

U.S. DEPARTMENT OF TRANSPORTATION

+ + + + +

PIPELINE AND HAZARDOUS MATERIALS
SAFETY ADMINISTRATION

+ + + + +

GREAT LAKES AND COASTAL ECOLOGICAL UNUSUALLY
SENSITIVE AREAS

+ + + + +

PUBLIC MEETING

+ + + + +

WEDNESDAY
JUNE 12, 2019

+ + + + +

The Pipeline and Hazardous Materials Safety Administration met in the U.S. DOT West Atrium, 1200 New Jersey Avenue, SE, Washington, DC, 20590 at 8:30 a.m., Steve Fischer, Senior Program Manager, PHMSA, presiding.

PRESENT

STEVEN FISCHER, Senior Program Manager, PHMSA
EROL ALAVI, Supervisor, Integrity Engineering,
Plains All American Pipeline, L.P.
HOWARD "SKIP" ELLIOT, PHMSA Administrator
BONNIE FREEMAN, President, FreemanGIS, Inc.
KAREN GENTILE, Community Liaison
LEIGHA GOODING, GIS Coordinator, PHMSA
SAM HALL, Senior Program Manager, PHMSA
ALAN MAYBERRY, Associate Administrator for
Pipeline Safety
CHRISTIE MURRAY, Director of Outreach and
Engagement, PHMSA

JACQUES ROTOLO, Engineer/Pipeline Compliance
Specialist, Louisiana Department of Natural
Resources, Pipeline Division
CARL WEIMER, Executive Director, Pipeline Safety
Trust

ALSO PRESENT

ELAINE LAN CHAO, Secretary of Transportation
HUNG NGUYEN, PHMSA Staff
ANNEMARIE ROBERTSON, PHMSA Staff

C-O-N-T-E-N-T-S

Welcome, Agenda Overview and Safety Briefing.	4
PHMSA Opening Remarks.15
Background and Strategy in Moving Forward.20
PHMSA Drinking Water and Ecological USA Update37
Questions for Consideration.80
Eco USA Panel Q&A Discussion	
Leigh Gooding.83
Erol Alavi98
Bonnie Freeman	105
Carl Weimer.	117
Jacques Rotolo	126
Final Remarks and Next Steps	130
Adjourn.	172

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

2 8:30 a.m.

3 MR. FISCHER: If I could ask everyone
4 to take their seats, please? Good morning.
5 Sorry for the echo, maybe I should turn down my
6 volume a little bit or step further back.

7 Is that better? Can you hear me okay?
8 Okay, good. Welcome to everyone that's joining
9 us here in person as well as all the viewers that
10 are watching via the webcast.

11 My name is Steve Fisher and I'm with
12 the U.S. Department of Transportation, Pipeline
13 and Hazardous Materials Safety Administration.
14 And we're glad that we've got probably about 50
15 or 60 people here in the audience this morning
16 for the USA section.

17 Sorry about that echo. Is it okay?
18 We'd like to kick off first by just having a very
19 brief safety introduction here. I know a number
20 of you probably have been at similar kinds of
21 meetings here at USDOT but this is the address of
22 the facility here.

1 If there is an emergency, you'll hear
2 an audible alarm and it will give instructions on
3 what the proper response is. So, if the alarm
4 does go off we'll wait and we'll hear what the
5 response is and what the directions are for how
6 we should respond.

7 If there's a call for shelter in
8 place, I think we're having good weather today so
9 there shouldn't be any problems with that.

10 But if we do need to shelter in place
11 and we need to be somewhere that we're not
12 underneath an atrium, we'll move back behind us
13 into the conference center and we'll provide
14 direction on that if something does occur.

15 If we have a medical emergency, Sam
16 Hall has agreed to call 911 and to work with
17 security to make sure that we're able to get
18 medical personnel in here as soon as possible.

19 Do we have anyone who is willing to by
20 volunteer who is CPR certified? Okay, well,
21 several of us, our certifications have run out
22 but we will do our best to attend to anyone who's

1 having any type of medical issue and get someone
2 here as soon as possible.

3 Hung -- where is Hung, there he is --
4 has agreed to get the AED, which is back behind
5 us. So, we'll be in good shape with that. And
6 if we have an evacuation, I've got a map here, in
7 a second I'll show you, but Christie Murray and I
8 -- I think everyone probably knows Christie.

9 Christie, if you could raise your hand
10 back there? Come out? Christie Murray and
11 myself will be leading everyone down to the rally
12 point, which is about a block away at the
13 fountain.

14 And then Sam Hall and Annmarie will be
15 doing a sweep through the room to make sure that
16 all of our participants have safely made it out
17 of the building and are moving to the rally
18 point.

19 Actually, it's set up the proper way
20 for this room so we're going to be heading out
21 this way to the Third Street exit and then going
22 to the south, we'll be to the right when you

1 leave the building.

2 Everyone should have received this
3 morning a copy of the agenda in the folders that
4 were handed out. Actually, that's fairly
5 visible. Or you could refer to the agenda.

6 This morning we are focusing our
7 discussion on USA definitions and we'll be
8 getting into those discussions, talking a little
9 bit about the background and how the Agency is
10 looking to move forward regardless addressing
11 those Congressional mandates.

12 Leigha Gooding will also be providing
13 a number of examples of maps and data that we're
14 considering so she'll be able to show some
15 illustrative maps of what we are considering and
16 discussing internally.

17 And then also we've shared questions
18 that we're looking to receive input on from the
19 panelists as well as from all of you that are
20 attending here in person, as well as people who
21 are viewing via the webcast.

22 We will break at about 12:30 p.m.,

1 we'll go to lunch, and then the afternoon session
2 will be focused on pipeline awareness and
3 engagement.

4 And I wanted to mention also, for the
5 viewers that are watching the webcast, if -- let
6 me just go back up here for one second.

7 The email address here on the front,
8 phmsa.pipelinesafety@dot.gov, if you're having
9 difficulties with viewing or hearing the webcast,
10 you can send an email to this email address.

11 It's being monitored here in the room.
12 Obviously, we can't address personal issues
13 related to your own individual computers but if
14 you're experiencing any issues, let us know
15 because that might give us the idea that we're
16 having wider issues that we need to address with
17 our excellent IT people that are here.

18 Also, then, if you have questions, for
19 those would be viewers you can send your
20 questions in as we go through this morning's
21 program, as well as the pipeline awareness and
22 engagement sessions.

1 You'll be able to send an email to
2 this email address with your questions, comments,
3 concerns. Those are also being monitored and we
4 will try our level best to get through as many of
5 those as we can when we get to the Q&A sessions.

6 If you haven't found them already, the
7 restrooms are located out behind you on this side
8 down the hallway, it will be on your left-hand
9 side. Everyone should have been issued temporary
10 Ids, it looks like everyone has them.

11 You need to keep those on while you're
12 in the building and to the degree possible you
13 should have a DOT escort before moving around the
14 building.

15 So, likely what will happen when we
16 break, if anyone needs to go over to the
17 cafeteria for something to drink, we can have
18 somebody escort a group over there so they can
19 get what they need.

20 And we'll do the same thing probably
21 at lunch, have some DOT escorts escort a large
22 group over so that we're trying to kind of keep

1 everyone together.

2 If you haven't already, please silence
3 your mobile devices and I've already addressed
4 the next point here regarding the webinar
5 participation. Please send us your comments and
6 your feedback, we want to hear from you.

7 I think we've got a total of about 87
8 people that have registered for in-person, so
9 obviously not everyone is here this morning which
10 is what we assumed. We probably will have a
11 little bit larger of attendance in person this
12 afternoon.

13 And then I think we have about 140
14 people who have registered to view online. And
15 also, as we go through the day, and this is for
16 the people who are watching via the web, you'll
17 see that there are eight different sessions.

18 So, this morning's session that you're
19 watching now is Session Number 1. After break,
20 there is a Session 2, so when we come back from
21 break and I'll have a queue here.

22 Actually, it will be on one of the

1 Leigha's slides, there is a queue and a reminder
2 that when we come back from break you'll want to
3 start viewing the webinar using the Session 2
4 video screen that you see on the page.

5 And on the meeting registration page,
6 it contains the agenda and all the pre-reads that
7 we've asked the panelists to review.

8 So, if you're interested in looking at
9 any of that information, please go out to the
10 meeting registration page to find those documents
11 out there.

12 We strongly encourage your comments
13 and input and active participation. We're hoping
14 to have a lot of good feedback, both in this
15 morning's session as well as the sessions on
16 pipeline awareness and engagement.

17 If you would, please hold your
18 comments until we open the floor for Q&A, and
19 we're going to have a couple of our community
20 liaisons that will be walking around with
21 microphones.

22 So, please wait until they can get to

1 you. We'll select you, we'll identify you. When
2 you raise your hand, they'll get a microphone to
3 you and then you can ask your question.

4 That way, everyone here in the room
5 and also importantly, everyone on the video
6 watching the webinar will be able to hear your
7 question.

8 Please state your name, company, and
9 organization if you have an affiliation with
10 someone. If you're just with the public, that's
11 fine, you're with the public. We ask that you
12 please keep your remarks brief, to about three
13 minutes or so.

14 We want to make sure that we're able
15 to get through everyone that has comments. If we
16 don't get to all of your questions and there's
17 time, we'll come back and you can remind us and
18 we'll try and get back and make sure that we
19 answer all the questions that you have.

20 We also ask that you please engage in
21 civil discourse. We're all adults here, we want
22 to have a productive meeting and I'm sure that we

1 will.

2 But just so that we're clear, if
3 there's any disruption, any disruptive
4 individuals, we will have to ask security to help
5 and escort you out. So, I don't suspect that's
6 going to be a problem but just so that we're all
7 on the same page.

8 And also, this is the PHMSA docket
9 number for the USA definition that we'll be
10 discussing today. If you have any comments and
11 wish to put them on the docket, this is the
12 docket number that you'll need.

13 So, at this point, I'd like to ask
14 Alan Mayberry, Associate Manager for Pipeline
15 Safety to come up, please.

16 MR. MAYBERRY: Thanks, Steve, and good
17 morning. I think they've taken care of that echo
18 for the most part. It's not quite like talking
19 on a bad cell phone but thank you for that, for
20 working through that.

21 Anyway, again, good morning. Thank
22 you for being here and also for those of you on

1 webcast, thank you for joining us today.

2 Meetings like this are very important
3 for we at PHMSA as we go through what we call the
4 sausage-making of policymaking. And we find
5 that, and a common theme is, as I talk to many of
6 you, that words matter.

7 We need to get it right, we need to
8 get it right the first time and so that's what
9 we're after. So, thank you to help us get there,
10 to get it right for your participation.

11 And like Steve said, it's very
12 important that you do participate and give us
13 your comments. There's no bad comment and so
14 please participate and make your thoughts known.

15 Some people don't like really raising
16 their question in public. That's not a problem,
17 you can put it on the docket or you can slip the
18 question to one of your neighbors over here.
19 There are a variety of ways to do that.

20 But anyway, without further ado, let
21 me introduce my boss, the Administrator of the
22 Pipeline and Hazardous Material Safety

1 Administration. Please join me in welcoming Skip
2 Elliott. Thanks.

3 (Applause.)

4 MR. ELLIOT: Well, good morning,
5 everyone. I promise you two things. One, I will
6 come in under the three minutes and two, I will
7 not provide any civil discourse.

8 But I am glad to see that Steve
9 finally smiled, so that's a good thing to do.

10 I wanted to add on behalf of my boss,
11 Secretary Elaine L. Chao, our formal welcome to
12 the Federal Department of Transportation Building
13 and, as we affectionately call it, the West
14 Atrium, well-known for its acoustical problems.

15 But I hope you all have a good and
16 productive day.

17 I think before I just provide a few
18 formal comments about what we're doing here
19 today, it's only appropriate to pause for a
20 moment and remember that it was 20 years and two
21 days ago that a horrible tragedy occurred in
22 Bellingham, Washington that resulted in the death

1 of three young men.

2 I have been on this job coming up on
3 two years and as I told Carl Weimer, if there's
4 one poignant moment in the almost two years I've
5 been here, it was the trip that I took to
6 Bellingham last year and standing in the park and
7 listening to one of the city employees who was
8 there that day 20 years ago talk about the
9 events.

10 And it's almost every week that for
11 some reason I'm giving a speech or I'm having a
12 discussion with my staff that that conversation,
13 that story that that employee 20 years later, or
14 19 years later, how that resonated with me.

15 And it also reminds me each and every
16 day to remember that the primary mission of
17 PHMSA is safety and we will continue to do
18 everything that we can each and every day to
19 improve the safe transportation of energy
20 products and other hazardous materials that we
21 move in this country.

22 And this forum allows us to do that

1 because if we're not willing to be open and
2 listen to all stakeholders, then we're never
3 going to be able to keep moving in the direction
4 that's going to help us improve our safety.

5 I was just looking at my notes here
6 and I think I'm going to kind of skip right to
7 the end here.

8 So, I'll get to a few bullets that I
9 think are important about how today's meeting is
10 an important step as we determine how to best
11 define and map areas that are identified as
12 ecological, unusually sensitive areas.

13 And whether you're sitting here in the
14 audience or joining us via the webcast, and hello
15 to you joining us remotely, we appreciate you
16 taking the time out of your busy lives to
17 participate in this important discussion.

18 All of you, and I want to underscore
19 the fact that it's all of you, will have the
20 opportunity this morning to provide your input,
21 concerns, and maybe even support as we talk today
22 about how PHMSA plans to address this 2016

1 pipeline's mandate.

2 And there's one thing that we've just
3 reintroduced -- well, we've just introduced our
4 part of a pipeline reauthorization bill last
5 week.

6 And getting ready for the introduction
7 of that bill and reauthorization, I had the
8 opportunity to participate in a number of
9 hearings.

10 And one thing I think was very front
11 and center is that PHMSA needed to do a better
12 job of moving to close our open mandates that go
13 back not only to the 2016 PIPES Act but the 2011
14 PIPES Act as well, and we've been working hard to
15 do that.

16 With regards to this meeting, we've
17 also created a docket and I think Steve talked
18 about that. And we encourage you to submit your
19 written comments. We also plan to transcribe
20 this meeting and post the court reporter's notes
21 and all the presentations that you'll see today.

22 And I think I'm messing up your

1 computer here so I'll do this. I hope the
2 presentations you'll here today, both from PHMSA
3 staff and external speakers, will be informative.

4 I also hope that you don't hesitate to
5 share your thoughts and expertise because it will
6 help inform PHMSA decision-making as we work to
7 meet the USA ecological resource mandates in the
8 PIPES Act of 2016 and enhance the safety of our
9 nation's pipeline system.

10 So, your active participation is
11 critical.

12 I've been on the road the last three
13 weeks at a number of speaking engagements and one
14 of the things that I have mentioned in each one
15 those speaking opportunities is the importance of
16 public meetings that we hold such as this.

17 Our federal advisory groups, both the
18 liquid, the gas, we have a new one on the HAZMAT
19 side that's going to deal with lithium batteries.

20 But again, in my relatively short time
21 as PHMSA administrator I've got one observation
22 that I think by far and away helps us understand,

1 helps us better understand, all the concerns, all
2 the issues, and to hear all the points of views
3 from all stakeholders as we look to do
4 rulemaking.

5 So, I can't underscore enough the
6 importance of your participation today and I hope
7 to get back on and off over the next couple days
8 to sit in and listen to that.

9 So, without any further ado, please
10 accept my thanks for your participation today. I
11 hope you find that PHMSA Staff will be engaging
12 and helpful as we go through this process, and
13 thank you for your very good work.

14 MR. FISCHER: Thank you, Skip and
15 Alan. Sorry, I'm not one to smile a lot when I'm
16 doing a presentation so if I look angry, I'm not,
17 just know that.

18 And also, I think that we're going to
19 have index cards. Do we have index cards back
20 here? We do, and over here.

21 So, my experience in over 20 years
22 working in the pipeline safety industry, I know

1 that there are a few shrinking violets in the
2 crowd generally.

3 But if there are and you would prefer
4 submit some written questions as we go through
5 this morning as well as through the remainder of
6 the program this afternoon and tomorrow, we have
7 some index cards back on the back tables if you'd
8 like to grab some, jot down some questions.

9 You can give those questions to anyone
10 back here at the table here or back on the other
11 side and in the middle.

12 We've got PHMSA personnel all along
13 the back so you can turn those cards into them,
14 and we will get to those then when we do the Q&A.

15 So, the session I'd like to talk about
16 next is doing a little bit of a background as
17 well as talking about some of the next steps as
18 we look to address the Congressional mandate.

19 So, just for some background, as many
20 of you, I know several of you that are here in
21 attendance were at the 2017 public meeting that
22 we had.

1 That was really an initial discussion
2 to try to understand what is meant by coastal
3 marine waters and coastal beaches.

4 It was also meant to understand how we
5 might potentially define those, what data may
6 exist that we could use to map those areas, if
7 there were existing definitions that other
8 federal agencies used to define these areas.

9 Because certainly, we don't want to
10 reinvent the wheel if at all possible.

11 So, it really was that initial
12 discussion to understand collectively from a
13 various of SMEs, both in the private sector as
14 well as with other federal government agencies,
15 what existing data is out there that we may want
16 to consider.

17 And so as Skip mentioned, today's
18 meeting really is to follow up on that initial
19 discussion.

20 We'll lay out for you in several
21 presentations coming up the efforts we have made
22 in analyzing data and sources that were

1 recommended to the Agency in that 2017 meeting.
2 And we'll have maps showing what we've been
3 considering.

4 I think that we have narrowed down in
5 some ways the best data sources that we believe
6 are going to fit the bill. But when you're
7 dealing with GIS data and when you're look at how
8 it's defined in regulations, there's lots of
9 details that have to be worked out and
10 considerations regarding the data, the accuracy
11 and so forth.

12 So, we'll be talking about those kinds
13 of issues this morning. This has been an ongoing
14 learning process for us. Following the 2017
15 public meeting, we conducted an internal data
16 pilot project, which we'll talk about a little
17 bit.

18 And ultimately, it is in trying to
19 understand how best to define these
20 Congressionally-identified, ecologically
21 unusually sensitive areas. This is really
22 sensitive.

1 And last but not least, it's
2 implementing the plan on moving forward to
3 identify these areas and start mapping them and
4 fulfill the Congressional mandate. So, this is
5 the actual mandate here.

6 It's from Section 19 of the PIPES Act
7 of 2016 and Congress instructs to the Secretary
8 to explicitly state that the Great Lakes Coastal
9 Beaches and Marine Coastal Waters are USA
10 ecological resources.

11 As you know, we already have
12 identified ecological USAs. We have drinking
13 water USAs.

14 The current ecological USAs that are
15 defined in the regulations in 195.6 are very
16 species-focused, looking at threatened endangered
17 species, critically imperiled species.

18 So, that's really the focus of
19 ecological USAs within the Agency to date, at
20 least what's been defined in the regulations.

21 So, this is a bit of a different
22 approach to what else may be included as

1 ecological USAs and that's really what we have
2 been struggling with as well as evaluating the
3 data that we'll be laying out for you this
4 morning.

5 Some of the input that we received in
6 the 2017 public meeting, there was a lot of
7 discussion about how the Great Lakes are mapped
8 already as commercially navigable waterways.

9 But when you look at -- we call it
10 CNW, commercially navigable waterways -- that
11 data, when you're dealing with areas that are
12 open waters such as the Great Lakes as well as
13 the Gulf of Mexico, you see a bunch of lines.

14 And rather than the entire Great Lakes
15 being portrayed as a USA, you instead see a bunch
16 of lines and there is concern, confusion that the
17 Great Lakes possibly are not being represented to
18 the degree they should be in their entirety as a
19 USA.

20 And so that's one of the things we'll
21 be talking about.

22 And then when you get into talking

1 about Coastal Beaches and Marine Coastal Waters,
2 some of the feedback that we received was
3 suggestions, recommendations that we should be
4 including wetlands when we're talking about
5 Marine Coastal Waters.

6 There's also the question of how far
7 inland should a USA, a coastal area's area USA,
8 how far inland should that come? The other
9 question is how far out should that area be to
10 open waters to sea.

11 So, these are recommendations but
12 there are also just a lot of additional questions
13 that came up. And that's good because it just
14 means there are additional things that we need to
15 evaluate to determine and define what we mean
16 when we perceive these coastal areas.

17 There's also quite a bit of discussion
18 from the federal agencies that participated with
19 support for NOAA Environmental Sensitivity Index,
20 ESI data.

21 And we've been evaluating that
22 information and I think probably even during the

1 public meeting it came up for discussion.

2 We certainly have been evaluating the
3 data following the public meeting and there are
4 some concerns about the availability of data
5 because when we're looking at data, we're looking
6 at national data sets.

7 So that's always a challenge in that
8 that's the requirement that we have, to be able
9 to identify data nationally.

10 And so often times that limits what
11 information we may have access to because if it's
12 for a specific state, that's not going to help us
13 out when we're charged with providing nationally
14 available HCA information for operators to use
15 for integrity management.

16 And then the other potential issue
17 with the ESI is that there is the potential for
18 in the future that as NOAA makes modifications to
19 the data, it may come to include additional
20 waterways that may not fit how we've defined a
21 coastal area USA.

22 Or that it may include additional

1 areas that don't meet the definition that we've
2 defined or that there are areas that we really
3 don't believe should be included within a marine
4 coastal waters USA.

5 So, just some issues that we've been
6 discussing based on the feedback that we received
7 at the public meeting.

8 I've already talked a little bit about
9 the marine coastal waters as far as to what
10 degree should we be including wetlands and marine
11 coastal waters definition as well as to what
12 degree should offshore areas be included in a
13 definition?

14 Coastal beaches, ESI, there is ESI
15 shoreline data that actually categorizes
16 geographic features as beaches, and it's fairly
17 detailed.

18 There's a number of types of beaches
19 that are identified within the data but once
20 again, what came out of the public meeting was to
21 what degree should environmentally sensitive
22 areas adjacent to those beaches be included in

1 that beach-defined geographic area?

2 And then the other issue is what's the
3 intent of Congress? Was Congress's intent that
4 we should be identifying beaches and marine
5 coastal areas that are primarily for recreational
6 activity?

7 Or should it be a much broader
8 definition of these coastal areas to include, and
9 protecting, a wider variety of coastal beaches
10 and marine coastal areas in addition to those
11 that are just used primarily for recreational
12 purposes?

13 And then finally, the last issue is
14 should we be looking at limiting mapping of the
15 Great Lakes Coastal Beaches and Marine Coastal
16 Waters to those areas found to be unusually
17 sensitive?

18 So, is the Great Lakes in their
19 entirety, should that be a USA? Should all
20 coastal beaches be USAs?

21 Or should it be a subset of those
22 areas that are based on some criteria to be

1 unusually sensitive and those are the areas that
2 we should specifically focus on?

3 So, those are some of the questions
4 that came out of that 2017 public meeting and
5 that we have been having ongoing conversations on
6 since then.

7 In 2018, we conducted an internal
8 pilot project and there were really three primary
9 purposes of this pilot project. One was an
10 effort to create and maintain new GIS data that's
11 going to reflect these potentially new USAs.

12 And of the data that is available to
13 potentially reflect these geographic areas, what
14 is the quality of the source data, and how well
15 will that data support potential definitions that
16 we may use in defining Marine Coastal Areas and
17 Coastal Beaches?

18 The other thing that I have focused on
19 given the feedback that we received at the 2017
20 public meeting was we wanted to compare the ESI
21 shoreline data with the 2018 ecological USA data,
22 which Leigha will be talking about shortly, which

1 will be coming out this summer.

2 But we wanted to compare that ESI
3 shoreline data with the 2018, the new 2018,
4 ecological USA data to identify what percent of
5 the shoreline in the ESI is actually classified
6 with this 2018 data as an ecological USA?

7 So, where is the overlap between the
8 ESI and the 2018 eco data? And the findings are
9 that about 59 percent in the lower 48, there was
10 an overlap between that shoreline currently --
11 well, with the 2018 data -- being covered by an
12 ecological USA.

13 And then we factor in Alaska, we're at
14 about 54 percent. So, just slightly over half of
15 that shoreline area will be covered by ecological
16 USAs when we release the 2018 data.

17 Leigha will have a number of sample
18 maps that she'll be showing during the
19 presentation so I think that'll help once you
20 start seeing some of those sample maps.

21 And also when we talk about the
22 specific questions I think that it will help in

1 understanding the challenges that we've been
2 investigating and evaluating.

3 And then all of this information, just
4 as we used the information from 2017, the
5 information that we receive from this public
6 meeting, from comments that we receive on the
7 docket, we'll be taking all that information into
8 account as we move forward onto the next phase of
9 addressing the Congressional mandate.

10 And all this just helps to inform our
11 policy decisions. So, the first point is that
12 PHMSA's plan is to update the National Pipeline
13 Mapping System and if the Great Lakes as an
14 ecological USA.

15 The Great Lakes are a defined, known
16 entity. They're identified by the U.S.
17 Geological Survey, which is a federal agency,
18 highly regarded for their mapping of geographic
19 features.

20 So, the Great Lakes aren't such a
21 difficult issue because they're known. You say
22 the Great Lakes, most people know what that

1 means. But there are still some remaining
2 questions, we'll be getting to these this
3 afternoon, or this morning I mean.

4 So, as I mentioned previously, we
5 don't want to reinvent the wheel. So, if there's
6 current regulations that define what the Great
7 Lakes are, ideally that's what we want to use.

8 And so we're looking at 33 U.S.C. 1268
9 definition of the Great Lakes, which includes the
10 Great Lakes as well as all of the connecting
11 waters. So, all of the rivers as well as I think
12 Lake Sinclair around Detroit.

13 All those features in where the Great
14 Lakes water is ultimately running from Lake
15 Superior all the way through to the Saint
16 Lawrence Seaway, it includes all of those
17 features, all those water bodies.

18 And so the question is should PHMSA be
19 considering both the Great Lakes as well as all
20 the connecting waters when we define the Great
21 Lakes USA?

22 Or as Congress stated in the 2016

1 reauthorization, the mandate, they said the five
2 Great Lakes. So, there is the potential that we
3 could define the five Great Lakes and not include
4 connecting waters.

5 So, that's another question that we'll
6 be getting to as we go through the panel
7 discussion today.

8 And then the mapping of connecting
9 waters poses a little bit of a challenge because
10 we have been researching and trying to identify
11 national data sources, such as USGS, to map those
12 features.

13 Because when we have evaluated, and
14 Leigha will get into this in a little bit, but
15 when we evaluate the Great Lakes' geospatial data
16 available from USGS, it is the five Great Lakes.

17 It's not including these connecting
18 waters and I think it is reasonable that we
19 probably would want to include connecting waters
20 when we're talking about the Great Lakes, given
21 the fact that you have water that, as I said
22 earlier, is going from Lake Superior all the way

1 through.

2 So, another question.

3 So, as we move forward, we'll be
4 taking all the information that we receive today
5 in addition to information on the docket and sort
6 of going through and analyzing and synthesizing
7 the feedback that we receive.

8 So we're really looking forward to the
9 panelists' discussions this morning.

10 I know that we'll be having a wide
11 variety of presentations that we've received so I
12 think it will be a good discussion covering a
13 wide array of issues related to both defining
14 these new USAs as well as more on the technical
15 GIS side and actual data sets that exist, and any
16 limitations with those data sets.

17 So, it should be a good, well-rounded
18 discussion.

19 So, next steps, like I said, we'll
20 want to map the Great Lakes as USA ecological
21 resources as soon as we settle on exactly what
22 that is to include.

1 We'll continue investigating and
2 evaluating the data recommendations that we
3 receive out of the input that we get today, as
4 well as what we receive online.

5 And then we'll move forward with
6 defining and mapping the Coastal Beaches and
7 Marine Coastal Waters as USA ecological
8 resources, and everything that will be related to
9 defining those definitions and incorporating them
10 into the regulations.

11 So, thank you, that concludes my
12 remarks for everyone who has joined us via the
13 webcast. This is the email address that you can
14 use to submit any questions you may have and we
15 encourage you to do so.

16 What we're going to do is now go ahead
17 and have Leigha come up, do her presentation, and
18 then we'll entertain all your questions following
19 that.

20 And we'll have up until the break,
21 which is at 10:00 a.m. for Q&A, so I think we're
22 going to have plenty of time for a good Q&A

1 session after her presentation.

2 Okay, thank you.

3 MS. GOODING: All right, hello, good
4 morning, thanks for joining us. I'm Leigha
5 Gooding, I'm the GIS coordinator here at PHMSA.

6 I work specifically with the National
7 Pipeline Mapping System and I'm going to go
8 through a couple things today, mainly giving you
9 an update on the newest data that's coming out
10 for drinking water and ecological USAs.

11 But I'm going to start with a quick
12 overview of what the NPMS is, what public
13 resources we have available, how you can use our
14 system, and some of the USA/HCA data that we
15 currently have.

16 I'll go into the updates on both the
17 drinking water and the ecological data that's
18 about to come out soon.

19 And then I'll go through a little bit
20 of the existing coastal area coverage comparisons
21 that we did with the new 2018 ecological data.

22 So, quickly, to start with the NPMS

1 and what it is, the National Pipeline Mapping
2 System, the NPMS, I believe most of you here have
3 probably heard of it but it is a GIS database.

4 We have a lot more than just pipelines
5 in the NPMS and I'll go over that in a second,
6 and we are part of the PHMSA's Outreach and
7 Engagement Division.

8 This map here is actually a completely
9 public map that you can download on our website,
10 and I'll point that out in a second.

11 So, the main data sets that are
12 included in the NPMS include groups of data that
13 we collect from pipeline operators directly, as
14 well as data that we produce here at PHMSA.

15 We collect Gas Transmission, Hazardous
16 Liquid Pipelines, and I've listed the regulations
17 where you can find the requirements for
18 submitting this data. We also collect Liquefied
19 Natural Gas Plants.

20 Breakout Tank point locations are
21 submitted on a voluntary basis at this time.

22 We also collect and map Accident and

1 Incident locations, but here at PHMSA we also
2 collect data from other sources other than the
3 pipeline operators to map all the high-
4 consequence areas including the unusually
5 sensitive areas.

6 We also build a database of pipeline
7 history and we map inspection boundaries to
8 incorporate a lot of our internal inspection
9 records geospatially into our system for some
10 spatial levels of analysis.

11 This is just a snapshot of the
12 homepage for the NPMS website, you may recognize
13 it. I really want to point out that we have
14 three different types of users broken up on our
15 website.

16 We have our government officials, the
17 pipeline operators, and then the general public.
18 The green box above and all those green arrows,
19 those are pointing out the resources that are
20 available to absolutely anybody who goes to our
21 website.

22 This includes the public map viewer

1 and an iPhone app for the public map viewer. You
2 may be familiar with this.

3 You pick one county, you can see
4 pipelines for that county, you could zoom into
5 about 1 to 24,000 before the pipelines disappear.
6 You could see some other information, you could
7 search your address, see if there's pipes by your
8 home, et cetera.

9 We also have a spatialized directory
10 where you can search for operator contact
11 information based on where they operate
12 pipelines, by zip code, county, or state.

13 And then we have a couple of different
14 types of data and maps that you could just
15 download.

16 One is that map that I showed you a
17 couple of minutes ago, and then we also have
18 lists of information about pipelines broken down
19 by county, as well as pipelines broken down by
20 offshore areas.

21 You could read about what the name of
22 those pipelines are, what they carry, the

1 diameter of those pipelines if that is submitted
2 -- that's a voluntary attribute at this time --
3 et cetera.

4 So, we try to distribute information
5 not only in spatial ways but also in tabular
6 ways. You can take that data, put it in Excel
7 and do some of your own analysis.

8 Below, there's of course the link to
9 the NPMS website and over in the blue box are the
10 resources that are restricted to both the
11 government officials and the pipeline operators,
12 including namely PIMMA, which is Our Pipeline
13 Information Management Mapping Application.

14 This, instead of allowing the user
15 just to select one county at a time, we actually
16 have vetted you and we've given you access to the
17 pipelines in your jurisdiction, being that your
18 county, your state.

19 If you're a Federal Government
20 employee and you need to see everything, you see
21 everything. There is an iPhone app for PIMMA.
22 As well, you can request GIS data to make your

1 own maps.

2 And just a little bit more into the
3 HCA/USA data that we already distribute and the
4 data sources that we've used, both the high and
5 other population areas are based on data we
6 collect from the U.S. Census Bureau.

7 The commercially navigable waterways,
8 that data is the national waterway network that's
9 collected from the U.S. Army Corps of Engineers.

10 And currently, the ecological USA data
11 and the drinking water USA data, they are
12 produced and the eco USA data is actually
13 produced from a data source from a company called
14 NatureServe.

15 And the drinking water unusually
16 sensitive data that is produced by both EPA and
17 state data sources, and I'll get into that a
18 little bit more in a minute.

19 But I've also listed the parts and the
20 regulations here where you can see these
21 definitions if you do want to look into them.
22 And quickly, just ways that you can currently

1 access HCA data, three primary ways.

2 One, GIS data, for those of you who
3 actually use GIS systems out there, I know that's
4 always your preference, both the HPAs and the
5 OPAs, that stands for the high-population, other-
6 population area data, those are public JS data
7 downloads as well as the CNWs.

8 However, the eco and the drinking
9 water USAs are restricted when it comes to the
10 GIS data. And I'll go through that process in a
11 minute about how to request that.

12 Next, we have our PIMMA mapping
13 application, that's the one restricted to the
14 Government and pipeline operators.

15 There you could see the HPAs and OPAs,
16 however, you will no longer be able to see the
17 ecological or USA drinking water data layers on
18 PIMMA once we distribute this newest update that
19 I'll talk about in a second.

20 And last, the public map viewer,
21 everybody can see the HPAs, OPAs, and CNWs on
22 there as well. I already mentioned that the HL

1 operators, the Hazardous Liquid operators, are
2 the only ones permitted to request this data.

3 All right, so now I'll jump into the
4 actual update, the recent update, for the
5 drinking water USA data. This was just delivered
6 to us last week, the final pieces of it. It's
7 been a very large project.

8 It will be available to all Hazardous
9 Liquid operators who operate hazardous liquid
10 pipelines this summer. And you will be notified
11 through a mass email.

12 We'll send that out to every Hazardous
13 Liquid pipeline operator listed as a primary
14 contact in our NPMS database. So, this email
15 should be going to your GIS or your mapping
16 departments.

17 I do want to stress that consultants
18 cannot initiate a data request, that has to come
19 from an employee of the pipeline operating
20 company. That is not a new requirement.

21 And we will be continuing to
22 distribute this type of data by state. So, we

1 will have to validate that you operate hazardous
2 liquid pipelines in the state before that data is
3 released.

4 So, there will be detailed
5 instructions for how to request the new drinking
6 water USA data. We're calling that the 2019 DW
7 data, it will be on the NPMS website.

8 This is actually the link where
9 currently the existing procedures are listed and
10 that will be updated very shortly for the
11 distribution this summer. I'll do a quick review
12 of the process.

13 First, the operator, after you receive
14 the email telling you that the data is ready for
15 distribution, you come to our website and you can
16 see information about how to make the request
17 email.

18 So, the operator will send the request
19 email, PHMSA will go through an employment
20 verification and verify your applicability for
21 the data.

22 Next, the operator will need to sign

1 and return data-use agreements to PHMSA, and
2 last, PHMSA will deliver that data to you by a
3 secure FTP download.

4 So, you will not have to wait for data
5 in the mail or anything like that, we will be
6 sending that to you rather quickly.

7 The drinking water update for 2019
8 does include data for all 50 states, plus the
9 District of Columbia and Puerto Rico.

10 The metadata about the information
11 that was produced for every one of these states
12 in D.C. and Puerto Rico is actually available to
13 the public and can be pulled from the NPMS
14 website.

15 And again, this information will not
16 be displayed on PIMMA or the public viewer moving
17 forward.

18 Since I unfortunately really can't
19 show you maps of the drinking water USA data
20 because of the sensitivity of the data, I did
21 want to tell you a little bit about how it looks
22 and how it's changed.

1 When we ran some analysis with the
2 2001 drinking water data, we found about 18,800
3 miles of hazardous liquid pipes in the NPMS that
4 intersect those areas.

5 When we ran the same analysis with the
6 2019 data we just finally completed last week,
7 we're finding out the intersections are only
8 about 11,600.

9 So, there was a decrease in the
10 mileage but remember that these are
11 intersections. They could affect mileage so
12 those numbers are going to larger when you
13 consider how many miles could affect a drinking
14 water USA.

15 Some of the reasons for the changes,
16 first of all, back in 2001, the data really came
17 from the EPA and during a data pilot project that
18 was done a few years ago when updating this
19 information, we learned that the EPA data was not
20 maintained in the way necessary and the way that
21 we were hoping in order to update the drinking
22 water USA data.

1 So, we ended up going directly to the
2 states and pulling data from state databases. Of
3 course, every state may do it a little bit
4 differently so it took some massaging and
5 processing to get the whole national data set.

6 And we fell back on some EPA data when
7 states did not have available data at the level
8 that we needed.

9 Moving onto the ecological USA data
10 update, this data was delivered to PHMSA in 2018
11 and we even started the early distribution pilot
12 in 2018. So, there may be some operators here
13 that already have that data in hand.

14 Generally, anybody who reached out to
15 us, anybody who we were speaking to, expressed
16 interest, we asked them if they would be
17 interested in being part of our pilot because the
18 data request process for the ecological data is
19 different this time.

20 There's some specific training that
21 needs to be completed so we really do appreciate
22 those operators who reached out, went through the

1 bumps of going through that process the first few
2 times, and we shared the data with them already.

3 But it will be available to everybody,
4 just like the drinking water data, this summer.
5 Again, there will be an email that goes out to
6 all the NPMS primary contacts, so it will be your
7 GS and mapping departments that are notified.

8 Consultants cannot initiate the data
9 requests and again, only operators that can be
10 verified to have Hazardous Liquid pipes in that
11 state will receive that data, and that hasn't
12 changed. Detailed instructions will be on the
13 NPMS website.

14 And just a quick overview of the
15 actual request process. Similar to the drinking
16 water data, the operator sends the email request
17 to PHMSA, however, what's different is that the
18 operator needs to include a list of every single
19 person who's going to use the data.

20 This is going to include not only the
21 operator employees who actually use the GIS
22 systems, do the analysis, produce the maps, but

1 also your consultants.

2 So, PHMSA will be verifying the
3 requester's employment and applicability for the
4 data to determine what states they can receive
5 data for.

6 And then the operator in every single
7 one of the users listed will have to complete
8 NatureServe's online training and agree to their
9 data policy.

10 This is video-based training, it is
11 approximately 75 minutes with a quiz, but it can
12 be broken down into about 4 different modules so
13 you don't have to complete it all in one sitting.

14 But no data will be released to the
15 operator until every listed user completes this
16 step and NatureServe verifies with us that we are
17 now able to release the data to you. And then
18 we'll deliver the data via secure FTP download.

19 Again, I cannot show you the maps of
20 the 2018 ecological USA data but to give you a
21 little review of what that data looks like, we do
22 not have an update for D.C., Delaware, Hawaii,

1 Ohio, or Puerto Rico.

2 The data simply was not available in
3 a format and up to date and at a quality that
4 would be any better than the 2001 data. We do
5 have 2001 data for every one of those areas with
6 the exception of Puerto Rico.

7 So, if you do request access to any of
8 these areas for the 2018 update, you will receive
9 a hybrid data set that will be both the 2001 data
10 as well as a little bit of the 2018 data, the
11 overlap from the surrounding states.

12 So, if you're requesting Ohio,
13 something that came in from Kentucky in the 2018
14 update, you will receive that in your Ohio data
15 delivery. Metadata, again, is available for the
16 public.

17 As well, this data was very
18 cumbersome. It was a very, very large data set
19 that we had a hard time using even on our
20 servers. So, we have dissolved the data down,
21 removed some of the overlap just so it's more
22 useable for the users.

1 But we have developed additional lists
2 of the eco-unique IDs, if you're familiar with
3 that, so you can still backtrack and go back to
4 NatureServe and identify the exact species that
5 are in those areas.

6 You'll just have a list of various
7 species that are in that area, and I thank Bonnie
8 for that recommendation, it was a great one.

9 Okay, and the mileage differences.
10 So, with the 2001 data, we have over 14,000 miles
11 of Hazardous Liquid pipe that intersected. 2018,
12 just over 9000 miles. Again, this does not
13 include all of the could-affect mileage.

14 To give you an idea of what that data
15 looks like, we have larger areas of the coast
16 that are covered, then in 2001. And the improved
17 data really did result in more precise and
18 smaller locations being identified inland.

19 So, it's more coastal areas covered,
20 it looks like less inland area is covered, but
21 really the data did not need to be buffered to
22 the extent before. It's more accurate and we

1 were able to be more precise.

2 And last section before we get to Q&A,
3 I want to talk a little bit about the analysis
4 and the comparisons we ran between the ESI data
5 set, which Steve introduced.

6 It was probably the biggest topic of
7 conversation in our 2017 public meeting, if any
8 of you were there. NOAA's Environmental
9 Sensitivity Index, also called the ESI, they make
10 a number of different products, one of them being
11 an incredibly detailed shoreline.

12 It follows inlets and everything and
13 you'll see it show up in various maps today. And
14 so like I said, this was the primary GS data
15 source that was discussed in 2017 and it actually
16 categorizes coastal area sensitivity to oil.

17 So, we see it as a very relevant
18 product to what it is that we're trying to do and
19 it's developed by NOAA, a leading authority in
20 mapping and understanding coastal area.

21 A quick little review of the ESI
22 shoreline, so in both the Atlantic and the Gulf

1 together, we ran some overlap analysis with the
2 2018 ecological USA data and found about 59
3 percent of this was already overlapped by the
4 2018 ecological USA data.

5 The areas on the map that are red are
6 the areas where they had the lack of overlap.
7 The green covers the overlap. I will point out
8 it looks like Louisiana is not covered. It's not
9 necessarily that Louisiana is not covered at all.

10 That shoreline down there in that ESI
11 product is very detailed in following all those
12 inlets, as you can imagine if you're familiar
13 with Louisiana.

14 So, the vast amount, the length of the
15 shoreline down there is very long and it was
16 bopping and weaving in and out of the current eco
17 USA data, as you can imagine.

18 Next, some analysis of the Pacific
19 Coast, just on the West Coast. This does not
20 include Hawaii or Alaska. About 65 percent of
21 this and Puget Area Sound, everything up north,
22 again very detailed shoreline up there.

1 Those are definitely some areas that
2 were not completely covered. There were some
3 areas in Southern California as well.

4 Last, a quick review of Alaska. It
5 was only 30 percent but, of course, there's a lot
6 of coastline in Alaska and only very few areas
7 where pipelines approach coastlines in Alaska.

8 So, it's not as bad as it sounds but
9 you can see the highlights of the areas that are
10 in red. We do not have the overlap in green, we
11 did have the overlap.

12 And with that is the end of that
13 presentation, just an introduction to the NPMS
14 and an update on the ecological and drinking
15 water USA data that will be available to you, all
16 the Hazardous Liquid pipeline operators, shortly.

17 I guess now we can open it up for Q&A.
18 You can send your questions if you are on the
19 webcast to the website -- or I'm sorry, the email
20 address that's listed here.

21 Somebody in the room will take those
22 questions and pass them up to us, and I will take

1 questions from the table.

2 And one last note that after the break
3 when our Q&A is done, make sure that you look at
4 the session number 2 link to continue watching
5 the webcast.

6 Thank you.

7 MR. FISCHER: Any questions? Can we
8 get a mic up front, please? Tom, up front?

9 PARTICIPANT: Hi, so when you were
10 doing the comparison of the 2018 eco USAs to the
11 ESI shoreline, it looks like you used all
12 shoreline types.

13 Was that true?

14 MS. GOODING: Yes, that is true. We
15 used all shoreline types, we did not minimize
16 that just to the beach.

17 We've been recommended to and we're
18 looking at the ESI product to really derive a
19 number of the different definitions.

20 So, we weren't really doing this
21 analysis with only coastal beaches in mind, but
22 just as a way of considering the entire coastal

1 area in all the shoreline.

2 PARTICIPANT: Okay, and did you ever
3 run a statistic with just the beaches of the
4 actual shoreline, like maybe using the NHD
5 coastline?

6 MS. GOODING: No, I do not have any of
7 that information here when we broke it down to
8 just the beaches. I do have some analysis and
9 some maps showing just those areas and how they
10 differ and how much of the coastline is covered.

11 I do not believe I have statistics
12 available with me right now about the portion
13 that is included in the eco USA 22 data, but it's
14 something I could look into.

15 PARTICIPANT: Yes, that's what I was
16 thinking. The percentages may very well go up if
17 you just limit it to the beach and not --

18 MS. GOODING: I don't doubt it.

19 PARTICIPANT: -- all of those inland
20 waterways.

21 MS. GOODING: I agree, that's true.

22 MR. FISCHER: Do we have any other

1 questions?

2 MR. HALL: We do have one question
3 from the webcast from Rebecca Craven at the
4 Pipeline Safety Trust.

5 It's a three-part question. The first
6 question is will PHMSA map could-affect areas or
7 will operators be responsible for that?

8 MS. GOODING: The quick answer is no,
9 we will not be mapping could-affect areas. In
10 all honesty, anybody familiar with how to
11 determine could-affect areas -- and I am not
12 personally an expert on this.

13 There are so many different factors
14 that come into play, elevation, slope, types of
15 soil possibly, water features in the areas.

16 It's depending on exactly where the
17 pipeline is, what the pipeline carries, the size
18 of the pipeline, and so many other factors can
19 determine whether or not a pipeline here or there
20 could affect.

21 So, we will not be making a blanket,
22 polygon data set that says every single pipeline

1 in this location could affect. That is an
2 interpretation that is best left to very
3 individual focused analysis by the operators
4 themselves.

5 MR. HALL: Thank you for that. The
6 second part of the question is when will PHMSA be
7 enforcing use of the new data?

8 MR. FISCHER: I'm sorry, when will
9 PHMSA what?

10 MR. HALL: When will we, PHMSA,
11 enforce the use of the new data? When will it be
12 required that operators use the new data?

13 MR. FISCHER: Well, it will fall
14 within the protocols that operators require by
15 the regulations to incorporate within their
16 baseline assessments.

17 So, one year for incorporation I
18 believe, five years for identification of could-
19 affect areas. So, it'll be the same.

20 MR. HALL: Very good, and the last
21 part is how are you figuring the percent of
22 coastal areas that are covered when the areas has

1 not yet been defined?

2 How do you figure the percent of
3 coastal areas that are covered when the area has
4 not yet been defined?

5 MS. GOODING: Oh, yes, that analysis
6 was done with just the ESI coastline data set and
7 the 2018 update of the ecological USA data. The
8 2018 update of the ecological USA data has been
9 defined, we have it in hand.

10 Pilot operators who participated also
11 have that data. The ESI shoreline is also in
12 existence and has been defined.

13 So, we have not defined the final
14 definitions for the terms in the mandate but we
15 use existing definitions for that analysis.

16 Anything else?

17 MR. FISCHER: We have questions up
18 here. To your right.

19 PARTICIPANT: We had a question about
20 when you're submitting the request for the
21 ecological data. You said that the operator, and
22 the consultants, and anyone within the operating

1 entity that might be using the data would have to
2 be included on the request.

3 When you say using it, are you saying
4 anyone that would just be potentially viewing it
5 within your company or actually manipulating the
6 data?

7 MS. GOODING: Actually that's a really
8 good question. I can provide clarity on that.
9 When we say users, and this clarity will be
10 explained on the NPMS website when we do get that
11 updated, it will literally be the people using
12 the data in the GIS data system.

13 So the other people in your operating
14 -- I know that -- I'm sorry if I caused some fear
15 there, not my intent. So your GIS analysts, the
16 people who are actually using the dataset and who
17 are responsible for the products that are going
18 to be distributed and displayed for the other
19 people in your agency to view, so they're in
20 control of the messaging, so.

21 MR. FISCHER: It will not become a new
22 training program for your company.

1 MS. GOODING: Unless you want to, no
2 problem.

3 MR. FISCHER: Other questions? We
4 have plenty of time.

5 MR. HALL: Just as a reminder to the
6 members of the audience, when you do speak, it
7 would be very helpful if you could identify
8 yourself with your name and your company for the
9 viewers of the webcast and for the record. Thank
10 you.

11 MR. FISCHER: Did we do that good of
12 a job in explaining all of this?

13 MS. GOODING: I think we're done.

14 MR. FISCHER: Is there another
15 question?

16 MS. GOODING: Yes, I saw this
17 gentleman in the red tie.

18 MR. FISCHER: Okay.

19 MR. MEDINA: Thank you and good
20 morning, Nick Medina with ExxonMobil Pipeline.
21 The code effect data, right, I know it's up to
22 the operator to use analysis to define it, but

1 will you provide guidance in how do operators
2 help define that or share examples on what it is
3 that is expected for operators to define that?

4 MS. GOODING: Do we provide that
5 guidance?

6 MR. MEDINA: Mm-hmm.

7 MS. GOODING: I know that there are,
8 I want to say -- I don't want to speak out of
9 turn. I'm sorry. Do we have an integrity
10 management person who can speak? There is some
11 guidance.

12 MR. FISCHER: Like through FAQs.

13 MS. GOODING: FAQs, thank you, Steve.
14 There are FAQs and there are guidance documents
15 that do exist.

16 MR. MEDINA: Okay.

17 MS. GOODING: And if you need some
18 help identifying those or pointing to those exact
19 resources, we can get those locations for you
20 during the break.

21 MR. FISCHER: But all of this should
22 be the same that you've been using for the past,

1 you know, 20 years or approximately, so no
2 changes with the addition of this new eco and
3 drinking water USA data.

4 MR. REYNOLDS: Good morning, James
5 Reynolds with the Enforcement Division here with
6 the Pipeline and Hazardous Materials Safety
7 Administration. I just have two questions, one
8 for Steve and one for you, Leigha.

9 The question for Steve is once the
10 definitions for the ecological areas and the
11 coastal waterways is defined and agreed upon, and
12 I think you mentioned that there will be some
13 more regulations once those definitions have been
14 in place, do you foresee any economic impact to
15 pipeline operators to comply with those
16 regulations?

17 MR. FISCHER: That'll be part of, if
18 we go the route of a rulemaking process, that
19 would be part of that process that will, it will
20 have to be analyzed and identified. So I don't
21 have an answer for you now. It will just follow
22 the normal protocol if we take the rulemaking

1 route in defining those features.

2 MR. REYNOLDS: Thank you. And Leigha,
3 when you spoke about the, and I apologize if I
4 get my terms mixed up here, you spoke about the
5 drinking water and ecological data from the
6 different states, and I think you mentioned that
7 you didn't have anything from Puerto Rico.

8 And so my question is, is that
9 important that that information is not available
10 for Puerto Rico and are there any efforts
11 underway to obtain any updated information for
12 Puerto Rico?

13 And I think you said that there was no
14 data even in 2011 for Puerto Rico, and if you can
15 explain?

16 MS. GOODING: Yes, the ecological USA
17 data specifically has come from a data source
18 that is produced and maintained by a company
19 named NatureServe, and NatureServe did not have
20 the data in their database available for this,
21 and by recommendation, we did not -- you know,
22 there was no authoritative way to produce data in

1 that location.

2 With future updates, we'll certainly
3 try to find Puerto Rico again. We won't stop
4 looking for Puerto Rico data to fulfill that, but
5 there's no effort at this time to do that.

6 MR. HALL: We have an additional
7 question from the web viewers. This is a
8 question from Nan Gray with Soil Works
9 Incorporated. She says, "Maps need to include
10 areas to avoid. Unsuitable soils need to be
11 avoided. How are you incorporating the natural
12 resources conservation service soil survey?"

13 MR. FISCHER: Okay, well, we
14 appreciate the comment. We'll take that into
15 consideration. I certainly recommend for any of
16 the web viewers or anyone in the audience to
17 submit your comments, questions, or concerns to
18 the docket as well so that it's officially
19 included as part of the process.

20 MR. HALL: She also goes on to state,
21 "PHMSA needs to require on the ground order one
22 soil surveys for pipeline routing long before

1 construction," just a comment, not a question.

2 MR. FISCHER: Okay, thank you. Yeah,
3 thank you for that submission.

4 MR. WEIMER: Can you hear me? Carl
5 Weimer, Pipeline Safety Trust. I was wondering
6 if you can speak a little bit -- I know in the
7 past, local elected officials and government
8 officials can get password entry into the NPMS.

9 I wonder if this new data is going to
10 be available to those folks and if they're going
11 to have to go through the same certification
12 process that operators are going to have to go
13 through?

14 MS. GOODING: Yes, that's a good
15 question, and unfortunately, no. The 2018
16 ecological data and the 2019 drinking water USA
17 data will no longer be available. It's not a
18 decision from PHMSA. It's a limitation from the
19 vendors who produce the data. The data, the
20 ecological data is proprietary.

21 The drinking water data is highly
22 sensitive, and we went through a lot of

1 agreements with different states individually
2 just to get the data for use by our pipeline
3 operators, and we are limited in that we are only
4 permitted to distribute this data to the pipeline
5 operators for that purpose.

6 MR. WEIMER: All right, and how about
7 state regulators? How are they going to be able
8 to access and get certified to look at this data
9 so they can enforce these rules?

10 MS. GOODING: State partners, I'd have
11 to look into that, but I imagine as state
12 partners of PHMSA, they're working together with
13 us. We are trying to, you know, prepare for
14 inspections in similar ways, so we'll be sharing
15 that under confidentiality agreements for all
16 types of inspectors, I imagine, but I can
17 certainly get a firmed up answer for you during
18 the break.

19 MR. WEIMER: Okay, you know, the
20 public's kind of in the dark on this stuff,
21 especially the drinking water stuff because we
22 can't see it, so it kind of concerns me that

1 local government officials that use this
2 information to define their aquifers and protect
3 their aquifers can't see what you're using, so
4 what kind of verification is there that this data
5 is good data with the people that it really means
6 the most to?

7 MS. GOODING: And I'd say the
8 verification of this data is that it came
9 directly from the states who produced the data,
10 and they all have their own processes for
11 producing these datasets, and I'm sure individual
12 state agencies, which you can learn about in the
13 metadata that is available to the public. The
14 metadata can contact these state agencies and ask
15 them that question because they really truly did
16 develop that data.

17 Now, in terms of taking that data and
18 processing it into data that meets the USA
19 definition for PHMSA, that was not only done by a
20 contractor who helped develop that definition,
21 but then other contractors were hired to do third
22 hand validation of the data as well, and that's

1 one of the reasons why we've taken the amount of
2 time we have to create that data. The accuracy
3 of it is very important.

4 MR. LESNIACK: Good morning, Chuck
5 Lesniack representing the public. I want to
6 reiterate what Carl said, that to not have the
7 eco USA data and particularly the drinking water
8 data not available to local governments is a real
9 problem, and if one of the reasons is that it's a
10 proprietary product, that's also a problem.

11 This is public -- this is now
12 government data that should be shared with at
13 least representatives of the public, the local
14 governments who are often the people, the
15 entities that produce the drinking water. We
16 need to find a better way to get better data.

17 And then the other thing is just about
18 the accuracy of the data. I was a local
19 government official for 28 years, and my
20 experience in our area is the federal data about
21 ecological resources and drinking water
22 contributing areas and protection source areas at

1 the federal and state level was often very poor,
2 and it's also true for the ecological data. The
3 state agencies in Texas do a pretty --

4 The data at the state level was very
5 gross, and so if it's going up to another level
6 to the federal level and being produced by a
7 third-party vendor, I think, I suspect, I believe
8 the data to be highly suspect in terms of it
9 probably is a decent overview, but when you get
10 to the level of where the operator is going to
11 use that data to create their code effect areas,
12 those areas are probably going to --

13 There's another level of error that
14 they can put into it, and so what we have
15 historically seen at the local level from the
16 operators that rely on national level data is
17 it's often very, very inaccurate.

18 And so, and then to not be able to
19 share that information with the local
20 governments, much less the public who can
21 actually ground truth this information, that's a
22 real problem.

1 MS. GOODING: Okay, thank you for your
2 comment.

3 MS. CROWNHEIM: Good morning, my name
4 is Patty Crownheim. I'm with Rethink Energy New
5 Jersey and I'd like to echo, I think quite
6 literally, the comments of Carl and Chuck.

7 In New Jersey, we have seen a great
8 amount of frustration from municipalities who
9 want access to comprehensive and accurate
10 information, and I think that while the
11 information may come from state sources, it tends
12 to be fragmented.

13 There isn't a good place for the
14 municipalities to be able to access it, and they
15 are the entities that the general public goes to
16 first to find out information, so they really are
17 an important partner, I think, in information and
18 engagement for PHMSA.

19 So the other piece is that the
20 municipalities' ability to access this
21 information, and as Chuck said, fact check it and
22 make sure that it's actually what is happening on

1 the ground, is important.

2 And they may be able to have the
3 ecological information, but to be able to have
4 the overlay of the pipeline information, they
5 don't have access to that, so that's what's
6 really missing.

7 And that would be why it's so valuable
8 and I think crucial that you have some way of
9 interacting with municipalities, whether you
10 create some kind of a program or pathway for
11 certain leaders in municipalities and identify
12 key people in municipalities who can enter into
13 these kinds of information sharing with PHMSA,
14 but there should be able to be a pathway for that
15 to occur. Thank you.

16 MS. GOODING: And you mentioned these
17 municipalities and these other levels of
18 government, which is good, and not groups that
19 are responsible for pipeline inspections
20 specifically, but more for environmental
21 protection generally?

22 MS. CROWNHEIM: I'm sorry. I couldn't

1 hear the last part.

2 MS. GOODING: Oh, sorry. The
3 municipalities that you're speaking of that
4 should be able to see this information, these are
5 not municipalities that do any, that participate
6 in inspection of pipelines specifically, but
7 they're more interested in general environmental
8 protections and things?

9 MS. CROWNHEIM: These are
10 municipalities that have miles of pipelines
11 running through them --

12 MS. GOODING: Yeah.

13 MS. CROWNHEIM: -- and proposed
14 pipelines as well. These are the people on the
15 ground impacted.

16 MS. GOODING: And they can absolutely
17 gain access to all of the pipeline locations in
18 the NPMS, not just the public view, but the
19 actual PIMMA and the actual GIS data for the
20 pipeline locations as well, but the point is well
21 taken about the USA data as well. Thank you.

22 MS. FARRELL: Hi, Linda Farrell,

1 Pipeline Safety Coalition in Pennsylvania. I
2 would like to also echo.

3 Chuck made a very, very good point
4 about ground sourcing, and I think many of the
5 conversations we'll have over the next two days
6 will be about public engagement, and the fact
7 that the top down rather than the bottom up
8 approach to information sharing and to
9 information gathering needs to be reexamined is
10 something I hope we'll be discussing in detail.

11 As Patty said, we see people. The
12 public sees on the ground a lack of communication
13 between the permitting agencies and the local
14 municipalities who have -- municipalities and
15 also actually some of the permitting agencies who
16 have, let's say, conservation districts on the
17 ground, who have better information. Better
18 perhaps is not the right word, but have boots on
19 the ground.

20 The conservation districts know what's
21 going to happen on a steep slope in their area,
22 and so the information sharing from what we've

1 just discussed to the entire public awareness and
2 education I think is all very, very tied in and
3 really needs to -- I'm looking forward to how you
4 all address that.

5 MS. GOODING: Thank you.

6 MR. FISCHER: Thank you.

7 MR. HALL: We have two additional
8 questions from our web viewers. The first is a
9 follow-up question from Rebecca Craven at the
10 Pipeline Safety Trust. It's regarding the
11 enforceability of the use of the data.

12 She says, "Will the one year to
13 incorporate/five years to be enforceable also
14 apply to the new definitions for the Great Lakes
15 once they are defined?" So once the Great Lakes
16 are defined as USA as the coastal areas, will the
17 one year/five year rule still apply?

18 MR. FISCHER: I believe so. I mean,
19 that information will be -- you know, PHMSA is
20 required to make that information available
21 through the NPMS.

22 So once we work through that process

1 and create the data and publish it on the NPMS,
2 and we go through a similar notification process
3 where we notify all of the operators about the
4 availability of that new eco data, then I suspect
5 it should, that the same time frame would apply.

6 MS. GOODING: And it will be part of
7 the written definition in 195.

8 MR. FISCHER: 195.6.

9 MR. HALL: She also says, it's
10 formulated as a question, but I think given your
11 answer, it's more of a comment.

12 She says, "So from the 2016 date of
13 the mandate, it will be at least four years
14 before the definition is finished, and then an
15 additional five years before operators are held
16 accountable for using those in their
17 identification of code effect areas?"

18 MR. FISCHER: Okay.

19 MR. HALL: The second question we got
20 is from Sheila McGinty at Williams. She says,
21 "The source information for the drinking water
22 and ecological metadata is often a link to a

1 general website such as a state DEQ. Is there a
2 location that shows who or which agency to
3 contact?"

4 MS. GOODING: In the newest metadata
5 that's coming out for the 2018 and 2018 data
6 updates, there should be information in there
7 about the state agency and a contact person who
8 is representative of the data source, yes.

9 MR. HALL: Thank you. That's all of
10 the questions from the web viewers now.

11 MR. FISCHER: Thanks, Sam.

12 MS. GOODING: Absolutely, thanks.

13 MR. FISCHER: Any additional
14 questions? Okay, well, that will conclude the
15 session. It looks like we'll have about a 25-
16 minute break here. We will reconvene at 10:15.

17 For everyone who is watching the web
18 cast, when we come back at 10:15 Eastern time,
19 you'll need to select the second session on our
20 launch page in order to watch the video for that
21 portion of the meeting. So thank you and we will
22 convene at 10:15 Eastern time.

1 Oh, and we have one other -- hold on.

2 MS. MURRAY: Good morning. Instead of
3 coming back at 10:15, can we just take a 15-
4 minute break?

5 MR. FISCHER: Okay.

6 MS. MURRAY: And that way we can
7 advance in our program and possibly wrap up a
8 little bit earlier for lunch if it affords us
9 that opportunity?

10 MR. FISCHER: So you want people back
11 at 10:05?

12 MS. MURRAY: 10:05 would be perfect.

13 MR. FISCHER: So at 10:05 Eastern
14 time, we'll reconvene session number two.

15 (Whereupon, the above-entitled matter
16 went off the record at 9:50 a.m. and resumed at
17 10:10 a.m.)

18 MS. MURRAY: Okay, if everyone could
19 take their seats? And if our next panel, if you
20 could make your way up on the stage, we'll get
21 started in just a minute.

22 As everyone is taking their places, I

1 do want to circle back around and have Sam Hall
2 read one remaining web cast question we received
3 from Nan Gray on the web cast.

4 So we're going to kick off with
5 addressing that question from the last
6 conversation, and then we will proceed with our
7 next discussion. Sam?

8 MR. HALL: This question is a follow-
9 up question from Nan Gray with Soil Works
10 Incorporated. She says, "Thank you for this
11 mapping tool, and not all drinking water and/or
12 source water is recognized or mapped by our
13 state."

14 She says, "How does the drinking water
15 map change the routing or construction of a
16 pipeline? Does the highest integrity pipe,
17 highest class pipe get used in the areas of eco
18 USA or HCA?

19 "And then ground truthing and water
20 truthing, even ephemeral water truthing needs to
21 be performed. Ecological studies should not be
22 performed by inexperienced or untrained

1 personnel."

2 MS. MURRAY: Okay, thank you for that.
3 So we're going to get Karen Gentile one of our
4 mics and she's going to offer some good insight
5 into that question, particularly as to how
6 drinking water may change, the drinking water map
7 may change the landscape of how operators may
8 work to get their pipelines constructed and
9 routed.

10 MS. GENTILE: So pipeline operators --
11 so PHMSA does not have jurisdiction over sighting
12 pipelines. However, what would happen is the
13 construction process would work through the
14 Federal Energy Regulatory Commission, and based
15 on the class location of those pipelines, the
16 pipeline would have to be designed according to
17 PHMSA's regulatory requirements, so they would
18 have to design for the highest location class
19 pipe for the area.

20 MS. MURRAY: And the drinking water
21 information, which certainly goes into feeding
22 and helping to define what those locations are,

1 will inherently, as we refresh the drinking
2 water, it will also fit under the same existing
3 requirements we have.

4 And operators who may be operating in
5 a state that wouldn't necessarily grant them
6 access to the eco and drinking water data in a
7 particular state, and they may have an interest
8 in planning new construction in a different
9 state, we will be able to work with them on a
10 case by case basis to get them additional
11 information they need to help support those
12 planning purposes. All right, well, thank you,
13 web case viewer Nan Gray for that question.

14 So let me kick off the next
15 discussion. I'm Christie Murray. I'm the
16 director of our outreach and engagement team here
17 at PHMSA in the Office of Pipeline Safety, and
18 I'm going to be facilitating our discussion for
19 the rest of the afternoon on our ecological USA
20 panel.

21 And just one thing, in your folders,
22 if you have not already found them, I think it's

1 on the left side of the folder in the back,
2 you'll find a set of pre-read questions regarding
3 this topic.

4 Feel free to pull those out as I
5 introduce our next presenter, Leigha Gooding.
6 She's going to come back up and give a little bit
7 more insight into some of those questions.

8 If you are participating by web cast,
9 if you go to the meeting registration page, you
10 will also find the pre-read questions there for
11 you to also pull up and follow along with us.

12 With that being said, I will turn it
13 over to Leigha Gooding, and she's going to share
14 and talk a little bit more about the pre-read
15 questions that we hope you have given some
16 thought to, and we'll hear more from our
17 additional panelists on in just a few minutes.

18 MS. GOODING: All right, thank you,
19 Christie. All right, so I'm going to go over
20 these questions for consideration if you haven't
21 read through them already.

22 I'll not only go through the

1 questions, but I'll display some of the data and
2 some of the maps that we've produced that really
3 led to some of these questions.

4 These are maps and data that we
5 produced during the data pilot and as a result of
6 the conversations and insight we gained from our
7 last public meeting in 2017.

8 So I will go through these questions,
9 and this is really what PHMSA -- these are the
10 questions, the second round of questions that
11 we've come up with, discussions that we would
12 like to have to help us evaluate how to best meet
13 this congressional mandate.

14 They were developed based on feedback
15 from the first public meeting in '17, as well as
16 the data pilot concluded during 2018, and the
17 following slides include the question text as
18 well as some sample maps to support the
19 conversation.

20 So to get started with question one,
21 this one is focused on the coastal beach
22 definition. Question one is, "Should PHMSA

1 define and map coastal beaches based on the
2 Environmental Sensitivity Index, ESI, shoreline
3 features that include beach as part of the shore
4 type description?"

5 We then go a bit further to ask,
6 "Should PHMSA apply a quarter mile buffer to
7 these shoreline segments to represent the body of
8 the beach, or do you suggest another size buffer
9 and why?"

10 Next, "Should PHMSA consider all
11 shoreline features regardless of the type
12 description as the basis for defining a coastal
13 beach?" And, "Are there any other various
14 datasets that you would recommend that we
15 consider for this definition?"

16 Some quick maps from the analysis that
17 we had done internally, the yellow buffer area
18 around the shorelines, that represents about a
19 quarter mile all around the ESI shoreline
20 product. This is only displaying the sections of
21 the ESI shoreline product that are described as
22 beaches.

1 We had two possible approaches here.
2 We have both beach as a primary category or beach
3 as one of the categories. There are many
4 segments of shoreline that can be described in
5 more than one way.

6 And so if any one of the maybe two or
7 three descriptions of that section of shoreline
8 included describing it as a beach, it was
9 included in the data that is red. That is the
10 thicker shoreline that is on the bottom. On top
11 of that, you'll see the orange thinner shoreline.

12 So you can see that there is more red
13 shoreline than there is orange shoreline, orange
14 being primarily described as a beach, red being
15 definitely described as a beach, but also
16 described as something else.

17 And we focus on Massachusetts and
18 Texas for the purpose of this data pilot. So
19 throughout all of these questions and
20 definitions, you'll see Texas and Massachusetts
21 again and again.

22 Here is just a quick description.

1 This is the list of descriptions that the ESI
2 uses to describe the different sections of
3 shoreline, so you see how detailed it can get,
4 and those yellow stars are next to the only six
5 that actually describe beaches.

6 So it's only six out of, what do we
7 have here, 43 different classifications, and the
8 classifications are all ranked from least
9 susceptible to impacts from an oil spill to most
10 susceptible to impacts from an oil spill, most
11 susceptible being the 10F side, least being the
12 1A, and you see all of the beaches reside right
13 in the 3A through 6B range in the susceptibility
14 index.

15 Next, I'll review the questions for
16 marine coastal waters. "Should PHMSA include
17 estuaries, swamps, and marshes from the USGS
18 National Hydrography Dataset as part of the
19 definition of marine coastal waters?"

20 "Should PHMSA reference the extent of
21 US state submerged lands to define the extent of
22 marine coastal waters?"

1 "Should PHMSA mimic the EPA's
2 definition of coastal waters as defined in the
3 nutrient criteria technical guidance manual for
4 estuarine and coastal marine waters?"

5 In that document, they define, the EPA
6 defines the marine coastal waters as measuring 20
7 nautical miles from the shoreline.

8 And then to go further, "Should we be
9 measuring those not only from the primary
10 shoreline, but also the shoreline of islands?"

11 "Do you have a recommendation for that shoreline
12 definition that we should use for the purpose of
13 this measurement?"

14 Next, to C, "Should PHMSA include all
15 coastal waters, all the waters out to the
16 federal/state water boundary?" and we'll have
17 some maps to illustrate these.

18 First, here we have an example of the
19 marshes, wetlands, and estuaries that we've
20 pulled from the water bodies out of the National
21 Hydrography Dataset. This comes from the USGS.
22 It can be downloaded at the link that we have

1 here.

2 In these maps, this is a result of all
3 of those specific areas, marshes, wetlands, and
4 estuaries, that intersect this quarter mile
5 buffer around the shoreline. So this isn't every
6 single marshland, wetland, or estuary, only those
7 that do intersect that buffer, and it includes
8 the entire wetland.

9 So if five percent of that wetland
10 happens to be within a quarter mile of the beach,
11 we're showing you the entire wetland, and that's
12 for display purposes and for conversation
13 purposes.

14 The quarter mile measurement was based
15 on the ESI shoreline, and here are just two
16 examples in both Massachusetts and Texas, and
17 later on when we are having conversation, if we
18 have any other comments, I can come back to these
19 maps if you want to reference them or ask
20 specific questions about them.

21 Here is an example of the US state
22 submerged lands data both in Massachusetts and

1 Texas again. I did want to mention we ran some
2 additional 2018 eco USA data intersection
3 analysis with these proposed definitions during
4 the data pilot.

5 99.9 percent of the data for matching
6 the US state submerged lands definition is
7 already intersecting the 2018 eco USA. When I
8 say intersecting, I mean it's already covered by
9 the 2018 eco USA data. Going over to Texas, it
10 was about 67.2 percent of that area.

11 And last, the 20 nautical miles from
12 the coast measurement as recommended by the EPA,
13 or used by the EPA, I should say, about 71.9
14 percent of that area in Massachusetts. You can
15 see that area.

16 It certainly extends further offshore
17 going around the cape and all, and then about 42
18 percent of the Texas area was already
19 intersecting the 2018 ecological USA.

20 And last, just a quick map showing all
21 of the waters that we grabbed. For this example
22 here, we grabbed all of the waters beyond the

1 boundary of the county from the U.S. Census
2 Bureau.

3 The U.S. Census Bureau has the county
4 boundaries and state boundaries that we use
5 internally for the NPMS, and so we just took all
6 of the water past the county boundary according
7 to the U.S. Census Bureau out to that fed/state
8 water line. Again, Massachusetts, nearly all of
9 that area is already considered in ecological
10 USA, and about 67 percent of that area for Texas.

11 A couple of questions here that we
12 don't have reference maps for, "If PHMSA
13 references the beach categorization from the ESI
14 shoreline product, how should the agency define
15 this definition in text or handle potential
16 extensions of the ESI shoreline product further
17 upriver?"

18 Number four, "Are coastal beaches
19 limited to those along the Gulf of Mexico and the
20 Pacific and Atlantic Oceans, or do the Great
21 Lakes, commercially navigable waters, and other
22 inland water bodies also include coastal

1 beaches?"

2 Number five, "Should PHMSA seek to
3 combine coastal beaches and marine coastal waters
4 into existing eco USA resources, or given that
5 these coastal areas are not defined by ecological
6 factors related to species, should the agency
7 seek to define and map a new type of coastal
8 USA?"

9 Number six, "Does PHMSA need to
10 differentiate between the coastal beaches and
11 marine coastal waters or produce a single coastal
12 areas USA definition and data layer?"

13 Number seven, "Is shoreline
14 sensitivity the same for all of the different
15 hazardous liquid products subject to Part 195,
16 and how about the impact of those various
17 products on various parts of the shorelines?"
18 We'd be interested to hear your feedback on that
19 as well.

20 And number eight, "Do operators
21 currently consider the entire body of the Great
22 Lakes as an HCA or only the representative

1 shipping channels in the U.S. Army Corps of
2 Engineers' national waterway network?"

3 And last, number nine focuses on the
4 Great Lakes. There is a lot of text on this
5 slide here. I don't expect you to be able to
6 read it, so I actually broke it down and included
7 it on separate slides next to the maps to support
8 the conversation.

9 So question nine, the primary question
10 was, "Should PHMSA define and map the Great Lakes
11 as all water bodies within the Great Lakes
12 watershed based on the boundaries in the USGS
13 National Hydrography Dataset?"

14 In this map, you can see the watershed
15 boundary actually shows up in yellow, and then we
16 selected a few areas where we focused in closer
17 to the data because it's hard to see at the
18 larger scale, where you can see all of the water
19 bodies in blue within that watershed.

20 So would this be an appropriate and
21 effective way to define the Great Lakes for the
22 purpose of what we're trying to do?

1 Nine A, "Should PHMSA reference the
2 extent of the US state submerged lands around the
3 Great Lakes to define the extent of the Great
4 Lakes and their connecting channels?"

5 Again, zoomed into the area around
6 Lake St. Clair here just to really demonstrate
7 the US state submerged lands not only includes
8 the bodies of the lakes themselves, but it did
9 cover all of the connecting channels, Lake St.
10 Clair, the St. Lawrence Seaway.

11 So we personally during the data pilot
12 found it to be a consistent single data source
13 that covered all of the areas that we thought
14 should be included as connecting waters
15 potentially.

16 Nine B, "Should PHMSA consider the
17 Great Lakes definition as found in 33 USC 1268
18 which defines the Great Lakes to be Lake Ontario,
19 Lake Erie, Lake Huron, including Lake St. Clair,
20 Lake Michigan, Lake Superior, and the connecting
21 channels, including St. Mary's River, St. Clair
22 River, Detroit River, Niagara River, and the St.

1 Lawrence River to the Canadian border, and do you
2 have any recommended data sources for these
3 bodies, not the center lines?"

4 We know that the center line that
5 comes from the National Waterway Network does
6 not, already does not display the entire body of
7 the lake, and that's what we're looking for, and
8 even for the connecting channels. Instead of a
9 line going through the center of the channel, we
10 really want a polygon showing the entire area.

11 Nine C, "Should PHMSA define and map
12 the Great Lakes as only the bodies of Ontario,
13 Erie, Huron, Michigan, and Superior without the
14 connecting channels based on the boundaries in
15 the USGS National Hydrography Dataset?"

16 And this was a conversation we had a
17 lot in 2017. I won't say the prevailing
18 conversation. I don't think anybody disagreed
19 that the nature of these bodies of water, water
20 is flowing from one lake to the next, and those
21 channels that connect them, they consider to be
22 just as important as the bodies themselves, so

1 we're interested to hear your opinions on that
2 today.

3 And the last part of D, "Is there a
4 different GIS dataset available at the national
5 level that PHMSA should consider for the basis of
6 defining and mapping the Great Lakes and
7 connecting channels?"

8 And here I just wanted to make a quick
9 little note that the NHD water bodies, we went
10 through and analyzed that data during our pilot
11 project and we found that it only includes
12 polygons, meaning areas for the St. Lawrence
13 River and Lake St. Clair.

14 So not all of the connecting waterways
15 were we able to find in a polygon form in the
16 version of the NHD that USGS delivered to us
17 specifically for this data pilot, and even the
18 line data, there were parts of the St. Mary's
19 River missing.

20 But before I dive too far into those
21 details, I just wanted to review the questions
22 real quick, show you the maps that we have

1 available to support the discussion. I hope that
2 these questions lead to a good conversation. And
3 with that, we'll introduce our panel of experts
4 to give their opinions. Thanks.

5 MS. MURRAY: All right, thank you,
6 Leigha, for teeing up those questions. It's
7 certainly a mouthful and a lot to digest, so
8 we're going to talk about them in different
9 segments and hear from different panelists on
10 some of those questions.

11 First up, we have Erol Alavi, who
12 joined Plains All American Pipeline in 2015 where
13 he currently is the engineering supervisor for
14 the integrity technical advisor group.

15 His areas of specialty include risk
16 assessment, HCA analysis, corrosion management,
17 inspection, engineering critical analysis, and
18 material and failure analysis.

19 He has held a variety of roles in
20 industry, beginning his career as a manufacturing
21 HSE engineer at Cummins Diesel Engines before
22 working as a consulting engineer working on

1 offshore oil and gas projects mainly for BP.

2 So with that being said, I introduce
3 Erol Alavi. Thank you.

4 MR. ALAVI: Good morning. To the
5 agenda, we have the type of HCAs, type of
6 analysis. Maybe that will answer the question's
7 code effect. We will talk about scheduling and
8 pressure reduction.

9 We will talk about prioritization of
10 HCA versus non-HCA, the misconception of NICA,
11 the conservatism that's used in the calculation,
12 and recommendation.

13 As you've seen in earlier
14 presentation, we have five categories based on
15 195.450, and those are highly populated areas,
16 other populated areas, commercial navigable
17 waterways, drinking water, unusual sensitive
18 area, and ecological unusual sensitive area.

19 Also, we go above and beyond, and if
20 you look at those HCAs that is not covered under
21 this, for example, if you build a new
22 subdivision, it is not covered under these five

1 categories. We create polygons and we input
2 inside our model.

3 So how do we do the analysis? We look
4 at two different things. We look at pipeline
5 rupture, worst-case volume that comes from
6 pipeline rupture, and then we create flow lines
7 and we try to figure out how far it can go.

8 Also we look at span analysis. We
9 look at orifice size and then angle from a
10 puncture, and again, we figure out how far it can
11 reach. And the figure of these two, a buffer
12 zone is going to be used in analysis.

13 So the analysis type of five different
14 type of analysis in there, and I'm going to go
15 through each of them. Direct is where your
16 pipeline go inside an HCA. It's called direct.

17 Indirect, where your HCA overlap with
18 your pipeline buffer zone. It's called indirect.
19 Direct watershed, this is when any NHD can cross
20 from the pipeline. Where it hits the pipeline,
21 we calculate 32 miles downstream of that to see
22 if in that area it passes inside any HCAs.

1 Indirect watershed, because of the
2 terrain, because of the sloping it comes inside
3 the HCA. Again, we look at 32 miles that it can
4 travel.

5 And terrain flow, if it is not covered
6 by any of these top four, then we look at the
7 terrain and we create flow lines to make sure
8 that, if it's going to reach any type of HCA or
9 not.

10 So one of the concerns that we have is
11 scheduling and pressure reduction. As you
12 understand, if any anomalies concern and they are
13 inside HCAs, then they are a type of condition
14 change. They become either immediate, or 60
15 days, or 180 days.

16 For example, I'll give you an example.
17 If you have any corrosion with dent, it will be
18 immediate regardless of the percentages.

19 So this will create some impact on the
20 anomaly repair schedule because say that you have
21 stabilized 50 percent of corrosion, or a non-
22 injurious dent, or a non-injurious metal loss

1 with indents, or corrosion along, but not
2 impacting the long seam, all of these anomalies
3 that really are not injurious, now because they
4 are under the HCA, we have to go dig it up and we
5 have to repair them.

6 There is another way that we can do
7 engineering critical analysis, but unfortunately,
8 most of them become immediate and filling the
9 exception for engineering critical analysis is
10 not practical.

11 Another thing is unnecessary pressure
12 reduction. If, giving you an example again, if
13 you have corrosion with dent regardless of size
14 or shape, even if they are not injurious, we have
15 to pressure reduct. We have to a reduction in
16 pressure, and by that, it's going to upset our
17 delivery time and it will upset the business.

18 The other thing, that tool tolerance
19 is incredibly sensitive now days. Like in
20 earlier time, they wouldn't pick up anything less
21 than one percent. Now they can pick up 0.5
22 percent of dents and read metal loss less than 10

1 percent. So because regulation says any depth,
2 any size, now we have to put that in the same
3 criteria.

4 So why prioritization in HCA and non-
5 HCA is important, because imagine we have a line,
6 right, and we are going to repair all of the
7 concern anomalies. First, we prioritize the one
8 in HCAs and we are going, usually we go and
9 repair them first.

10 In the case of this proposed USAs
11 become a rule, then there will be confusion of
12 which one we are going to repair first. Now you
13 have a high populated area and then you have
14 these proposed HCAs, and in this case, like if
15 there is an immediate in both sites, how are you
16 going to define which one is going to be first
17 repaired?

18 The other thing that we are concerned
19 is original HCAs, all of these five categories
20 that we explained, they are justified by
21 scientific data, and it is my understanding that
22 these new proposed ones is not.

1 The other thing is misconception of
2 non-HCA. There is a misconception in the
3 industry that operators do not repair the
4 anomalies. That is not true. We actually do,
5 and as a matter of fact, we repair in the same
6 similar manner. The only major differences is
7 prioritization and repair scheduling.

8 And one more key point is conservatism
9 in calculations. When we calculate dispersed
10 pressure, such as like B31, modified B31,
11 RSTRENG, LnSec, they actually don't fail based on
12 calculation. We assume that they are going to
13 fail.

14 By saying that, we also add tool
15 tolerance on top of this calculation and we make
16 extremely conservative. Also we use that
17 conservative approach for HCA analysis.

18 We assume that worst-case scenario
19 rupture volume is going to happen at the same
20 time where maximum flow rate is there, also
21 maximum respond time when considering this
22 analysis, and we will assume during a rainy day,

1 et cetera, and, I mean, the list goes on.

2 So by saying that, if release happens,
3 it will not reach what we find based on these
4 like, based on these analyses, so we go above and
5 beyond that.

6 So there's a recommendation, we
7 believe. HCA can be considered in other priority
8 tiers such as medium consequence areas, not high
9 consequence areas. We can utilize the same
10 repair criteria and we need to provide additional
11 time to prepare and make repairs.

12 Also, we believe more time and
13 discussion is needed with operators as main
14 operators are not aware of the proposed change.

15 Another feedback or recommendation
16 that we can give is more attention should be
17 given in research, also engineering critical
18 analysis such as PHMSA enrollment with dent
19 assessment has been very constructive. That's
20 all I have.

21 MS. MURRAY: All right, great, thank
22 you for that presentation. What we'll do is

1 likely take questions after we have heard from
2 all of the panelists, and then we'll go into a
3 more robust discussion on many of these
4 questions.

5 Next, I want to introduce Bonnie
6 Freeman who is the president of FreemanGIS, Inc.
7 Bonnie Freeman has worked with geographic
8 information systems in the pipeline and
9 environmental engineering industries for over 30
10 years.

11 In 1999, Ms. Freeman took on the job
12 of project manager and lead programmer of a joint
13 U.S. DOT and API pilot to identify areas
14 unusually sensitive to environmental damage from
15 a hazardous liquid pipeline release.

16 In addition, she launched her company,
17 FreemanGIS, in 2007, and continues to provide
18 support to the pipeline industry by updating HCAs
19 with current data and assessing risk to the
20 sensitive resources that they identify. So
21 please welcome Bonnie Freeman.

22 MS. FREEMAN: Thank you, Christie.

1 Thanks, Christie. Thanks, Steve. I've been
2 working with high consequence areas since their
3 inception 20 years ago.

4 Using GIS, I helped develop a
5 methodology to map them, and I've pretty much
6 been babysitting them ever since. I'm really
7 happy to be here and appreciate the invitation to
8 speak to you today on this important topic.

9 I'd like to start by underlining some
10 important facts about high consequence areas.
11 First and foremost, they are a valuable tool for
12 industry because they prioritize work by putting
13 the health and safety of environment first. The
14 HCAs we have today already cover much of our
15 nation's most sensitive ecological resources.

16 Ecological USAs are species that are
17 in danger of becoming extinct. Drinking water
18 USAs are the sources that supply water to our
19 homes. Populated areas are where people live,
20 work, and play, and commercially navigable
21 waterways are vitally important to our nation's
22 commerce and defense.

1 Operators currently use these existing
2 HCAs to prioritize resource allocation when
3 responding to anomalies. It's important to note
4 that HCAs do not drive spill response. A spill
5 is of the highest priority whether it's in an HCA
6 or not.

7 HCAs do drive the repair scheduling of
8 anomalies, but they are not used to avoid
9 repairing an anomaly. Every anomaly is
10 addressed. If it's on a pipeline segment that
11 could affect a high consequence area, it's
12 addressed first. If you consider the 2.4 million
13 miles of pipeline we have in the U.S., it's easy
14 to see why prioritization is very important.

15 The definitions for the current, for
16 the existing HCAs are based in science.
17 Ecological USAs are places where a sensitive
18 species has been seen. They are not areas where
19 there is potential habitat for a sensitive
20 species because this can become mired in
21 controversy, so it's a very scientific
22 observation with a time and a place.

1 Drinking water USAs are the source
2 water protection areas defined and mapped by
3 state agencies. These areas take into
4 consideration time and travel of groundwater to a
5 well and the location of intakes in the lakes and
6 streams they draw water from.

7 Populated areas are mapped by the
8 Census Bureau. Commercially navigable waterways
9 are crucial to our nation's commerce and defense.
10 They are mapped by the U.S.A. Army Corps of
11 Engineers.

12 It's important to remember the
13 congressional mandate, and that was to include
14 the Great Lakes, coastal beaches, and marine
15 coastal waters as USA ecological resources.

16 USA stands for unusually sensitive
17 areas, an area that is unusually sensitive to
18 environmental damage from a hazardous liquid
19 pipeline release.

20 That is, and this is in the Code of
21 Federal Regulations, defined as an area where a
22 pipeline rupture would likely cause permanent or

1 long-term environmental damage.

2 It's important that we maintain the
3 scientific basis for new HCAs. Since Congress
4 mandates they be ecological resources, they
5 should have something to do with protecting life,
6 flora, fauna, people. To honor the intent of
7 Congress, we must keep these concepts front and
8 center when formulating a definition.

9 The HCAs must be objectively grounded
10 in science and they must remain useful as a
11 prioritization tool. If everything is high
12 consequence, then the norm becomes high
13 consequence and nothing rises above it. We must
14 resist painting the world in HCA. It will not
15 improve pipeline safety. It simply depreciates a
16 valuable tool that we already have.

17 Formulating a new HCA definition
18 should not be taken lightly. Our nation is vast
19 and covers many types of shoreline from the
20 rugged cliffs of northern California, to the
21 broad, flat beaches of South Carolina, to the
22 retreating coast of Louisiana.

1 These new HCAs are important and the
2 GIS data that will define them are complex.
3 Further research is needed to review the
4 available GIS data for our varied shorelines.

5 With the limited time I have left, I
6 will address some of PHMSA's questions for
7 consideration using Louisiana as an example. I
8 wish I could have done the same thing for the
9 Great Lakes and other areas, but I got Louisiana,
10 so that's what we're going to do.

11 All right, question number one, in
12 Louisiana, when all ESI features that include
13 beach are selected, gaps appear along the
14 shoreline. So the green areas are what are
15 defined as beach in the ESI dataset, okay.

16 When the NHD flow line features,
17 that's the USGS National Hydrography Dataset,
18 when they're selected for coastline, this is
19 continuous. That's the red, and it actually goes
20 underneath the green on this map.

21 Question 1A, a quarter mile buffer to
22 represent the body of coastal beaches sounds

1 reasonable, but the widths should be tested to
2 make sure it captures the majority of beaches
3 along representative shore types from the
4 Atlantic Ocean, the Pacific Ocean, the Gulf, and
5 the Great Lakes.

6 Question 1B, including all ESI
7 shoreline types regarding of shore types, and not
8 just beach, but anything that's considered a
9 shoreline in the ESI dataset would extend coastal
10 beaches 15 to 50 miles inland in Louisiana,
11 including all of the coast along, all of the
12 shoreline along the Mississippi River from the
13 Gulf to the Mississippi state border.

14 And that's -- here is the Mississippi
15 right here. And I didn't zoom out enough, but it
16 goes straight up to the border. This area seems
17 to stretch far beyond what we typically think of
18 as coastal beach.

19 Question two, including all NHD
20 features marked as estuaries, swamps, and marshes
21 would extend marine coastal waters over 100 miles
22 inland in Louisiana.

1 Marine coastal waters are typically
2 thought of as areas of open ocean and unprotected
3 coastal habitats characterized by exposure to
4 wave action, tidal fluctuation, and ocean
5 currents, and by the absence of trees, shrubs,
6 and emergent vegetation.

7 The area in green, and look, it's
8 going all the way up to Alexandria here, is far
9 beyond what we typically think of as a marine
10 system, which is usually considered to be at or
11 near the full salinity of seawater.

12 Question 2A, US state submerged lands
13 extend about three nautical miles offshore except
14 for Texas and west Florida which are three marine
15 leagues offshore. That's about nine miles.

16 Applying their extent to the offshore
17 side of marine coastal waters makes sense. It's
18 a band of water that accurately represents the
19 interface between land and ocean. The extent
20 also coincides with the extent of marine species
21 that are currently mapped by existing ecological
22 USAs.

1 And while you don't see that in the
2 2001 version of ecological USAs, you will see
3 that in the refreshed versions that are coming
4 out this summer.

5 Jumping ahead for a moment to question
6 2C, what if the full extent of US state submerged
7 lands became the marine coastal waters? That's
8 everything in purple you see here. It goes all
9 the way up to the border of Louisiana and
10 Mississippi.

11 Paired against all ESI shoreline
12 features, that's in green, the purple lines of
13 state submerged waters extend farther inland than
14 one would expect of waters associated with open
15 ocean and unprotected coastal habitats.

16 Returning to question 2B, the extent
17 of EPA's coastal waters, and that's 20 nautical
18 miles offshore, is a much wider band that is more
19 representative of open water than the land/ocean
20 interface covered by the offshore extent of state
21 submerged lands.

22 So the bright purple here is the state

1 submerged lands, and then the softer purple is
2 the 20 nautical miles offshore. I'm almost done.

3 Touching on question four, do inland
4 water bodies include coastal beaches? We return
5 again to the mandate. In and of themselves,
6 inland shorelines will not suffer permanent or
7 long-term damage from a hazardous liquid release.
8 It's the life on the shorelines that would suffer
9 and that is what we're trying to protect.

10 In fact, we're already doing this
11 through the ecological USAs we currently have,
12 and like I said, you'll see that much more
13 coastline is covered by the eco USAs when the
14 updates come out.

15 Questions five and six speak of
16 combining the definition of coastal beaches and
17 marine coastal waters with existing ecological
18 USAs. Not only do the definitions need to remain
19 separate, but they must be distinct from one
20 another.

21 These new USAs will be mapped with
22 jurisdictional boundaries that are based in

1 policy which can change over time. It's
2 important to be specific about why we're calling
3 them out as high consequence areas.

4 And to end, we did a great job with
5 the definitions of the existing HCAs. They are
6 grounded in science and have been protecting our
7 nation's most sensitive environments for 20
8 years.

9 They do need to be updated, which is
10 happening, and when you see the new updates, you
11 will see they cover much more of our nation's
12 coastlines than before because most environmental
13 datasets are digital now and they weren't 20
14 years ago, and that's the reason why we had the
15 absence of eco USAs along our coastlines.

16 Let's think these new HCAs through
17 carefully so we can keep up the good work and
18 continue to protect these important areas for
19 future generations. Thank you very much for your
20 time.

21 MS. MURRAY: Okay, thank you, Bonnie,
22 for sharing those insightful points. Next up we

1 have Mr. Carl Weimer, who is the Executive
2 Director of the Pipeline Safety Trust. Many of
3 you know who he is.

4 In that capacity, he has served as a
5 member of the U.S. Department of Transportation's
6 Technical Hazardous Liquid Pipeline Safety
7 Standards Committee And also the Canadian Energy
8 Pipeline Association's External Advisory Panel
9 and the Governor appointed Washington Citizen
10 Committee on Pipeline Safety.

11 Carl has been called upon to testify
12 to the U.S. House and Senate multiple times as a
13 witness by the National Transportation Safety
14 Board and was honored in 2015 as a champion of
15 change by the White House for his pipeline safety
16 efforts.

17 He has organized 12 National Pipeline
18 Safety Conferences, pushed for stronger pipeline
19 safety legislation on the national and state
20 level and regularly serves as an independent
21 source of pipeline safety information for news,
22 media, local government and citizens across the

1 country. I'm certainly looking forward to
2 hearing what Carl has to say.

3 MR. WEIMER: Good morning. Is it
4 still morning? I'm from the West Coast so I'm
5 time zoned challenged right now.

6 Well now for a totally different
7 perspective. I thank PHMSA for inviting me to
8 represent the public, one idea from the public.

9 Just a few comments. You know, it's
10 been three full years since the PIPES Act was
11 signed so it's a little confusing to us why PHMSA
12 is still asking the public in this meeting where
13 it can find GIS datasets. It seems from what
14 we've heard they already have the datasets. It
15 seems like we just need to be moving forward.

16 There was a previous workshop in 2017
17 that basically asked and discussed many of these
18 same questions. So I'm not quite sure why we're
19 doing it again later.

20 And also we'd just like to point out
21 that the maps that have been discussed weren't a
22 part of the pre-read. The agenda in the pre-

1 reads of the meeting were not up for the public
2 to review and comment on until just the last
3 couple of days. So, you know, we're kind of at a
4 disadvantage to make legitimate comments at this
5 workshop.

6 It's also difficult for the public to
7 comment because we're commenting on all of this
8 USA stuff with blinders on because the public is
9 not allowed to see where the majority of the HCAs
10 are.

11 We're not allowed to see most of the
12 USA designations. So we're kind of guessing what
13 it is we're talking about. And as I already
14 mentioned, none of the maps were provided
15 beforehand so we could compare what PHMSA is
16 considering.

17 One of the things we certainly hope
18 PHMSA does is avoid repeating past mistakes in
19 defining and mapping USAs. Maps and definitions
20 should look like and define what is commonly
21 meant.

22 Congress mandated commonly understood

1 areas as USAs. They said include riverine and
2 estuarine systems. They said include National
3 Parks. They said include wilderness areas,
4 wildlife preservation areas and wildlife refuges
5 and wild and scenic rivers.

6 Those are things that the public
7 understands. When you go and look at what PHMSA
8 has turned into USAs, none of those things are
9 defined and used.

10 So if you're defining and describing
11 an elephant -- I stole this picture from Dr.
12 Murray -- if you're describing an elephant, your
13 picture should be a complete and recognizable
14 elephant, not some weird piece of an elephant.

15 PHMSA's implementation has been
16 tortured and not followed and perhaps included
17 the Congressional mandated intent. We don't know
18 if National Parks of wildlife refuges are
19 included in USAs because we can't see those. We
20 have those other definitions, and we don't know
21 where the overlap is.

22 For example, we were very surprised

1 when Congress thought they had to mandate the
2 Great Lakes as an unusually sensitive area. You
3 know, everybody -- I grew up in Michigan.
4 Everybody knows that lives in Michigan that the
5 Great Lakes are an unusually sensitive area. So
6 why the need for a mandate?

7 When you hear that the waters where a
8 substantial likelihood of commercial navigation
9 exists, we think, wow, the Great Lakes are
10 already unusually sensitive areas because
11 commercial navigation exists throughout the Great
12 Lakes. But, no. Substantial likelihood of
13 commercial navigation turned into commercially
14 navigable waters which then turned into a map of
15 actual freighter and tanker routes.

16 So what was included as USAs for the
17 Great Lakes are just those dark lines where
18 freighters and tankers go, not the whole Great
19 Lakes themselves.

20 Now we don't know as the public
21 whether this makes any difference because the
22 rules say, could affect. It's hard for me to

1 imagine how a pipeline company thinks they could
2 spill oil into the light blue areas and not
3 affect the dark blue areas.

4 So perhaps from an individual company
5 standpoint, there's no real difference because
6 anything in that water could affect something
7 else.

8 You know, this tortured definition of
9 commercial waters left out commercial fishing.
10 It left out treaty reserved tribal and commercial
11 subsistence fishing. It left out charter and
12 pleasure boats, all of which provide massive
13 commercial benefits to the Great Lakes.

14 But Congress in 2016, sensing that
15 PHMSA hadn't done a very good job of defining
16 these things did an unusually explicit directive.
17 They said you shall revise this section to
18 include the Great Lakes coastal beaches and
19 marine coastal waters.

20 To take it one step further, while
21 we're all arguing today about where the actual
22 HCAs are and what are USAs, the real meat of the

1 integrity management rule is the could affect
2 part of the rule.

3 So you can define the lake, but then
4 the industry has to define where a spill could
5 happen that could affect that lake, which is a
6 much larger area.

7 There is a number of issues to
8 resolve. We need to come up with regulatory
9 definitions. We need to figure how those are
10 defined in USAs and mapped. And we need guidance
11 on the could affect area and how operators will
12 be held accountable for these things.

13 For the Great Lakes in the marine
14 coastal waters, we suggest the well-defined
15 scientifically understood and inclusive watershed
16 base method to show both the defined USAs and to
17 provide the guidance for the could affect areas.

18 Agencies like local storm water
19 districts, local watershed protection districts,
20 state environmental agencies and the EPA for
21 years now have been harking on the public like us
22 to make sure we tune up our car because a drip of

1 oil from our car will end up in the watershed,
2 which will end up in the local waters.

3 We need to worry about where our dogs
4 take a crap because it will end up in the local
5 waters. Farmers have been getting dinged all
6 over the place for fertilizers hundreds of miles
7 upstream because it ends up in the local waters.

8 So you can use this same thing for
9 defining the Great Lakes. Use a watershed
10 approach. Here's a watershed approach. The
11 Great Lakes are in blue. Any sixth grader that
12 grew up in the Great Lakes will know that.

13 The green area is the Great Lakes
14 watershed. Anything you spill in the green area
15 could affect the blue area. So this is the type
16 of approach that should be used. This then puts
17 the onus on the operator of the pipeline segment
18 based on the regulations in their integrity
19 management plan to demonstrate if they have a
20 pipeline anywhere in the green area that could
21 have a spill, whether it will affect those blue
22 areas or not.

1 The same could be done for coastal
2 marine waters using the watershed approach. And
3 some of these watersheds are huge. So if you own
4 a pipeline in Montana that might spill into the
5 Yellowstone River and you know you're not going
6 to recover all that oil, you could affect the
7 marine coastal waters of Louisiana.

8 The Clean Water Act seems like a
9 logical possibility, the use for marine coastal
10 water designations, along with some others.
11 There's maps that were included in there, if you
12 followed the links, that show all the stuff.

13 But our main comment is we've spent
14 three years fussing over the details of this,
15 trying to pick the GIS layers, when in the
16 reality the could affect part of the rule is
17 broad enough to include all of the concerning
18 details.

19 So pick a GIS layer and let's move
20 forward. Pick a layer that's used for other
21 purpose. Pick GIS that avoids confusion and
22 conflicts with regulatory schemes. Pick some

1 options. Put them out there to interested folks
2 to comment on and get an explanation and put out
3 a proposed rule so we can get this done so the
4 time will start ticking on when the industry has
5 to put this.

6 Adopt a rule, enforce it, hold the
7 operators accountable and make the USAs and HCA
8 designations publicly available on NPMS so the
9 public has a sense of whether PHMSA, the
10 operators, are doing a good job of defining those
11 things. Thank you.

12 MS. MURRAY: All right. Thank you
13 very much, Carl. We look forward to some robust
14 conversations over the Q&A part. Lots of great
15 points so far from the panelists made. And we'll
16 move on to our next panelist, our final panelist,
17 and then we'll have Q&A.

18 Jacques Rotolo is an engineer and
19 pipeline compliance specialist with the Louisiana
20 Department of Natural Resources, Pipeline
21 Enforcement Division, where he is the lead
22 inspector for integrity management.

1 Jacques has been with the Department
2 for more than 13 years. Prior to that, his
3 employment with the State of Louisiana, he's had
4 a successful career as an engineer for a natural
5 gas distribution company and a compliance
6 specialist for a hazardous liquid and gas
7 transmission gathering company.

8 So with that, please welcome Mr.
9 Rotolo.

10 MR. ROTOLO: Good morning. I'm glad
11 to be invited here. Although we did not see each
12 other's presentations so mine may be a little
13 redundant. Of course, we're here for unusually
14 sensitive areas, USAs.

15 There are existing USAs and other high
16 consequence area drivers for hazardous area
17 pipelines in Louisiana. My presentation is going
18 to be more directly just for Louisiana. I'd say
19 not just for Louisiana, but how it affects
20 Louisiana.

21 Of course, high consequence areas
22 means ecological USAs, drinking water USAs,

1 populated areas as high and other and
2 commercially navigable waterways.

3 In Louisiana, we have numerous
4 existing ecological USAs in our coastal zone.
5 And these ecological USA candidates include
6 imperiled species, ecological communities,
7 threatening endangered species, depleted marine
8 mammals and migratory water birds concentration.

9 We also have numerous drinking waters.
10 And these are from the NPMS, National Pipeline
11 Mapping System. The drinking waters include
12 public water systems, source water protection
13 areas and source aquifers.

14 Also, as mentioned in the previous
15 presentations, we have highly populated areas and
16 other populated areas. And this map here is also
17 from the NMPS depicting these areas.

18 Of course, the highly populated areas
19 are areas with 50,000 or more people, with a
20 concentration of at least 1,000 people per square
21 mile and the other populated areas, such as
22 cities, towns and villages or other defined

1 areas.

2 Also part of the HCAS are commercially
3 navigable waterways. And this is also from the
4 NMPS, and it shows the navigable waterways within
5 the Louisiana coastal zone.

6 This is just a general map found on
7 the internet showing the Louisiana coastal zone
8 lined out in the white and black dotted lines.
9 And it indicates the existing pipelines on the
10 Louisiana coast. As you can see, we have a few
11 pipelines.

12 This is from the Louisiana Department
13 of Natural Resources. And it just shows the
14 coastal boundary, just without the -- a little
15 simpler view illustrating the coastal area.

16 And then this is the previous snap
17 showing the coastal zone again. And when you put
18 the coastal zone, you see all the navigable
19 waterways and the other USAs. You see that the
20 pipelines cover most of the coastal zone and
21 therefore, what we have as far as the effect of
22 the pipelines on the USAs and HCAs -- excuse me.

1 This is what we think would be the
2 effects of the new marine coastal water
3 definition in Louisiana. Because of the existing
4 HCA drivers and the possible water transport of
5 hazardous liquids in southern Louisiana, we
6 expect a minimal increase in pipeline companies
7 new to the integrity regulations, if any, and a
8 minimal to a marginal increase in actual
9 pipelines that would be new to the integrity
10 regulations, but a definite increase in the
11 assessment mileage that these current pipelines
12 assess on the integrity management regulations.

13 And this is dealing with some of the
14 questions that were generated, the marine coastal
15 water definitions. We feel that estuary swamps
16 and marshes should be included in the marine
17 coastal waters definition as they are habitats
18 with diverse wildlife species. They traverse by
19 pipelines frequently and are difficult to
20 cleanup, restore and mitigate.

21 Also for coastal beaches and marine
22 waters, we would say combine the coastal beaches

1 and marine waters into the existing USA
2 ecological resources since they are all
3 considered ecological and produce a single
4 coastal area USA definition and that they include
5 both coastal waters and marine coastal waters.

6 And for shoreline sensitivity, of
7 course, shoreline sensitivity would differ by
8 shoreline type. And the effects of a shoreline
9 type would differ by hazardous products such as
10 crude oil, refined products and highly volatile
11 liquids.

12 And for better or worse, that
13 concludes my presentation, and this is my contact
14 information. Thank you.

15 MS. MURRAY: All right. I want to say
16 thank you to all of our panelists. Let's give
17 them a round of applause.

18 So what I'll be doing is facilitating
19 an open discussion and questions regarding any of
20 the topics you've heard, talked about from the
21 panelists, certainly anything that you may have
22 thought from looking at and previewing the

1 preview questions as well.

2 And to kind of tee up the discussion,
3 I want to first go back and just draw a few
4 common themes myself.

5 So from the various panelists there
6 were some discussions earlier around this can be
7 complicated. Let's no oversimplify it to I think
8 we're complicating it too much. Let's get on
9 with it already. And I'm paraphrasing.

10 And so I guess with the panel -- and
11 then there was some questions regarding the
12 coastal beaches and marine waterways where
13 combining them doesn't make good sense. And then
14 other sentiment where there may be some
15 situations where it may be more appropriate to
16 combine it.

17 So I just want to tee that back up to
18 the panel and just kind of talk through somewhere
19 meeting in the middle. And that's the essence of
20 these kind of public meetings is to talk through
21 some of those things.

22 Any thoughts? Any additional

1 thoughts?

2 MS. FREEMAN: All right. To address
3 the first one about GIS data is complex but hurry
4 up. Let's get on with it. I get that. It's
5 been years coming. And the GIS data is complex.

6 So I think we've just finally reached
7 the point where you guys are doing pilot tests,
8 and we're really looking at this information. I
9 did get the preview questions only about a week
10 ago, so I was only able to do a limited amount of
11 research and just picked Louisiana out of the
12 hat.

13 So I do think that we need to pick
14 some representative states and look at their
15 shoreline types. I did mention a couple, you
16 know, from California to South Carolina and
17 Louisiana, these are completely different
18 shoreline types.

19 We run a pilot test on the data we
20 have discussed. We are discussing now. And, you
21 know, come up with some solid, solid options
22 here. And, yes, that will take time. Hopefully,

1 it won't take too much time.

2 And then secondly about making these
3 definitions distinct, so my concern is moving
4 forward we want to make sure that future
5 generations -- you know, as we get older, we
6 retire and new people come onboard. The idea of
7 these new high consequence areas is grounded in
8 science and is as solidly understood,
9 commonsense-wise, as the high consequence areas
10 and unusually sensitive areas we have today.

11 I don't want that knowledge to
12 disappear as, you know, we retire and move on.
13 And so I do think they need to be distinct
14 definitions that specifically call out why they
15 are of high consequence, why they are unusually
16 sensitive. And then when datasets are developed
17 in the future because, I mean, I'm thinking 20
18 years out -- I've been doing this for 20 years --
19 everything still holds.

20 MS. MURRAY: Okay. Okay, Carl?

21 MR. WEIMER: Yes, I think one of the
22 things that perhaps could help the public

1 understand this better is if we could see some
2 graphic descriptions of how pipeline companies
3 interpret this data.

4 I mean, there's a number of pipeline
5 companies that operate in the Great Lakes,
6 Enbridge, Marathon, Wolverine. We don't know how
7 they interpret the data and how they define their
8 could affect areas.

9 You know, if those companies are
10 already including all of their pipelines in the
11 Great Lakes states as HCAs because of the could
12 affect rule, then worrying about the definition
13 really is not as important.

14 But we never get to see that
15 information. So perhaps it would be good to get
16 some companies to share that with us because I
17 suspect that some of those companies are doing
18 that.

19 And it would also be very interesting
20 to know if Marathon does the could affect
21 interpretation the same way that Enbridge does,
22 the same way that Wolverine does or if they're

1 all interpreting it differently. And that ought
2 to tell PHMSA something about the need for
3 clarifying that could affect definition.

4 MS. MURRAY: Thanks, Carl. That's a
5 point well taken that while operators are
6 applying some of this data to their integrity
7 management programs and determining their could
8 affects, having more insight into how that's done
9 and implemented could be very helpful in terms of
10 understanding how to move this forward.

11 So that's something that we can
12 certainly take back and can elaborate with
13 operators to find out how that can be done. I
14 think that's a point well taken.

15 What I do want to offer, too, I know
16 Carl made a good point about we've talked about
17 this in 2017. We're here in 2019, and we're
18 still having conversations. A point well taken.

19 And I do want to add to that, PHMSA,
20 when we held our public meeting back in 2017 we
21 were scratching our heads wanting to work and
22 collaborate to understand what information and

1 data was existing and possibly available and
2 definitions as well and also having an
3 opportunity to do some pilot testing on some of
4 the data sources that came out of that, emerged
5 from that conversation. And that emerged some of
6 the questions that we're teeing up here for
7 today.

8 So with that being said, Sam, are
9 there any questions from the webcast viewers from
10 the panel? There are none. Okay. Thank you.

11 Well, I will open it up to the floor.
12 Are there any questions from any of our in-person
13 participants?

14 MR. LESNIACK: Chuck Lesniack, CL3
15 Consulting, representing the public. I think
16 mainly I've just got some comments about where
17 we're at. I would agree with Carl. I think we
18 are overcomplicating it.

19 I think that the idea that we're going
20 to split shorelines into different
21 classifications and think about going 5 miles
22 out, 10 miles out, 20 miles out from a shoreline

1 to define HCAs or USA, you know what? I think
2 ecological science tells you that shorelines and
3 water/land interfaces are some of the most
4 ecologically sensitive areas that we have
5 regardless of location, regardless of shoreline
6 type. And I think that any shoreline should be
7 designated as an HCA just because of that.

8 Spills are very difficult to clean up
9 in those kind of areas. Twenty miles out while
10 you do start to get more of an offshore, open sea
11 kind of environment, it's that 20 mile zone.

12 And we could split hairs. Is it 15
13 miles? Is it 20 miles? Is it 30 miles? It will
14 vary somewhat by location. But that's the area
15 where you've got critical fisheries. All around
16 the country, if you have a spill within that 20
17 mile zone, it's highly likely to impact the
18 beaches and shoreline because it's very difficult
19 to contain in those areas.

20 To me it's a no brainer that we
21 designate 100% of our shoreline as an unusually
22 sensitive area because it meets the definition of

1 likely having permanent or long-term damage.

2 I've been all up and down the Texas
3 coast. There's not a location hardly anywhere in
4 the Texas coast that you can't walk today and
5 find evidence of a past oil spill, not anywhere.
6 And you will see tar balls all along the coast.

7 And so I think that that's a no
8 brainer. I think we're making this a lot more
9 difficult than it has to be.

10 And while we do have to have pipelines
11 cross through these areas and it will impact
12 existing pipelines, it will encourage pipeline
13 operators to avoid these areas with new
14 pipelines.

15 And even though we can't totally avoid
16 them, we ought to be trying to avoid them where
17 we can. And I think designating them as HCAs and
18 USAs will encourage operators to do that where
19 possible rather than have a pipeline in an area
20 that we damage it and make it more sensitive by
21 harming the habitat that may be close to pristine
22 today. Well, later it does have imperiled

1 species because we damaged it by placing the
2 pipeline there.

3 MS. MURRAY: Thank you. Any comments
4 from the panel on anything Chuck has mentioned?

5 MS. FREEMAN: I just I -- whoops.

6 MS. FARRELL: That killed my Air Book.
7 It's all right. It's still good. Sorry. Yes,
8 did that wake everyone up? Sorry about that.

9 Linda Farrell, Executive Director of
10 Pipeline Safety Coalition. So to follow-up on
11 that, you know, and what Carl has stated, what I
12 think we the public are saying is yes. Can we
13 move forward instead of getting stuck in the
14 minutia of what's this federal agency's
15 definition of unusually sensitive area? Does
16 PHMSA agree? Does another agency agree?

17 And the consideration of whether or
18 not to have coastal beaches or the numbers of
19 considerations, as Chuck said, I think there's
20 got to be a consensus scientifically that our
21 coasts are unusually sensitive areas.

22 And I'm not sure that we've even

1 discussed whether or not the considerations have
2 included existing social impacts, human
3 infrastructure pipeline. And I'm getting into
4 minutia that I say I don't want to get into, but
5 it's in support of the fact that there are so
6 many layers that if we keep trying to pull back
7 layers, we're going to be where we were in 2017
8 and where we are today.

9 One of the things that we've noticed
10 with the public is that they are paying attention
11 to what's coming out of PHMSA. They're paying
12 attention to things like the advisories, the 2014
13 advisory, that PHMSA published for warning about
14 repurposing pipelines. And this is just an
15 example, in 2019 for putting pipelines into
16 unusually sensitive areas, topography
17 considerations.

18 And the public is realizing that these
19 are great initiatives. These are great
20 advisories from PHMSA, but they don't have any
21 teeth. The operators don't have to even read
22 these let alone follow these advisories.

1 And so you have a public who is seeing
2 a lot of talk, a lot of inaction. And I think
3 Carl is spot on. We need to stop talking and
4 reevaluating and re, re, re, re, re and give them
5 what we talked about earlier today.

6 You know, six years from now we're
7 still going to be talking about the same thing if
8 we don't change the way we communicate and the
9 way we perhaps communicate with our legislators
10 and Congress about how regulations are and are
11 not codified.

12 MS. MURRAY: Okay. Thank you for
13 that. We have another commenter.

14 MS. CROWNHEIM: Hi. Patty Crownheim,
15 Rethink Energy New Jersey. I also serve on the
16 board of the Watershed Institute. So this is
17 fascinating to me, the conversation about how one
18 uses science to determine these USAs.

19 And I have to say that, you know, to
20 look at this from a watershed perspective, and
21 there is a lot of wonderful watershed mapping in
22 the country, it makes a lot of sense from a

1 scientific basis for me because it includes, you
2 know, you have to look at the entire shed from
3 source to end. And that includes a lot of times
4 the C1 streams and the other issues.

5 But I have to say that in seeing a lot
6 of pipeline infrastructure come through and exist
7 in New Jersey, I have never seen, and maybe New
8 Jersey is unusual, but I have never seen an
9 operator not be aware of a sensitive area. And
10 perhaps and in their proposals say, yes, we're
11 going to up our class location or treat it as
12 such. I haven't seen that.

13 What I unfortunately also haven't seen
14 is the follow through on that. So that's why
15 that language could affect, as Carl mentioned, is
16 so troublesome. You know, where, it's the
17 enforcement piece, and it's the follow through.
18 And that's what the public doesn't see also.

19 So I think the definition parts, I
20 mean, and I certainly appreciate the work that
21 went into all of this mapping and making this
22 accessible and having it be overlaid with

1 pipeline so people can see it. But it's really
2 what do you do with it, right? And how is it
3 enforced? How is it used by the operators? And
4 that's something that the public really wants to
5 see more of and have more transparency.

6 MS. MURRAY: Hey, Patty, while you
7 still have the microphone, I'm putting you on the
8 spot. Carl mentioned, particularly with the
9 Great Lakes, that there was an area he had a good
10 visual of an area where there's a watershed
11 boundary around the Great Lakes.

12 Do you have any thoughts on that since
13 you said you, you know, have some watershed
14 experience that you support, some of his points
15 regarding include that, the watershed area
16 surrounding the Great Lakes?

17 MS. CROWNHEIM: Well, I'm not familiar
18 with the Great Lakes. My focus is on the State
19 of New Jersey primarily. But I would certainly
20 encourage PHMSA and anyone working on this to
21 reach out to the Great Lakes watersheds. I'm
22 sure they exist and they're there. I would be

1 happy to answer that.

2 I know in New Jersey, absolutely, you
3 want to look at entire watersheds and especially
4 the most critical. Even within the watersheds,
5 there are areas that are more critical than
6 others, especially the source areas, the cleanest
7 streams.

8 But I have to disagree with that we
9 don't want to call something an eco-USA area if
10 there's no endangered species or threatened
11 species there yet because we have seen a comeback
12 of species.

13 For instance in the Raritan Bay, there
14 are a comeback of species. We have whales now,
15 you know, North Atlantic Right whales, right now,
16 playing in the Raritan Bay. And that's
17 miraculous, a species that has so few left that
18 we've given most of them names. So we're really
19 excited about that.

20 MS. FARRELL: Christie, could I jump
21 in here again? Linda Farrell. And this speaks
22 to both what Patty and Carl talked about. And I

1 refer to earlier with the bottom-up approach
2 conservation districts. And Carl mentioned
3 farmers have traditionally been very restricted
4 as to what they can and cannot put into a
5 watershed.

6 And so there are best management
7 practices that require, require farmers to act in
8 a certain way. And from our experience, we have
9 not seen that pipeline infrastructure development
10 is required in these unusually sensitive areas to
11 follow best management practices.

12 Frankly, they are not held to the same
13 standards in our experience that farmers are.

14 MS. MURRAY: Thank you.

15 MR. LESNIACK: Christie, Chuck
16 Lesniack. I can speak to the watershed question.
17 I've spent 30 years doing watershed protection
18 and surface water protection.

19 And what Carl is talking about is
20 absolutely spot on that if you're only protecting
21 the actual water body itself, that just flies in
22 the face of water quality protection science and

1 best management practices. That it ought to be
2 being looked at on a watershed basis and that the
3 science is there, the engineering is there to do
4 the kind of analysis pretty easily.

5 And PHMSA doesn't have to do this.
6 They could make this a best practice required of
7 the operator that says for every segment of your
8 pipeline that's in a drainage area -- you know,
9 the Great Lakes are a little different because
10 their drainage areas are huge.

11 But you can take that even to a local
12 level to a smaller lake or river and take those -
13 - you're trying to protect a water body. You
14 need to be looking at the watersheds that drain
15 into it and the pipelines that are in those
16 watersheds.

17 And we did an analysis in Austin -- or
18 an analysis was done in Austin for a spill from a
19 pipeline that we have there in Austin. The spill
20 was predicted to be able to get into a creek
21 within minutes before responders could ever be
22 there and move four miles an hour.

1 And so if you're not managing on a
2 watershed basis to protect surface water then
3 you're missing the point.

4 MS. MURRAY: Thank you for that. Are
5 there other comments or questions that we can
6 help answer? Otherwise I'll tee up a few more.
7 Oh, yes, Chuck has another point.

8 MR. LESNIACK: Chuck Lesniack. I've
9 got a question for Leigha and maybe for you,
10 Christie. So the data, I like what you all are
11 doing with looking at this data and pulling the
12 dataset. But as I mentioned in the earlier
13 session, you know, a lot of this is pretty gross
14 level data when you're looking at this kind of
15 scale.

16 And I don't think that should slow
17 down the adoption of trying to make it more
18 accurate. But as the operators, as local
19 governments, as state governments, develop more
20 accurate data, say an operator does their could
21 affect analysis. And they go into an area into a
22 watershed. And they do some on the ground

1 surveying, find out that the data that PHMSA has
2 got is actually off quite a bit and maybe in one
3 direction or another.

4 Will operators or local governments or
5 other sources that you all can rely on, will they
6 be able to submit corrected data and so that
7 PHMSA over time develops a more accurate dataset
8 on kind of a hyper-local basis or will we
9 continue to rely on sort of this generic gross
10 level data?

11 MS. GOODING: What I can say to that
12 is that the -- excuse me? I think it's on. Yes.
13 You can hear me, correct? Yes.

14 All right. I know the process to
15 develop the data that specifically adheres to
16 this incredibly complicated definition that's in
17 the regs, it is very complicated, justifiably so.
18 It is science and science is never that clear or
19 never that easy or straightforward I will say.

20 Taking all of these data sources,
21 these national heritage programs that bring
22 together all of this data and give it to

1 NatureServe, who then uses that data and other
2 datasets to kind of adhere to that very specific
3 definition.

4 It's been a large process where we
5 don't have the personnel or expertise inside of
6 PHMSA to take on that project ourselves. We hire
7 experts in that specific field to do that
8 process.

9 So there has been no plan to date to
10 start accepting opinions or anything on a much
11 smaller scale and changing the data from, like, a
12 crowd source type of approach. There has been no
13 plan. I appreciate the comment. And I think
14 it's something to consider. But to date that is
15 not the way that we have been building the data.
16 We don't have that plan yet.

17 MS. MURRAY: And it's certainly
18 something to consider to your point, Chuck. If
19 there's an opportunity for us to think about that
20 a little bit more and figure out how that could
21 work with some level of validation to it to make
22 sure that we have some reliability and comfort

1 around what is being submitted if we were to
2 accept changes based on actuals that they, you
3 know, have the experience working with. That's
4 something that we should definitely keep talking
5 about and see how that could work.

6 Thank you. Yes, two commenters from
7 our panel.

8 MR. WEIMER: Yes. It might be
9 interesting to Chuck's point to know if there's
10 any of the pipeline companies that actually do
11 outreach to local and state governments to try to
12 define their own HCAs and their could affect
13 areas. Because, you know, they have that liaison
14 function with local governments. And they could
15 reach out to governments and say here's what
16 we're using as our could affect areas. Do you
17 agree? And I don't know if companies do that or
18 not.

19 MS. FREEMAN: I can address that.
20 Yes, they do. So not only do they go out into
21 their operating areas and collect current data
22 and define operator identified high consequence

1 areas and unusually sensitive areas, but I
2 personally on behalf of several operators have
3 submitted updated information about specific
4 plants and animals that we have found out in the
5 field to confirm that, yes, they are still there,
6 and this is where they're located.

7 And so the best way at this point in
8 time because PHMSA is limited in resources is to
9 actually submit that information to the source
10 agencies. And they incorporate that into their
11 datasets.

12 And so I have been successful in doing
13 that with species in Utah to NatureServe and also
14 the commercially navigable waterways cleaning
15 that up around Fairbanks.

16 So right now even though you can't
17 submit it to PHMSA, and I'm glad there's a
18 crowdsourcing way to do it, there is a way to get
19 that information updated. And then when PHMSA
20 updates their layers, that information comes in.

21 I also wanted to address just to clear
22 up a bit of a misconception about the watershed.

1 So watersheds are considered by operators when
2 their determining could affect pipeline segments.

3 They run spill models. Okay? So they
4 can see where product would go should it escape
5 the pipe, downhill, down slope and downstream.
6 Okay? These downstream traces can go very far.

7 You are picking up all of your
8 downstream waters in a watershed downstream from
9 your pipeline, not necessarily all. So even
10 though it's not the entire watershed, the
11 watershed is being looked at through these spill
12 models and any HCAs that are downstream from you
13 could be impacted.

14 And so I just wanted to make sure that
15 that was clear that that is definitely something
16 that is being done and has been done for the last
17 20 years.

18 MS. MURRAY: Thank you. So I'm going
19 to tee up a question for our PHMSA staff and talk
20 a little about the complexities over defining
21 these unusually sensitive areas and how that
22 impacts the overall definition of HCAs.

1 Is it as simple as it sounds to just
2 pick some alternatives and to get those mapped?
3 Or are there other considerations, legal,
4 technical and so forth that have to be factored
5 into the discussion?

6 MS. GOODING: Sure. I can summarize
7 that pretty quickly. In public service, it's not
8 what Leigha says. There are a lot of different
9 procedures and different people and different
10 authorities to speak with.

11 And what at first sounded very simple
12 to me as a geographer to define what could be a
13 coastal beach or what would be the Great Lakes?
14 It did sound very simple until we opened that can
15 of worms.

16 And you've got a couple different
17 voices in the room. And you can consider the
18 actual legal rulemaking process and who all is
19 going to be looking at what you're proposing and
20 picking it apart and questioning why you did this
21 going through various levels at PHMSA. Going
22 through all of our public meetings. Going

1 through the OMB and the whole rulemaking process.
2 And it became very un-simple very quickly.

3 As much as I do personally agree, pick
4 something and move on. Let's actually make an
5 effect. I completely hear what you're saying.
6 But we're really held to a standard in our
7 process that makes us question things a lot
8 deeper. And that has certainly complicated what
9 seems like a very simple thing.

10 MS. MURRAY: And is there a
11 correlation between how you define it, finding
12 data sources to be able to map it? Can you talk
13 a little bit about the correlation between the
14 definition and the data that supports mapping it?

15 MS. GOODING: Absolutely. First of
16 all we at PHMSA are not ecological scientists by
17 trade. We should not try to assume that we know
18 the answers to these very scientific water-based
19 questions better than the actual scientists out
20 there from, say, NOAA, USGS, work that Bonnie
21 does and other agencies who are actually experts
22 in this field.

1 So we do look for authoritative and
2 existing definitions from ideally other agencies
3 because we do need it at a national scale. It
4 can't just be what's in the Florida Panhandle.
5 And it needs to be covered and consistent for the
6 entire United States, the entire coastline.

7 And one of the complications that we
8 come across in other datasets and other HCAs and
9 USAs is how detailed and how scientific the
10 definition can get and then how do you create
11 that data?

12 So one of the approaches we were
13 trying to look at was to look at the data that
14 has been produced by these expert agencies, the
15 definitions that they have. And back into a
16 definition and a dataset from that approach to
17 almost look at the data that's available because
18 I think spatially. So when they spatially show
19 what they consider to be a beach or what they
20 consider to the Great Lakes, it's almost more
21 descriptive to me than the words of what is the
22 Great Lakes?

1 So we started with that spatial
2 approach and are thinking of trying to back into
3 a definition by starting with the mapping data.
4 I hope that helps.

5 MS. MURRAY: That's very helpful. And
6 I know Alan mentioned earlier that words matter.
7 So to your point, the definition --

8 MS. GOODING: They both matter.

9 MS. MURRAY: -- and the mapping, they
10 need to closely integrate with each other.

11 I heard a couple of sentiments
12 regarding -- one sentiment was HCAs must be
13 grounded in science, which really resonated with
14 me. And then, I think, Linda, you mentioned
15 having a scientific conscience or at least
16 consensus around some of these topics we've
17 discussed.

18 So in terms of defining some of these
19 USA and, you know, ecologically sensitive and USA
20 sources, how does that currently -- and Bonnie,
21 this is for anybody on the panel.

22 How does the simplicity and then the

1 complementary scientific and making sure that it
2 is grounded in science, how do those interrelate?

3 MS. FREEMAN: You mean the common
4 understanding of a phrase versus the scientific
5 interpretation of it?

6 MS. MURRAY: Yes.

7 MS. FREEMAN: You know, that does take
8 a bit of back and forth. It does take
9 conversation. I know some people are tired of
10 talking about it, but it does take some back and
11 forth. It takes pilot tests. It takes looking at
12 what is available there.

13 You know, one of the things that tied
14 our hands back when we first defined high
15 consequence areas was that not all the datasets
16 that we wanted to use were digital yet. Many of
17 them were hard copy. That's why you see the
18 coastlines that do not have eco-USAs from the
19 2001 data.

20 You know, it's finding these areas.
21 We're much more fortunate now. A lot, much of
22 the environmental data, is digital. But I do

1 think it takes a back and forth. It takes a lot
2 of conversations. It's not a one-to-one mesh.
3 So you have to work to get it.

4 MS. MURRAY: Okay. Thank you. Sam?

5 MR. HALL: We have a couple of
6 comments and one question from our web viewers.
7 The first is from Ed Langraf, who is the chairman
8 of CAMO, which is a consortium of pipeline
9 operators. CAMO stands for coastal and marine
10 pipeline operators.

11 Ed says a comment. Our pipeline
12 member operators already understand the
13 sensitivity of marine areas either inland or
14 coastal or offshore. I don't think a lot of work
15 needs to occur in that regard.

16 Many employees of our member operators
17 live in those USA areas and their right-of-way
18 staff work there. At CAMO we take a proactive
19 approach to close gaps in marine pipeline safety
20 engagements and damage prevention.

21 CAMO has over five environmental and
22 NGO partners who are continually educating on

1 marine pipelines and having a simple, realistic
2 definition we can relate to all of our
3 stakeholders will be strongly advised.

4 The edges and interface of water and
5 land is the most important to habitat and to
6 protect pipelines from erosion, subsidence, et
7 cetera. Again, I agree the simpler the
8 definition the better. It will help us in our
9 outreach as well. The next question.

10 MS. MURRAY: Thank you, Ed.

11 MS. HALL: Thank you, Ed, for your
12 comment. The next question is from Morgan
13 Powell. The question is if this whole
14 conversation is about affecting water bodies, why
15 are offshore pipelines not included in the HCA
16 rules? This is from Morgan Powell with Genesis
17 Energy, a GIS supervisor.

18 The question again, if this whole
19 conversation is about affecting water bodies, why
20 are offshore pipelines not included in the HCA
21 rules?

22 MS. FREEMAN: I can take a stab at

1 that. So offshore pipelines are included in the
2 HCA rules if they could affect an HCA.

3 And the first time around with the
4 existing HCA definitions, it was mainly on land
5 is where our high consequence areas are.

6 So now, 20 years later, we're trying
7 to do the land interface. So we're getting a
8 little further offshore. But, yes, offshore
9 pipelines if they can effect a current existing
10 high consequence area are under the integrity
11 management rule.

12 MR. HALL: One last comment from Nan
13 Gray with the Soilworks Incorporated. We've
14 heard several comments from Ms. Gray. It's
15 simply a comment not a question. She says the
16 issue of a regional no-build zone for pipeline
17 construction is appropriate for the natural,
18 undisturbed areas that ought to be avoided.

19 Many of those undisturbed areas are in
20 steep land in the Appalachian Mountains and our
21 national forest. Just a comment.

22 MS. MURRAY: Okay. Thank you, Nan,

1 for that comment as well. Are there other
2 comments or questions from the audience, from the
3 webcasters? One question in the audience.

4 MR. REYNOLDS: Thank you. James
5 Reynolds with the Office of Enforcement, Pipeline
6 Hazards Material Safety Administration.

7 My question is to Mr. Erol. In
8 response to something that Mr. Jacques said. Mr.
9 Jacques indicated that he doesn't believe that
10 redefining these definitions of USAs would post
11 any serious economic impact on the pipeline
12 industry. I just wondered whether you concur
13 with that analysis, and Mr. Jacques feel free to
14 respond to Mr. Erol.

15 And also a question for Mr. Carl. I
16 understand that you're saying a lot of this
17 information is not shared with the public. And I
18 wonder if you can appreciate the sensitivity of
19 some of this information should it fall in the
20 hands of unscrupulous characters. Thank you.

21 MR. ROTOLO: First, I'd like to
22 clarify that I didn't say it wouldn't have any

1 impact. But what was said was not impact as far
2 as new pipelines per se. But it will have an
3 impact on the number of miles that would have to
4 be assessed.

5 So it would have an impact, but just
6 not very many new pipelines we don't think would
7 be introduced in Louisiana into the integrity
8 system. But it would definitely have an impact
9 on the amount of mileage that has to be assessed.

10 MR. ALAVI: Could you repeat the
11 question, please?

12 MR. REYNOLDS: Whether or not you
13 believe a redefining of USAs would have an
14 economic impact on the pipeline industry, your
15 particular company?

16 MR. ALAVI: Okay. Economic impact.
17 So if you define everything as an HCA, it becomes
18 a different priority in scheduling. So basically
19 they become immediate over 60 days or 180 days.
20 And if they are immediate, then you need to shut
21 down your pipeline, and you need to go fix to
22 this location and fix the repair.

1 But most of the cases those -- and I'm
2 not the least bit concerned because the
3 regulation didn't spell like what is upper
4 boundary, what is down boundary. There are some
5 gray areas that most of the un-injurious. So
6 they don't really fail.

7 When we do our analysis, it is
8 basically finding an element of our analysis, we
9 find out that their life of asset is, like, 500
10 years based on those anomalies and where we need
11 to go now shut down the line and need to go
12 repair them immediately.

13 MR. WEIMER: I think the second
14 question was for me about whether there was stuff
15 that shouldn't be publicly available. And
16 certainly we agree with that.

17 I think sometimes it's overblown and
18 too much stuff is not publicly available. I
19 think often people think that a terrorist or
20 people that want to do harm have to be complete
21 morons because for the most part you can find
22 that stuff anyway. And there's probably better

1 targets than pipelines and those types of things.

2 So I think more information should be
3 publicly available. But there's certainly
4 clearly things, you know, culturally sensitive
5 sites, you can't make those available. So
6 certain drinking water sources probably make
7 sense.

8 Certain pipeline attributes, you know,
9 we had a big fight. We were on the opposite side
10 of the press in Washington State because we
11 didn't think that, you know, the exact location
12 of farm taps and valves should be publicly
13 available on mapping sites.

14 So, you know, it's a fine line to
15 draw. But for the most part, I think a lot of
16 the USA type information, population areas, some
17 of those are already available.

18 We would benefit by making those more
19 available so people that really understand those
20 areas, local governments in particular, could
21 verify that they are being defined correctly.

22 MS. MURRAY: Thank you for that. We

1 have another comment.

2 MR. LESNIACK: This is kind of an
3 overarching comment and it follows on what Carl
4 is saying. You know, my experience as a local
5 government official is that, you know, for
6 example, the population data that the companies
7 use is based on census data.

8 Well, that can be as much as 10 years
9 or more out of date. And, for example, there's a
10 pipeline that's being proposed for Central Texas.
11 Well, they didn't know that in this county where
12 they're going through, there's 5,000 new homes
13 permitted within a mile of that pipeline. They
14 didn't know that. And they didn't come and ask.

15 And I think this is true also for the
16 ecological data, the drinking water protection
17 data that the regulations should require that the
18 operators confirm the data with local government
19 officials where that's appropriate.

20 And I think population data is one.
21 Drinking water protection zone data is one. In a
22 lot of cases, the ecological data is one. And I

1 don't think that that would be overly burdensome
2 for a pipeline that's going to be in place for 50
3 to 100 years for it to have an operator to
4 contact the people on the ground that will have
5 much more accurate data, especially the
6 population data. In rapidly growing areas, ten
7 year old data is useless.

8 MS. MURRAY: Thank you.

9 MS. FARRELL: Linda Farrell, Pipeline
10 Safety Coalition. To follow-up on what Chuck
11 said, we had a technical assistance grant through
12 PHMSA in Chester County, Pennsylvania. And what
13 we did was we created a protocol that we
14 recommended for operators who wanted to come
15 through Chester County with proposed new
16 infrastructure.

17 And in this case, the operator had a
18 proposed plan that would have gone through a part
19 of Valley Forge National Park that had been
20 extended. And the operator didn't know that that
21 part of Valley Forge Park had been extended as a
22 federal landmark.

1 By coming to our county planning
2 commission, they had, as Chuck said, they had the
3 data from the ground up. And we showed them a
4 map and said, hey, this is a really bad idea for
5 you to come here because this is now National
6 Park territory.

7 They thanked us. It saved them a lot
8 of money. It saved them a lot of time. So I put
9 that out as an example of what can very easily be
10 done on a local basis to address a lot of the
11 issues that we're discussing today.

12 MS. CROWNHEIM: I agree with what you
13 said. Patty Crownheim, ReThink Energy NJ. I
14 have a question. We've been talking about
15 hazardous liquid pipelines, and I'm just
16 wondering what are PHMSA's plans with the new
17 high consequence areas for gas pipelines, natural
18 gas pipelines?

19 MS. MURRAY: And our plans in general
20 or as it relates to -- I'm sorry. Can you give
21 her back the microphone? I'm sorry.

22 MS. CROWNHEIM: All of the above.

1 MS. MURRAY: Well, we have a lot of
2 plans that are currently in the works. I don't
3 know if it's necessarily the context of the
4 conversation around USAs and ecologically, you
5 know, sensitive areas and drinking water, but
6 there's a lot of things currently underway.

7 We have some rulemakings that are
8 underway that address more of the integrity
9 management concerns around gas pipelines as well.
10 So there's distinctly different but important
11 requirements that we're taking a look at.

12 MS. CROWNHEIM: And the reason I raise
13 the question is because it seems a lot of times
14 that we understand the massive downstream of
15 potential consequences of hazardous liquid
16 pipelines. But there is a real feeling with
17 people who work with drinking water issues that
18 any natural gas incidents would also have
19 devastating impact on waterways, especially since
20 so many of them run through so many tributaries
21 and areas.

22 And we would like to see -- how to put

1 this. We would like to see a broader
2 understanding of those cumulative impacts and
3 impacts of incidents with natural gas pipelines
4 on drinking waters and on ecological areas.

5 MS. MURRAY: Thank you. I appreciate
6 that. Sam, any other questions? No questions
7 from the webcast group? Any final questions for
8 our panelists?

9 Okay. Without seeing any hands, one,
10 I want to thank the panelists again. Let's give
11 them a round of applause for all their feedback
12 and their expertise and thank you for sharing
13 that with us and the PHMSA staff who also did the
14 same.

15 In terms of a wrap-up, one I want to
16 say that all of your comments are well taken. We
17 certainly plan to take some of the things we've
18 heard, whether it was keep it simple, make sure
19 we understand the complexities, how to get others
20 involved. Even the sentiment that even at the
21 local government level there's a lot of
22 information that help can inform how HCAs are

1 defined and the data that's used to make sure
2 it's validated and it's based on what's actually
3 in different areas.

4 We'll take all that feedback to heart,
5 and we'll go back and look at some of the
6 sentiments from the transcription so that we can
7 help to move this along and really pick up some
8 momentum from this point.

9 I think we're close and we've heard a
10 number of things here today that will certainly
11 help us to be able to do that.

12 I will say that all of the
13 presentations that you've heard today and the
14 conversation, including the transcript, will be
15 available on the meeting registration page
16 because I think there's a lot of things that we
17 certainly want to go back and reflect on and
18 think about and maybe do a little bit more
19 research on and understand a bit better.

20 With that being said, thank you very
21 much for your time today. Just a few logistics.
22 If you're planning to stay for the second part,

1 which we will move into the pipeline awareness
2 and engagement public meeting and you're just
3 needing to go to lunch, we have folks in the back
4 who are standing who can help to escort you
5 either to my left, your right, to our cafeteria
6 area in the east building. Or, if you're not
7 planning to stay, we have individuals who can
8 help you get back to security and exit
9 appropriately. In either case, we appreciate it.

10 If you are a webcast viewer, when we
11 return from lunch we will be moving into, at
12 1:30, our Session 3 discussion. So please be
13 prepared to click on your Session 3 link to start
14 that particular forum.

15 Anything else I'm leaving out?

16 MS. GOODING: I will make one last
17 recommendation. Since the PowerPoints will all
18 be on display, as Christie had said, the
19 PowerPoints that I put together that reviewed the
20 questions for consideration today have the links
21 for downloading a lot of the GIS data that we
22 talked about.

1 And I think for all the GIS folks in
2 the room or on the webcast or if you know one, I
3 encourage them to download that data and take a
4 look at it. And we would really love to hear the
5 comments on those specific datasets and
6 definitions because that is the direction that
7 we're looking at going in right now. And
8 specific comments after you have some time to
9 look into that data would be very helpful.

10 MS. MURRAY: All right. Well, thank
11 you very much, everyone. And we will resume here
12 at promptly 1:30 for the second part of our
13 public meeting. Enjoy the rest of your day.

14 (Whereupon, the above-entitled matter
15 went off the record at 11:58 a.m.)

16
17
18
19
20
21
22

A	
a.m 1:14 4:2 36:21 79:16,17 172:15	addressed 10:3 107:10 107:12
ability 72:20	addressing 7:10 32:9 80:5
able 5:17 7:14 9:1 12:6 12:14 17:3 27:8 43:16 50:17 53:1 68:7 71:18 72:14 73:2,3,14 74:4 82:9 93:5 96:15 132:10 146:20 148:6 154:12 170:11	adhere 149:2
above-entitled 79:15 172:14	adheres 148:15
absence 112:5 115:15	adjacent 28:22
absolutely 39:20 74:16 78:12 144:2 145:20 154:15	Adjourn 3:20
accept 20:10 150:2	Administration 1:3,13 4:13 15:1 64:7 161:6
accepting 149:10	administrator 1:18,20 14:21 19:21
access 27:11 41:16 43:1 51:7 68:8 72:9 72:14,20 73:5 74:17 82:6	ado 14:20 20:9
accessible 142:22	Adopt 125:6
Accident 38:22	adoption 147:17
account 32:8	adults 12:21
accountable 77:16 122:12 125:7	advance 79:7
accuracy 23:10 70:2,18	advised 159:3
accurate 52:22 72:9 147:18,20 148:7 166:5	advisor 97:14
accurately 112:18	advisories 140:12,20 140:22
acoustical 15:14	advisory 19:17 116:8 140:13
act 18:13,14 19:8 24:6 117:10 124:8 145:7	AED 6:4
action 112:4	affect 47:11,13 58:20 59:1,19 107:11 120:22 121:3,6 122:1 122:5,11,17 123:15 123:21 124:6,16 134:8,12,20 135:3 142:15 147:21 150:12 150:16 152:2 160:2
active 11:13 19:10	affectionately 15:13
activity 29:6	affiliation 12:9
actual 24:5 35:15 44:4 49:15 57:4 74:19,19 120:15 121:21 129:8 145:21 153:18 154:19	affords 79:8
actuals 150:2	afternoon 8:1 10:12 21:6 33:3 82:19
add 15:10 103:14 135:19	agencies 22:8,14 26:18 69:12,14 71:3 75:13 75:15 108:3 122:18 122:20 151:10 154:21 155:2,14
addition 29:10 35:5 64:2 105:16	agency 7:9 23:1 24:19 32:17 61:19 78:2,7 91:14 92:6 139:16
additional 26:12,14 27:19,22 52:1 66:6 76:7 77:15 78:13 82:10 83:17 90:2 104:10 131:22	agency's 139:14
address 4:21 8:7,10,12 8:16 9:2 17:22 21:18 36:13 40:7 55:20 76:4 110:6 132:2 150:19 151:21 167:10 168:8	agenda 3:2 7:3,5 11:6 98:5 117:22
	ago 15:21 16:8 40:17 47:18 106:3 115:14 132:10
	agree 50:8 57:21 136:17 139:16,16 150:17 154:3 159:7 163:16 167:12
	agreed 5:16 6:4 64:11
	agreements 46:1 68:1 68:15
	ahead 36:16 113:5
	Air 139:6
	Alan 1:20 13:14 20:15 156:6
	alarm 5:2,3
	Alaska 31:13 54:20 55:4,6,7
	Alavi 1:17 3:13 97:11 98:3,4 162:10,16
	Alexandria 112:8
	allocation 107:2
	allowed 118:9,11
	allowing 41:14
	allows 16:22
	alternatives 153:2
	American 1:17 97:12
	amount 54:14 70:1 72:8 132:10 162:9
	analyses 104:4
	analysis 39:10 41:7 47:1,5 49:22 53:3 54:1,18 56:21 57:8 59:3 60:5,15 62:22 85:16 90:3 97:16,17 97:18 98:6 99:3,8,12 99:13,14 101:7,9 103:17,22 104:18 146:4,17,18 147:21 161:13 163:7,8
	analysts 61:15
	analyzed 64:20 96:10
	analyzing 22:22 35:6
	and/or 80:11
	angle 99:9
	angry 20:16
	animals 151:4
	ANNEMARIE 2:5
	Annamarie 6:14
	anomalies 100:12 101:2 102:7 103:4 107:3,8 163:10
	anomaly 100:20 107:9 107:9
	answer 12:19 58:8 64:21 68:17 77:11 98:6 144:1 147:6
	answers 154:18
	anybody 39:20 48:14 48:15 58:10 95:18 156:21
	anyway 13:21 14:20 163:22
	apart 153:20
	API 105:13
	apologize 65:3
	app 40:1 41:21
	Appalachian 160:20
	appear 110:13
	applause 15:3 130:17 169:11
	applicability 45:20 50:3
	application 41:13 43:13
	apply 76:14,17 77:5 85:6
	applying 112:16 135:6
	appointed 116:9
	appreciate 17:15 48:21 66:14 106:7 142:20 149:13 161:18 169:5 171:9
	approach 24:22 55:7 75:8 103:17 123:10 123:10,16 124:2 145:1 149:12 155:16 156:2 158:19
	approaches 86:1 155:12
	appropriate 15:19 93:20 131:15 160:17 165:19
	appropriately 171:9
	approximately 50:11 64:1
	aquifers 69:2,3 127:13
	area 26:7,9 27:21 29:1 31:15 37:20 43:6 52:7 52:20 53:16,20 54:21 57:1 60:3 70:20 75:21 81:19 85:17 90:10,14 90:15,18 91:9,10 94:5 95:10 98:18,18 99:22 102:13 107:11 108:17 108:21 111:16 112:7 120:2,5 122:6,11 123:13,14,15,20 126:16,16 128:15 130:4 137:14,22 138:19 139:15 142:9 143:9,10,15 144:9 146:8 147:21 160:10 171:6
	area's 26:7
	arguing 121:21
	Army 42:9 93:1 108:10
	array 35:13
	arrows 39:18
	asked 11:7 48:16 117:17
	asking 117:12
	assess 129:12
	assessed 162:4,9
	assessing 105:19
	assessment 97:16 104:19 129:11
	assessments 59:16
	asset 163:9

assistance 166:11
Associate 1:20 13:14
associated 113:14
Association's 116:8
assume 103:12,18,22
 154:17
assumed 10:10
Atlantic 53:22 91:20
 111:4 144:15
atrium 1:13 5:12 15:14
attend 5:22
attendance 10:11 21:21
attending 7:20
attention 104:16 140:10
 140:12
attribute 41:2
attributes 164:8
audible 5:2
audience 4:15 17:14
 62:6 66:16 161:2,3
Austin 146:17,18,19
authoritative 65:22
 155:1
authorities 153:10
authority 53:19
availability 27:4 77:4
available 27:14 30:12
 34:16 37:13 39:20
 44:8 46:12 48:7 49:3
 51:2,15 55:15 57:12
 65:9,20 67:10,17
 69:13 70:8 76:20 96:4
 97:1 110:4 125:8
 136:1 155:17 157:12
 163:15,18 164:3,5,13
 164:17,19 170:15
Avenue 1:13
avoid 66:10 107:8
 118:18 138:13,15,16
avoided 66:11 160:18
avoids 124:21
aware 104:14 142:9
awareness 8:2,21
 11:16 76:1 171:1

B

B 94:16
B31 103:10,10
babysitting 106:6
back 4:6 5:12 6:4,10 8:6
 10:20 11:2 12:17,18
 18:13 20:7,19 21:7,7
 21:10,10,13 47:16
 48:6 52:3 78:18 79:3
 79:10 80:1 83:1,6
 89:18 131:3,17
 135:12,20 140:6
 155:15 156:2 157:8

157:10,14 158:1
 167:21 170:5,17
 171:3,8
background 3:4 7:9
 21:16,19
backtrack 52:3
bad 13:19 14:13 55:8
 167:4
balls 138:6
band 112:18 113:18
base 122:16
based 28:6 29:22 40:11
 42:5 81:14 84:14 85:1
 89:14 93:12 95:14
 98:14 103:11 104:3,4
 107:16 114:22 123:18
 150:2 163:10 165:7
 170:2
baseline 59:16
basically 117:17 162:18
 163:8
basis 38:21 82:10 85:12
 96:5 109:3 142:1
 146:2 147:2 148:8
 167:10
batteries 19:19
Bay 144:13,16
beach 56:16 57:17
 84:21 85:3,8,13 86:2
 86:2,8,14,15 89:10
 91:13 110:13,15
 111:8,18 153:13
 155:19
beach-defined 29:1
beaches 22:3 24:9 26:1
 28:14,16,18,22 29:4,9
 29:15,20 30:17 36:6
 56:21 57:3,8 85:1,22
 87:5,12 91:18 92:1,3
 92:10 108:14 109:21
 110:22 111:2,10
 114:4,16 121:18
 129:21,22 131:12
 137:18 139:18

becoming 106:17
beginning 97:20
behalf 15:10 151:2
believe 23:5 28:3 38:2
 57:11 59:18 71:7
 76:18 104:7,12 161:9
 162:13
Bellingham 15:22 16:6
benefit 164:18
benefits 121:13
best 5:22 9:4 17:10
 23:5,19 59:2 84:12
 145:6,11 146:1,6
 151:7

better 4:7 18:11 20:1
 51:4 70:16,16 75:17
 75:17 130:12 134:1
 154:19 159:8 163:22
 170:19
beyond 90:22 98:19
 104:5 111:17 112:9
big 164:9
biggest 53:6
bill 18:4,7 23:6
birds 127:8
bit 4:6 7:9 10:11 21:16
 23:17 24:21 26:17
 28:8 34:9,14 37:19
 42:2,18 46:21 48:3
 51:10 53:3 67:6 79:8
 83:6,14 85:5 148:2
 149:20 151:22 154:13
 157:8 163:2 170:18
 170:19
black 128:8
blanket 58:21
blinders 118:8
block 6:12
blue 41:9 93:19 121:2,3
 123:11,15,21
board 116:14 141:16
boats 121:12
bodies 33:17 88:20
 91:22 93:11,19 94:8
 95:3,12,19,22 96:9
 114:4 159:14,19
body 85:7 92:21 95:6
 110:22 145:21 146:13
Bonnie 1:18 3:14 52:7
 105:5,7,21 115:21
 154:20 156:20
Book 139:6
boots 75:18
bopping 54:16
border 95:1 111:13,16
 113:9
boss 14:21 15:10
bottom 75:7 86:10
bottom-up 145:1
boundaries 39:7 91:4,4
 93:12 95:14 114:22
boundary 88:16 91:1,6
 93:15 128:14 143:11
 163:4,4
box 39:18 41:9
BP 98:1
brainer 137:20 138:8
break 7:22 9:16 10:19
 10:21 11:2 36:20 56:2
 63:20 68:18 78:16
 79:4
Breakout 38:20

brief 4:19 12:12
Briefing 3:2
bright 113:22
bring 148:21
broad 109:21 124:17
broader 29:7 169:1
broke 57:7 93:6
broken 39:14 40:18,19
 50:12
buffer 85:6,8,17 89:5,7
 99:11,18 110:21
buffered 52:21
build 39:6 98:21
building 6:17 7:1 9:12
 9:14 15:12 149:15
 171:6
bullets 17:8
bumps 49:1
bunch 25:13,15
burdensome 166:1
Bureau 42:6 91:2,3,7
 108:8
business 101:17
busy 17:16

C

C 88:14 95:11
C-O-N-T-E-N-T-S 3:1
C1 142:4
cafeteria 9:17 171:5
calculate 99:21 103:9
calculation 98:11
 103:12,15
calculations 103:9
California 55:3 109:20
 132:16
call 5:7,16 14:3 15:13
 25:9 133:14 144:9
called 42:13 53:9 99:16
 99:18 116:11
calling 45:6 115:2
CAMO 158:8,9,18,21
Canadian 95:1 116:7
candidates 127:5
capacity 116:4
cape 90:17
captures 111:2
car 122:22 123:1
cards 20:19,19 21:7,13
care 13:17
career 97:20 126:4
carefully 115:17
Carl 2:2 3:15 16:3 67:4
 70:6 72:6 116:1,11
 117:2 125:13 133:20
 135:4,16 136:17
 139:11 141:3 142:15
 143:8 144:22 145:2

145:19 161:15 165:3
Carolina 109:21 132:16
carries 58:17
carry 40:22
case 82:10,10,13
 102:10,14 166:17
 171:9
cases 163:1 165:22
cast 78:18 80:2,3 83:8
categories 86:3 98:14
 99:1 102:19
categorization 91:13
categorizes 28:15
 53:16
category 86:2
cause 108:22
caused 61:14
cell 13:19
census 42:6 91:1,3,7
 108:8 165:7
center 5:13 18:11 95:3
 95:4,9 109:8
Central 165:10
certain 73:11 145:8
 164:6,8
certainly 22:9 27:2 66:2
 66:15 68:17 81:21
 90:16 97:7 117:1
 118:17 130:21 135:12
 142:20 143:19 149:17
 154:8 163:16 164:3
 169:17 170:10,17
certification 67:11
certifications 5:21
certified 5:20 68:8
cetera 40:8 41:3 104:1
 159:7
chairman 158:7
challenge 27:7 34:9
challenged 117:5
challenges 32:1
champion 116:14
change 80:15 81:6,7
 100:14 104:14 115:1
 116:15 141:8
changed 46:22 49:12
changes 47:15 64:2
 150:2
changing 149:11
channel 95:9
channels 93:1 94:4,9
 94:21 95:8,14,21 96:7
Chao 2:4 15:11
characterized 112:3
characters 161:20
charged 27:13
charter 121:11
check 72:21

Chester 166:12,15
Christie 1:21 6:7,8,9,10
 82:15 83:19 105:22
 106:1 144:20 145:15
 147:10 171:18
Chuck 70:4 72:6,21
 75:3 136:14 139:4,19
 145:15 147:7,8
 149:18 166:10 167:2
Chuck's 150:9
circle 80:1
cities 127:22
Citizen 116:9
citizens 116:22
city 16:7
civil 12:21 15:7
CL3 136:14
Clair 94:6,10,19,21
 96:13
clarify 161:22
clarifying 135:3
clarity 61:8,9
class 80:17 81:15,18
 142:11
classifications 87:7,8
 136:21
classified 31:5
clean 124:8 137:8
cleanest 144:6
cleaning 151:14
cleanup 129:20
clear 13:2 148:18
 151:21 152:15
clearly 164:4
click 171:13
cliffs 109:20
close 18:12 138:21
 158:19 170:9
closely 156:10
closer 93:16
CNW 25:10
CNWs 43:7,21
Coalition 75:1 139:10
 166:10
coast 52:15 54:19,19
 90:12 109:22 111:11
 117:4 128:10 138:3,4
 138:6
coastal 1:5 22:2,3 24:8
 24:9 26:1,1,5,7,16
 27:21 28:4,9,11,14
 29:5,8,9,10,15,15,20
 30:16,17 36:6,7 37:20
 52:19 53:16,20 56:21
 56:22 59:22 60:3
 64:11 76:16 84:21
 85:1,12 87:16,19,22
 88:2,4,6,15 91:18,22

92:3,3,5,7,10,11,11
 108:14,15 110:22
 111:9,18,21 112:1,3
 112:17 113:7,15,17
 114:4,16,17 121:18
 121:19 122:14 124:1
 124:7,9 127:4 128:5,7
 128:14,15,17,18,20
 129:2,14,17,21,22
 130:4,5,5 131:12
 139:18 153:13 158:9
 158:14
coastline 55:6 57:5,10
 60:6 110:18 114:13
 155:6
coastlines 55:7 115:12
 115:15 157:18
coasts 139:21
code 40:12 62:21 71:11
 77:17 98:7 108:20
codified 141:11
coincides 112:20
collaborate 135:22
collect 38:13,15,18,22
 39:2 42:6 150:21
collected 42:9
collectively 22:12
Columbia 46:9
combine 92:3 129:22
 131:16
combining 114:16
 131:13
come 6:10 10:20 11:2
 12:17 13:15 15:6 26:8
 27:19 36:17 37:18
 44:18 45:15 58:14
 65:17 72:11 78:18
 83:6 84:11 89:18
 114:14 122:8 132:21
 133:6 142:6 155:8
 165:14 166:14 167:5
comeback 144:11,14
comes 43:9 88:21 95:5
 99:5 100:2 151:20
comfort 149:22
coming 16:2 22:21 31:1
 37:9 78:5 79:3 113:3
 132:5 140:11 167:1
comment 14:13 66:14
 67:1 72:2 77:11 118:2
 118:7 124:13 125:2
 149:13 158:11 159:12
 160:12,15,21 161:1
 165:1,3
commenter 141:13
commenters 150:6
commenting 118:7
comments 9:2 10:5

11:12,18 12:15 13:10
 14:13 15:18 18:19
 32:6 66:17 72:6 89:18
 117:9 118:4 136:16
 139:3 147:5 158:6
 160:14 161:2 169:16
 172:5,8
commerce 106:22
 108:9
commercial 98:16
 120:8,11,13 121:9,9
 121:10,13
commercially 25:8,10
 42:7 91:21 106:20
 108:8 120:13 127:2
 128:2 151:14
commission 81:14
 167:2
Committee 116:7,10
common 14:5 131:4
 157:3
commonly 118:20,22
commonsense-wise
 133:9
communicate 141:8,9
communication 75:12
communities 127:6
community 1:19 11:19
companies 129:6 134:2
 134:5,9,16,17 150:10
 150:17 165:6
company 12:8 42:13
 44:20 61:5,22 62:8
 65:18 105:16 121:1,4
 126:5,7 162:15
compare 30:20 31:2
 118:15
comparison 56:10
comparisons 37:20
 53:4
complementary 157:1
complete 50:7,13
 119:13 163:20
completed 47:6 48:21
completely 38:8 55:2
 132:17 154:5
completes 50:15
complex 110:2 132:3,5
complexities 152:20
 169:19
compliance 2:1 125:19
 126:5
complicated 131:7
 148:16,17 154:8
complicating 131:8
complications 155:7
comply 64:15
comprehensive 72:9

- computer** 19:1
computers 8:13
concentration 127:8,20
concepts 109:7
concern 25:16 100:12
102:7 133:3
concerned 102:18
163:2
concerning 124:17
concerns 9:3 17:21
20:1 27:4 66:17 68:22
100:10 168:9
conclude 78:14
concluded 84:16
concludes 36:11
130:13
concur 161:12
condition 100:13
conducted 23:15 30:7
conference 5:13
Conferences 116:18
confidentiality 68:15
confirm 151:5 165:18
conflicts 124:22
confusing 117:11
confusion 25:16 102:11
124:21
Congress 24:7 29:3
33:22 109:3,7 118:22
120:1 121:14 141:10
Congress's 29:3
congressional 7:11
21:18 24:4 32:9 84:13
108:13 119:17
Congressionally-ide...
23:20
connect 95:21
connecting 33:10,20
34:4,8,17,19 94:4,9
94:14,20 95:8,14 96:7
96:14
conscience 156:15
consensus 139:20
156:16
consequence 39:4
104:8,9 106:2,10
107:11 109:12,13
115:3 126:16,21
133:7,9,15 150:22
157:15 160:5,10
167:17
consequences 168:15
conservation 66:12
75:16,20 145:2
conservatism 98:11
103:8
conservative 103:16,17
consider 22:16 47:13
85:10,15 92:21 94:16
95:21 96:5 107:12
149:14,18 153:17
155:19,20
consideration 3:9
66:15 83:20 108:4
110:7 139:17 171:20
considerations 23:10
139:19 140:1,17
153:3
considered 91:9 104:7
111:8 112:10 130:3
152:1
considering 7:14,15
23:3 33:19 56:22
103:21 118:16
consistent 94:12 155:5
consortium 158:8
constructed 81:8
construction 67:1
80:15 81:13 82:8
160:17
constructive 104:19
consultants 44:17 49:8
50:1 60:22
consulting 97:22
136:15
contact 40:10 44:14
69:14 78:3,7 130:13
166:4
contacts 49:6
contain 137:19
contains 11:6
context 168:3
continually 158:22
continue 16:17 36:1
56:4 115:18 148:9
continues 105:17
continuing 44:21
continuous 110:19
contractor 69:20
contractors 69:21
contributing 70:22
control 61:20
controversy 107:21
convene 78:22
conversation 16:12
53:7 80:6 84:19 89:12
89:17 93:8 95:16,18
97:2 136:5 141:17
157:9 159:14,19
168:4 170:14
conversations 30:5
75:5 84:6 125:14
135:18 158:2
coordinator 1:19 37:5
copy 7:3 157:17
Corps 42:9 93:1 108:10
correct 148:13
corrected 148:6
correctly 164:21
correlation 154:11,13
corrosion 97:16 100:17
100:21 101:1,13
could- 59:18
could-affect 52:13 58:6
58:9,11
country 16:21 117:1
137:16 141:22
county 40:3,4,12,19
41:15,18 91:1,3,6
165:11 166:12,15
167:1
couple 11:19 20:7 37:8
40:13,17 91:11 118:3
132:15 153:16 156:11
158:5
course 41:8 48:3 55:5
126:13,21 127:18
130:7
court 18:20
cover 94:9 106:14
115:11 128:20
coverage 37:20
covered 31:11,15 52:16
52:19,20 54:8,9 55:2
57:10 59:22 60:3 90:8
94:13 98:20,22 100:5
113:20 114:13 155:5
covering 35:12
covers 54:7 109:19
CPR 5:20
crap 123:4
Craven 58:3 76:9
create 30:10 70:2 71:11
73:10 77:1 99:1,6
100:7,19 155:10
created 18:17 166:13
creek 146:20
criteria 29:22 88:3
102:3 104:10
critical 19:11 97:17
101:7,9 104:17
137:15 144:4,5
critically 24:17
cross 99:19 138:11
crowd 21:2 149:12
crowdsourcing 151:18
Crownheim 72:3,4
73:22 74:9,13 141:14
141:14 143:17 167:12
167:13,22 168:12
crucial 73:8 108:9
crude 130:10
culturally 164:4
cumbersome 51:18
Cummins 97:21
cumulative 169:2
current 24:14 33:6
54:16 105:19 107:15
129:11 150:21 160:9
currently 31:10 37:15
42:10,22 45:9 92:21
97:13 107:1 112:21
114:11 156:20 168:2
168:6
currents 112:5

D

D 96:3
D.C 46:12 50:22
damage 105:14 108:18
109:1 114:7 138:1,20
158:20
damaged 139:1
danger 106:17
dark 68:20 120:17
121:3
data-use 46:1
database 38:3 39:6
44:14 65:20
databases 48:2
dataset 61:16 87:18
88:21 93:13 95:15
96:4 110:15,17 111:9
147:12 148:7 155:16
datasets 69:11 85:14
115:13 117:13,14
133:16 149:2 151:11
155:8 157:15 172:5
date 24:19 51:3 77:12
149:9,14 165:9
day 10:15 15:16 16:8,16
16:18 103:22 172:13
days 15:21 20:7 75:5
100:15,15 101:19
118:3 162:19,19
DC 1:14
deal 19:19
dealing 23:7 25:11
129:13
death 15:22
decent 71:9
decision 67:18
decision-making 19:6
decisions 32:11
decrease 47:9
deeper 154:8
defense 106:22 108:9
define 17:11 22:5,8
23:19 26:15 33:6,20
34:3 62:22 63:2,3
69:2 81:22 85:1 87:21
88:5 91:14 92:7 93:10

93:21 94:3 95:11
 102:16 110:2 118:20
 122:3,4 134:7 137:1
 150:12,22 153:12
 154:11 162:17
defined 23:8 24:15,20
 27:20 28:2 32:15 60:1
 60:4,9,12,13 64:11
 76:15,16 88:2 92:5
 108:2,21 110:15
 119:9 122:10,16
 127:22 157:14 164:21
 170:1
defines 88:6 94:18
defining 30:16 35:13
 36:6,9 65:1 85:12
 96:6 118:19 119:10
 121:15 123:9 125:10
 152:20 156:18
definite 129:10
definitely 55:1 86:15
 150:4 152:15 162:8
definition 13:9 28:1,11
 28:13 29:8 33:9 69:19
 69:20 77:7,14 84:22
 85:15 87:19 88:2,12
 90:6 91:15 92:12
 94:17 109:8,17
 114:16 121:8 129:3
 129:17 130:4 134:12
 135:3 137:22 139:15
 142:19 148:16 149:3
 152:22 154:14 155:10
 155:16 156:3,7 159:2
 159:8
definitions 7:7 22:7
 30:15 36:9 42:21
 56:19 60:14,15 64:10
 64:13 76:14 86:20
 90:3 107:15 114:18
 115:5 118:19 119:20
 122:9 129:15 133:3
 133:14 136:2 155:2
 155:15 160:4 161:10
 172:6
degree 9:12 25:18
 28:10,12,21
Delaware 50:22
deliver 46:2 50:18
delivered 44:5 48:10
 96:16
delivery 51:15 101:17
demonstrate 94:6
 123:19
dent 100:17,22 101:13
 104:18
dents 101:22
Department 1:1 2:1

4:12 15:12 116:5
 125:20 126:1 128:12
departments 44:16
 49:7
depending 58:16
depicting 127:17
depleted 127:7
depreciates 109:15
depth 102:1
DEQ 78:1
derive 56:18
describe 87:2,5
described 85:21 86:4
 86:14,15,16
describing 86:8 119:10
 119:12
description 85:4,12
 86:22
descriptions 86:7 87:1
 134:2
descriptive 155:21
design 81:18
designate 137:21
designated 137:7
designating 138:17
designations 118:12
 124:10 125:8
designed 81:16
detail 75:10
detailed 28:17 45:4
 49:12 53:11 54:11,22
 87:3 155:9
details 23:9 96:21
 124:14,18
determine 17:10 26:15
 50:4 58:11,19 141:18
determining 135:7
 152:2
Detroit 33:12 94:22
devastating 168:19
develop 69:16,20 106:4
 147:19 148:15
developed 52:1 53:19
 84:14 133:16
development 145:9
develops 148:7
devices 10:3
diameter 41:1
Diesel 97:21
differ 57:10 130:7,9
difference 120:21 121:5
differences 52:9 103:6
different 10:17 24:21
 39:14 40:13 48:19
 49:17 50:12 53:10
 56:19 58:13 65:6 68:1
 82:8 87:2,7 92:14
 96:4 97:8,9 99:4,13

117:6 132:17 136:20
 146:9 153:8,9,9,16
 162:18 168:10 170:3
differentiate 92:10
differently 48:4 135:1
difficult 32:21 118:6
 129:19 137:8,18
 138:9
difficulties 8:9
dig 101:4
digest 97:7
digital 115:13 157:16
 157:22
dinged 123:5
direct 99:15,16,19
direction 5:14 17:3
 148:3 172:6
directions 5:5
directive 121:16
directly 38:13 48:1 69:9
 126:18
director 1:21 2:2 82:16
 116:2 139:9
directory 40:9
disadvantage 118:4
disagree 144:8
disagreed 95:18
disappear 40:5 133:12
discourse 12:21 15:7
discussed 53:15 76:1
 117:17,21 132:20
 140:1 156:17
discussing 7:16 13:10
 28:6 75:10 132:20
 167:11
discussion 3:11 7:7
 16:12 17:17 22:1,12
 22:19 25:7 26:17 27:1
 34:7 35:12,18 80:7
 82:15,18 97:1 104:13
 105:3 130:19 131:2
 153:5 171:12
discussions 7:8 35:9
 84:11 131:6
dispersed 103:9
display 84:1 89:12 95:6
 171:18
displayed 46:16 61:18
displaying 85:20
disruption 13:3
disruptive 13:3
dissolved 51:20
distinct 114:19 133:3
 133:13
distinctly 168:10
distribute 41:4 42:3
 43:18 44:22 68:4
distributed 61:18

distribution 45:11,15
 48:11 126:5
District 46:9
districts 75:16,20
 122:19,19 145:2
dive 96:20
diverse 129:18
Division 2:2 38:7 64:5
 125:21
docket 13:8,11,12
 14:17 18:17 32:7 35:5
 66:18
document 88:5
documents 11:10 63:14
dogs 123:3
doing 6:15 15:18 20:16
 21:16 56:10,20
 114:10 117:19 125:10
 130:18 132:7 133:18
 134:17 145:17 147:11
 151:12
DOT 1:13 9:13,21
 105:13
dotted 128:8
doubt 57:18
downhill 152:5
download 38:9 40:15
 46:3 50:18 172:3
downloaded 88:22
downloading 171:21
downloads 43:7
downstream 99:21
 152:5,6,8,8,12 168:14
Dr 119:11
drain 146:14
drainage 146:8,10
draw 108:6 131:3
 164:15
drink 9:17
drinking 3:6 24:12
 37:10,17 42:11,15
 43:8,17 44:5 45:5
 46:7,19 47:2,13,21
 49:4,15 55:14 64:3
 65:5 67:16,21 68:21
 70:7,15,21 77:21
 80:11,14 81:6,6,20
 82:1,6 98:17 106:17
 108:1 126:22 127:9
 127:11 164:6 165:16
 165:21 168:5,17
 169:4
drip 122:22
drive 107:4,7
drivers 126:16 129:4
DW 45:6

E

earlier 34:22 79:8 98:13
 101:20 131:6 141:5
 145:1 147:12 156:6
early 48:11
easily 146:4 167:9
east 171:6
Eastern 78:18,22 79:13
easy 107:13 148:19
echo 4:5,17 13:17 72:5
 75:2
eco 3:11 31:8 42:12
 43:8 54:16 56:10
 57:13 64:2 70:7 77:4
 80:17 82:6 90:2,7,9
 92:4 114:13 115:15
eco-unique 52:2
eco-USA 144:9
eco-USAs 157:18
ecological 1:5 3:6
 17:12 19:7 24:10,12
 24:14,19 25:1 30:21
 31:4,6,12,15 32:14
 35:20 36:7 37:10,17
 37:21 42:10 43:17
 48:9,18 50:20 54:2,4
 55:14 60:7,8,21 64:10
 65:5,16 67:16,20
 70:21 71:2 73:3 77:22
 80:21 82:19 90:19
 91:9 92:5 98:18
 106:15,16 107:17
 108:15 109:4 112:21
 113:2 114:11,17
 126:22 127:4,5,6
 130:2,3 137:2 154:16
 165:16,22 169:4
ecologically 23:20
 137:4 156:19 168:4
economic 64:14 161:11
 162:14,16
Ed 158:7,11 159:10,11
edges 159:4
educating 158:22
education 76:2
effect 62:21 71:11
 77:17 98:7 128:21
 154:5 160:9
effective 93:21
effects 129:2 130:8
effort 30:10 66:5
efforts 22:21 65:10
 116:16
eight 10:17 92:20
either 100:14 158:13
 171:5,9
elaborate 135:12
Elaine 2:4 15:11
elected 67:7

element 163:8
elephant 119:11,12,14
 119:14
elevation 58:14
ELLIOT 1:18 15:4
Elliott 15:2
email 8:7,10,10 9:1,2
 36:13 44:11,14 45:14
 45:17,19 49:5,16
 55:19
emerged 136:4,5
emergency 5:1,15
emergent 112:6
employee 16:13 41:20
 44:19
employees 16:7 49:21
 158:16
employment 45:19 50:3
 126:3
Enbridge 134:6,21
encourage 11:12 18:18
 36:15 138:12,18
 143:20 172:3
endangered 24:16
 127:7 144:10
ended 48:1
ends 123:7
energy 16:19 72:4
 81:14 116:7 141:15
 159:17 167:13
enforce 59:11 68:9
 125:6
enforceability 76:11
enforceable 76:13
enforced 143:3
enforcement 64:5
 125:21 142:17 161:5
enforcing 59:7
engage 12:20
engagement 1:22 8:3
 8:22 11:16 38:7 72:18
 75:6 82:16 171:2
engagements 19:13
 158:20
engaging 20:11
engineer 97:21,22
 125:18 126:4
Engineer/Pipeline 2:1
engineering 1:17 97:13
 97:17 101:7,9 104:17
 105:9 146:3
Engineers 42:9 108:11
Engineers' 93:2
Engines 97:21
enhance 19:8
Enjoy 172:13
enrollment 104:18
enter 73:12

entertain 36:18
entire 25:14 56:22 76:1
 89:8,11 92:21 95:6,10
 142:2 144:3 152:10
 155:6,6
entirety 25:18 29:19
entities 70:15 72:15
entity 32:16 61:1
entry 67:8
environment 106:13
 137:11
environmental 26:19
 53:8 73:20 74:7 85:2
 105:9,14 108:18
 109:1 115:12 122:20
 157:22 158:21
environmentally 28:21
environments 115:7
EPA 42:16 47:17,19
 48:6 88:5 90:12,13
 122:20
EPA's 88:1 113:17
ephemeral 80:20
Erie 94:19 95:13
Erol 1:17 3:13 97:11
 98:3 161:7,14
erosion 159:6
error 71:13
escape 152:4
escort 9:13,18,21 13:5
 171:4
escorts 9:21
ESI 26:20 27:17 28:14
 28:14 30:20 31:2,5,8
 53:4,9,21 54:10 56:11
 56:18 60:6,11 85:2,19
 85:21 87:1 89:15
 91:13,16 110:12,15
 111:6,9 113:11
especially 68:21 144:3
 144:6 166:5 168:19
essence 131:19
estuarines 87:17 88:19
 89:4 111:20
estuarine 88:4 119:2
estuary 89:6 129:15
et 40:8 41:3 104:1 159:6
evacuation 6:6
evaluate 26:15 34:15
 84:12
evaluated 34:13
evaluating 25:2 26:21
 27:2 32:2 36:2
events 16:9
everybody 43:21 49:3
 120:3,4
evidence 138:5
exact 52:4 63:18 164:11

exactly 35:21 58:16
example 88:18 89:21
 90:21 98:21 100:16
 100:16 101:12 110:7
 119:22 140:15 165:6
 165:9 167:9
examples 7:13 63:2
 89:16
Excel 41:6
excellent 8:17
exception 51:6 101:9
excited 144:19
excuse 128:22 148:12
Executive 2:2 116:1
 139:9
exist 22:6 35:15 63:15
 142:6 143:22
existence 60:12
existing 22:7,15 37:20
 45:9 60:15 82:2 92:4
 107:1,16 112:21
 114:17 115:5 126:15
 127:4 128:9 129:3
 130:1 136:1 138:12
 140:2 155:2 160:4,9
exists 120:9,11
exit 6:21 171:8
expect 93:5 113:14
 129:6
expected 63:3
experience 20:21 70:20
 143:14 145:8,13
 150:3 165:4
experiencing 8:14
expert 58:12 155:14
expertise 19:5 149:5
 169:12
experts 97:3 149:7
 154:21
explain 65:15
explained 61:10 102:20
explaining 62:12
explanation 125:2
explicit 121:16
explicitly 24:8
exposure 112:3
expressed 48:15
extend 111:9,21 112:13
 113:13
extended 166:20,21
extends 90:16
extensions 91:16
extent 52:22 87:20,21
 94:2,3 112:16,19,20
 113:6,16,20
external 19:3 116:8
extinct 106:17
extremely 103:16

ExxonMobil 62:20

F

face 145:22
facilitating 82:18
 130:18
facility 4:22
fact 17:19 34:21 72:21
 75:6 103:5 114:10
 140:5
factor 31:13
factored 153:4
factors 58:13,18 92:6
facts 106:10
fail 103:11,13 163:6
failure 97:18
Fairbanks 151:15
fairly 7:4 28:16
fall 59:13 161:19
familiar 40:2 52:2 54:12
 58:10 143:17
FAQs 63:12,13,14
far 19:22 26:6,8,9 28:9
 96:20 99:7,10 111:17
 112:8 125:15 128:21
 152:6 162:1
farm 164:12
farmers 123:5 145:3,7
 145:13
Farrell 74:22,22 139:6,9
 144:20,21 166:9,9
farther 113:13
fascinating 141:17
fauna 109:6
fear 61:14
features 28:16 32:19
 33:13,17 34:12 58:15
 65:1 85:3,11 110:12
 110:16 111:20 113:12
fed/state 91:7
federal 15:12 19:17
 22:8,14 26:18 32:17
 41:19 70:20 71:1,6
 81:14 108:21 139:14
 166:22
federal/state 88:16
feedback 10:6 11:14
 26:2 28:6 30:19 35:7
 84:14 92:18 104:15
 169:11 170:4
feeding 81:21
feel 83:4 129:15 161:13
feeling 168:16
fell 48:6
fertilizers 123:6
field 149:7 151:5
 154:22
fight 164:9

figure 60:2 99:7,10,11
 122:9 149:20
figuring 59:21
filling 101:8
final 3:18 44:6 60:13
 125:16 169:7
finally 15:9 29:13 47:6
 132:6
find 11:10 14:4 20:11
 38:17 66:3 70:16
 72:16 83:2,10 96:15
 104:3 117:13 135:13
 138:5 148:1 163:9,21
finding 47:7 154:11
 157:20 163:8
findings 31:8
fine 12:11 164:14
finished 77:14
firmed 68:17
first 4:18 14:8 32:11
 45:13 47:16 49:1 58:5
 72:16 76:8 84:15
 88:18 97:11 102:7,9
 102:12,16 106:11,13
 107:12 131:3 132:3
 153:11 154:15 157:14
 158:7 160:3 161:21
Fischer 1:14,16 4:3
 20:14 56:7 57:22 59:8
 59:13 60:17 61:21
 62:3,11,14,18 63:12
 63:21 64:17 66:13
 67:2 76:6,18 77:8,18
 78:11,13 79:5,10,13
Fisher 4:11
fisheries 137:15
fishing 121:9,11
fit 23:6 27:20 82:2
five 34:1,3,16 59:18
 77:15 89:9 92:2 98:14
 98:22 99:13 102:19
 114:15 158:21
fix 162:21,22
flat 109:21
flies 145:21
floor 11:18 136:11
flora 109:6
Florida 112:14 155:4
flow 99:6 100:5,7
 103:20 110:16
flowing 95:20
fluctuation 112:4
focus 24:18 30:2 86:17
 143:18
focused 8:2 30:18 59:3
 84:21 93:16
focuses 93:3
focusing 7:6

folder 83:1
folders 7:3 82:21
folks 67:10 125:1 171:3
 172:1
follow 22:18 64:21
 83:11 140:22 142:14
 142:17 145:11
follow- 80:8
follow-up 76:9 139:10
 166:10
followed 119:16 124:12
following 23:14 27:3
 36:18 54:11 84:17
follows 53:12 165:3
foremost 106:11
foresee 64:14
forest 160:21
Forge 166:19,21
form 96:15
formal 15:11,18
format 51:3
formulated 77:10
formulating 109:8,17
forth 23:11 153:4 157:8
 157:11 158:1
fortunate 157:21
forum 16:22 171:14
forward 3:4 7:10 24:2
 32:8 35:3,8 36:5
 46:17 76:3 117:1,15
 124:20 125:13 133:4
 135:10 139:13
found 9:6 29:16 47:2
 54:2 82:22 94:12,17
 96:11 128:6 151:4
fountain 6:13
four 77:13 91:18 100:6
 114:3 146:22
fragmented 72:12
frame 77:5
Frankly 145:12
free 83:4 161:13
Freeman 1:18 3:14
 105:6,7,11,21,22
 132:2 139:5 150:19
 157:3,7 159:22
FreemanGIS 1:18 105:6
 105:17
freighter 120:15
freighters 120:18
frequently 129:19
front 8:7 18:10 56:8,8
 109:7
frustration 72:8
FTP 46:3 50:18
fulfill 24:4 66:4
full 112:11 113:6
 117:10

function 150:14
further 4:6 14:20 20:9
 85:5 88:8 90:16 91:16
 110:3 121:20 160:8
fussing 124:14
future 27:18 66:2
 115:19 133:4,17

G

gain 74:17
gained 84:6
gaps 110:13 158:19
gas 19:18 38:15,19 98:1
 126:5,6 167:17,18
 168:9,18 169:3
gathering 75:9 126:7
general 39:17 72:15
 74:7 78:1 128:6
 167:19
generally 21:2 48:14
 73:21
generated 129:14
generations 115:19
 133:5
generic 148:9
Genesis 159:16
Gentile 1:19 81:3,10
gentleman 62:17
geographer 153:12
geographic 28:16 29:1
 30:13 32:18 105:7
Geological 32:17
geospatial 34:15
geospatially 39:9
getting 7:8 18:6 33:2
 34:6 123:5 139:13
 140:3 160:7
GIS 1:19 23:7 30:10
 35:15 37:5 38:3 41:22
 43:2,3,10 44:15 49:21
 61:12,15 74:19 96:4
 106:4 110:2,4 117:13
 124:15,19,21 132:3,5
 159:17 171:21 172:1
give 5:2 8:15 14:12 21:9
 50:20 52:14 83:6 97:4
 100:16 104:16 130:16
 141:4 148:22 167:20
 169:10
given 30:19 34:20
 41:16 77:10 83:15
 92:4 104:17 144:18
giving 16:11 37:8
 101:12
glad 4:14 15:8 126:10
 151:17
Gooding 1:19 3:12 7:12
 37:3,5 56:14 57:6,18

57:21 58:8 60:5 61:7
62:1,13,16 63:4,7,13
63:17 65:16 67:14
68:10 69:7 72:1 73:16
74:2,12,16 76:5 77:6
78:4,12 83:5,13,18
148:11 153:6 154:15
156:8 171:16
government 22:14
39:16 41:11,19 43:14
67:7 69:1 70:12,19
73:18 116:22 165:5
165:18 169:21
governments 70:8,14
71:20 147:19,19
148:4 150:11,14,15
164:20
Governor 116:9
grab 21:8
grabbed 90:21,22
grader 123:11
grant 82:5 166:11
graphic 134:2
gray 66:8 80:3,9 82:13
160:13,14 163:5
green 39:18,18 54:7
55:10 110:14,20
112:7 113:12 123:13
123:14,20
grew 120:3 123:12
gross 71:5 147:13
148:9
ground 66:21 71:21
73:1 74:15 75:4,12,17
75:19 80:19 147:22
166:4 167:3
grounded 109:9 115:6
133:7 156:13 157:2
groundwater 108:4
group 9:18,22 97:14
169:7
groups 19:17 38:12
73:18
growing 166:6
GS 49:7 53:14
guess 55:17 131:10
guessing 118:12
guidance 63:1,5,11,14
88:3 122:10,17
Gulf 25:13 53:22 91:19
111:4,13

H

habitat 107:19 138:21
159:5
habitats 112:3 113:15
129:17
hairs 137:12

half 31:14
Hall 1:20 5:16 6:14 58:2
59:5,10,20 62:5 66:6
66:20 76:7 77:9,19
78:9 80:1,8 158:5
159:11 160:12
hallway 9:8
hand 6:9 12:2 48:13
60:9 69:22
handed 7:4
handle 91:15
hands 157:14 161:20
169:9
happen 9:15 75:21
81:12 103:19 122:5
happening 72:22
115:10
happens 89:10 104:2
happy 106:7 144:1
hard 18:14 51:19 93:17
120:22 157:17
harking 122:21
harm 163:20
harming 138:21
hat 132:12
Hawaii 50:22 54:20
hazardous 1:3,12 4:13
14:22 16:20 38:15
44:1,8,9,12 45:1 47:3
49:10 52:11 55:16
64:6 92:15 105:15
108:18 114:7 116:6
126:6,16 129:5 130:9
167:15 168:15
Hazards 161:6
HAZMAT 19:18
HCA 27:14 43:1 80:18
92:22 97:16 98:10
99:16,17 100:3,8
101:4 102:4,5 103:17
104:7 107:5 109:14
109:17 125:7 129:4
137:7 159:15,20
160:2,2,4 162:17
HCA/USA 42:3
HCAs 98:5,20 99:22
100:13 102:8,14,19
105:18 106:14 107:2
107:4,7,16 109:3,9
110:1 115:5,16 118:9
121:22 128:2,22
134:11 137:1 138:17
150:12 152:12,22
155:8 156:12 169:22
heading 6:20
heads 135:21
health 106:13
hear 4:7 5:1,4 10:6 12:6

20:2 67:4 74:1 83:16
92:18 96:1 97:9 120:7
148:13 154:5 172:4
heard 38:3 105:1
117:14 130:20 156:11
160:14 169:18 170:9
170:13
hearing 8:9 117:2
hearings 18:9
heart 170:4
held 77:15 97:19
122:12 135:20 145:12
154:6
hello 17:14 37:3
help 13:4 14:9 17:4
19:6 27:12 31:19,22
63:2,18 82:11 84:12
133:22 147:6 159:8
169:22 170:7,11
171:4,8
helped 69:20 106:4
helpful 20:12 62:7
135:9 156:5 172:9
helping 81:22
helps 19:22 20:1 32:10
156:4
heritage 148:21
hesitate 19:4
hey 143:6 167:4
Hi 56:9 74:22 141:14
high 42:4 102:13 104:8
106:2,10 107:11
109:11,12 115:3
126:15,21 127:1
133:7,9,15 150:22
157:14 160:5,10
167:17
high- 39:3
high-population 43:5
highest 80:16,17 81:18
107:5
highlights 55:9
highly 32:18 67:21 71:8
98:15 127:15,18
130:10 137:17
hire 149:6
hired 69:21
historically 71:15
history 39:7
hits 99:20
HL 43:22
hold 11:17 19:16 79:1
125:6
holds 133:19
home 40:8
homepage 39:12
homes 106:19 165:12
honesty 58:10

honor 109:6
honored 116:14
hope 15:15 19:1,4 20:6
20:11 75:10 83:15
97:1 118:17 156:4
Hopefully 132:22
hoping 11:13 47:21
horrible 15:21
hour 146:22
House 116:12,15
HOWARD 1:18
HPAs 43:4,15,21
HSE 97:21
huge 124:3 146:10
human 140:2
hundreds 123:6
Hung 2:5 6:3,3
Huron 94:19 95:13
hurry 132:3
hybrid 51:9
Hydrography 87:18
88:21 93:13 95:15
110:17
hyper-local 148:8

I

idea 8:15 52:14 117:8
133:6 136:19 167:4
ideally 33:7 155:2
identification 59:18
77:17
identified 17:11 24:12
28:19 32:16 52:18
64:20 150:22
identify 12:1 24:3 27:9
31:4 34:10 52:4 62:7
73:11 105:13,20
identifying 29:4 63:18
Ids 9:10 52:2
illustrate 88:17
illustrating 128:15
illustrative 7:15
imagine 54:12,17 68:11
68:16 102:5 121:1
immediate 100:14,18
101:8 102:15 162:19
162:20
immediately 163:12
impact 64:14 92:16
100:19 137:17 138:11
161:11 162:1,1,3,5,8
162:14,16 168:19
impacted 74:15 152:13
impacting 101:2
impacts 87:9,10 140:2
152:22 169:2,3
imperiled 24:17 127:6
138:22

implementation 119:15
implemented 135:9
implementing 24:2
importance 19:15 20:6
important 14:2,12 17:9
 17:10,17 65:9 70:3
 72:17 73:1 95:22
 102:5 106:8,10,21
 107:3,14 108:12
 109:2 110:1 115:2,18
 134:13 159:5 168:10
importantly 12:5
improve 16:19 17:4
 109:15
improved 52:16
in-person 10:8 136:12
inaccurate 71:17
inaction 141:2
inception 106:3
Incident 39:1
incidents 168:18 169:3
include 27:19,22 29:8
 34:3,19 35:22 38:12
 46:8 49:18,20 52:13
 54:20 66:9 84:17 85:3
 87:16 88:14 91:22
 97:15 108:13 110:12
 114:4 119:1,2,3
 121:18 124:17 127:5
 127:11 130:4 143:15
included 24:22 28:3,12
 28:22 38:12 57:13
 61:2 66:19 86:8,9
 93:6 94:14 119:16,19
 120:16 124:11 129:16
 140:2 159:15,20
 160:1
includes 33:9,16 39:22
 89:7 94:7 96:11 142:1
 142:3
including 26:4 28:10
 34:17 39:4 41:12
 94:19,21 111:6,11,19
 134:10 170:14
inclusive 122:15
incorporate 39:8 59:15
 151:10
incorporate/five 76:13
Incorporated 66:9
 80:10 160:13
incorporating 36:9
 66:11
incorporation 59:17
increase 129:6,8,10
incredibly 53:11 101:19
 148:16
indents 101:1
independent 116:20

index 20:19,19 21:7
 26:19 53:9 85:2 87:14
indicated 161:9
indicates 128:9
indirect 99:17,18 100:1
individual 8:13 59:3
 69:11 121:4
individually 68:1
individuals 13:4 171:7
industries 105:9
industry 20:22 97:20
 103:3 105:18 106:12
 122:4 125:4 161:12
 162:14
inexperienced 80:22
inform 19:6 32:10
 169:22
information 11:9 26:22
 27:11,14 32:3,4,5,7
 35:4,5 40:6,11,18
 41:4,13 45:16 46:10
 46:15 47:19 57:7 65:9
 65:11 69:2 71:19,21
 72:10,11,16,17,21
 73:3,4,13 74:4 75:8,9
 75:17,22 76:19,20
 77:21 78:6 81:21
 82:11 105:8 116:21
 130:14 132:8 134:15
 135:22 151:3,9,19,20
 161:17,19 164:2,16
 169:22
informative 19:3
infrastructure 140:3
 142:6 145:9 166:16
inherently 82:1
initial 22:1,11,18
initiate 44:18 49:8
initiatives 140:19
injurious 100:22 101:3
 101:14
inland 26:7,8 52:18,20
 57:19 91:22 111:10
 111:22 113:13 114:3
 114:6 158:13
inlets 53:12 54:12
input 7:18 11:13 17:20
 25:5 36:3 99:1
inside 99:2,16,22 100:2
 100:13 149:5
insight 81:4 83:7 84:6
 135:8
insightful 115:22
inspection 39:7,8 74:6
 97:17
inspections 68:14
 73:19
inspector 125:22

inspectors 68:16
instance 144:13
Institute 141:16
instructions 5:2 45:5
 49:12
instructs 24:7
intakes 108:5
integrate 156:10
integrity 1:17 27:15
 63:9 80:16 97:14
 122:1 123:18 125:22
 129:7,9,12 135:6
 160:10 162:7 168:8
intent 29:3,3 61:15
 109:6 119:17
interacting 73:9
interest 48:16 82:7
interested 11:8 48:17
 74:7 92:18 96:1 125:1
interesting 134:19
 150:9
interface 112:19 113:20
 159:4 160:7
interfaces 137:3
internal 23:15 30:7 39:8
internally 7:16 85:17
 91:5
internet 128:7
interpret 134:3,7
interpretation 59:2
 134:21 157:5
interpreting 135:1
interrelate 157:2
intersect 47:4 89:4,7
intersected 52:11
intersecting 90:7,8,19
intersection 90:2
intersections 47:7,11
introduce 14:21 83:5
 97:3 98:2 105:5
introduced 18:3 53:5
 162:7
introduction 4:19 18:6
 55:13
investigating 32:2 36:1
invitation 106:7
invited 126:11
inviting 117:7
involved 169:20
iPhone 40:1 41:21
islands 88:10
issue 6:1 27:16 29:2,13
 32:21 160:16
issued 9:9
issues 8:12,14,16 20:2
 23:13 28:5 35:13
 122:7 142:4 167:11
 168:17

it'll 59:19

J

Jacques 2:1 3:16
 125:18 126:1 161:8,9
 161:13
James 64:4 161:4
Jersey 1:13 72:5,7
 141:15 142:7,8
 143:19 144:2
job 16:2 18:12 62:12
 105:11 115:4 121:15
 125:10
join 15:1
joined 36:12 97:12
joining 4:8 14:1 17:14
 17:15 37:4
joint 105:12
jot 21:8
JS 43:6
jump 44:3 144:20
Jumping 113:5
JUNE 1:10
jurisdiction 41:17
 81:11
jurisdictional 114:22
justifiably 148:17
justified 102:20

K

Karen 1:19 81:3
keep 9:11,22 12:12 17:3
 109:7 115:17 140:6
 150:4 169:18
Kentucky 51:13
key 73:12 103:8
kick 4:18 80:4 82:14
killed 139:6
kinds 4:20 23:12 73:13
knowledge 133:11
known 14:14 32:15,21
knows 6:8 120:4

L

L 15:11
L.P 1:17
lack 54:6 75:12
lake 33:12,14 34:22
 94:6,9,18,19,19,19,20
 94:20 95:7,20 96:13
 122:3,5 146:12
lakes 1:5 24:8 25:7,12
 25:14,17 29:15,18
 32:13,15,20,22 33:7,9
 33:10,14,19,21 34:2,3
 34:16,20 35:20 76:14
 76:15 91:21 92:22
 93:4,10,11,21 94:3,4

94:8,17,18 95:12 96:6
 108:5,14 110:9 111:5
 120:2,5,9,12,17,19
 121:13,18 122:13
 123:9,11,12,13 134:5
 134:11 143:9,11,16
 143:18,21 146:9
 153:13 155:20,22
Lakes' 34:15
LAN 2:4
land 112:19 159:5
 160:4,7,20
land/ocean 113:19
landmark 166:22
lands 87:21 89:22 90:6
 94:2,7 112:12 113:7
 113:21 114:1
landscape 81:7
Langraf 158:7
language 142:15
large 9:21 44:7 51:18
 149:4
larger 10:11 47:12
 52:15 93:18 122:6
launch 78:20
launched 105:16
Lawrence 33:16 94:10
 95:1 96:12
lay 22:20
layer 92:12 124:19,20
layers 43:17 124:15
 140:6,7 151:20
laying 25:3
lead 97:2 105:12 125:21
leaders 73:11
leading 6:11 53:19
leagues 112:15
learn 69:12
learned 47:19
learning 23:14
leave 7:1
leaving 171:15
led 84:3
left 59:2 83:1 110:5
 121:9,10,11 144:17
 171:5
left-hand 9:8
legal 153:3,18
legislation 116:19
legislators 141:9
legitimate 118:4
Leigh 3:12
Leigha 1:19 7:12 30:22
 31:17 34:14 36:17
 37:4 64:8 65:2 83:5
 83:13 97:6 147:9
 153:8
Leigha's 11:1

length 54:14
Lesniack 70:4,5 136:14
 136:14 145:15,16
 147:8,8 165:2
let's 75:16 115:16
 124:19 130:16 131:7
 131:8 132:4 154:4
 169:10
level 9:4 48:7 71:1,4,5,6
 71:10,13,15,16 96:5
 116:20 146:12 147:14
 148:10 149:21 169:21
levels 39:10 73:17
 153:21
liaison 1:19 150:13
liaisons 11:20
life 109:5 114:8 163:9
light 121:2
lightly 109:18
likelihood 120:8,12
limit 57:17
limitation 67:18
limitations 35:16
limited 68:3 91:19
 110:5 132:10 151:8
limiting 29:14
limits 27:10
Linda 74:22 139:9
 144:21 156:14 166:9
line 91:8 95:4,9 96:18
 102:5 110:16 163:11
 164:14
lined 128:8
lines 25:13,16 95:3 99:6
 100:7 113:12 120:17
 128:8
link 41:8 45:8 56:4
 77:22 88:22 171:13
links 124:12 171:20
Liquefied 38:18
liquid 19:18 38:16 44:1
 44:9,9,13 45:2 47:3
 49:10 52:11 55:16
 92:15 105:15 108:18
 114:7 116:6 126:6
 167:15 168:15
liquids 129:5 130:11
list 49:18 52:6 87:1
 104:1
listed 38:16 42:19
 44:13 45:9 50:7,15
 55:20
listen 17:2 20:8
listening 16:7
lists 40:18 52:1
literally 61:11 72:6
lithium 19:19
little 4:6 7:8 10:11

21:16 23:16 28:8 34:9
 34:14 37:19 42:2,18
 46:21 48:3 50:21
 51:10 53:3,21 67:6
 79:8 83:6,14 96:9
 117:11 126:12 128:14
 146:9 149:20 152:20
 154:13 160:8 170:18
live 106:19 158:17
lives 17:16 120:4
LnSec 103:11
local 67:7 69:1 70:8,13
 70:18 71:15,19 75:13
 116:22 122:18,19
 123:2,4,7 146:11
 147:18 148:4 150:11
 150:14 164:20 165:4
 165:18 167:10 169:21
located 9:7 151:6
location 59:1 66:1 78:2
 81:15,18 108:5 137:5
 137:14 138:3 142:11
 162:22 164:11
locations 38:20 39:1
 52:18 63:19 74:17,20
 81:22
logical 124:9
logistics 170:21
long 54:15 66:22 101:2
long-term 109:1 114:7
 138:1
longer 43:16 67:17
look 20:3,16 21:18 23:7
 25:9 42:21 56:3 57:14
 68:8,11 98:20 99:3,4
 99:8,9 100:3,6 112:7
 118:20 119:7 125:13
 132:14 141:20 142:2
 144:3 155:1,13,13,17
 168:11 170:5 172:4,9
looked 146:2 152:11
looking 7:10,18 11:8
 17:5 24:16 27:5,5
 29:14 33:8 35:8 56:18
 66:4 76:3 95:7 117:1
 130:22 132:8 146:14
 147:11,14 153:19
 157:11 172:7
looks 9:10 46:21 50:21
 52:15,20 54:8 56:11
 78:15
loss 100:22 101:22
lot 11:14 20:15 25:6
 26:12 38:4 39:8 55:5
 67:22 93:4 95:17 97:7
 138:8 141:2,2,21,22
 142:3,5 147:13 153:8
 154:7 157:21 158:1

158:14 161:16 164:15
 165:22 167:7,8,10
 168:1,6,13 169:21
 170:16 171:21
lots 23:8 125:14
Louisiana 2:1 54:8,9,13
 109:22 110:7,9,12
 111:10,22 113:9
 124:7 125:19 126:3
 126:17,18,19,20
 127:3 128:5,7,10,12
 129:3,5 132:11,17
 162:7
love 172:4
lower 31:9
lunch 8:1 9:21 79:8
 171:3,11

M

mail 46:5
main 38:11 104:13
 124:13
maintain 30:10 109:2
maintained 47:20 65:18
major 103:6
majority 111:2 118:9
making 58:21 133:2
 138:8 142:21 157:1
 164:18
mammals 127:8
management 27:15
 41:13 63:10 97:16
 122:1 123:19 125:22
 129:12 135:7 145:6
 145:11 146:1 160:11
 168:9
manager 1:14,16,20
 13:14 105:12
managing 147:1
mandate 18:1 21:18
 24:4,5 32:9 34:1
 60:14 77:13 84:13
 108:13 114:5 120:1,6
mandated 118:22
 119:17
mandates 7:11 18:12
 19:7 109:4
manipulating 61:5
manner 103:6
manual 88:3
manufacturing 97:20
map 6:6 17:11 22:6
 34:11 35:20 38:8,9,22
 39:3,7,22 40:1,16
 43:20 54:5 58:6 80:15
 81:6 85:1 90:20 92:7
 93:10,14 95:11 106:5
 110:20 120:14 127:16

128:6 154:12 167:4
mapped 25:7 80:12
 108:2,7,10 112:21
 114:21 122:10 153:2
mapping 24:3 29:14
 32:13,18 34:8 36:6
 37:7 38:1 41:13 43:12
 44:15 49:7 53:20 58:9
 80:11 96:6 118:19
 127:11 141:21 142:21
 154:14 156:3,9
 164:13
maps 7:13,15 23:2
 31:18,20 40:14 42:1
 46:19 49:22 50:19
 53:13 57:9 66:9 84:2
 84:4,18 85:16 88:17
 89:2,19 91:12 93:7
 96:22 117:21 118:14
 118:19 124:11
Marathon 134:6,20
marginal 129:8
marine 22:3 24:9 26:1,5
 28:3,9,10 29:4,10,15
 30:16 36:7 87:16,19
 87:22 88:4,6 92:3,11
 108:14 111:21 112:1
 112:9,14,17,20 113:7
 114:17 121:19 122:13
 124:2,7,9 127:7 129:2
 129:14,16,21 130:1,5
 131:12 158:9,13,19
 159:1
marked 111:20
marshes 87:17 88:19
 89:3 111:20 129:16
marshland 89:6
Mary's 94:21 96:18
mass 44:11
Massachusetts 86:17
 86:20 89:16,22 90:14
 91:8
massaging 48:4
massive 121:12 168:14
matching 90:5
material 14:22 97:18
 161:6
materials 1:3,12 4:13
 16:20 64:6
matter 14:6 79:15 103:5
 156:6,8 172:14
maximum 103:20,21
Mayberry 1:20 13:14,16
McGinty 77:20
mean 26:15 33:3 76:18
 90:8 104:1 133:17
 134:4 142:20 157:3
meaning 96:12

means 26:14 33:1 69:5
 126:22
meant 22:2,4 118:21
measurement 88:13
 89:14 90:12
measuring 88:6,9
meat 121:22
media 116:22
medical 5:15,18 6:1
Medina 62:19,20 63:6
 63:16
medium 104:8
meet 19:7 28:1 84:12
meeting 1:8 11:5,10
 12:22 17:9 18:16,20
 21:21 22:18 23:1,15
 25:6 27:1,3 28:7,20
 30:4,20 32:6 53:7
 78:21 83:9 84:7,15
 117:12 118:1 131:19
 135:20 170:15 171:2
 172:13
meetings 4:21 14:2
 19:16 131:20 153:22
meets 69:18 137:22
member 116:5 158:12
 158:16
members 62:6
men 16:1
mention 8:4 90:1
 132:15
mentioned 19:14 22:17
 33:4 43:22 64:12 65:6
 73:16 118:14 127:14
 139:4 142:15 143:8
 145:2 147:12 156:6
 156:14
mesh 158:2
messaging 61:20
messaging 18:22
met 1:13
metadata 46:10 51:15
 69:13,14 77:22 78:4
metal 100:22 101:22
method 122:16
methodology 106:5
Mexico 25:13 91:19
mic 56:8
Michigan 94:20 95:13
 120:3,4
microphone 12:2 143:7
 167:21
microphones 11:21
mics 81:4
middle 21:11 131:19
migratory 127:8
mile 85:6,19 89:4,10,14
 110:21 127:21 137:11

137:17 165:13
mileage 47:10,11 52:9
 52:13 129:11 162:9
miles 47:3,13 52:10,12
 74:10 88:7 90:11
 99:21 100:3 107:13
 111:10,21 112:13,15
 113:18 114:2 123:6
 136:21,22,22 137:9
 137:13,13,13 146:22
 162:3
million 107:12
mimic 88:1
mind 56:21
mine 126:12
minimal 129:6,8
minimize 56:15
minute 42:18 43:11
 78:16 79:4,21
minutes 12:13 15:6
 40:17 50:11 83:17
 146:21
minutia 139:14 140:4
miraculous 144:17
mired 107:20
misconception 98:10
 103:1,2 151:22
missing 73:6 96:19
 147:3
mission 16:16
Mississippi 111:12,13
 111:14 113:10
mistakes 118:18
mitigate 129:20
mixed 65:4
mobile 10:3
model 99:2
models 152:3,12
modifications 27:18
modified 103:10
modules 50:12
moment 15:20 16:4
 113:5
momentum 170:8
money 167:8
monitored 8:11 9:3
Montana 124:4
Morgan 159:12,16
morning 4:4,15 7:3,6
 10:9 13:17,21 15:4
 17:20 21:5 23:13 25:4
 33:3 35:9 37:4 62:20
 64:4 70:4 72:3 79:2
 98:4 117:3,4 126:10
morning's 8:20 10:18
 11:15
morons 163:21
Mountains 160:20

mouthful 97:7
move 5:12 7:10 16:21
 32:8 35:3 36:5 124:19
 125:16 133:12 135:10
 139:13 146:22 154:4
 170:7 171:1
moving 3:4 6:17 9:13
 17:3 18:12 24:2 46:16
 48:9 117:15 133:3
 171:11
multiple 116:12
municipalities 72:8,14
 73:9,11,12,17 74:3,5
 74:10 75:14,14
municipalities' 72:20
Murray 1:21 6:7,10 79:2
 79:6,12,18 81:2,20
 82:15 97:5 104:21
 115:21 119:12 125:12
 130:15 133:20 135:4
 139:3 141:12 143:6
 145:14 147:4 149:17
 152:18 154:10 156:5
 156:9 157:6 158:4
 159:10 160:22 164:22
 166:8 167:19 168:1
 169:5 172:10

N

name 4:11 12:8 40:21
 62:8 72:3
named 65:19
names 144:18
Nan 66:8 80:3,9 82:13
 160:12,22
narrowed 23:4
nation 109:18
nation's 19:9 106:15,21
 108:9 115:7,11
national 27:6 32:12
 34:11 37:6 38:1 42:8
 48:5 71:16 87:18
 88:20 93:2,13 95:5,15
 96:4 110:17 116:13
 116:17,19 119:2,18
 127:10 148:21 155:3
 160:21 166:19 167:5
nationally 27:9,13
natural 2:1 38:19 66:11
 125:20 126:4 128:13
 160:17 167:17 168:18
 169:3
nature 95:19
NatureServe 42:14
 50:16 52:4 65:19,19
 149:1 151:13
NatureServe's 50:8
nautical 88:7 90:11

112:13 113:17 114:2
navigable 25:8,10 42:7
 91:21 98:16 106:20
 108:8 120:14 127:2
 128:3,4,18 151:14
navigation 120:8,11,13
near 112:11
nearly 91:8
necessarily 54:9 82:5
 152:9 168:3
necessary 47:20
need 5:10,11 8:16 9:11
 9:19 13:12 14:7,7
 26:14 41:20 45:22
 52:21 63:17 66:9,10
 70:16 78:19 82:11
 92:9 104:10 114:18
 115:9 117:15 120:6
 122:8,9,10 123:3
 132:13 133:13 135:2
 141:3 146:14 155:3
 156:10 162:20,21
 163:10,11
needed 18:11 48:8
 104:13 110:3
needing 171:3
needs 9:16 48:21 49:18
 66:20 75:9 76:3 80:20
 155:5 158:15
neighbors 14:18
network 42:8 93:2 95:5
never 17:2 134:14
 142:7,8 148:18,19
new 1:13 19:18 30:10
 30:11 31:3 35:14
 37:21 44:20 45:5 59:7
 59:11,12 61:21 64:2
 67:9 72:4,7 76:14
 77:4 82:8 92:7 98:21
 102:22 109:3,17
 110:1 114:21 115:10
 115:16 129:2,7,9
 133:6,7 138:13
 141:15 142:7,7
 143:19 144:2 162:2,6
 165:12 166:15 167:16
newest 37:9 43:18 78:4
news 116:21
NGO 158:22
NGUYEN 2:5
NHD 57:4 96:9,16 99:19
 110:16 111:19
Niagara 94:22
NICA 98:10
Nick 62:20
nine 93:3,9 94:1,16
 95:11 112:15
NJ 167:13

NMPS 127:17 128:4
no-build 160:16
NOAA 26:19 27:18
 53:19 154:20
NOAA's 53:8
non- 100:21 102:4
non-HCA 98:10 103:2
non-injurious 100:22
norm 109:12
normal 64:22
north 54:21 144:15
northern 109:20
note 56:2 96:9 107:3
notes 17:5 18:20
noticed 140:9
notification 77:2
notified 44:10 49:7
notify 77:3
NPMS 37:12,22 38:2,5
 38:12 39:12 41:9
 44:14 45:7 46:13 47:3
 49:6,13 55:13 61:10
 67:8 74:18 76:21 77:1
 91:5 125:8 127:10
number 4:19 7:13 10:19
 13:9,12 18:8 19:13
 28:18 31:17 53:10
 56:4,19 79:14 91:18
 92:2,9,13,20 93:3
 110:11 122:7 134:4
 162:3 170:10
numbers 47:12 139:18
numerous 127:3,9
nutrient 88:3

O

objectively 109:9
observation 19:21
 107:22
obtain 65:11
obviously 8:12 10:9
occur 5:14 73:15
 158:15
occurred 15:21
ocean 111:4,4 112:2,4
 112:19 113:15
Oceans 91:20
offer 81:4 135:15
Office 82:17 161:5
official 70:19 165:5
officially 66:18
officials 39:16 41:11
 67:7,8 69:1 165:19
offshore 28:12 40:20
 90:16 98:1 112:13,15
 112:16 113:18,20
 114:2 137:10 158:14
 159:15,20 160:1,8,8

Ohio 51:1,12,14
oil 53:16 87:9,10 98:1
 121:2 123:1 124:6
 130:10 138:5
old 166:7
older 133:5
OMB 154:1
onboard 133:6
once 28:19 31:19 43:18
 64:9,13 76:15,15,22
one-to-one 158:2
ones 44:2 102:22
ongoing 23:13 30:5
online 10:14 36:4 50:8
Ontario 94:18 95:12
onus 123:17
OPAs 43:5,15,21
open 11:18 17:1 18:12
 25:12 26:10 55:17
 112:2 113:14,19
 130:19 136:11 137:10
opened 153:14
Opening 3:3
operate 40:11 44:9 45:1
 134:5
operating 44:19 60:22
 61:13 82:4 150:21
operator 40:10 44:13
 45:13,18,22 49:16,18
 49:21 50:6,15 60:21
 62:22 71:10 123:17
 142:9 146:7 147:20
 150:22 166:3,17,20
operators 27:14 38:13
 39:3,17 41:11 43:14
 44:1,1,9 48:12,22
 49:9 55:16 58:7 59:3
 59:12,14 60:10 63:1,3
 64:15 67:12 68:3,5
 71:16 77:3,15 81:7,10
 82:4 92:20 103:3
 104:13,14 107:1
 122:11 125:7,10
 135:5,13 138:13,18
 140:21 143:3 147:18
 148:4 151:2 152:1
 158:9,10,12,16
 165:18 166:14
opinions 96:1 97:4
 149:10
opportunities 19:15
opportunity 17:20 18:8
 79:9 136:3 149:19
opposite 164:9
options 125:1 132:21
orange 86:11,13,13
order 47:21 66:21 78:20
organization 12:9

organized 116:17
orifice 99:9
original 102:19
other's 126:12
other- 43:5
ought 135:1 138:16
 146:1 160:18
outreach 1:21 38:6
 82:16 150:11 159:9
overall 152:22
overarching 165:3
overblown 163:17
overcomplicating
 136:18
overlaid 142:22
overlap 31:7,10 51:11
 51:21 54:1,6,7 55:10
 55:11 99:17 119:21
overlapped 54:3
overlay 73:4
overly 166:1
oversimplify 131:7
overview 3:2 37:12
 49:14 71:9

P

P-R-O-C-E-E-D-I-N-G-S
 4:1
p.m 7:22
Pacific 54:18 91:20
 111:4
page 11:4,5,10 13:7
 78:20 83:9 170:15
painting 109:14
Paired 113:11
panel 3:11 34:6 79:19
 82:20 97:3 116:8
 131:10,18 136:10
 139:4 150:7 156:21
panelist 125:16,16
panelists 7:19 11:7
 83:17 97:9 105:2
 125:15 130:16,21
 131:5 169:8,10
panelists' 35:9
Panhandle 155:4
paraphrasing 131:9
park 16:6 166:19,21
 167:6
Parks 119:3,18
part 13:18 18:4 38:6
 48:17 59:6,21 64:17
 64:19 66:19 74:1 77:6
 85:3 87:18 92:15 96:3
 117:22 122:2 124:16
 125:14 128:2 163:21
 164:15 166:18,21
 170:22 172:12

- PARTICIPANT** 56:9
57:2,15,19 60:19
participants 6:16
136:13
participate 14:12,14
17:17 18:8 74:5
participated 26:18
60:10
participating 83:8
participation 10:5
11:13 14:10 19:10
20:6,10
particular 82:7 162:15
164:20 171:14
particularly 70:7 81:5
143:8
partner 72:17
partners 68:10,12
158:22
parts 42:19 92:17 96:18
142:19
pass 55:22
passes 99:22
password 67:8
pathway 73:10,14
Patty 72:4 75:11 141:14
143:6 144:22 167:13
pause 15:19
paying 140:10,11
Pennsylvania 75:1
166:12
people 4:15 7:20 8:17
10:8,14,16 14:15
32:22 61:11,13,16,19
69:5 70:14 73:12
74:14 75:11 79:10
106:19 109:6 127:19
127:20 133:6 143:1
153:9 157:9 163:19
163:20 164:19 166:4
168:17
perceive 26:16
percent 31:4,9,14 54:3
54:20 55:5 59:21 60:2
89:9 90:5,10,14,18
91:10 100:21 101:21
101:22 102:1
percentages 57:16
100:18
perfect 79:12
performed 80:21,22
permanent 108:22
114:6 138:1
permitted 44:2 68:4
165:13
permitting 75:13,15
person 4:9 7:20 10:11
49:19 63:10 78:7
- personal** 8:12
personally 58:12 94:11
151:2 154:3
personnel 5:18 21:12
81:1 149:5
perspective 117:7
141:20
phase 32:8
PHMSA 1:14,16,18,19
1:20,22 2:5,5 3:3,6
13:8 14:3 16:17 17:22
18:11 19:2,6,21 20:11
21:12 33:18 37:5
38:14 39:1 45:19 46:1
46:2 48:10 49:17 50:2
58:6 59:6,9,10 66:21
67:18 68:12 69:19
72:18 73:13 76:19
81:11 82:17 84:9,22
85:6,10 87:16,20 88:1
88:14 91:12 92:2,9
93:10 94:1,16 95:11
96:5 104:18 117:7,11
118:15,18 119:7
121:15 125:9 135:2
135:19 139:16 140:11
140:13,20 143:20
146:5 148:1,7 149:6
151:8,17,19 152:19
153:21 154:16 166:12
169:13
PHMSA's 32:12 38:6
81:17 110:6 119:15
167:16
phmsa.pipelinesafet...
8:8
phone 13:19
phrase 157:4
pick 40:3 101:20,21
124:15,19,20,21,22
132:13 153:2 154:3
170:7
picked 132:11
picking 152:7 153:20
picture 119:11,13
piece 72:19 119:14
142:17
pieces 44:6
pilot 23:16 30:8,9 47:17
48:11,17 60:10 84:5
84:16 86:18 90:4
94:11 96:10,17
105:13 132:7,19
136:3 157:11
PIMMA 41:12,21 43:12
43:18 46:16 74:19
pipe 52:11 80:16,17
81:19 152:5
- pipeline's** 18:1
pipelines 38:4,16 40:4
40:5,12,18,19,22 41:1
41:17 44:10 45:2 55:7
74:6,10,14 81:8,12,15
126:17 128:9,11,20
128:22 129:9,11,19
134:10 138:10,12,14
140:14,15 146:15
159:1,6,15,20 160:1,9
162:2,6 164:1 167:15
167:17,18 168:9,16
169:3
pipes 18:13,14 19:8
24:6 40:7 47:3 49:10
117:10
place 5:8,10 64:14
72:13 107:22 123:6
166:2
places 79:22 107:17
placing 139:1
Plains 1:17 97:12
plan 18:19 24:2 32:12
123:19 149:9,13,16
166:18 169:17
planning 82:8,12 167:1
170:22 171:7
plans 17:22 167:16,19
168:2
plants 38:19 151:4
play 58:14 106:20
playing 144:16
please 4:4 10:2,5 11:9
11:17,22 12:8,12,20
13:15 14:14 15:1 20:9
56:8 105:21 126:8
162:11 171:12
pleasure 121:12
plenty 36:22 62:4
plus 46:8
poignant 16:4
point 6:12,18 10:4
13:13 32:11 38:10,20
39:13 54:7 74:20 75:3
103:8 117:20 132:7
135:5,14,16,18 147:3
147:7 149:18 150:9
151:7 156:7 170:8
pointing 39:19 63:18
points 20:2 115:22
125:15 143:14
policy 32:11 50:9 115:1
policymaking 14:4
polygon 58:22 95:10
96:15
polygons 96:12 99:1
poor 71:1
populated 98:15,16
- 102:13 106:19 108:7
127:1,15,16,18,21
population 42:5 43:6
164:16 165:6,20
166:6
portion 57:12 78:21
portrayed 25:15
poses 34:9
possibility 124:9
possible 5:18 6:2 9:12
22:10 86:1 129:4
138:19
possibly 25:17 58:15
79:7 136:1
post 18:20 161:10
potential 27:16,17
30:15 34:2 91:15
107:19 168:15
potentially 22:5 30:11
30:13 61:4 94:15
Powell 159:13,16
PowerPoints 171:17,19
practical 101:10
practice 146:6
practices 145:7,11
146:1
pre- 117:22
pre-read 83:2,10,14
117:22
pre-reads 11:6
precise 52:17 53:1
predicted 146:20
prefer 21:3
preference 43:4
prepare 68:13 104:11
prepared 171:13
PRESENT 1:15 2:4
presentation 20:16
31:19 36:17 37:1
55:13 98:14 104:22
126:17 130:13
presentations 18:21
19:2 22:21 35:11
126:12 127:15 170:13
presenter 83:5
preservation 119:4
president 1:18 105:6
presiding 1:14
press 164:10
pressure 98:8 100:11
101:11,15,16 103:10
pretty 71:3 106:5 146:4
147:13 153:7
prevailing 95:17
prevention 158:20
preview 131:1 132:9
previewing 130:22
previous 117:16 127:14

128:16
previously 33:4
primarily 29:5,11 86:14
 143:19
primary 16:16 30:8 43:1
 44:13 49:6 53:14 86:2
 88:9 93:9
Prior 126:2
prioritization 98:9
 102:4 103:7 107:14
 109:11
prioritize 102:7 106:12
 107:2
priority 104:7 107:5
 162:18
pristine 138:21
private 22:13
proactive 158:18
probably 4:14,20 6:8
 9:20 10:10 26:22
 34:19 38:3 53:6 71:9
 71:12 163:22 164:6
problem 13:6 14:16
 62:2 70:9,10 71:22
problems 5:9 15:14
procedures 45:9 153:9
proceed 80:6
process 20:12 23:14
 43:10 45:12 48:18
 49:1,15 64:18,19
 66:19 67:12 76:22
 77:2 81:13 148:14
 149:4,8 153:18 154:1
 154:7
processes 69:10
processing 48:5 69:18
produce 38:14 49:22
 65:22 67:19 70:15
 92:11 130:3
produced 42:12,13,16
 46:11 65:18 69:9 71:6
 84:2,5 155:14
producing 69:11
product 53:18 54:11
 56:18 70:10 85:20,21
 91:14,16 152:4
productive 12:22 15:16
products 16:20 53:10
 61:17 92:15,17 130:9
 130:10
program 1:14,16,20
 8:21 21:6 61:22 73:10
 79:7
programmer 105:12
programs 135:7 148:21
project 23:16 30:8,9
 44:7 47:17 96:11
 105:12 149:6

projects 98:1
promise 15:5
promptly 172:12
proper 5:3 6:19
proposals 142:10
proposed 74:13 90:3
 102:10,14,22 104:14
 125:3 165:10 166:15
 166:18
proposing 153:19
proprietary 67:20 70:10
protect 69:2 114:9
 115:18 146:13 147:2
 159:6
protecting 29:9 109:5
 115:6 145:20
protection 70:22 73:21
 108:2 122:19 127:12
 145:17,18,22 165:16
 165:21
protections 74:8
protocol 64:22 166:13
protocols 59:14
provide 5:13 15:7,17
 17:20 61:8 63:1,4
 104:10 105:17 121:12
 122:17
provided 118:14
providing 7:12 27:13
public 1:8 12:10,11
 14:16 19:16 21:21
 23:15 25:6 27:1,3
 28:7,20 30:4,20 32:5
 37:12 38:9 39:17,22
 40:1 43:6,20 46:13,16
 51:16 53:7 69:13 70:5
 70:11,13 71:20 72:15
 74:18 75:6,12 76:1
 84:7,15 117:8,8,12
 118:1,6,8 119:6
 120:20 122:21 125:9
 127:12 131:20 133:22
 135:20 136:15 139:12
 140:10,18 141:1
 142:18 143:4 153:7
 153:22 161:17 171:2
 172:13
public's 68:20
publicly 125:8 163:15
 163:18 164:3,12
publish 77:1
published 140:13
Puerto 46:9,12 51:1,6
 65:7,10,12,14 66:3,4
Puget 54:21
pull 83:4,11 140:6
pulled 46:13 88:20
pulling 48:2 147:11

puncture 99:10
purple 113:8,12,22
 114:1
purpose 68:5 86:18
 88:12 93:22 124:21
purposes 29:12 30:9
 82:12 89:12,13
pushed 116:18
put 13:11 14:17 41:6
 71:14 102:2 125:1,2,5
 128:17 145:4 167:8
 168:22 171:19
puts 123:16
putting 106:12 140:15
 143:7

Q

Q&A 3:11 9:5 11:18
 21:14 36:21,22 53:2
 55:17 56:3 125:14,17
quality 30:14 51:3
 145:22
quarter 85:6,19 89:4,10
 89:14 110:21
question 12:3,7 14:16
 14:18 26:6,9 33:18
 34:5 35:2 58:2,5,6
 59:6 60:19 61:8 62:15
 64:9 65:8 66:7,8 67:1
 67:15 69:15 76:9
 77:10,19 80:2,5,8,9
 81:5 82:13 84:17,20
 84:22 93:9,9 110:11
 110:21 111:6,19
 112:12 113:5,16
 114:3 145:16 147:9
 152:19 154:7 158:6
 159:9,12,13,18
 160:15 161:3,7,15
 162:11 163:14 167:14
 168:13
question's 98:6
questioning 153:20
questions 3:9 7:17 8:18
 8:20 9:2 12:16,19
 21:4,8,9 26:12 30:3
 31:22 33:2 36:14,18
 55:18,22 56:1,7 58:1
 60:17 62:3 64:7 66:17
 76:8 78:10,14 83:2,7
 83:10,15,20 84:1,3,8
 84:10,10 86:19 87:15
 89:20 91:11 96:21
 97:2,6,10 105:1,4
 110:6 114:15 117:18
 129:14 130:19 131:1
 131:11 132:9 136:6,9
 136:12 147:5 154:19

161:2 169:6,6,7
 171:20
queue 10:21 11:1
quick 37:11 45:11
 49:14 53:21 55:4 58:8
 85:16 86:22 90:20
 96:8,22
quickly 37:22 42:22
 46:6 153:7 154:2
quite 13:18 26:17 72:5
 117:18 148:2
quiz 50:11

R

rainy 103:22
raise 6:9 12:2 168:12
raising 14:15
rally 6:11,17
ran 47:1,5 53:4 54:1
 90:1
range 87:13
ranked 87:8
rapidly 166:6
Raritan 144:13,16
rate 103:20
reach 99:11 100:8
 104:3 143:21 150:15
reached 48:14,22 132:6
read 40:21 80:2 83:21
 93:6 101:22 140:21
reads 118:1
ready 18:6 45:14
real 70:8 71:22 96:22
 121:5,22 168:16
realistic 159:1
reality 124:16
realizing 140:18
reason 16:11 115:14
 168:12
reasonable 34:18 111:1
reasons 47:15 70:1,9
reauthorization 18:4,7
 34:1
Rebecca 58:3 76:9
receive 7:18 32:5,6
 35:4,7 36:3,4 45:13
 49:11 50:4 51:8,14
received 7:2 25:5 26:2
 28:6 30:19 35:11 80:2
recognizable 119:13
recognize 39:12
recognized 80:12
recommend 66:15
 85:14
recommendation 52:8
 65:21 88:11 98:12
 104:6,15 171:17
recommendations 26:3

26:11 36:2
recommended 23:1
 56:17 90:12 95:2
 166:14
reconvene 78:16 79:14
record 62:9 79:16
 172:15
records 39:9
recover 124:6
recreational 29:5,11
red 54:5 55:10 62:17
 86:9,12,14 110:19
redefining 161:10
 162:13
reduct 101:15
reduction 98:8 100:11
 101:12,15
redundant 126:13
reevaluating 141:4
reexamined 75:9
refer 7:5 145:1
reference 87:20 89:19
 91:12 94:1
references 91:13
refined 130:10
reflect 30:11,13 170:17
refresh 82:1
refreshed 113:3
refuges 119:4,18
regard 158:15
regarded 32:18
regarding 10:4 23:10
 76:10 83:2 111:7
 130:19 131:11 143:15
 156:12
regardless 7:10 85:11
 100:18 101:13 137:5
 137:5
regards 18:16
regional 160:16
registered 10:8,14
registration 11:5,10
 83:9 170:15
regs 148:17
regularly 116:20
regulation 102:1 163:3
regulations 23:8 24:15
 24:20 33:6 36:10
 38:16 42:20 59:15
 64:13,16 108:21
 123:18 129:7,10,12
 141:10 165:17
regulators 68:7
regulatory 81:14,17
 122:8 124:22
reintroduced 18:3
reinvent 22:10 33:5
reiterate 70:6

relate 159:2
related 8:13 35:13 36:8
 92:6
relates 167:20
relatively 19:20
release 31:16 50:17
 104:2 105:15 108:19
 114:7
released 45:3 50:14
relevant 53:17
reliability 149:22
rely 71:16 148:5,9
remain 109:10 114:18
remainder 21:5
remaining 33:1 80:2
remarks 3:3,18 12:12
 36:12
remember 15:20 16:16
 47:10 108:12
remind 12:17
reminder 11:1 62:5
reminds 16:15
remotely 17:15
removed 51:21
repair 100:20 101:5
 102:6,9,12 103:3,5,7
 104:10 107:7 162:22
 163:12
repaired 102:17
repairing 107:9
repairs 104:11
repeat 162:10
repeating 118:18
reporter's 18:20
represent 85:7 110:22
 117:8
representative 78:8
 92:22 111:3 113:19
 132:14
representatives 70:13
represented 25:17
representing 70:5
 136:15
represents 85:18
 112:18
repurposing 140:14
request 41:22 43:11
 44:2,18 45:5,16,18
 48:18 49:15,16 51:7
 60:20 61:2
requester's 50:3
requesting 51:12
requests 49:9
require 59:14 66:21
 145:7,7 165:17
required 59:12 76:20
 145:10 146:6
requirement 27:8 44:20

requirements 38:17
 81:17 82:3 168:11
research 104:17 110:3
 132:11 170:19
researching 34:10
reserved 121:10
reside 87:12
resist 109:14
resolve 122:8
resonated 16:14 156:13
resource 19:7 107:2
resources 2:2 24:10
 35:21 36:8 37:13
 39:19 41:10 63:19
 66:12 70:21 92:4
 105:20 106:15 108:15
 109:4 125:20 128:13
 130:2 151:8
respond 5:6 103:21
 161:14
responders 146:21
responding 107:3
response 5:3,5 107:4
 161:8
responsible 58:7 61:17
 73:19
rest 82:19 172:13
restore 129:20
restricted 41:10 43:9
 43:13 145:3
restrooms 9:7
result 52:17 84:5 89:2
resulted 15:22
resume 172:11
resumed 79:16
Rethink 72:4 141:15
 167:13
retire 133:6,12
retreating 109:22
return 46:1 114:4
 171:11
Returning 113:16
review 11:7 45:11 50:21
 53:21 55:4 87:15
 96:21 110:3 118:2
reviewed 171:19
revise 121:17
Reynolds 64:4,5 65:2
 161:4,5 162:12
Rico 46:9,12 51:1,6
 65:7,10,12,14 66:3,4
right-of-way 158:17
rises 109:13
risk 97:15 105:19
river 94:21,22,22,22
 95:1 96:13,19 111:12
 124:5 146:12
riverine 119:1

rivers 33:11 119:5
road 19:12
ROBERTSON 2:5
robust 105:3 125:13
roles 97:19
room 6:15,20 8:11 12:4
 55:21 153:17 172:2
Rotolo 2:1 3:16 125:18
 126:9,10 161:21
round 84:10 130:17
 169:11
route 64:18 65:1
routed 81:9
routes 120:15
routing 66:22 80:15
RSTRENG 103:11
rugged 109:20
rule 76:17 102:11 122:1
 122:2 124:16 125:3,6
 134:12 160:11
rulemaking 20:4 64:18
 64:22 153:18 154:1
rulemakings 168:7
rules 68:9 120:22
 159:16,21 160:2
run 5:21 57:3 132:19
 152:3 168:20
running 33:14 74:11
rupture 99:5,6 103:19
 108:22

S

safe 16:19
safely 6:16
safety 1:3,13,21 2:2 3:2
 4:13,19 13:15 14:22
 16:17 17:4 19:8 20:22
 58:4 64:6 67:5 75:1
 76:10 82:17 106:13
 109:15 116:2,6,10,13
 116:15,18,19,21
 139:10 158:19 161:6
 166:10
Saint 33:15
salinity 112:11
Sam 1:20 5:15 6:14
 78:11 80:1,7 136:8
 158:4 169:6
sample 31:17,20 84:18
sausage-making 14:4
saved 167:7,8
saw 62:16
saying 61:3 103:14
 104:2 139:12 154:5
 161:16 165:4
says 58:22 66:9 76:12
 77:9,12,20 80:10,14
 102:1 146:7 153:8

158:11 160:15
scale 93:18 147:15
 149:11 155:3
scenario 103:18
scenic 119:5
schedule 100:20
scheduling 98:7 100:11
 103:7 107:7 162:18
schemes 124:22
science 107:16 109:10
 115:6 133:8 137:2
 141:18 145:22 146:3
 148:18,18 156:13
 157:2
scientific 102:21
 107:21 109:3 142:1
 154:18 155:9 156:15
 157:1,4
scientifically 122:15
 139:20
scientists 154:16,19
scratching 135:21
screen 11:4
se 1:13 162:2
sea 26:10 137:10
seam 101:2
search 40:7,10
seats 4:4 79:19
seawater 112:11
Seaway 33:16 94:10
second 6:7 8:6 38:5,10
 43:19 59:6 77:19
 78:19 84:10 163:13
 170:22 172:12
secondly 133:2
Secretary 2:4 15:11
 24:7
section 4:16 24:6 53:2
 86:7 121:17
sections 85:20 87:2
sector 22:13
secure 46:3 50:18
security 5:17 13:4
 171:8
seeing 31:20 141:1
 142:5 169:9
seek 92:2,7
seen 71:15 72:7 98:13
 107:18 142:7,8,12,13
 144:11 145:9
sees 75:12
segment 107:10 123:17
 146:7
segments 85:7 86:4
 97:9 152:2
select 12:1 41:15 78:19
selected 93:16 110:13
 110:18

Senate 116:12
send 8:10,19 9:1 10:5
 44:12 45:18 55:18
sending 46:6
sends 49:16
Senior 1:14,16,20
sense 112:17 125:9
 131:13 141:22 164:7
sensing 121:14
sensitive 1:6 17:12
 23:21,22 28:21 29:17
 30:1 39:5 42:16 67:22
 98:17,18 101:19
 105:14,20 106:15
 107:17,19 108:16,17
 115:7 120:2,5,10
 126:14 133:10,16
 137:4,22 138:20
 139:15,21 140:16
 142:9 145:10 151:1
 152:21 156:19 164:4
 168:5
sensitivity 26:19 46:20
 53:9,16 85:2 92:14
 130:6,7 158:13
 161:18
sentiment 131:14
 156:12 169:20
sentiments 156:11
 170:6
separate 93:7 114:19
serious 161:11
serve 141:15
served 116:4
servers 51:20
serves 116:20
service 66:12 153:7
session 8:1 10:18,19
 10:20 11:3,15 21:15
 37:1 56:4 78:15,19
 79:14 147:13 171:12
 171:13
sessions 8:22 9:5
 10:17 11:15
set 6:19 48:5 51:9,18
 53:5 58:22 60:6 83:2
sets 27:6 35:15,16
 38:11
settle 35:21
seven 92:13
shape 6:5 101:14
share 19:5 63:2 71:19
 83:13 134:16
shared 7:17 49:2 70:12
 161:17
sharing 68:14 73:13
 75:8,22 115:22
 169:12

she'll 7:14 31:18
shed 142:2
Sheila 77:20
shelter 5:7,10
shipping 93:1
shore 85:3 111:3,7
shoreline 28:15 30:21
 31:3,5,10,15 53:11,22
 54:10,15,22 56:11,12
 56:15 57:1,4 60:11
 85:2,7,11,19,21 86:4
 86:7,10,11,13,13 87:3
 88:7,10,10,11 89:5,15
 91:14,16 92:13
 109:19 110:14 111:7
 111:9,12 113:11
 130:6,7,8,8 132:15,18
 136:22 137:5,6,18,21
shorelines 85:18 92:17
 110:4 114:6,8 136:20
 137:2
short 19:20
shortly 30:22 45:10
 55:16
show 6:7 7:14 46:19
 50:19 53:13 96:22
 122:16 124:12 155:18
showed 40:16 167:3
showing 23:2 31:18
 57:9 89:11 90:20
 95:10 128:7,17
shows 78:2 93:15 128:4
 128:13
shrinking 21:1
shrubs 112:5
shut 162:20 163:11
side 9:7,9 19:19 21:11
 35:15 83:1 87:11
 112:17 164:9
sighting 81:11
sign 45:22
signed 117:11
silence 10:2
similar 4:20 49:15
 68:14 77:2 103:6
simple 153:1,11,14
 154:9 159:1 169:18
simpler 128:15 159:7
simplicity 156:22
simply 51:2 109:15
 160:15
Sinclair 33:12
single 49:18 50:6 58:22
 89:6 92:11 94:12
 130:3
sit 20:8
sites 102:15 164:5,13
sitting 17:13 50:13

situations 131:15
six 87:4,6 92:9 114:15
 141:6
sixth 123:11
size 58:17 85:8 99:9
 101:13 102:2
skip 1:18 15:1 17:6
 20:14 22:17
slide 93:5
slides 11:1 84:17 93:7
slightly 31:14
slip 14:17
slope 58:14 75:21
 152:5
sloping 100:2
slow 147:16
smaller 52:18 146:12
 149:11
SMEs 22:13
smile 20:15
smiled 15:9
snap 128:16
snapshot 39:11
social 140:2
softer 114:1
soil 58:15 66:8,12,22
 80:9
soils 66:10
Soilworks 160:13
solid 132:21,21
solidly 133:8
somebody 9:18 55:21
somewhat 137:14
soon 5:18 6:2 35:21
 37:18
sorry 4:5,17 20:15
 55:19 59:8 61:14 63:9
 73:22 74:2 139:7,8
 167:20,21
sort 35:5 148:9
sound 54:21 153:14
sounded 153:11
sounds 55:8 110:22
 153:1
source 30:14 42:13
 53:15 65:17 70:22
 77:21 78:8 80:12
 94:12 108:1 116:21
 127:12,13 142:3
 144:6 149:12 151:9
sources 22:22 23:5
 34:11 39:2 42:4,17
 72:11 95:2 106:18
 136:4 148:5,20
 154:12 156:20 164:6
sourcing 75:4
south 6:22 109:21
 132:16

- southern** 55:3 129:5
span 99:8
spatial 39:10 41:5
 156:1
spatialized 40:9
spatially 155:18,18
speak 62:6 63:8,10 67:6
 106:8 114:15 145:16
 153:10
speakers 19:3
speaking 19:13,15
 48:15 74:3
speaks 144:21
specialist 2:1 125:19
 126:6
specialty 97:15
species 24:17,17 52:4,7
 92:6 106:16 107:18
 107:20 112:20 127:6
 127:7 129:18 139:1
 144:10,11,12,14,17
 151:13
species-focused 24:16
specific 27:12 31:22
 48:20 89:3,20 115:2
 149:2,7 151:3 172:5,8
specifically 30:2 37:6
 65:17 73:20 74:6
 96:17 133:14 148:15
speech 16:11
spell 163:3
spent 124:13 145:17
spill 87:9,10 107:4,4
 121:2 122:4 123:14
 123:21 124:4 137:16
 138:5 146:18,19
 152:3,11
Spills 137:8
split 136:20 137:12
spoke 65:3,4
spot 141:3 143:8
 145:20
square 127:20
St 94:6,9,10,19,21,21
 94:22 96:12,13,18
stab 159:22
stabilized 100:21
staff 2:5,5 16:12 19:3
 20:11 152:19 158:18
 169:13
stage 79:20
stakeholders 17:2 20:3
 159:3
standard 154:6
standards 116:7 145:13
standing 16:6 171:4
standpoint 121:5
stands 43:5 108:16
 158:9
stars 87:4
start 11:3 24:3 31:20
 37:11,22 106:9 125:4
 137:10 149:10 171:13
started 48:11 79:21
 84:20 156:1
starting 156:3
state 12:8 24:8 27:12
 40:12 41:18 42:17
 44:22 45:2 48:2,3
 49:11 66:20 68:7,10
 68:11 69:12,14 71:1,3
 71:4 72:11 78:1,7
 80:13 82:5,7,9 87:21
 89:21 90:6 91:4 94:2
 94:7 108:3 111:13
 112:12 113:6,13,20
 113:22 116:19 122:20
 126:3 143:18 147:19
 150:11 164:10
stated 33:22 139:11
states 46:8,11 48:2,7
 50:4 51:11 65:6 68:1
 69:9 132:14 134:11
 155:6
statistic 57:3
statistics 57:11
stay 170:22 171:7
steep 75:21 160:20
step 4:6 17:10 50:16
 121:20
steps 3:18 21:17 35:19
Steve 1:14 4:11 13:16
 14:11 15:8 18:17 53:5
 63:13 64:8,9 106:1
STEVEN 1:16
stole 119:11
stop 66:3 141:3
storm 122:18
story 16:13
straight 111:16
straightforward 148:19
Strategy 3:4
streams 108:6 142:4
 144:7
Street 6:21
stress 44:17
stretch 111:17
stronger 116:18
strongly 11:12 159:3
struggling 25:2
stuck 139:13
studies 80:21
stuff 68:20,21 118:8
 124:12 163:14,18,22
subdivision 98:22
subject 92:15
submerged 87:21
 89:22 90:6 94:2,7
 112:12 113:6,13,21
 114:1
submission 67:3
submit 18:18 21:4
 36:14 66:17 148:6
 151:9,17
submitted 38:21 41:1
 150:1 151:3
submitting 38:18 60:20
subset 29:21
subsistence 159:6
subsistence 121:11
substantial 120:8,12
successful 126:4
 151:12
suffer 114:6,8
suggest 85:8 122:14
suggestions 26:3
summarize 153:6
summer 31:1 44:10
 45:11 49:4 113:4
Superior 33:15 34:22
 94:20 95:13
supervisor 1:17 97:13
 159:17
supply 106:18
support 17:21 26:19
 30:15 82:11 84:18
 93:7 97:1 105:18
 140:5 143:14
supports 154:14
surface 145:18 147:2
surprised 119:22
surrounding 51:11
 143:16
survey 32:17 66:12
surveying 148:1
surveys 66:22
susceptibility 87:13
susceptible 87:9,10,11
suspect 13:5 71:7,8
 77:4 134:17
swamps 87:17 111:20
 129:15
sweep 6:15
synthesizing 35:6
system 19:9 32:13 37:7
 37:14 38:2 39:9 61:12
 112:10 127:11 162:8
systems 43:3 49:22
 105:8 119:2 127:12
-
- T**
-
- table** 21:10 56:1
tables 21:7
tabular 41:5
taken 13:17 70:1 74:21
 109:18 135:5,14,18
 169:16
takes 157:11,11 158:1,1
talk 14:5 16:8 17:21
 21:15 23:16 31:21
 43:19 53:3 83:14 97:8
 98:7,9 131:18,20
 141:2 152:19 154:12
talked 18:17 28:8
 130:20 135:16 141:5
 144:22 171:22
talking 7:8 13:18 21:17
 23:12 25:21,22 26:4
 30:22 34:20 118:13
 141:3,7 145:19 150:4
 157:10 167:14
Tank 38:20
tanker 120:15
tankers 120:18
taps 164:12
tar 138:6
targets 164:1
team 82:16
technical 35:14 88:3
 97:14 116:6 153:4
 166:11
tee 131:2,17 147:6
 152:19
teeing 97:6 136:6
teeth 140:21
tell 46:21 135:2
telling 45:14
tells 137:2
temporary 9:9
ten 166:6
tends 72:11
terms 60:14 65:4 69:17
 71:8 135:9 156:18
 169:15
terrain 100:2,5,7
territory 167:6
terrorist 163:19
test 132:19
tested 111:1
testify 116:11
testing 136:3
tests 132:7 157:11
Texas 71:3 86:18,20
 89:16 90:1,9,18 91:10
 112:14 138:2,4
 165:10
text 84:17 91:15 93:4
thank 13:19,21 14:1,9
 20:13,14 36:11 37:2
 52:7 56:6 59:5 62:9
 62:19 63:13 65:2 67:2
 67:3 72:1 73:15 74:21

76:5,6 78:9,21 80:10
81:2 82:12 83:18 97:5
98:3 104:21 105:22
115:19,21 117:7
125:11,12 130:14,16
136:10 139:3 141:12
145:14 147:4 150:6
152:18 158:4 159:10
159:11 160:22 161:4
161:20 164:22 166:8
169:5,10,12 170:20
172:10
thanked 167:7
thanks 13:16 15:2
20:10 37:4 78:11,12
97:4 106:1,1 135:4
theme 14:5
themes 131:4
thicker 86:10
things 15:5 19:14 25:20
26:14 37:8 74:8 99:4
118:17 119:6,8
121:16 122:12 125:11
131:21 133:22 140:9
140:12 154:7 157:13
164:1,4 168:6 169:17
170:10,16
thinks 121:1
thinner 86:11
third 6:21 69:21
third-party 71:7
thought 83:16 94:13
112:2 120:1 130:22
thoughts 14:14 19:5
131:22 132:1 143:12
threatened 24:16
144:10
threatening 127:7
three 12:12 15:6 16:1
19:12 30:8 39:14 43:1
86:7 112:13,14
117:10 124:14
three-part 58:5
ticking 125:4
tidal 112:4
tie 62:17
tied 76:2 157:13
tiers 104:8
times 27:10 49:2
116:12 142:3 168:13
tired 157:9
today 5:8 13:10 14:1
15:19 17:21 18:21
19:2 20:6,10 34:7
35:4 36:3 37:8 53:13
96:2 106:8,14 121:21
133:10 136:7 138:4
138:22 140:8 141:5

167:11 170:10,13,21
171:20
today's 17:9 22:17
told 16:3
tolerance 101:18
103:15
Tom 56:8
tomorrow 21:6
tool 80:11 101:18
103:14 106:11 109:11
109:16
top 75:7 86:10 100:6
103:15
topic 53:6 83:3 106:8
topics 130:20 156:16
topography 140:16
tortured 119:16 121:8
total 10:7
totally 117:6 138:15
Touching 114:3
towns 127:22
traces 152:6
trade 154:17
traditionally 145:3
tragedy 15:21
training 48:20 50:8,10
61:22
transcribe 18:19
transcript 170:14
transcription 170:6
transmission 38:15
126:7
transparency 143:5
transport 129:4
transportation 1:1 2:4
4:12 15:12 16:19
116:13
Transportation's 116:5
travel 100:4 108:4
traverse 129:18
treat 142:11
treaty 121:10
trees 112:5
tribal 121:10
tributaries 168:20
trip 16:5
troublesome 142:16
true 56:13,14 57:21
71:2 103:4 165:15
truly 69:15
Trust 2:3 58:4 67:5
76:10 116:2
truth 71:21
truthing 80:19,20,20
try 9:4 12:18 22:2 41:4
66:3 99:7 150:11
154:17
trying 9:22 23:18 34:10

53:18 68:13 93:22
114:9 124:15 138:16
140:6 146:13 147:17
155:13 156:2 160:6
tune 122:22
turn 4:5 21:13 63:9
83:12
turned 119:8 120:13,14
Twenty 137:9
two 15:5,6,20 16:3,4
64:7 75:5 76:7 79:14
86:1,6 89:15 99:4,11
111:19 150:6
type 6:1 44:22 85:4,11
92:7 98:5,5 99:13,14
100:8,13 123:15
130:8,9 137:6 149:12
164:16
types 28:18 39:14
40:14 56:12,15 58:14
68:16 109:19 111:3,7
111:7 132:15,18
164:1
typically 111:17 112:1,9

U

U.S 1:1,13 4:12 32:16
42:6,9 91:1,3,7 93:1
105:13 107:13 116:5
116:12
U.S.A 108:10
U.S.C 33:8
ultimately 23:18 33:14
un-injurious 163:5
un-simple 154:2
underlining 106:9
underneath 5:12
110:20
underscore 17:18 20:5
understand 19:22 20:1
22:2,4,12 23:19
100:12 134:1 135:22
158:12 161:16 164:19
168:14 169:19 170:19
understanding 32:1
53:20 102:21 135:10
157:4 169:2
understands 119:7
understood 118:22
122:15 133:8
underway 65:11 168:6
168:8
undisturbed 160:18,19
unfortunately 46:18
67:15 101:7 142:13
United 155:6
unnecessary 101:11
unprotected 112:2
113:15
unscrupulous 161:20
Unsuitable 66:10
untrained 80:22
unusual 98:17,18 142:8
unusually 1:5 17:12
23:21 29:16 30:1 39:4
42:15 105:14 108:16
108:17 120:2,5,10
121:16 126:13 133:10
133:15 137:21 139:15
139:21 140:16 145:10
151:1 152:21
update 3:7 32:12 37:9
43:18 44:4,4 46:7
47:21 48:10 50:22
51:8,14 55:14 60:7,8
updated 45:10 61:11
65:11 115:9 151:3,19
updates 37:16 66:2
78:6 114:14 115:10
151:20
updating 47:18 105:18
upper 163:3
upriver 91:17
upset 101:16,17
upstream 123:7
USA 3:7,11 4:16 7:7
13:9 19:7 24:9 25:15
25:19 26:7,7 27:21
28:4 29:19 30:21 31:4
31:6,12 32:14 33:21
35:20 36:7 42:10,11
42:12 43:17 44:5 45:6
46:19 47:14,22 48:9
50:20 54:2,4,17 55:15
57:13 60:7,8 64:3
65:16 67:16 69:18
70:7 74:21 76:16
80:18 82:19 90:2,7,9
90:19 91:10 92:4,8,12
108:15,16 118:8,12
127:5 130:1,4 137:1
156:19,19 158:17
164:16
USA/HCA 37:14
USAs 24:12,13,14,19
25:1 29:20 30:11
31:16 35:14 37:10
43:9 56:10 102:10
106:16,18 107:17
108:1 112:22 113:2
114:11,13,18,21
115:15 118:19 119:1
119:8,19 120:16
121:22 122:10,16
125:7 126:14,15,22
126:22 127:4 128:19

128:22 138:18 141:18
155:9 161:10 162:13
168:4
USC 94:17
USDOT 4:21
use 22:6 27:14 30:16
33:7 36:14 37:13 43:3
49:19,21 59:7,11,12
60:15 62:22 68:2 69:1
71:11 76:11 88:12
91:4 103:16 107:1
123:8,9 124:9 157:16
165:7
useable 51:22
useful 109:10
useless 166:7
user 41:14 50:15
users 39:14 50:7 51:22
61:9
uses 87:2 141:18 149:1
USGS 34:11,16 87:17
88:21 93:12 95:15
96:16 110:17 154:20
usually 102:8 112:10
Utah 151:13
utilize 104:9

V

validate 45:1
validated 170:2
validation 69:22 149:21
Valley 166:19,21
valuable 73:7 106:11
109:16
valves 164:12
varied 110:4
variety 14:19 29:9
35:11 97:19
various 22:13 52:6
53:13 85:13 92:16,17
131:5 153:21
vary 137:14
vast 54:14 109:18
vegetation 112:6
vendor 71:7
vendors 67:19
verification 45:20 69:4
69:8
verified 49:10
verifies 50:16
verify 45:20 164:21
verifying 50:2
version 96:16 113:2
versions 113:3
versus 98:10 157:4
vetted 41:16
video 11:4 12:5 78:20
video-based 50:10

view 10:14 61:19 74:18
128:15
viewer 39:22 40:1 43:20
46:16 82:13 171:10
viewers 4:9 8:5,19 62:9
66:7,16 76:8 78:10
136:9 158:6
viewing 7:21 8:9 11:3
61:4
views 20:2
villages 127:22
violets 21:1
visible 7:5
visual 143:10
vitality 106:21
voices 153:17
volatile 130:10
volume 4:6 99:5 103:19
voluntary 38:21 41:2
volunteer 5:20

W

wait 5:4 11:22 46:4
wake 139:8
walk 138:4
walking 11:20
wanted 8:4 15:10 30:20
31:2 96:8,21 151:21
152:14 157:16 166:14
wanting 135:21
wants 143:4
warning 140:13
Washington 1:13 15:22
116:9 164:10
watch 78:20
watching 4:10 8:5
10:16,19 12:6 56:4
78:17
water 3:6 24:13 33:14
33:17 34:21 37:10,17
42:11,15 43:9,17 44:5
45:6 46:7,19 47:2,14
47:22 49:4,16 55:15
58:15 64:3 65:5 67:16
67:21 68:21 70:7,15
70:21 77:21 80:11,12
80:14,19,20 81:6,6,20
82:2,6 88:16,20 91:6
91:8,22 93:11,18
95:19,19 96:9 98:17
106:17,18 108:1,2,6
112:18 113:19 114:4
121:6 122:18 124:8
124:10 126:22 127:8
127:12,12 129:2,4,15
145:18,21,22 146:13
147:2 159:4,14,19
164:6 165:16,21

168:5,17
water-based 154:18
water/land 137:3
waters 22:3 24:9 25:12
26:1,5,10 28:4,9,11
29:16 33:11,20 34:4,9
34:18,19 36:7 87:16
87:19,22 88:2,4,6,15
88:15 90:21,22 91:21
92:3,11 94:14 108:15
111:21 112:1,17
113:7,13,14,17
114:17 120:7,14
121:9,19 122:14
123:2,5,7 124:2,7
127:9,11 129:17,22
130:1,5,5 152:8 169:4
watershed 93:12,14,19
99:19 100:1 122:15
122:19 123:1,9,10,14
124:2 141:16,20,21
143:10,13,15 145:5
145:16,17 146:2
147:2,22 151:22
152:8,10,11
watersheds 124:3
143:21 144:3,4
146:14,16 152:1
waterway 42:8 93:2
95:5
waterways 25:8,10
27:20 42:7 57:20
64:11 96:14 98:17
106:21 108:8 127:2
128:3,4,19 131:12
151:14 168:19
wave 112:4
way 6:19,21 12:4 33:15
34:22 47:20,20 56:22
65:22 70:16 73:8 79:6
79:20 86:5 93:21
101:6 112:8 113:9
134:21,22 141:8,9
145:8 149:15 151:7
151:18,18
ways 14:19 23:5 41:5,6
42:22 43:1 68:14
weather 5:8
weaving 54:16
web 10:16 66:7,16 76:8
78:10,17 80:2,3 82:13
83:8 158:6
webcast 4:10 7:21 8:5,9
14:1 17:14 36:13
55:19 56:5 58:3 62:9
136:9 169:7 171:10
172:2
webcasters 161:3

webinar 10:4 11:3 12:6
website 38:9 39:12,15
39:21 41:9 45:7,15
46:14 49:13 55:19
61:10 78:1
WEDNESDAY 1:10
week 16:10 18:5 44:6
47:6 132:9
weeks 19:13
Weimer 2:2 3:15 16:3
67:4,5 68:6,19 116:1
117:3 133:21 150:8
163:13
weird 119:14
welcome 3:2 4:8 15:11
105:21 126:8
welcoming 15:1
well-defined 122:14
well-known 15:14
well-rounded 35:17
went 48:22 67:22 79:16
96:9 142:21 172:15
weren't 56:20 115:13
117:21
west 1:13 15:13 54:19
112:14 117:4
wetland 89:6,8,9,11
wetlands 26:4 28:10
88:19 89:3
whales 144:14,15
wheel 22:10 33:5
white 116:15 128:8
whoops 139:5
wide 35:10,13
wider 8:16 29:9 113:18
widths 111:1
wild 119:5
wilderness 119:3
wildlife 119:4,4,18
129:18
Williams 77:20
willing 5:19 17:1
wish 13:11 110:8
witness 116:13
Wolverine 134:6,22
wonder 67:9 161:18
wondered 161:12
wonderful 141:21
wondering 67:5 167:16
word 75:18
words 14:6 155:21
156:6
work 5:16 19:6 20:13
37:6 76:22 81:8,13
82:9 106:12,20
115:17 135:21 142:20
149:21 150:5 154:20
158:3,14,18 168:17

worked 23:9 105:7
working 13:20 18:14
 20:22 68:12 97:22,22
 106:2 143:20 150:3
works 66:8 80:9 168:2
workshop 117:16 118:5
world 109:14
worms 153:15
worry 123:3
worrying 134:12
worse 130:12
worst-case 99:5 103:18
wouldn't 82:5 101:20
 161:22
wow 120:9
wrap 79:7
wrap-up 169:15
written 18:19 21:4 77:7

X

Y

year 16:6 59:17 76:12
 76:17 166:7
year/five 76:17
years 15:20 16:3,4,8,13
 16:14 20:21 47:18
 59:18 64:1 70:19
 76:13 77:13,15
 105:10 106:3 115:8
 115:14 117:10 122:21
 124:14 126:2 132:5
 133:18,18 141:6
 145:17 152:17 160:6
 163:10 165:8 166:3
yellow 85:17 87:4 93:15
Yellowstone 124:5
young 16:1

Z

zip 40:12
zone 99:12,18 127:4
 128:5,7,17,18,20
 137:11,17 160:16
 165:21
zoned 117:5
zoom 40:4 111:15
zoomed 94:5

O

0.5 101:21

1

1,000 127:20
1:30 171:12 172:12
10 101:22 136:22 165:8
10:00 36:21
10:05 79:11,12,13

10:10 79:17
10:15 78:16,18,22 79:3
100 111:21 166:3
100% 137:21
105 3:14
10F 87:11
11,600 47:8
11:58 172:15
117 3:15
12 1:10 116:17
12:30 7:22
1200 1:13
126 3:16
1268 33:8 94:17
13 126:2
130 3:18
14,000 52:10
140 10:13
15 3:3 111:10 137:12
15- 79:3
17 84:15
172 3:20
18,800 47:2
180 100:15 162:19
19 16:14 24:6
195 77:7 92:15
195.450 98:15
195.6 24:15 77:8
1999 105:11
1A 87:12 110:21
1B 111:6

2

2 10:20 11:3 56:4
2.4 107:12
20 3:4 15:20 16:8,13
 20:21 64:1 88:6 90:11
 106:3 113:17 114:2
 115:7,13 133:17,18
 136:22 137:11,13,16
 152:17 160:6
2001 47:2,16 51:4,5,9
 52:10,16 113:2
 157:19
2007 105:17
2011 18:13 65:14
2014 140:12
2015 97:12 116:14
2016 17:22 18:13 19:8
 24:7 33:22 77:12
 121:14
2017 21:21 23:1,14 25:6
 30:4,19 32:4 53:7,15
 84:7 95:17 117:16
 135:17,20 140:7
2018 30:7,21 31:3,3,6,8
 31:11,16 37:21 48:10
 48:12 50:20 51:8,10

51:13 52:11 54:2,4
 56:10 60:7,8 67:15
 78:5,5 84:16 90:2,7,9
 90:19
2019 1:10 45:6 46:7
 47:6 67:16 135:17
 140:15
20590 1:14
22 57:13
24,000 40:5
25- 78:15
28 70:19
2A 112:12
2B 113:16
2C 113:6

3

3 171:12,13
30 55:5 105:9 137:13
 145:17
32 99:21 100:3
33 33:8 94:17
37 3:7
3A 87:13

4

4 3:2 50:12
42 90:17
43 87:7
48 31:9

5

5 136:21
5,000 165:12
50 4:14 46:8 100:21
 111:10 166:2
50,000 127:19
500 163:9
54 31:14
59 31:9 54:2

6

60 4:15 100:14 162:19
65 54:20
67 91:10
67.2 90:10
6B 87:13

7

71.9 90:13
75 50:11

8

8:30 1:14 4:2
80 3:9
83 3:12
87 10:7

9

9:50 79:16
9000 52:12
911 5:16
98 3:13
99.9 90:5

C E R T I F I C A T E

This is to certify that the foregoing transcript


In the matter of: Great Lakes and Coastal Ecological
Unusually Sensitive Areas

Before: US DOT/PHMSA

Date: 06-12-19

Place: Washington, DC

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