:13 202:13 204:3
275:1 310:5 338:2
protect 230:10
protected 107:18
218:19 230:16
protecting 107:16
protection 105:6,8,9,16
333:8 351:8 375:4
protective 6:4 98:19
101:12 104:3 105:7
349:22 368:14,16
proteins 180:8
protested 97:13
prove 116:6 366:17
372:2
proven 8:9 57:20 74:20
288:10
provide 5:2 35:18 56:21
105:8 135:5 138:6
142:4,21 143:14
165:16,16,19 180:22
219:18,20 228:22
229:19 230:2 231:11
251:20 264:3 272:17
341:18 344:5
provided 30:2 45:11
- 46:13,20 47:18,18
57:2 154:14 165:9,14
214:10 229:18 358:1
372:3
providers 34:9 102:14
330:5
provides 86:1 246:13
269:9
providing 3:12 86:3
102:11 149:10 226:19
228:11 231:17
proving 97:15 328:9
provisional 26:9
provisos 83:14
public 3:16 27:8 32:13
148:22 171:13 215:6
215:21 259:4 326:19
326:22 327:4 331:14
377:3
publically 214:8,14
publication 125:16
publications 264:2
published 75:15 94:21
97:19 181:10 186:18
pull 169:20 174:4
236:15 237:5,10
238:2 248:5,8 249:13
249:15 250:7,10
252:2 256:20 295:17
pulled 158:21 161:11
171:18 355:18
pulling 251:15
pulmonale 275:7,22
276:2
pulmonary 59:9,14
74:8,11,15,22 75:1
89:12 289:13 293:13
298:20
punch 359:16
pure 134:21 135:10
purpose 300:19
purposes 99:4 134:5
158:21 195:20
pursuing 53:10
pushing 245:6
put 4:22 16:6 17:17
28:1 29:12 66:10
85:15 108:16 110:12
116:22 120:11,16
126:20 137:15 139:2
163:16 202:5 204:7
204:20 216:21 230:7
231:15 237:18 248:6
255:22 308:14 316:17
317:10 329:21 337:22
349:11,20 350:17,19
351:1,20 352:13
361:21 362:21 365:19

374:18
putting 23:19 35:1
 80:19 225:22 256:7
 307:22 308:4 309:6

Q

qualification 348:17
qualified 67:22 88:11
 213:2
qualifies 72:17 87:20
 132:20,22
qualify 68:3 86:14
 88:14,18
qualitative 301:15
quality 29:5 146:7
 149:3 150:1
quantified 302:1
quantify 308:11 315:4,6
quantitative 322:10
quantity 135:7
quarantine 365:12
quarter 97:22
queries 213:6,7
query 96:18
questioned 96:11
questioning 45:3
questionnaire 5:13
 7:21 9:16 10:8,14
 11:2,22 13:21 15:17
 16:14 24:8 28:11,13
 28:14,19,22 29:6,9
 164:7 268:2,4,8 269:7
 271:5 289:18
questionnaires 333:20
questions 6:22 9:18
 33:12,15,18 35:20
 62:21 63:19,22 64:5
 69:15 75:20 83:13
 85:17 90:20 126:18
 147:4 149:6 150:20
 152:18 162:13 163:12
 165:13 166:12 188:22
 189:4 196:3 199:18
 201:2 203:17 207:13
 214:18 216:1 222:3
 231:18 232:17 233:19
 246:4,6 247:2 265:8
 270:5,10 278:12
 280:13 282:18 283:2
 283:11,12,19 292:18
 333:22
quick 37:15 46:9 75:7
 130:14 153:15 183:11
 278:13 282:1 283:15
 333:10
quickly 35:6 141:5
 273:21
quit 353:14

quite 34:18 64:1 68:18
 106:7 111:11 112:22
 115:14 119:2 120:19
 122:17 167:19 174:12
 181:19 187:17 272:7
 273:4 284:3 294:6
 337:21 345:13

R

rabbit 189:8 204:12
Rachel 2:13 46:21,22
 364:6
rad 248:10 252:12
 357:13
RadCon 241:3
radiation 151:12,16
 152:1 203:17 236:6
 274:7 295:15 309:5,7
 354:14 358:19,21
radically 204:15
radioactive 362:7
radiographic 276:4
radiologic 276:8
radiological 271:9,12
 370:13
radius 344:20 345:15
raise 20:13 300:22
 314:10 315:3 334:14
 343:3
raised 62:10 65:4 69:3
 89:7 149:4 152:15,18
 196:3 202:3 285:15
raises 57:11 78:13
 359:20
ran 342:14 363:8
random 181:20
range 16:6 224:7 292:1
rare 77:18
rarely 278:20
rate 42:1 101:9 226:6
 244:10,20
rates 41:7 42:10 43:9
 99:10
rating 54:1,8 86:13 87:1
 282:12,17 290:6
 291:1,6,9,10
ratings 155:18
ratio 174:20 175:17
 178:2,5 179:4 206:3
rationalized 280:3
ratios 178:10
rats 179:22,22 180:3,6
raw 250:19 265:13
 355:8 356:13
ray 23:2 333:14

re- 312:10
re-ask 23:11
re-comment 346:21
re-evaluation 286:18
reach 245:21
reached 186:18
reaction 80:18 81:11
 161:9
read 34:12 63:4 65:13
 92:1,13 94:1 95:13
 121:16,16 139:22
 148:8 150:21 152:7
 164:5 186:10 191:16
 237:11,12 238:7,14
 239:21 336:8 355:3
 359:5 363:12 374:5
reading 65:6,16 92:10
 170:16 171:5 188:18
ready 4:13
real 130:14 140:14
 163:3 173:15 191:17
 210:3 221:10 266:10
 274:10 339:3
realistic 144:3 161:3
realistically 286:14
reality 131:4
realize 49:19 50:21 62:8
 134:22 252:6 257:12
realized 34:1 167:17
 256:5 257:10
realizing 41:15
reason 12:5 25:2 42:1,8
 47:11 48:4 50:2 80:10
 81:2 88:3 89:2 102:17
 123:13 137:17 224:13
 306:3 326:22
reasonable 52:13 57:15
 70:16 72:11 78:18
 183:4 199:10 208:22
 292:4 297:5 317:15
 322:8 323:2,11
reasonably 8:9 105:12
 332:16
reasons 36:15 44:17
 45:1,7 47:13,21 52:10
 52:14 63:16 64:3 69:4
 69:8 72:3 78:19 98:7
 148:16,17 168:16
 204:12 207:20 225:21
 264:20 302:7 308:1
 309:10 329:4
RECA 66:1,6,8
receive 32:22 144:13
 235:4 360:19
received 6:5 18:6 35:15
 83:7 93:7 96:16 150:5
 259:21 260:3 358:4
 358:12,18 359:9
 360:17
recognition 65:1
recognize 195:18 281:2
 309:14 311:15 312:4
 314:19
recognized 7:11 37:5
 195:22 354:20
recognizing 139:10
recommend 28:10
 63:12 136:3 143:15
 143:18 202:22 209:19
recommendation 5:15
 6:11 20:11,14 24:18
 25:6 26:18 28:7 60:15
 60:22 70:12 71:4,12
 73:2 83:12 106:2
 108:1 133:5,5 138:2
 143:14 145:12 161:9
 200:19 213:18 214:5
 218:14 272:20
recommendation's
 272:16
recommendations 4:14
 10:2 17:6 25:12 26:1
 26:5,6,10,15 32:21
 60:10 70:13,18 142:6
 142:9,22 143:5,22
 144:8,13 204:13
 210:14,19 214:2
 260:12,21 262:10
recommended 4:17
 119:6,7 154:22 156:1
 297:22 371:18
recommending 139:18
reconfigure 260:14
reconstruction 295:15
reconvene 90:22
 145:16 258:19 377:4
record 68:8 91:2 145:18
 222:14 232:21 236:15
 237:21 238:9 239:14
 241:3,15 247:9
 248:17 249:10,12
 252:14 254:18 255:8
 258:21 296:7 327:18
 354:12 365:10,12
 377:7
record-keeping 99:11
recourse 60:19
recruit 72:8 227:12
recurrent 291:20
redact 217:22
redacted 214:8 254:7
 254:10
redaction 215:15
Redlich 1:21 3:4 13:5
 14:17 15:7,20 22:1
 23:11 31:19 32:2

- 35:10 37:1 38:5,15
40:21 41:3 42:13,22
43:10 44:12,19 46:22
47:4 48:5,20 49:3,7
49:19 51:2,18 52:19
54:17 57:10 60:8
61:18,21 66:7 67:21
68:10,15,19 70:14
71:6,14 72:1 73:6,19
74:13 75:8,12 79:1
81:16 82:7,10,13
83:20 85:13 89:5,22
105:19 106:4,7 110:1
110:3 165:10 196:2
196:12 197:3,12,22
198:5,8 201:21,22
205:5,6 206:15 286:5
286:6 289:9,11
293:19 327:13
Redlich's 169:12
reduce 99:11 328:21
reduced 110:21
reduction 98:17
reevaluate 286:10
refer 30:21 295:13
referee 157:2 169:15
reference 97:4 235:13
referenced 133:11
references 130:19
174:7 190:15,20
213:14 280:4,5,8
referral 93:14 148:10
149:16
referrals 95:18 149:20
212:13
referred 269:12 321:18
372:11
referring 147:21 265:21
reflect 26:10 51:3,8
68:9 145:13
reflected 38:18,19
178:19,20
reflex 128:11
refocus 210:8
regard 36:2 42:9 74:11
91:12 99:5
regarding 83:5 91:11
145:12
regardless 84:21 271:9
registry 83:15
regular 5:20
regulation 97:21 98:18
101:4 108:11
regulations 2:17 97:16
98:10,15,16 100:17
100:21 101:5 109:9
142:7 332:20
regulatory 92:17 93:8
- 94:17 95:5 96:2 97:7
100:6 219:16
reimbursement 329:6
329:13
reinforcing 20:3
reject 314:20
relate 7:5 76:14 308:13
related 13:14 15:1
48:14 72:4,5 102:10
104:13 125:21 151:6
152:1 161:12 188:12
196:6,8 199:3,19
205:16 274:20 280:17
285:6 290:14 310:5
relatedness 198:22
273:9
relates 63:6
relating 31:20 290:5
294:2
relation 26:13 128:22
relationship 102:16
113:6,19 115:20
119:12,17 136:14
151:5,11 183:6
185:18 316:22
relationships 60:1
183:8 191:4
relative 178:10 179:7
312:15,20 313:1,3,4,8
313:10 314:16,18
316:7,9,18 323:8,14
relatively 43:5 44:22
116:16 139:1 260:9
269:14
relax 128:11
relevant 10:4 22:6
25:17 34:6 170:21
193:20 194:9 250:21
258:5 261:7 263:14
263:15,18 265:19
273:3 274:5 288:1,3
293:16,18 310:11
342:4
rely 105:6 281:11
relying 347:16
remain 329:6
remainder 116:6
remakes 292:7
remand 156:2
remanded 281:22
remediation 257:5,6
remember 28:6 45:20
103:9 109:12 203:3
229:1 282:11 290:5
340:10 360:9
remind 10:21 27:21
reminded 332:19
remove 300:10 325:17
- removed** 359:14
renewal 187:9
reopen 6:15 258:9
reorganizing 226:14
repair 180:8
repeated 81:2 82:20
84:1 154:21
repeatedly 163:12
repeating 81:9
replacement 323:5,13
replicated 178:12
report 14:21 26:3 67:17
82:8 119:12 143:5,7
147:18 152:16 170:4
189:14 199:1 227:20
254:11 277:9 316:2
330:8 335:3 366:19
368:7 369:3
report's 329:20
reported 68:8 126:10
174:20 177:14,19
178:4,9 179:4,6
reporting 99:11 329:17
reports 97:8 126:6
148:2 149:1 156:1
167:16 172:15 195:12
236:10 252:19 253:2
253:7,9,22 295:22
335:1,15
repository 30:3
represent 42:17 52:6
100:16 199:13 306:1
representation 52:14
53:6 57:5
representative 48:1
51:21 57:7 103:19
224:10 225:15 330:22
representatives 330:19
represented 53:9
representing 29:2
represents 36:18 42:19
48:3 307:4
reproducibility 76:14
77:22
reproducible 78:1
request 34:20 61:19
108:5 154:19 159:5
165:7,12 166:18
168:22 170:15,18
171:2 219:11 220:6
220:10 223:18 230:3
231:1 233:2 241:1
243:20 244:6 250:6
255:1 257:9 259:12
265:6 272:2 284:20
340:7 342:1
requestable 220:7
requested 33:2,8 35:15
- 61:19 143:5 147:14
259:5 266:17 267:5,7
requests 34:13,18
200:8 232:21,22
243:18 245:12 341:18
require 11:22 72:13
76:6 85:11 93:16
143:20 276:2 315:8
325:3,4 346:14
required 17:15 18:3
41:22 84:21 93:15
100:20 124:10 155:2
251:2 266:21 276:6
289:21 290:2 343:10
requirement 160:18
219:16,16 271:12
332:6
requirements 191:19
331:22
requires 15:5 275:15,22
349:4,5
requiring 41:21
rescinding 328:12
rescued 256:9
research 117:5 119:2
173:13 187:10,22
189:13 193:3 231:20
232:4,19 233:16
researched 308:2
resembles 148:11
residence 269:18
residents 227:3
residual 101:6
resistance 195:6
resolution 81:21
resolve 84:18 300:21
341:10
resolved 155:15,17
216:21
resort 341:9
resource 29:9 198:16
225:13 333:21 336:20
resources 11:17 15:21
143:19 200:17 209:19
222:15 236:5 247:11
287:4 341:8 373:17
respect 170:19,20
respectfully 346:16
respirators 349:21
370:16
respiratory 105:9
291:12 304:6,8
respond 11:3 142:20
230:1,2 231:10
232:20 320:22 341:17
responded 149:7 244:9
respondents 329:16
330:3,8,16,20

responding 200:8
response 34:20 84:14
 96:16 97:2 108:14,19
 125:7 128:4 147:22
 148:7 183:22 204:21
 204:21 216:4 226:9
 240:16 244:10,20
 257:8
responses 233:13
 242:1 243:13
responsibilities 209:15
 357:3
responsibility 139:10
 232:1 292:6 300:5,7,9
 300:11 350:12 360:2
responsible 130:21
 231:5 233:8 355:7
responsive 34:18 35:17
 236:4
rest 69:15,20,22 212:17
 252:8 256:22 275:2
 283:1 331:8 359:6
restate 70:17
restrict 51:15
restricted 159:10
 330:21
restriction 159:13
restrictive 129:15
 264:20 265:3 280:12
result 48:12 49:10 50:1
 57:13 168:17 176:19
 343:11
resulted 126:8
results 103:12 139:9
 150:7 177:20 217:2
 271:7 292:17 358:22
 359:11
resume 4:4
resumed 91:2 145:18
 258:21 327:18
retain 227:12 348:4
retire 256:13
retired 211:18 354:5
 373:16
retiree 107:3,5,8,11
 360:19
retirees 233:22 336:19
retrieve 255:16
retrieving 219:14 247:7
retrospect 159:7
return 358:12
reverse 111:19,20
reversed 328:8
review 13:9 17:9 32:4
 32:11,22 33:1 34:5,17
 46:19 47:20 57:2
 59:13 93:16 95:21
 106:2 110:10 120:14

130:14 138:16 139:8
 142:10 148:21 149:1
 150:14 151:8 153:20
 155:14 156:12 162:13
 167:21 173:20 174:3
 174:6,8,13 175:12
 177:12 181:2,10
 182:17 195:13,14
 200:4 213:5 265:15
 267:8,13,20 271:17
 286:3 310:11
reviewed 57:4 62:8,19
 63:2 74:4 81:17
 119:19 123:19 130:5
 140:5 148:22 152:16
 155:13 159:16 160:5
 162:14 175:6 181:11
 181:19 185:4 191:8
 198:21 212:9,13
 263:2 267:11 283:14
 310:19 312:9,10,11
reviewers 189:2
reviewing 16:11 182:17
 280:22 310:3
reviews 64:13 121:12
 155:21 165:4 173:14
 173:21 174:2,10
 182:17 186:19 188:15
revisit 26:12,13
rework 259:17
Rhoads 327:12
rich 163:5 218:6
Richland 245:2
rid 102:20 215:15
Ridge 1:11 335:5
 338:22 345:18 358:14
 360:14,19 361:9
 362:16 372:9
Ridge-Knoxville 1:10
ridiculous 133:2
right-handed 290:19
rigorous 138:14 302:6
rim 349:18
ringing 376:2
Rios 2:9 24:17,18 25:2
 142:19,21 143:13
 144:10 164:22 165:2
 165:2
risk 72:21 101:6 102:5
 102:8 104:6,11
 109:21 175:3 178:10
 179:6,7,8 182:6 185:7
 186:16 190:19 196:15
 196:15 197:1 303:15
 304:16,19,22 306:6
 306:21,22 307:10
 308:5,12,20 312:16
 312:19,19,21 313:1,2

313:3,4,5,6,7,8,10
 314:8,13,17,18,20
 316:9,10,11,17,18
 323:8,14
risks 104:10 177:19
 198:3 317:4
River 122:21 245:3
RN 160:19
road 83:1 182:22
Robert 354:9
Rocky 77:13 107:6,7
 247:21
role 13:2 16:22 17:3,4
 21:16 209:16 280:21
 305:11
rolls 86:8
roofer 370:13
room 295:19 320:1
Rosemary 1:20 3:11
Rosie 267:15
rotate 244:16
rough 239:4
roundabout 345:14
routine 334:1
routinely 159:19 309:22
 311:12
row 237:22 249:10
rows 42:18
rubber 350:22 376:5
rule 81:7 100:19 102:11
 104:14 184:5 185:13
 281:16 328:20 329:2
 340:21 342:3,5
ruled 70:3
rulemaking 133:18
 144:17 145:5
rules 45:21 329:1
 341:10 346:5
ruling 104:18
run 11:5 64:6 135:16
 213:13 258:7
running 103:3 298:7
runs 241:18 242:3
Rutgers 1:10 109:21

S

S 1:10,19
sacrifices 338:18
safe 107:13
safety 23:20 92:16
 94:10,12 106:20
 110:20 228:3,17
sainted 98:13
salaries 363:19
salary 334:10 359:15
Sam 245:7 333:13
sample 170:7 237:16
Sandia 357:8
sandwich 350:5
sarcoid 49:22 62:22
 63:11 68:2 69:1 70:9
 71:21 72:19,22 74:3,5
 74:12,14,15,18 79:9
 79:19 85:4
sarcoid-CDB 33:20
sarcoidosis 37:4 44:21
 66:20 71:10,22 73:4
 84:20 85:12 155:5
 212:15 268:16,18
 294:2
sat 356:9,10
satisfied 61:13
satisfy 297:18
Saturday 139:2
Savannah 122:21 245:3
save 84:12
saved 243:3
saw 65:4 88:5 145:2
 266:10 268:4 370:2
saying 14:10 21:13
 22:16 24:7 25:11
 41:10 100:5 118:3
 131:17 134:16,19
 144:1 157:6 186:15
 188:14 199:2 203:12
 208:22 212:22 222:18
 240:19 318:16 324:12
 348:12 352:18 359:15
 367:1
says 18:5 49:12 55:15
 59:11,11 60:18 80:2
 89:3 91:21 94:19
 109:1 116:12,22
 128:7 132:7 140:10
 149:19 198:1 224:5
 238:7 264:16 266:8
 275:11,22 292:13
 306:10 320:2 322:7
 335:1 353:13 365:14
scale 231:12,19 291:1
scan 59:10 65:6,11,13
 74:10 237:4 249:17
 264:13
scanned 248:22 249:7
 250:10
scant 365:16
scapegoat 194:21
scenario 65:11
schedule 260:14
 282:12 290:6
scheduled 345:3
Scheinfeld 173:8
Schuman 327:8 347:20
 347:21,22 350:8
 352:7,9
Schwartz 332:11,14

- science** 104:19 141:19
141:20 175:22 205:19
206:9
- scientific** 1:13 117:5
133:5 138:1 207:1
296:20
- scientists** 317:15
- sclerosis** 287:8 289:14
- scope** 201:3 262:18
293:22
- scrap** 247:22
- scraped** 207:15
- screamed** 363:15
- screaming** 363:14,21
- screen** 67:9 118:10
225:18 231:4
- screened** 67:12
- screening** 2:15 11:5,16
29:3 67:8 75:18 83:20
84:3 228:19 229:13
245:19 246:11
- screens** 246:14
- scroll** 214:3 274:16
277:4
- scrolling** 93:4
- se** 311:19
- search** 9:13 130:17
173:10 174:3 182:20
185:1,3 235:1,20
236:1,18 242:12,19
243:5,9 248:2 249:2,4
253:14,16 254:4,20
- searchable** 214:8
219:20
- searched** 253:21
- searches** 173:4 211:7
255:8 344:8 345:14
- Seattle** 219:19
- SEC** 233:17 328:15
- second** 71:8 99:2 119:3
127:8 153:18 177:3
192:7 197:3 217:6
237:13,15 238:5
243:11 311:10 343:2
343:4,11,16,20
344:20 345:5 346:21
- second-** 312:21
- second-hand** 311:17
312:1,5,12,16,18,20
313:15,19 314:3,5,7
314:15,18 315:19,21
316:5,13,19 317:1
- secondary** 290:15
306:14
- Secondly** 105:6
- Secretary** 226:11
- section** 82:17,20,22
86:22 154:8
- sections** 154:7
- secure** 230:5,21
- security** 224:4 225:17
225:21,22 235:10
293:7 363:19
- seeing** 25:16 42:1 43:8
88:21 121:8 198:2
199:5,9 282:3 354:18
- seek** 213:1
- seen** 14:11 27:12 58:18
59:6 90:8 98:16 103:4
103:19 134:1 212:7
242:1 281:20 338:15
343:18 363:13
- sees** 56:5
- seldom** 131:12 252:22
- selected** 200:9
- selects** 231:2
- self-pay** 330:11
- SEM** 3:2 4:9,12,18,22
5:4,12 8:18 9:6,9,11
9:16 10:9 13:9,12,20
14:4,8,20 15:14,15
16:7,22 17:3 18:2
22:3,7,16,17 23:7,9
23:13,15 27:7,7 64:20
102:17 119:6 123:16
129:7 137:2,7,8,15,16
143:18 157:3,5
168:10 200:21 222:7
231:18 233:17 245:9
262:10 273:9 285:17
287:2 335:15,17,21
336:8 352:12 362:21
371:20,22 372:4,6,7
372:18,19 373:1,3,9
- SEMs** 361:18,19
- senator** 295:13,17
- send** 96:3 100:13 130:1
225:14 231:4 233:10
233:18 236:4 252:4
252:13 258:6 282:14
299:6 344:3 359:18
367:2
- sending** 155:8 264:21
367:2
- senior** 266:7 339:19
- sense** 5:5 20:12 26:10
26:16 27:4 30:18
46:18 52:4,9 57:9
110:8 113:11 128:18
137:3 140:5,8 215:1
217:1 244:3 247:8
334:15 345:15,21
346:2
- sensitive** 73:20 76:10
77:2 78:22 80:4,6
- sensitivity** 40:10,14
41:22 48:3 52:16 75:8
75:16 76:5,7,8,8,15
77:11 78:5,7 79:3
85:6
- sensitization** 33:15
57:12,13 62:3 63:14
77:9 78:16 81:21 84:2
- sensitized** 67:1,10 72:8
77:8,14,17
- sensorineural** 116:13
129:19
- sent** 5:11 95:9 100:4
153:2,8,16 155:7,9
156:13 212:11 250:19
265:1,18 270:4
363:18 367:3 368:7
369:3 376:18
- sentence** 143:15 148:8
- separate** 8:7 10:8 37:19
86:15 224:18 243:18
361:14
- separated** 153:13
- September** 32:14 97:19
244:8 334:6 357:15
- sequence** 94:4
- serious** 159:19
- SERT** 230:3,5,22 235:5
243:13 248:20
- serum** 307:15
- serve** 342:8 343:5
- served** 92:19 354:15
- service** 131:11,16
189:17 190:9,10
261:13 290:2 354:6
- service-connected**
279:19
- services** 366:5
- serving** 344:19
- session** 3:16 259:4,20
326:19 377:3
- set** 35:15 44:6 91:10
111:2 115:14 121:11
122:17 124:10 133:19
135:22 136:19 138:4
141:20 145:4 148:20
170:6 172:15 189:2
206:11 209:17 210:11
230:21 251:10 265:6
309:1 343:9 357:10
- sets** 315:8
- setting** 79:4,11,14,19
79:21 101:22 102:11
205:10
- settings** 114:13
- settle** 371:1
- settled** 353:7
- settling** 73:4
- seven** 51:9 160:19
190:15 259:5,8,13,18
281:13 327:21 335:16
349:7 357:15
- shack** 256:8
- shaking** 135:1
- share** 147:17 340:14
343:1
- shared** 146:17 147:10
184:9 356:7
- Sheet** 23:21
- ship** 250:8 298:19
- shipped** 349:1
- shoes** 356:21
- shop** 355:1,1
- shops** 355:21
- short** 64:6 116:16
221:15 228:8 260:9
294:19 299:21 320:4
323:19 342:14 343:8
353:9
- short-term** 374:4
- shorter** 219:17 336:3
- shortest** 240:17
- shortly** 145:22
- show** 20:18,19 37:14
119:18 134:19 135:6
135:9 183:21 251:21
298:18 302:7 304:7
335:8,14
- showed** 181:19 299:4
- showing** 40:2 298:15
- shown** 107:9
- shows** 37:11,14 60:14
65:6 120:1 205:19
231:4 330:2
- shrink** 259:13,17
- shuck** 355:12,18
- shucks** 355:15,22
- shut** 207:3
- shuts** 107:3
- sick** 330:11 332:1
335:13 340:2 341:7
343:6 345:1 346:6,14
347:3 366:15
- sickness** 341:6
- side** 176:21 267:14
309:5,9 320:4 350:5
- sign** 179:11 212:5
359:22
- signed** 327:9
- significance** 176:19
319:1 320:16 321:2,7
- significant** 92:15 111:6
111:18 135:7,20
143:20 175:12,19
177:9 178:6 179:8
185:6,7,20 212:19
257:18 275:7 301:6

- 301:19,22 308:21
315:18 316:13,21
317:3,11,18 318:4,9
318:10,14,19 320:20
320:21 321:10,17
324:14,16,19 325:9
326:5,15 332:21
significantly 93:2 94:22
117:22
signs 276:5 290:20
silica 22:21,21 23:5,18
212:15
silicosis 22:20 23:18
33:20 45:16 46:2 62:4
65:1
Silver 1:15 109:4,5
255:12,13 261:14
295:2,8,10 296:6,10
299:8
similar 33:20 52:12
137:4 178:10 180:3
187:18 190:4 195:3
266:12 278:18 292:22
simple 219:11 236:19
248:5
simpler 6:19
simplified 63:18
simplify 159:20 308:16
simply 271:8 306:5
315:8
Sinai 187:20
single 41:5 45:6 50:12
50:13 52:3 53:1,11
159:8 239:12 242:2
247:17 319:18
sir 280:13
sit 133:15 138:11
266:18,19 281:21
349:21 375:11
site 4:7 6:2 7:8 8:14,21
9:4,13 11:11 16:15,17
19:5,6,14 27:10 28:15
29:1 45:22 46:3 67:9
67:13 100:20 107:3,4
171:11 217:22 231:2
231:13 233:7,8,21
234:1,4,5,6,10,11,13
234:18 235:7,11,14
235:15,21 236:2
237:17 244:17 247:8
247:13 250:8 251:11
251:21 254:17 357:9
357:10
sites 5:22 7:3 8:17 11:6
14:6 15:3 18:20 19:1
29:16,18 30:4 34:7
67:11,11 127:2 137:4
137:20 192:9 231:3
231:21 232:5 233:11
234:20,20,21 235:7
235:22 237:21 241:4
241:12,14,14 244:12
244:14,15,22 246:16
247:16,22 248:15,16
253:5 254:16 357:14
361:11 365:4
sits 266:7
sitting 267:3 298:10
335:3
situation 69:5 81:17
90:7 308:16 344:1
situations 15:9 57:16
97:1 110:19 111:3
183:5
six 80:2,7 121:3,4 133:6
133:10 145:7 151:3
152:12 174:9 190:15
220:2 245:1,2 249:3
257:16 298:1,3,6,9
361:13 364:11 366:10
size 237:6 249:20
skill 189:2
skin 77:10 151:20
183:17 249:21 353:17
359:13 376:14
skip 199:12 237:13
238:5 243:11 245:7
274:3 275:2
skipping 239:9,22
240:9,11
sleep 291:18
slide 28:6,8 30:20 35:2
37:14 38:4,17,20,22
39:1 40:9 41:5 42:14
44:15 49:20 50:16,17
62:2 69:8,10 70:22,22
89:6 112:11 119:4
120:16 125:5 152:5
172:18 245:8
slides 4:16 169:12
277:5 300:15
slight 178:9 346:4
347:2,2
slightly 19:14 74:19
313:12
Sliwinska-Kowalska
130:14
slow 230:19
slowing 95:19
slowly 47:5
small 14:2 38:13 44:22
47:11 139:1 143:17
167:17 177:21 178:1
179:16 219:22 232:15
349:2
smaller 43:5 167:6
232:2,3,8,16 234:20
267:2
smarter 230:14 255:6
smell 374:18,18
smelled 360:11
smoke 305:4,6 311:18
312:1,5,12,16,18,20
312:22 313:15,20
314:4,5,7,15,18
315:19,21 316:5,13
316:20 317:1 356:12
356:13
smoked 192:18 305:14
313:14 316:16 356:10
356:10,11
smoker 305:17 313:11
316:8
smokes 275:11 319:2
smoking 140:21 275:10
305:2,4,10,11 306:2
307:1,19 313:9 319:2
319:12
SMR 178:5 181:13
snapshot 41:9
soapbox 363:10
social 235:10 293:6
363:19
social's 235:17
socioeconomic 199:8
sociologist 109:20
Sokas 1:20 3:11 6:8
17:5 83:17 84:15 99:1
125:3 128:5,6 138:8,9
146:3,8,10 152:6,8,11
156:5,10 158:13
164:20,22 165:1,22
168:7 169:4 170:5
172:11 189:4 190:21
195:4 196:1,10 197:2
197:11,15 198:4,7,12
201:5,16,19 203:2,14
205:1,4 206:20
209:11 210:12 213:22
215:8 218:13 220:11
222:17 223:20 225:3
226:8 227:16,18,21
278:13 285:15 305:16
340:10
Sokas' 130:8
SOL 204:7
solicit 344:10
Solicitor 226:16
Solicitor's 332:13
solicitors 332:9
solitary 319:18
solutions 81:12
solve 11:15
solved 315:12
solvent 112:18 113:4
113:15,18 114:8,10
120:8 122:2,3 123:7
125:22 126:7 127:20
127:22 128:8,13,22
129:21 138:3,5 163:9
198:9 276:21 277:6
277:15 285:8 317:11
360:6
solvent- 117:19
solvent-induced
116:12
solvents 3:8 112:8,9
113:9 116:17 117:17
117:18 118:3,22
119:13 120:19,21
121:14 122:1 123:6
123:12 125:10 126:11
127:15 129:8 136:9
137:12,14 147:9
151:11 191:15 197:6
197:10 277:14 317:9
317:16,17 349:6
372:8,17 373:20
374:10 375:16 376:21
somebody 20:3 22:19
27:18 76:21 81:7
92:12 113:14 114:5
120:7 127:18 128:1
145:1 157:13 223:1
227:10 275:11 278:21
281:9 299:2 319:2
337:7
somebody's 27:16
200:4 292:4
someone's 248:7
something's 243:7
somewhat 33:4 48:5
63:4 73:8 179:11
206:13 241:9 301:19
302:5
Song 181:11
Sood 157:13
soon 230:22 367:10
sooner 65:17
sore 91:4
sorry 31:15 42:15
117:10,11,14 128:6
143:10 152:8,11
176:3 194:6 201:20
209:9,11 218:13
252:7 274:6 275:19
287:9 300:3 335:16
367:20 369:14
sort 10:10 53:6 63:22
65:1 108:8 148:3
170:15 202:9 205:11
233:14 236:12 238:11

238:14 239:4 256:8
 257:15,19 271:6
 283:14 286:21 314:11
 347:1,11 366:14
 371:12
sorts 205:13
sound 221:20
sounds 9:22 17:5 30:16
 85:7 191:1
source 62:11 163:5
 238:21,22 239:15
 240:3 270:17
sources 4:12 14:15
 21:19 119:10 189:12
 237:22 239:19 240:4
 240:8 243:4 256:6
 285:17
South 184:1 345:18
speak 18:19 27:22 44:3
 47:4 55:13 91:22
 155:12 156:11 228:14
 259:6,11,15 328:6
 331:19 342:13
speaker 353:1 368:2
 370:6 371:9 374:2
speakers 327:21
speaking 220:18 328:1
 329:1 333:15
special 231:20 255:1
 328:9 357:5 360:15
specialized 136:12
species 179:21 184:9
 184:13
specific 9:18 12:6
 14:19,22 15:3 16:12
 23:13 26:14,15 28:16
 33:14 34:14,16 36:13
 39:18 41:12 46:4 60:2
 60:10 63:22 76:10
 116:7,10,14 117:5,19
 118:8 121:17 122:2,3
 123:5 129:7 137:7,14
 152:17 168:20 176:11
 180:20 201:1 202:2
 223:4 233:19 253:12
 253:13 260:10 262:9
 265:9 270:5,10 272:7
 276:16 280:16,22
 282:18 284:7 289:2
 291:22 293:2,11,12
 294:16 358:1
specifically 17:4
 110:22 118:6 128:4
 132:15 172:17 180:16
 183:16 212:14 267:8
 275:4
specificity 75:9,16 78:1
specifics 292:9

specified 46:1 115:8
 159:8 280:17
specify 27:1 172:11
 314:22
spectrum 206:10
speculate 77:19
speed 123:20 181:3
spelled 345:8 346:19
spells 347:15
spend 122:21 205:15
 297:20 300:1
spent 63:17 139:21
 140:16 153:3 281:7
 287:2
spinning 376:12
spirit 345:7
split 131:16
spot 17:8
spouse 160:16
squish 49:20
stack 295:22,22
staff 4:19 28:15 109:15
 249:12
staffing 244:17
stages 209:22 276:1
staircases 256:12
stakeholders 331:15
 342:4 345:13
stand 327:2
standard 65:10 75:11
 76:20 78:11,14,17
 83:16 98:17 103:11
 104:2,2,16 136:15
 141:21 301:11,14
 306:10 309:1 311:8
 315:9 322:6 323:1,18
 332:10,15
standardization 266:10
 272:18
standardized 174:20
 178:1,4 267:14
standards 93:8 95:5
 96:2 100:7 101:11,15
 102:3 104:5 120:21
stands 230:5
staples 237:5
start 10:15 42:20 49:17
 79:15 91:14,19 98:1
 172:9 173:7,12
 174:14 196:20 217:7
 223:21 240:20,21
 251:3,15 252:5
 260:11 279:11 284:9
 284:13,21 300:6
 301:1 327:5
started 9:5 13:9 16:11
 41:15 42:4 145:21
 154:21 155:14 158:1

167:15 178:20 224:2
 227:21 230:13,16
 317:21 333:14 334:1
 351:10 363:21 369:12
starting 24:3 46:18
 167:5 191:12 195:18
 196:20 219:20 257:22
 344:14 355:6
starts 62:2
state 44:3 101:5 107:15
 212:2 292:21 322:7
state-of-the-art 64:8
stated 52:15 57:6 124:7
 175:7 321:16 329:4
 345:9
statement 16:9 73:5
 96:3 104:18 105:21
 110:6 163:22 164:1
 184:8 271:3 317:6
 318:17 319:18 322:10
 325:4,7,10
statements 122:6 294:3
STATES 1:1
stating 110:4
statistic 99:6
statistical 176:18
statistically 175:18
 178:6 179:7 181:20
 185:6,6,20
statistics 326:8,9
stats 229:1,8
status 199:8 224:6,15
 226:2
statute 133:19
statutorily 56:4
statutory 332:6
stay 211:18 245:5
 295:14 319:20,21
stayed 353:15 357:9
staying 211:16
step 17:11 127:3
 286:12
stepchildren 360:22,22
stepping 196:4
steps 235:2 318:5
steroid 90:5
steroids 89:13
Steve 6:12 20:10
Steve's 226:10
Steven 1:11,18 3:6,17
 91:4 123:14
sticks 374:14
stomach 357:17
stone 145:4 323:17
 353:12
stood 66:16
stop 4:16 31:10 61:4
 75:4 81:9 134:11

204:7 277:1 328:1
 374:21
stopped 103:15 330:13
stories 334:2
story 58:14 359:6 364:1
straddling 295:18
straight 120:3 135:15
 177:7 190:14 252:3
straightforward 21:2
 48:8 106:3 236:20
 237:1
stream 167:14
streamline 325:19
street 283:1
strength 292:1
stress 282:20,21
stretch 327:2
strict 115:15 116:3
 132:20
strictly 88:13 212:6
 224:11
striking 50:5
stringent 122:17
 132:18
strong 104:18 182:2
 185:18 215:5 308:11
 360:11
strongly 186:5 329:1
struck 44:20
structure 50:20 51:16
 59:12 188:22 202:5
 202:22 226:16 272:13
structured 36:6,12 55:4
 223:3
struggle 244:14,15
struggled 68:18
struggles 370:2
struggling 341:6
studied 195:10
studies 79:2 109:21
 117:19 120:15,22
 121:13 128:7,10
 129:1 130:1 174:22
 176:18,20,20 177:13
 177:16,18 178:2,9
 181:18 182:11,19
 183:2,21,21 184:15
 185:4,12 186:8 192:4
 192:5 195:5 310:11
 312:12,12,15 316:1,3
 316:3
study 120:12,20 121:6
 121:10 175:15 177:13
 178:2,11,12 179:4,5
 183:22 185:21 186:2
 186:11
stuff 27:20 90:10
 106:16 194:18 215:16

241:10 248:22 252:8
261:17 299:17 376:11
sturdy 142:9
styrene 119:20
sub 251:8
sub-sites 243:22,22
subcommittee 3:2,3,11
3:15 4:9 12:13 31:20
32:1 33:7 71:4 82:8
85:18 99:20 119:6
123:16 124:22 125:6
146:4,9 147:15 154:9
158:19 168:10 170:14
210:18,22 213:21
227:20 260:16,17
261:2,5,10,14 265:4
284:5 287:13
subcommittee's 31:22
subcommittees 26:1,3
26:9 32:19 91:16,17
153:13 261:12 262:13
283:22 284:6 346:9
subcontracting 138:20
subcontractor 87:19
88:15 140:4 191:6
241:19 246:15 251:15
285:19
subcontractors 99:8
100:18,21 251:6
subject 233:21 311:20
312:17 364:6
subjective 133:18
submission 225:10
submit 52:1 129:11
143:4 254:16 331:19
372:22
submitted 24:21 148:13
165:12,17 254:19
262:4 263:12 265:16
269:14,19 272:21
273:1 329:10 373:1,7
subs 251:9
subsequently 147:13
165:13
subset 167:6,18 168:22
174:22
substance 24:1,4 95:3
124:12 127:6 301:6
318:1,18 344:16
substances 1:3 4:5
101:2,6 151:12
152:18 309:9
substantia 187:13
substantial 140:19
141:2,4,7
substantiate 213:15
substantiated 54:15
substantive 195:10

subtype 179:21
successful 147:12
208:3
succinct 342:15
succinctly 206:7
sue 107:15
sufficient 59:5 114:8
177:9 179:20 180:13
183:13 282:6 319:9
sufficiently 78:21
suggest 6:9 72:20
130:17 137:12 202:19
286:6
suggested 123:5,14,15
175:2 180:7
suggesting 102:21
138:19 202:12 206:16
suggestion 128:10
185:10 202:7
suggestions 202:5
292:18
suggestive 179:18
183:2 185:16 186:4
suggests 176:10 184:3
253:11 321:13
suicide 162:19,19,21
216:1
suits 370:15
sum 86:11
summarize 140:1
summary 32:15 39:2
178:4
summer 298:8
superseded 145:7
supervisor 358:6
Supervisors 359:22
supervisory 278:20
supplement 220:8
supplied 356:21
support 2:15 56:15
125:15 184:1 200:3
226:18,18,19,20
228:19 229:11 231:11
246:11 342:1
supportable 99:17
supporting 129:3
188:13
supports 59:10 206:10
supposed 20:11 149:17
201:3 212:4 281:17
344:18 356:18
suppressor 180:8
surely 340:11
Surgeon 312:9 316:2
surgery 359:10 361:3
surprised 103:12
surveillance 34:7 68:22
72:14 79:5 81:14 85:1

85:11 125:18
survey 329:14,18
surveys 19:5
survive 361:5
survived 361:3
survivor 16:13 358:10
358:18 370:18
survivors 341:8
Susan 358:14
susceptibility 141:10
susceptible 304:10
suspicious 332:16
swap 372:14
switch 59:22
symptomatic 291:21
symptoms 187:17
276:5 290:20
syndrome 190:3,11
synergistic 120:7
135:13
synergy 275:10 319:13
synthesize 250:18
synthesized 251:1
system 23:20 36:1 54:9
81:5 151:17 169:3
200:15,21 202:6
205:11 209:20,22
210:2,7 221:3 225:2
225:12,13 226:5,7
230:3,5,6,22 231:2,7
235:5 243:13 253:20
253:21 274:22 282:2
286:8 293:11 310:9
348:21 350:3 351:11
systematic 120:13
181:10
systems 205:22 224:14
350:14

T

T 373:21
table 52:11 122:10
238:1 323:17 327:12
tables 120:14
taken 62:16 91:16
94:11 154:8 219:14
225:11 255:16 336:17
337:18 338:15
takes 24:11 162:21
174:9 198:1 221:11
221:22 247:11 351:14
talk 6:1 12:20 31:7 41:1
77:20,21 91:6 113:18
123:14,15 141:14
150:13 173:5 207:17
228:21 233:5,21
234:14 246:19 275:6
275:9 276:21 283:13

291:5 292:5 303:3,12
317:20 336:7 348:1
367:20
talked 6:13 102:13
119:7 123:13,15
191:15 213:16,21
224:19 229:4 244:1
247:3 265:11 272:10
284:4 285:8 317:9
366:13
talking 12:17 25:4 27:6
27:7 50:16 67:15 79:7
79:8,21 115:12
137:10 225:15 267:4
283:22 285:14,16
306:18 310:4 364:9
369:15
talks 274:18,19 275:5
275:13 276:17 278:1
tangible 326:3
Tank 107:13
tape 350:2
task 7:16,22 8:1,4 9:1,2
9:11,14,18 15:1,2
16:19 23:8 28:20 29:2
146:4 200:13 206:14
245:16 261:5 297:22
tasks 11:9 12:2,10 14:7
260:18 275:17 336:13
336:15,21
TCE 151:5,21 175:1,3,6
175:7,7 176:2,8 189:7
190:7,11,14,15 191:2
196:5 197:4 277:13
tea 298:11
team 106:16,17,19,20
162:4 300:5
Teams 94:9
tease 292:10
teasing 205:15
technical 33:16 140:7
187:16 285:19
technician 334:19
371:16
technicians 371:21
372:13
technologically 220:13
teleconference 147:1
150:16 162:5 204:2
214:7 364:8
teleconferences 32:12
telecons 35:21
telephone 203:19,19
tell 4:16 8:22 9:2 18:14
19:17 21:14 144:1
153:22 201:7 243:7
246:12 248:3 263:6
264:19 275:3 279:10

296:12 353:20 357:14
 358:20 362:1,19
 363:1,9,20 369:21
 374:14 375:10
telling 215:19
tells 144:20 263:4
 264:22
tempered 182:9
template 267:13 271:8
ten 69:1 121:8 123:2
 132:4 232:15 313:14
 317:16 334:8,18,19
 369:9,20
tend 89:17
Tennessee 1:11 354:4
term 109:19 178:21
 207:16 240:20,21
 251:4 319:7
terminal 225:20
terminology 188:9
 207:13 222:16 321:21
terms 9:14,20 12:4
 16:17,20 17:1 34:14
 49:11 52:12 55:8,14
 56:17 57:6 62:8,17
 64:7 66:4 67:15 76:13
 89:7,14 119:1 132:21
 143:2 171:15 199:14
 208:21 216:11 226:12
 231:6 232:3 237:1
 255:7 293:1 302:10
 320:13 344:22
Terri 331:16 333:12
Terrie 327:6
terrific 228:8,8
test 33:17 46:3 57:13
 59:9 64:2 69:6 71:11
 72:2,4,11,13 73:17
 76:3,4,7,13,15,16,17
 76:22 77:20 78:1,5,6
 78:7,10,16,22 79:6,12
 79:17 80:12,14,15
 85:6 122:5 179:10
 237:17 282:20,21
 357:9
testifying 140:16
testing 59:14 64:9
 357:11 358:19,21
 359:11
tests 76:3,11 78:9 80:3
 80:8 81:8,20 84:2
 292:14,15 294:18
text 71:2 91:20 96:6
 168:1
textbook 130:15 173:8
 173:10
textbooks 174:17
thank 20:9,9 31:17 40:7

52:21 68:16 83:18
 85:15 91:8 125:3
 130:3 145:16 146:10
 165:6 172:14 173:3
 227:16,20 228:6,7,13
 247:4 258:17 261:4
 272:8 277:2 299:22
 300:14 327:16 331:10
 331:13 333:3,4
 335:22 336:1 338:8,8
 338:9,11,17,20 342:8
 342:10,12,19 347:18
 347:19 352:9,20,22
 353:21,22 354:2
 361:5,6,8 367:20,21
 368:1,3 370:3,5 371:7
 371:8,11 373:21
 374:1 377:1,2,4
thanks 214:1 318:19
 328:5 331:9 332:19
theoretical 322:16
theoretically 254:17
 283:5
therapy 323:6,13
they'd 155:19 298:18
things 8:10 12:2,22
 16:8 17:14 22:6 23:1
 24:14 31:8,11 37:4
 51:6,9 55:18 57:8,12
 62:10 69:18 70:1
 73:13 77:6,19 99:15
 109:8,16 117:8 119:5
 126:13 127:17 132:14
 133:15 135:8,13
 139:19 144:7 153:10
 159:13 163:7 186:7
 193:8 195:3,9 206:17
 209:2 216:8 217:22
 221:14 224:17 225:14
 230:8 231:13 234:1
 248:18 252:17 276:17
 284:19 285:11 288:14
 291:8 293:15 299:16
 300:19 311:15 319:6
 337:17 338:1,2,3
 352:1 359:21 361:10
 361:18 363:8,11
 367:18 369:11 375:14
 376:17
thinks 20:17 27:1
third 28:7 94:20 95:8
 149:16 232:1 239:12
 239:14 374:17
thorough 139:8,19
 161:8 173:14 174:13
 243:9 342:22 344:14
thought 4:19 60:5 62:1
 65:22 76:5 95:17

151:8 157:18 173:3
 178:18 183:8 215:16
 257:12 269:2 284:13
 286:4,8 288:15
 289:19 292:17 293:10
 293:21 298:2 317:22
 337:21 364:19
thoughts 198:15
thousand 104:7 141:1
thread 161:21 256:20
threatened 363:16
three 14:1 31:12 44:1
 54:3,21 70:17 131:10
 133:6 145:21 156:17
 173:6 174:16 187:20
 210:13 220:3 223:1
 225:11,16 227:21
 229:21 232:21 239:4
 243:14,17 247:19
 301:9 307:9 342:19
 359:13 372:10
three-page 94:18
three-way 358:3
threesies 212:17
threshold 93:11 127:19
 127:21 314:21
throat 91:5
throw 191:3 319:1
 326:4,14
thumb 230:17
Ti 327:7 342:11
ticking 231:6
tickled 366:22 367:6
tie 149:17
tied 262:14
Tiger 94:9 106:16,19
tiles 131:21
Tim 327:7 338:10 374:2
timeframe 244:5 245:5
timeframes 231:9
timeline 302:11,11,12
timeliness 244:3
 247:10
times 12:15 27:13
 38:19 63:4 77:16 81:1
 155:6 200:14 212:11
 212:22 213:14 224:12
 237:4 242:4,6 249:8
 254:19 268:2 270:2
 270:18 281:19 296:15
 326:5 339:16,18
 340:3,4 343:5,8 347:6
 372:15
Timothy 374:6
title 27:16 158:10 222:4
 335:18 365:3
titles 138:4 359:20
today 29:20 31:4 33:6

107:17 228:14 288:5
 336:10,11 337:12
 338:16 343:2 348:1
 362:11
toe 58:16 60:7
toenail 178:13,19
told 58:20 59:13 106:15
 149:19 158:17 273:21
 326:5 332:14 353:11
 353:12 363:17,21
 364:2,7 365:18
 366:12,21 367:11
 376:15,16
tolerance 350:1
toluene 119:20 350:15
 360:8
tomorrow 26:12 106:2
 124:15 145:11 218:11
 260:7,11,12,15 289:5
 295:6 326:21 377:4
tomorrow's 207:8
ton 147:6 195:12
tons 195:5
Tony 24:18 46:22 165:2
tool 15:16,17 248:2
tooling 350:18
tools 249:2,4
top 161:9 238:6 362:7
topic 91:9 112:6 124:5
 148:5 172:16 204:4
 214:8 300:2 343:1,3
 345:6 346:4
topics 106:11 260:4,10
 342:22
total 42:17,20 44:21
 152:9 153:16 178:6,7
 205:13 354:10 358:5
totally 98:18 220:6
 256:18 365:12
touch 81:14 210:15
 350:2
tour 27:15 228:7,9
 258:15 361:9
tours 233:18
tow 358:13
tox 195:5
toxic 1:3 4:5 92:5,20
 93:2 94:7 95:3 97:1
 97:16 151:12 152:18
 191:21 200:12 301:5
 304:4 309:9 318:18
 348:19 352:3 374:9
toxicants 262:9
toxicity 132:15 179:11
toxicologic 192:4
toxicology 119:10
 128:7 173:19 264:7
 279:3 296:21

- toxin** 103:10 302:16
 303:2,4,20 304:1,16
 309:18,21 310:1,21
 311:11 314:12 356:13
toxins 95:2 151:6 313:7
track 14:5 212:22
 230:20 296:7
tract 291:21
trades 17:21 24:11 29:3
 77:7 97:12 100:13
 118:21 122:20 137:1
 137:2
trained 28:13 208:18
 266:5 364:6
trainer 114:6
training 6:4 28:16
 174:11 209:6 262:8
 266:6 267:5 272:17
 278:15 280:6,8 299:3
 337:2 348:19 351:16
 367:13
traits 7:17
transcribed 164:10
transcriber 28:3
transfer 230:6 356:6
transferred 346:1 355:8
transient 126:8
transition 230:9
translated 322:11
translator 207:22 208:1
transmit 225:15
transmittal 333:11
 347:5
transparency 160:2
 214:16 219:3
transparent 124:6
 139:19 231:7
travel 331:22,22 343:15
 343:20 345:2 346:15
 355:21
Traveling 355:11
treat 89:12
treated 303:1 308:7
treating 96:4 149:18
 160:5,14 161:10
 169:18 264:13 265:22
 271:9 282:7 283:10
 287:16 289:22,22
 292:2 294:9,11
treatment 86:3 87:7
 89:8,15,17 90:13,18
 361:3
tremendous 214:9
Tremmel 368:2,3,5
trend 41:18 43:8
trends 43:3 44:16 51:11
triage 210:2,7
triaged 189:1
triaging 209:20
trichloroethylene
 151:14 174:15 175:1
 176:14 189:15
tricky 188:15 251:5
 288:22
tried 32:17 49:19 326:7
 369:12
trifluoroethylene
 375:19
trouble 35:1 123:8
 192:15
truck 361:22 362:22
true 74:7 76:4 98:14
 105:3,4 164:4 193:11
 201:5 324:14
truly 211:8
trunk 58:17 60:7
trust 115:7
try 18:22 53:7 67:16
 75:19 82:5 126:19
 139:17 144:5,8 158:7
 165:15,16 167:20
 168:5 209:17 229:6
 233:20 234:5 235:18
 243:8 255:5 271:14
 333:10 336:20 373:8
 375:12
trying 5:4 9:20 16:1,7
 18:14 38:8 51:5 52:22
 58:15 107:15 135:17
 136:8 161:20 166:17
 169:5 170:5,14
 188:15 210:9 244:6
 245:21 247:12 250:1
 297:4 320:13 324:2
 340:1 351:17
tube 328:10
Tuesday 1:7 153:4
tumbled 256:8
tumor 178:20,21 180:8
 357:17
tumors 274:18
tune 343:21
Turek 365:17
turn 152:13,22 168:20
 209:8 210:12
turned 58:22 334:7,21
 371:19 372:1
Turner 2:4 30:9 32:8
turns 58:3 149:2 256:16
tweaked 218:15
Twenty 330:15,20
twice 212:12 216:2
two 7:15 24:20 25:7
 26:5 29:19 32:12
 40:18 52:18,22 54:3
 55:1 60:2 64:12 75:18
 76:2,10 96:12 97:4,11
 98:2,7,15,20 121:7
 122:7 131:9 148:8
 164:19 167:11 172:20
 173:16,22 183:11
 194:11 195:1 196:18
 198:14 201:7 216:11
 220:12 225:11,16
 227:22 230:8,10
 237:19 238:10 259:21
 260:9 273:4 291:8
 307:9 314:1,17 318:5
 318:20 319:6,13
 330:15 337:13,17
 344:13 346:9 358:21
 365:10,11 367:21
 375:1
two- 314:12
two-fold 126:1 313:1
 314:20
twosies 212:17
tying 190:21
type 51:15 90:6 105:9
 148:9 172:9 180:20
 191:20 198:11 205:15
 211:18 212:6 224:17
 235:6 238:9 239:2
 243:20 253:6,22
 264:9 304:14 319:20
 355:13,14
types 8:8 62:9 126:11
 127:1 180:21 191:12
 192:3 232:21 243:15
 243:18
typewriters 360:5
typical 239:17 256:14
typically 103:14 173:7
 174:9 176:17 180:19
 184:15 212:21 235:5
 236:3,20 240:15
 241:2,10 244:2,11
 249:20 256:3 258:4
typing 360:6
Tyvek 370:15
-
- U**
- U.K** 177:16
U.S 340:15
ultimate 15:15
ultimately 53:18 206:11
 206:12 255:14
unassisted 60:18
unbelievable 363:12
unbroken 116:19
undergo 95:20
understand 5:22 6:2
 29:1 35:22 36:1 42:16
 50:7 85:20 106:6
 111:9 114:3 127:16
 143:11,12 162:8
 168:15 170:14 208:2
 274:17 285:1 296:5
 311:22 312:8 317:15
 319:11 326:7
understanding 66:10
 73:7,15 129:5 130:9
 167:1 254:11 284:14
 294:13
understood 5:8 82:21
undo 105:22
undone 106:8
unexposed 193:11
unfair 328:18
unfortunately 35:1
 187:21 251:22 290:4
 333:18 341:7 361:22
uniform 105:20 110:7
uninterpretable 80:12
 80:17 81:8,10,20
uninterpretables 81:2
union 97:13 369:8,9
unions 17:20 18:19
 19:4
unit 160:20
UNITED 1:1
units 352:17
unknown 305:22
unnecessarily 122:18
 123:11
unnecessary 88:6
 341:4
unprotected 93:12
unrealistic 143:9
unreasonable 117:20
unspecified 305:20
untie 164:19
untreated 307:15 308:8
unusual 8:21
update 143:18 146:16
updated 10:13 19:21
 130:15 362:20
upload 248:19
uploads 231:1
ups 43:4
upset 367:7
upstairs 282:22
uranium 66:4 157:7,10
 349:16 350:8 356:14
 356:14
urge 346:22 347:13
urged 182:10
urinary 179:9 291:21
urogenital 274:22
use 8:6 20:21 24:4 54:9
 58:20 64:20 79:3,6
 81:4 90:5 94:9 105:14

132:1 138:18 148:14
 153:2 158:20 171:8
 171:14 200:19 201:10
 201:11 209:16,19
 211:17 226:6 228:4
 235:8 238:4,8 249:1
 251:17 266:21,22
 280:9 287:15,15
 290:14 293:5,7 296:2
 313:17 315:19 321:15
 322:19 330:9 339:20
 349:5,8 350:15,15
 352:3 373:6 376:10
useful 11:14,19 14:16
 15:16,17 30:5 34:8
 136:2,19 161:5 163:4
 167:5 191:11 208:11
 215:4 216:5 217:9
 222:4,7 287:14 288:7
 288:7,15 289:1 302:9
user 221:21
uses 21:19 131:4
usually 16:14 24:10
 47:7 57:5 114:14
 132:21 173:12 182:18
 252:10 269:21 292:21
uterine 323:6 328:10
utero 193:5
utilized 264:10 273:8
 292:10

V

v 340:14
VA 133:19 134:3,5
 189:17 190:8 191:11
 191:22 195:21 274:10
 274:12 278:1,14
 279:5 280:17 282:2
 282:11 291:11 295:21
 296:6,15,15 299:15
VA's 296:2
vague 61:8
valid 60:20 134:5
 263:13
validating 231:17
valley 360:13
valuable 28:21
value 75:22 76:1 255:15
Vance 2:16 86:18 87:3
 87:3 88:8 142:17
 162:9
variability 43:6
variance 53:21
variation 75:17
varied 11:9
variety 99:4 125:17
 128:17 162:6 184:14
 207:20 374:8,9

various 91:15 96:6
 355:21
varying 19:1
vast 323:12
vat 351:2
vats 350:17,19
vault 360:2
VBA 278:8
VBP 99:5
veer 206:13
vehemently 289:20
vendor 88:13,22
Venn 13:19 17:5 19:22
 22:2
ventilation 376:6
venue 338:21
verbal 358:4
verbatim 278:5
verification 240:16
 243:15 251:1,12,17
 252:3
verifications 232:22
verify 251:9
versus 22:14 51:9 70:9
 71:21 74:22 135:15
 209:1 264:13,13
 268:16 337:12 346:18
veterans 189:20 295:11
vetting 211:4 212:2,3
Victoria 1:22 3:15 194:5
video 30:14,14 362:14
Vietnam 133:1 194:18
 295:20
view 306:5,13 326:8
vinyl 277:12
violating 139:18
visible 152:7
Vlieger 2:5 17:13 40:8
 40:16 53:14 73:18
 82:12,13 86:5 90:2,21
 96:8,9 99:2 100:12
 107:19,21 134:12,13
 137:10 141:22 142:1
 143:10 144:4 146:15
 152:14 153:1 156:8
 156:11 163:14 165:4
 171:1 172:2,6,8
 210:21 219:8 220:18
 224:1 225:8 242:11
 242:15 252:16 253:19
 254:5,22 261:15
 325:15 326:16 350:7
Voiding 291:20
volume 239:5 243:12
 247:9
vote 6:10,14,18 26:15
 149:17
voted 24:19 26:11

vulnerable 51:20

W

W 354:9
wage 54:8 86:13 87:1
 88:1 265:21 332:2
walk 356:22 375:6
walking 282:22 283:1
 290:22
Walt 327:8 347:20
wandering 83:8
wanted 25:6 28:10
 31:12 61:22 69:9 70:8
 83:17 91:14 92:6
 102:18 115:22 119:22
 120:18 125:3,12
 157:19 159:8 163:13
 172:12 194:7 195:2
 211:1 261:17 265:10
 266:4 267:17 276:18
 289:12 293:19 300:4
 300:13 301:1 333:19
 335:8,14 336:7
 338:16 375:15
wants 48:21 142:19
 265:4 326:13
War 329:15 338:17
 339:10 342:1 353:4,5
warehouse 255:21
 256:7,7,11
warning 103:16
Wartenberg 174:19
Washington 30:13 44:4
 107:15 338:13 339:17
 340:5 363:14 366:21
 373:7,13
wasn't 15:3 20:5 50:9
 64:9 74:6 156:3
 157:17 161:13 165:17
 217:12 268:18 269:22
 270:4 305:12 308:11
 364:15 365:21 366:11
waste 297:3 362:2
water 133:10 298:9
way 12:11 14:3,8 15:16
 21:10 23:17 27:4
 28:10 31:13 35:7 36:5
 36:11 50:19 53:10,15
 55:3 59:12,18,20 78:9
 78:11 80:13 82:15
 84:8,18 90:9 98:13
 104:10 105:11 109:8
 109:10,16,17 113:11
 113:13 116:7,8 117:1
 125:5 130:10 138:14
 140:3 145:4 153:12
 157:21 159:4,9 167:3
 171:15 197:6 202:19
 208:16,16 209:2
 214:13 215:3,4
 216:19 218:2 230:13
 237:18 253:14 255:14
 266:2 267:2 271:21
 276:20 278:7 281:12
 288:16,18,19 294:17
 294:17 301:14 306:4
 306:7 310:6 311:15
 313:4,6 322:3,14
 323:9 337:22 343:21
 344:8 345:14,18
ways 15:4 51:20 52:22
 80:22 102:13 110:17
 128:17 162:6 200:22
 209:5 215:20 227:4
 229:22 289:2 306:15
 339:13
weapon 348:21 350:3
 350:14 355:5,5,9,16
weapons 232:8 337:14
 339:8 350:11 356:15
 356:16 365:5
weapons' 341:3 357:5
wearing 356:2
web 15:5
website 34:12 96:15
 246:21 327:16 344:4
Wednesday 31:2
week 132:3 160:19
 166:5 225:12 328:8
 328:15,17
weekend 375:10
weeks 62:7 123:1
 187:19 225:11 344:13
 357:16,22 367:12,12
 367:21
weigh 111:5 266:5
weighed 96:10
weighing 3:15 60:16
 260:17 261:2
Welch 1:19 3:2,9 4:7,10
 6:12 7:7 8:13 12:18
 13:18 14:14 15:13
 16:3 20:2,9,20 21:13
 22:15 23:15 28:5
 30:16 31:7,18 32:9
 38:13,16 39:1,4,9,12
 39:22 40:7 45:19 50:6
 50:15 58:12 66:5,18
 68:6,12,17 75:14
 76:19 78:21 80:9
 85:18,19 88:3 91:4,9
 92:12 100:12 112:6
 112:10 117:14 122:14
 125:4 129:5,13,17
 130:4,20 136:21
 137:22 139:13 145:10

165:10 166:14,15,16
 168:9 169:21 198:13
 198:14 216:7 222:21
 227:14 284:12 292:19
 315:15,16 320:2
 324:9,11 325:2,8,11
Welch's 172:18
welcome 228:5,10
weld 349:18
welded 349:17
welder 349:17
welders 131:22 369:1
welding 186:7,13,16
well-trained 364:10
well-understood 322:2
 347:7
went 19:9 62:11 75:2
 91:2 109:13 133:6
 145:18 156:21 157:8
 157:13,16 159:2
 161:6 163:21 164:8
 166:17 171:12 175:20
 189:8 258:11,21
 265:19 268:6,17
 270:17 271:7 314:6
 327:18 332:8 334:2
 334:13 351:2 353:5,7
 353:14 355:7 357:10
 358:13 359:10 360:4
 362:2,12 363:3
 364:13 365:4 370:2
 375:7 377:7
weren't 22:21 45:1
 47:18 220:5 243:3
 298:4 313:15 334:20
 370:15 376:14
west 157:11
whack-a-mole 244:19
whatever's 220:9
whatsoever 349:22
Whichever 35:9
whim 133:20 335:12
white 330:6,13
Whitley 2:3 27:15 29:18
 80:1 131:2,3 146:15
 152:14 158:15
Whitney 281:9,12
who've 122:15
WHPP 335:16
wide 351:5 374:8,9
widow 361:11
wife 369:14
wiggle 141:4 320:1
willing 215:21
Winnfred 347:21
winning 255:17
wish 283:13 331:18
Wistar 179:22

withdraw 329:2 342:2
withdrawn 110:4
withheld 343:12
witnesses 335:21
wives 58:14
woman 30:12
women 30:11
wonder 215:6
wondered 53:11
wonderful 246:17,20
 337:20
wondering 47:13 142:3
 247:10 287:17
woo-hoo 249:7
word 124:8 153:19
 182:15 207:16 213:11
 291:16 315:18 339:20
 340:4,13,18 342:19
 344:2 346:17
worded 68:5,16
wording 70:19 83:12
 148:12
words 171:9 175:21
 181:18 208:16 214:22
 340:11 362:11
wore 368:14
work 7:2 8:9 12:12
 17:16 19:11 29:4 30:1
 31:13 46:2 69:3 72:21
 103:20 104:13 114:7
 123:3 131:1 138:20
 142:3,12 146:5,8
 151:1 152:12 164:3
 167:20 198:22 199:11
 210:9 211:19 212:5
 223:4 229:10,16
 231:19 232:9,14,16
 232:18 233:9 244:3
 244:18 245:11,13
 249:21 258:1 261:16
 261:19,20 262:19
 266:18 269:6 273:9
 283:6 336:20 337:14
 338:15 339:12 341:3
 351:7 353:7 355:2
 356:7 357:2,7 359:1
 360:4 363:3,6 365:18
 371:19 372:3,16
 373:12,12
work's 338:14
work-related 103:6
worked 7:1 16:15 17:17
 29:1 45:22 77:14
 88:21,22 96:1 115:5
 116:17 118:14 129:9
 131:9,14 171:7 198:8
 240:5,19 245:4
 248:14 251:3 333:8

334:17 336:22 338:6
 350:20 353:8,11
 354:10 355:5 356:19
 358:20 359:1,15
 360:16 361:12 362:3
 363:3 365:2,8 366:1,2
 366:3 368:5,19 369:8
 370:12,17,20 371:3
 371:15 376:6
worker 1:3 2:14 4:5 6:1
 7:2,12,13 8:21 9:8
 11:4,6 12:10 17:17
 18:4,9,11,14 21:18
 23:8 24:13,14 29:15
 30:6,9 43:21 59:1
 113:1 117:8 124:11
 129:6 135:3 137:8
 160:15 163:17,20
 164:2 223:9,15
 228:18 229:11,13,17
 245:18 246:11 247:6
 259:22 269:18 331:17
 333:7,13,20 338:19
 339:8 340:9 341:7
 345:18 346:6 347:3
 347:17 354:14 355:4
 360:19
worker's 6:3 85:7
 160:16
workers 7:3 9:1 11:7
 12:3 17:22 27:19,19
 28:12 29:8,11,17,21
 29:22 43:18 44:4
 66:22 67:6,10,13
 68:22 77:9,11,13,17
 79:5,15 96:22 100:16
 100:17,19 107:16
 108:21 113:7 115:8
 121:2,9 122:20
 125:17,22 126:2
 137:10,20 140:17
 177:15,20 186:22
 196:14,15,21 197:5
 198:3 199:14,17
 202:16 229:14 246:14
 246:15 252:21 301:4
 302:10 322:7 328:14
 329:4 330:11 332:1
 333:21 334:1 336:19
 336:20 339:2 340:2
 341:14 342:5 343:19
 345:2 347:16 348:6,7
 356:2,20 357:2 369:1
workers' 328:21
workforce 229:5
working 16:5 43:15
 67:3 88:13 93:1 95:4
 103:15 122:21,22

175:4 184:4 245:22
 248:11 252:5 267:3
 281:9 286:17,21
 295:12 339:5 356:9
 360:13 363:7 365:5
 367:16
workplace 95:1 103:17
works 335:22
world 173:17 353:4
worry 201:7,12
worst 44:1 216:4
worth 12:22 94:2
 192:12 199:21 320:19
Worthington 96:17
 228:16
Worthington's 229:2
worthy 41:18
wouldn't 107:14 114:7
 123:21 138:22 225:9
 307:19 311:4 333:17
wound 161:17
wow 39:15 257:10
wrap 352:8 367:9
write 70:11 142:15
 174:8 221:14,21
 284:16 292:3 326:10
 372:21
writing 160:18 221:17
 237:7 272:7 335:3
written 24:22 25:7
 67:16 82:15 130:10
 187:7 216:9 217:11
 217:13 290:7 296:10
 322:1,4 331:20,21
wrong 23:16 55:22 56:1
 94:15 164:12 204:4
wrong-headed 98:7,8
 98:22
wrote 339:18 340:5

X

x 144:2 205:15 248:4
 351:12
x- 23:1
X-10 228:9 371:15,21
 372:12,15,15,20
x-ray 59:11 65:15
xylene 123:9

Y

y 144:2
Y- 372:10
Y-12 228:9 231:3 336:5
 336:6 348:1,7,22
 352:11 353:14 354:5
 354:10 355:1 359:1
 360:18 361:20 362:15
 363:3 365:2 368:5

371:13 372:15,19
374:7
yea 213:11
year 36:14 38:11 40:22
41:8,10,12 45:8 50:19
54:19 66:3,4 90:4,8
97:22 108:15 149:20
219:15 240:6 243:12
244:8,8 245:1 257:9
298:2 317:16 336:5
340:16 347:22 358:17
359:6 364:13 365:10
370:17 371:3
years 15:8 36:12 43:22
51:9,10,16 54:21 69:2
90:13,18 98:18 103:3
103:15 107:8 121:1,3
121:5,7,8 122:21
123:2 129:9,20 131:5
131:13 132:4 138:3
163:18 164:3,19
182:18 201:13 220:2
220:3 230:7,21
232:10 234:7,8
236:22 238:22 255:7
255:19 281:8,12,13
297:7 308:7,8 316:16
317:17 319:4 322:1,3
328:8 334:8,18,20
338:7 349:8 350:9,10
350:12,12 353:3,3
354:6,10 358:22
360:7 361:13 364:12
365:9,17 366:3,10
369:9,18,20 370:20
371:4,15 372:14
373:19 376:21 377:1
yell 91:6
yesterday 4:7,10 27:15
119:7 203:20 213:16
226:11 228:8 233:18
258:15 338:16 361:10

York 322:7

YouTube 362:15

Z

z 1:15 144:2
zero 149:20 245:4

0

1

1-800-369- 327:14
1,000 101:9 104:8,10
220:1
1,316 245:4
1,564 245:3
1,700 329:16

1.1 181:14
1.2 312:17 313:4 314:19
1.26 178:5
1.3 174:21 175:17 323:8
1.6 174:21
1.66 181:13
1:00 145:16
1:05 145:19
10 52:6 62:3 129:9,20
131:13 255:7 301:22
305:7,13,18 313:10
313:10,10,16,18
314:2,6 315:1 376:21

10-year 116:19

10:24 91:2

10:45 90:22

10:51 91:3

100 27:10 168:19

303:21 313:13,18,21

343:21

108 344:3

11 131:5 331:6 344:15

344:18

11:54 145:17

110 298:8

112 3:8

12 58:14 313:20,21

314:1,6,7 362:13

372:11

12s 278:21

12th 262:16

13 330:4

14 29:16 125:7,8 126:17

150:20 151:5 240:16

267:8 272:19 328:8

363:20

146 3:11

15 82:9 139:15 157:8

240:7 249:2 255:7

322:3 353:3

15-06 3:7

150 241:8,12 250:18

252:9

1505 207:7

160 371:21

1609 333:11

17 364:11

17,000 14:5

17,600 244:9

1712 327:15

18 1:8 157:8 212:13

330:12

18,600 243:19 244:9

18,621 243:13

18th 147:2

1942 290:7

1943 335:2

1945 238:18 239:7

279:5
1953 368:6,10,15 369:5
369:7

1961 239:10

1963 360:4

1965 177:13

1966 334:6

1969 355:7

1970s 355:6

1978 298:20

1980 374:7

1985 178:11 351:9

1986 312:10

1987 297:7 334:7

365:19

1988 297:7

1990 117:13,16 121:10

129:10,20 131:6

138:4 374:7

1990s 297:9

1992 106:17,22 239:10

1993 63:7 71:9 73:9,15

84:19,21,22 134:1

145:3

1995 30:22 82:16 91:7

91:13 92:15 93:1,5

94:6,15 95:3,16,16

96:1 97:19 134:1

145:3 147:8 288:10

1996 106:20

1998 30:10

1A 190:18

1st 97:20

2

2 191:20 263:3 316:20

323:14 330:7 359:10

2,112 245:2

2.5 181:14

2.6 175:18 179:7

2:31 227:18

20 61:19 62:3 210:17

234:8 237:22 240:7

248:7 249:2,11 281:8

281:12 307:19 312:18

313:4,20 316:9,17,18

319:4

20.2 316:19

200 220:1 344:19,21

345:10,15 346:18

2000 174:19 295:11

323:20

2000s 297:10

2001 354:15

2002 178:12 328:13

2004 41:16 177:16

2005 41:15,16 239:7

2006 100:20 173:9

189:13 312:9,11
332:20 335:2
2007 179:3 365:17
2008 120:12 173:9
362:5
2009 125:19 364:7
2010 155:17
2011 354:16 357:15
2012 177:8 183:13
328:13 358:9
2014 92:4 155:14 175:6
181:2 238:19
2015 54:20 95:13 108:2
130:15 342:3
2016 1:8 155:20 181:11
20th 108:15
21 330:2
22 181:12 365:20
228 3:12
24 160:18 334:6
25 70:3 103:3 243:21
343:15 346:20
250 360:16
2500 367:14
26 212:18 361:12
261 3:15
27 178:7 249:10 330:11
365:9,17 366:3
28 39:16
2A 190:18 310:13,22
2B 310:13

3

3 310:14 330:14 351:12

3,000 242:1

3:01 258:21

3:30 258:19

3:32 258:22

30 122:21 132:6 234:8

240:6 244:9 297:7

307:20 316:16

30,000 125:17 329:12

32 3:3

326 3:16

35 300:1 330:10

36 354:5

377 3:18

39 371:15 373:18

4

4 3:2 310:15 330:17

4:56 327:18

40 322:1 349:8

40,000 339:11

40s 232:11

41 331:5

42 347:22

43 369:18

433 1:10
 44 354:10 358:22
 440.1 94:14 97:18
 450 329:17
 478 181:11
 49 336:5

5

5 249:10 323:10 331:1
 340:16 351:12
 5:00 259:3 273:19
 5:02 327:19
 50 27:10 241:1,7,11,12
 301:13 309:4,13,22
 311:13 318:16 322:12
 322:13 324:13 326:13
 332:18 338:7
 50s 232:11
 52 249:10 277:4
 5522817 327:15
 56 48:2
 5th 54:1

6

6:03 377:7
 60 45:12 231:6 244:4,7
 244:10 245:5 342:2
 60s 232:12
 66 48:2
 67 70:6

7

7 175:18
 70 362:6
 70s 349:19 373:11
 74 363:3
 75 312:11
 77 154:2 212:13

8

8:30 1:11 377:4
 8:40 4:2
 80s 94:13 110:21
 248:21 373:11 374:15
 850 238:19
 86 353:3
 87 351:9 365:10,12
 88 351:9

9

90 70:5 301:22 305:14
 315:2
 90s 94:13 110:22
 248:21 335:15
 91 3:6
 93 82:19,20,22 369:16
 95 92:4 97:20 100:4
 174:21 175:17 181:13

244:10 335:17
 97 99:6
 99 99:6

C E R T I F I C A T E

This is to certify that the foregoing transcript

In the matter of: Meeting of the Advisory Board on
Toxic Substances and Worker Health

Before: US DOL

Date: 10-18-16

Place: Oak Ridge, TN

was duly recorded and accurately transcribed under
my direction; further, that said transcript is a
true and accurate record of the proceedings.



Court Reporter

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701